

DESIGN-BUILD PROJECT

US 301 Over Four Hole Swamp

Project ID 0040308
Orangeburg County, SC



Submitted by:



In Association with:



August 15, 2022


Navigation Page

This document includes several links for ease of reference

Blue Bold, Underlined Text

is placed on items with links to various items in the appendix.

In order to return to your **PREVIOUS VIEW**, click **ALT + left arrow**.

You can also set your PDF viewing preferences by following these steps: Click on 1) View 2) Show/Hide 3) Toolbar Items, 4) Show Page Navigation Tools 5) Check "Previous View". A  button will appear on your toolbar and can be used to go directly to your previous view.



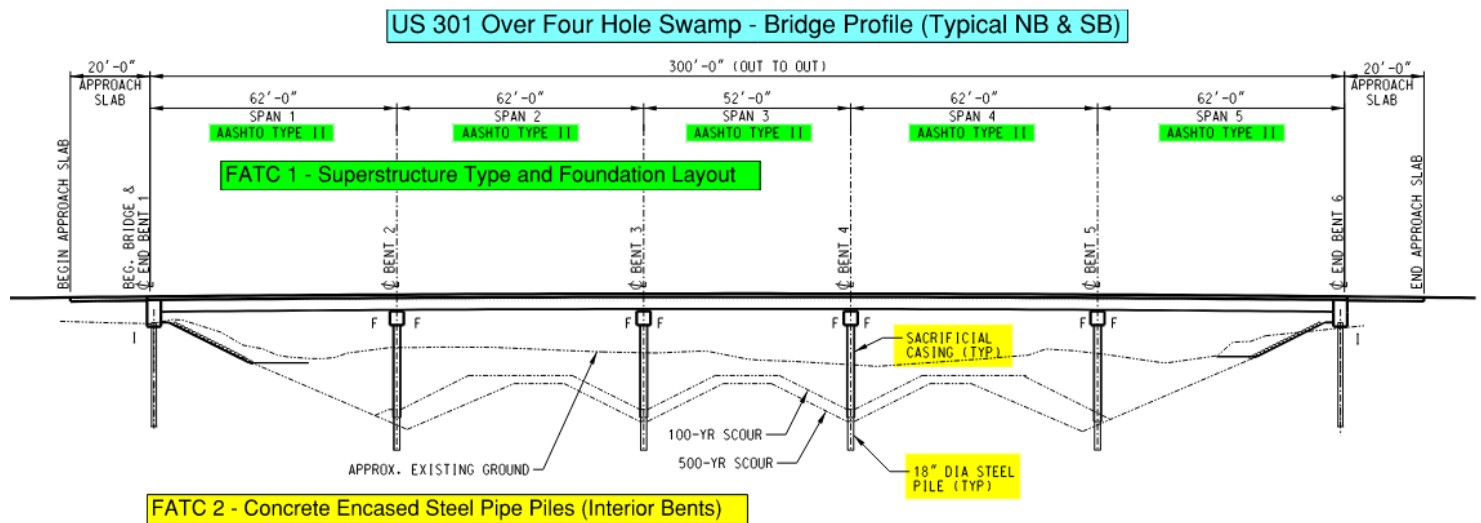
Bookmarks are also set for your convenience.



4.1.1. PROJECT DELIVERY & APPROACH

Featured UIG DB Team Approach

United Infrastructure Group (UIG) is a proven South Carolina Contractor with unmatched Design-Build (DB) experience and resources. The DB Team of UIG and ICE has developed a jointless bridge design by modifying the superstructure type and foundation layout ([FATC 1](#)). This innovative design will benefit SCDOT and the public by reducing construction time and costs. This Team also proposes concrete encased steel pipe piles at interior bents in lieu of prestressed concrete piles ([FATC 2](#)) which will reduce schedule risks and concerns of geotechnical subsurface conditions.



4.1.1.a. Proposed Schedule, Sequence of Construction, and Methods Allowing Reduction in overall Construction Schedule

Figure 4.1.1.a. is a Summary of Project Completion. Our detailed CPM Schedule is included in [Appendix A.4](#).

Work Elements / Year	2022	2023	2024
Bid Opening / Award	◆		
Design (Preliminary, R/W, and RFC Plans)	■	■	
ROW Acquisition		■	
Permitting		■	
Construction		■	■
Roadway Construction (Crossovers and safety improvements)		■	■
SB Bridge (Demolish Existing & Construct New)		■	
NB Bridge (Demolish Existing & Construct New)			■
SUBSTANTIAL COMPLETION – 100 DAYS EARLY			◆
FINAL COMPLETION			◆

Figure 4.1.1.a. Summary of Project Design and Construction Completion Schedule

Methods that will allow reduction in overall construction schedule | UIG will jump start the Project by issuing Design NTP to ICE upon being selected. UIG's construction approach coupled with use of the approved FATCs will result in a completion of the Project within 560 days from NTP. The use of approved [FATC 1](#) and [FATC 2](#) will ensure an expedited construction schedule while reducing overall project risk and schedule risk. In addition to [FATC 1](#) and [FATC 2](#), other methods and techniques for reducing the construction schedule include accelerated procurement of critical materials including lumber, steel piles, and concrete girders. [FATC 1](#) (Concrete Beam Superstructure) reduces the number of interior bents from seven (concept plans) to four, reducing the project schedule accordingly. [FATC 2](#) (Concrete Encased Steel Pipe Pile) reduces pile installation time and provides schedule assurance by eliminating significant installation risk relative to the concept prestressed concrete piles.

4.1.1.b. Approach for Maintaining Traffic while avoiding and minimizing impacts to traveling public.

The DB Team's proposed MOT Plan has been developed with the specific goal of minimizing traffic shifts, temporary lane closures, and limiting construction phases for US 301 Over Four Hole Swamp, and nearby safety improvements. The MOT begins with median crossover construction and selective safety improvements to accommodate traffic shifts. One lane of traffic will remain open in each direction throughout the duration of the project. The first traffic shift will put all traffic on the NB bridge while reconstruction of the SB bridge occurs. Crossovers have been designed to accommodate traffic during all phases with minimal reconstruction between shifts. The proposed MOT approach maintains all required lanes along US 301 NB and SB while widening, median, and bridge work are being performed. MOT phase durations are included on each page of the [Appendix A.2 – Conceptual Maintenance of Traffic Plans](#).

4.1.1.c. Design Submittal process with chart showing deliverable sequence

Before NTP, the DB Team will meet with SCDOT to review the proposed *Design Quality Management Plan (DQMP)*, which will cover the Design Submittal sequencing procedures and a detailed CPM schedule for the Project Design Deliverables per RFP's Exhibit 4z. Upon SCDOT's approval, the Team will continuously monitor the design submittal process with a document control system utilizing *Bluebeam Studio®* Software. This is a proven method used on many design projects in which ICE has been the Lead Designer. The basic bar chart shown in *Figure 4.1.1.c.* summarizes the critical design submittals. Preliminary design and plan production will begin at our own risk immediately after notification of selection as further evidence of our commitment to the timely delivery of our aggressive project delivery schedule.

Design Submittal	2022				2023							
	S	O	N	D	J	F	M	A	M	J	J	A
Design Review Submittal 000												
ROW & Preliminary Roadway Submittal Package												
Preliminary SB Bridge Submittal Package												
Preliminary NB Bridge Submittal Package												
Final Roadway Submittal Package												
Final SB Bridge Submittal Package												
Final NB Bridge Submittal Package												
*Each bridge submittal will be separated by a minimum of 5 business days												
	Production				SCDOT Review				Comment Resolution/ RFC Plans			

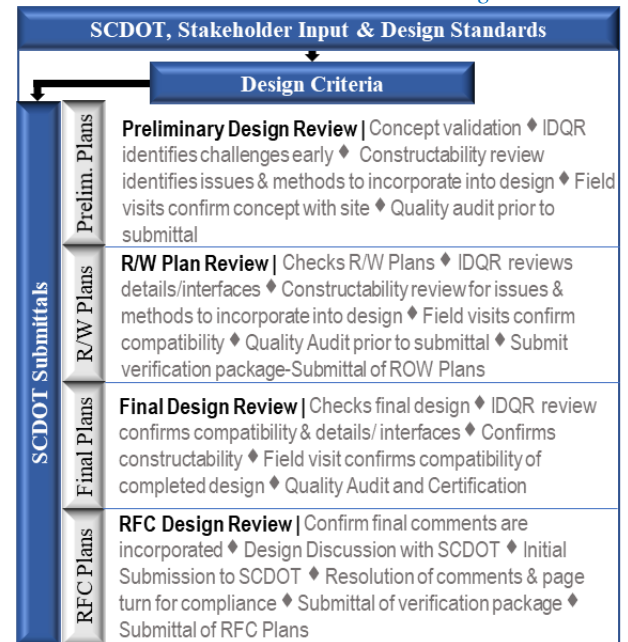
Figure 4.1.1.c. Design Submittal Deliverables

4.1.1.d. Approach to quality control and understanding of quality assurance program.

Roles of DB Team and SCDOT for all aspects of Design and Construction

Figure 4.1.1.d.

Design / We will develop a *Design Quality Management Plan (DQMP)* that includes a two-tier review process. The first-tier reviews are internal peer reviews with other design team members. The second-tier reviews will be conducted by *Independent Design Quality Review (IDQR)* Team not involved with production. These reviews will include checking plans, spreadsheets, calculations, and other software methods or outputs used in the development of the design and construction plans. Our Design Quality Process incorporates a Quality Audit prior to every submittal.



Construction | During construction, the *Construction Quality Management Plan (CQMP)* will serve as a quality control and assurance guide so that all standards are met, policies are followed, and submittals are provided on time. Certified inspection personnel will provide the expertise and technical oversight to apply the CQMP (modeled after our multiple SCDOT DB projects) to all construction activities. QC Manager, Allen Ramsey will confirm sampling and testing is performed in accordance with the schedules presented in the SCDOT *Construction Manual*, ICE's AASHTO Certified Lab is utilized for testing samples, asphalt and concrete mix designs are submitted to SCDOT for approval at least 30 days prior to use, and materials incorporated are produced from SCDOT approved sources with proper certifications. All material certifications and submittals

will be processed through a comprehensive QC review (similar to the design submittal process). Although SCDOT is responsible for all QA inspection, testing and sampling, and independent assurance (IA) to confirm all data, we will facilitate sampling of materials and provide testing schedules and reports from QC personnel to SCDOT QA and IA staff. Should QC results not be validated by SCDOT's verification results, the CQMP Plan includes a defined process to resolve the issue, including an investigation into the cause of the non-conforming material as well as notifying the SCDOT/CEI Team when an NCR (Non-Conformance Report) is issued by the QC Team.

Compliance with Standards, testing, laboratories, mix designs, and material certifications processes

All material certifications and submittals will be processed through a comprehensive QC review (similar to the design submittal process). The CQMP will provide detailed project-specific guidelines to enhance SCDOT's existing policies and procedures. The CQMP will provide meaningful guidance to ensure applicable policies are followed, standards are met, and submittals are delivered on time. All sampling and testing will be properly performed by trained personnel with current SCDOT certifications who will ensure samples are taken at the required frequencies per the CQAP. All incorporated materials will be produced by SCDOT-approved and certified sources. Initial mix designs and any subsequent updated designs for hot-mix asphalt and Portland cement concrete will be submitted to SCDOT for review at least 30 days prior to use.



*QC Team's AASHTO
Accredited Lab Concrete
Compression Testing
Apparatus*

4.1.1.e. Approach to addressing any unique characteristics of the project and mitigating any risk items identified by the proposer.

Of the original four risks from the SOQ, The DB Team has mitigated the risk of *Geotechnical Subsurface Conditions* and *Maintenance of Traffic* through innovated design concepts and approved FATCs. *Geotechnical Subsurface Conditions* heavily influenced the design of both bridges and the development of both approved FATCs. This risk has been greatly mitigated through the incorporation of [FATC 1](#) and [FATC 2](#), which reduces the number of foundations and allows for constructable, cost-effective foundations to be installed with minimal risk. *Maintenance of Traffic* risk has been mitigated through design and construction means and methods. The DB Team proposes to use reverse curves for median crossovers which provides a safe shift of traffic while avoiding impacts to nearby business driveways. UIG will expedite bridge construction to reduce the amount of time traffic is affected. *Wetland and Stream Mitigation* has been mitigated through the DB Team's partnership



with Palustrine Group to facilitate use of the Beidler Forest mitigation bank. The last risk identified in the SOQ was **Market Conditions**, which United is well positioned to mitigate with timely procurement of materials, and availability of labor and equipment resources within the region. Discussion of the four major risks and associated mitigation strategies are described in the table below.

In addition to the four risks identified in the SOQ, the DB Team has identified utility relocations/coordination as a potential risk. Utility coordination will start with execution of the contract to maximize the utility owners' time to plan and implement their relocations as necessary. Activities for high-risk utilities have been included in the proposed [CPM Schedule](#).

CRITICAL ISSUES/ PROBLEMS	POTENTIAL IMPACT	TEAM UIG'S MITIGATION STRATEGIES
RISK #1. WETLAND AND STREAM MITIGATION		
Availability of Compensatory Mitigation	Cost and schedule impact if credits are unavailable resulting in PRMP	<ul style="list-style-type: none"> Utilize Palustrine Group (teaming partner) to facilitate use of the Beidler Forest mitigation bank. Palustrine manages the bank and is currently revising banking instrument to allow the use of credits within the Four Holes Watershed. Monitor other potential banks including Brosnan Forest (including the recently approved Coldwater Branch) for availability of credits. <p><i>USACE & IRT to allow use of banks outside of service area.</i></p>
RISK #2. GEOTECHNICAL SUBSURFACE CONDITIONS		
Presence of liquifiable soils as shown in the project information package Geotechnical Baseline Report	Settlement of the bridge embankment, loss of material and damage to end bents	<ul style="list-style-type: none"> Install earthquake drains at bridge approaches which are a GDM-accepted method for liquefaction mitigation. <p><i>SCDOT to review and provide guidance and development of ground modification design.</i></p>
Concrete displacement piles cannot be driven deep enough into Santee Limestone to satisfy lateral stability.	Failed pile installation or overstressed pile resulting in schedule and quality impacts.	<p>FATC 2 - Concrete Encased Steel Pipe Pile</p> <ul style="list-style-type: none"> Provides installation assurance with no risk of pile damage or installation failure. Much more predictable installation and lateral capacity for seismic conditions. Provides a constructable foundation with corrosion protection that exceeds the design service life of the bridge. Allows pile lengths to be easily adjusted to the highly variable subsurface conditions in order to minimize schedule and cost risks. <p><i>SCDOT to review and provide guidance in development of foundation design</i></p>
Extremely inconsistent subsurface with Loose sand-like and soft clay-like soils below Santee Limestone.	<ul style="list-style-type: none"> Installation of drilled shaft foundations would fail. Drastically increase the complexity, reliability, and predictability of installation of the concrete pile foundations 	

CRITICAL ISSUES/ PROBLEMS	POTENTIAL IMPACT	TEAM UIG'S MITIGATION STRATEGIES
RISK #3. MARKET CONDITIONS		
Labor and Equipment Shortages	Lack of available skilled labor and required equipment could result in inability to complete work efficiently resulting in schedule delays.	<ul style="list-style-type: none"> Development of a robust workforce and strong local backlog of work to support that workforce. UIG has the most extensive bridge construction resources in SC. Mobilize CM Chris Fennell and crews from nearby projects in Berkeley and Florence Counties early next year as Construction NTP approaches. Utilize local equipment/staging yard and forming/fabrication shop at former Carolina Bridge shop/yard in Orangeburg.
Supply Chain Issues and Cost Escalation	Schedule and cost control impacts	Rapid procurement of all materials and subcontractors with immediate initiation of purchase orders and subcontracts. Identification of potential issues and mitigatory measures at time of buyout.
RISK #4. MAINTENANCE OF TRAFFIC		
Crossovers conflict with existing current driveway accesses	Temporary increase in crashes due to introducing new traffic pattern that does not meet driver expectation	<ul style="list-style-type: none"> Police presence the first few weeks to enforce the 35mph speed limit. Utilize reverse curves at crossover locations to prevent interference with the Mountaineer Motel and Campground driveway. MOT Design is designed for 60mph although posted speed will be 35mph during construction.
Minimizing Duration of two-lane patterns	Schedule impacts, traffic safety hazards presented by two-lane patterns	<ul style="list-style-type: none"> FATC 1 reduces number of bents and corresponding construction duration which contributes to the acceleration of bridge construction. FATC 2 steel pile installation is more predictable than concrete piles or drilled shafts and will provide schedule assurance. To the maximum extent practical, perform roadway work concurrently with bridge construction.

4.1.2. INNOVATION AND ADDED VALUE

INNOVATION /	ADDED VALUES / BENEFITS
Means & Methods	
Expedited Schedule and increase in LDs	<ul style="list-style-type: none"> UIG commits to completing construction in 560 days - <u>100 days ahead</u> of 660-day requirement. UIG commits to increasing LDs to <u>\$5,000 for each day</u> for substantial completion from \$3,400 for each day. 
Bridge Features	
Proposed Bridge is Jointless	<ul style="list-style-type: none"> Reduces long-term maintenance and associated costs with joint repair and replacement Improves rideability
Longer spans and less piers in the channel	<ul style="list-style-type: none"> Reduces debris accumulation and removal Reduces effects of scour at bridge substructures
Approach to Project	
Utilize barges for access to bridge demolition and construction	<ul style="list-style-type: none"> Expedites the schedule – Quick mobilization and demobilization Increases safety – Adaptable to fluctuation in water elevation and reduces construction activities Reduces cost – UIG owns a large fleet of barges  <p><i>UIG Barge in Catawba River for SCDOT's SC 9 Bridge Replacement</i></p>

FATCs (USED IN TECHNICAL / COST PROPOSAL)

Innovation / Solution	Added Values / Benefits
FATC 1 Superstructure Type and Foundation Layout	<ul style="list-style-type: none"> Reduces number of interior bents which results in less obstruction in waterway for debris buildup and reduces construction schedule Jointless bridge eliminates future maintenance issues Jointless bridge provides improved seismic performance over the conceptual bridge plan
FATC 2 Concrete Encased Steel Pipe Piles at Interior Bents	<ul style="list-style-type: none"> Provides a foundation system that is constructible in the challenging soil conditions to meet the demands of the scour and seismic design Reduces schedule risk compared to concrete pile installation and provides schedule certainty Sacrificial outer casing, with a useful life longer than the bridge design life, provides improved corrosion protection compared to prestressed concrete piles Eliminates risk for potential damage during pile installation

4.1.2.a. Minimizing impacts to traffic including:

Innovation / Solution	Added Values / Benefit
Traffic Shifts	<ul style="list-style-type: none"> Design and construct crossover that are suitable for both traffic patterns
Temporary Lane Closures	<ul style="list-style-type: none"> Perform rehab work on Indian Camp Branch culvert at the same time as SB bridge demo / construction to reduce required lane closures
Construction Stages	<ul style="list-style-type: none"> Construct both crossovers simultaneously Expedite construction of each bridge site and subsequent shifts/phases reducing the schedule by 100 days

4.1.2.b. Reducing construction duration through use of:

Innovation / Solution	Added Values / Benefit
Materials	<ul style="list-style-type: none"> Utilize higher strength of concrete to accelerate the removal of forms and false work
Designs	<ul style="list-style-type: none"> Reduces quantity of interior bents by lengthening spans (FATC 1)
Construction Methods	<ul style="list-style-type: none"> Planning the work to ensure maximum production while working two headings Designed MOT around placement of crossovers provides staging areas for stock piling critical materials Utilize barges to access bridge demolition and construction activities for rapid mobilization and demobilization

4.1.2.c. Minimizing future maintenance cost/impacts to traffic including:

Innovation / Solution	Added Values / Benefit
Materials	<ul style="list-style-type: none"> Steel + concrete encasement of interior bent piles providing corrosion protection that outlast bridge design life (FATC 2) Beam-type superstructures have more maintenance options to extend their useful life
Designs	<ul style="list-style-type: none"> Jointless bridge eliminates future maintenance issues (FATC 1) Sacrificial outer casing, with a useful life longer than the bridge design life, provides improved corrosion protection compared to prestressed concrete piles (FATC 2)

4.1.2.d. Minimizing environmental impacts

Innovation / Solution	Added Values / Benefit
Designs	<ul style="list-style-type: none"> Minimize impact through the use of 2:1 side slopes Reduce foundations to create less impact than conceptual design
Construction Methods	<ul style="list-style-type: none"> Utilize barges to eliminate the need for temporary fill in wetlands

APPENDIX **A**

Conceptual Plans

A.1 – Roadway Plans



Z:\Projects\22-35 US 301over Four Hole Swamp\Roadway\PLANS\SH1_1.dgn
8/2/2022

INDEX OF SHEETS

SHEET NO.	DESCRIPTION	SHEET
1	TITLE SHEET	1
2	SUMMARY OF ESTIMATED QUANTITIES	OMITTED
3	TYPICAL SECTIONS	1
4	RIGHT OF WAY DATA SHEET	OMITTED
4A	PROPERTY STRIP MAP	OMITTED
5	GENERAL CONSTRUCTION NOTES	OMITTED
5A	REFERENCE DATA SHEET	1
6-6A	PLAN & PROFILE SHEETS	2
TC1	TRAFFIC CONTROL SHEET	OMITTED
PM1	PAVEMENT MARKING & SIGNING SHEETS	OMITTED
EC1	EROSION CONTROL DATA SHEETS	OMITTED
U1	UTILITY PLAN SHEET	OMITTED
X1-X4	CROSS SECTIONS	4

PROPOSED PLANS ORANGEBURG COUNTY U.S.ROUTE 301 (FIVE CHOP ROAD) ROADWAY APPROACHES FOR BRIDGE REPLACEMENT OVER FOUR HOLE SWAMP & ROADWAY SAFETY IMPROVEMENTS



SHEET NO.	TOTAL SHEETS
1	9

NPDES PERMIT INFORMATION	
DISTURBED AREA =	5.0 ACRES
PROJECT AREA =	7.0 ACRES
APPROXIMATE LOCATION OF ROADWAY IS	
BEGIN	
LATITUDE	33° 27'27.57"N
LONGITUDE	80° 38'45.16"W
END	
LATITUDE	33° 27'25.96"N
LONGITUDE	80° 38'57.99"W
Hydraulic and NPDES Design provided by:	
INFRASTRUCTURE CONSULTING & ENGINEERING	

Design Reference for these plans is the:
2001
AASHTO "A Policy on Geometric Design of Highways and Streets"

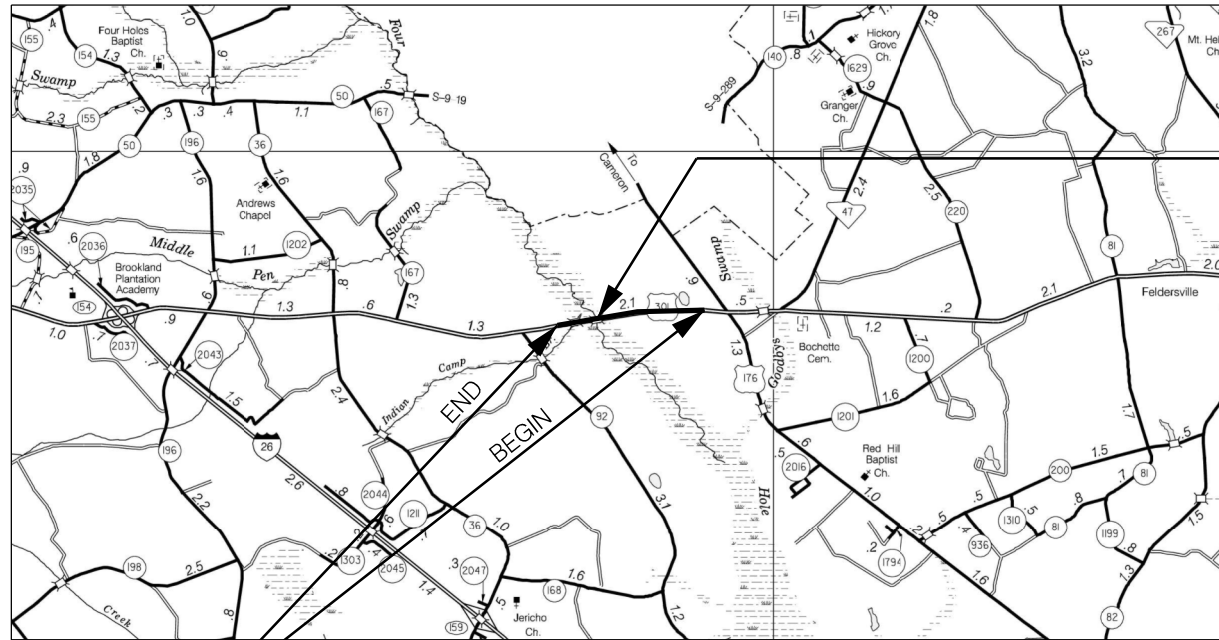
Hydraulic Design Reference for these plans is the:
2009
Edition of SCDOT's "Requirements for Hydraulic Design Studies"

BRIDGE PLANS BOUND UNDER A SEPARATE COVER
--

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 <input checked="" type="radio"/> NO <input type="radio"/>

TRAFFIC DATA	
2022	ADT 10,200 V.P.D.
2042	ADT 15,200 V.P.D.
TRUCKS	13 %



PROJECT: US-301 (FIVE CHOP ROAD)
MP 27.8 TO MP 29.2

PROPOSED PROJECT				
	US-301	SIDE ROADS	TOTAL	
NET LENGTH OF ROADWAY	1.4	-	1.4	MILES
NET LENGTH OF BRIDGES	0.057	-	0.057	MILES
NET LENGTH OF PROJECT	1.457	-	1.457	MILES
LENGTH OF EXCEPTIONS	-	-	-	MILES
GROSS LENGTH OF PROJECT	1.457	-	1.457	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 (2007 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF THE FINAL RFP.

CONSULTING ENGINEERING FIRM
IE
INFRASTRUCTURE CONSULTING & ENGINEERING

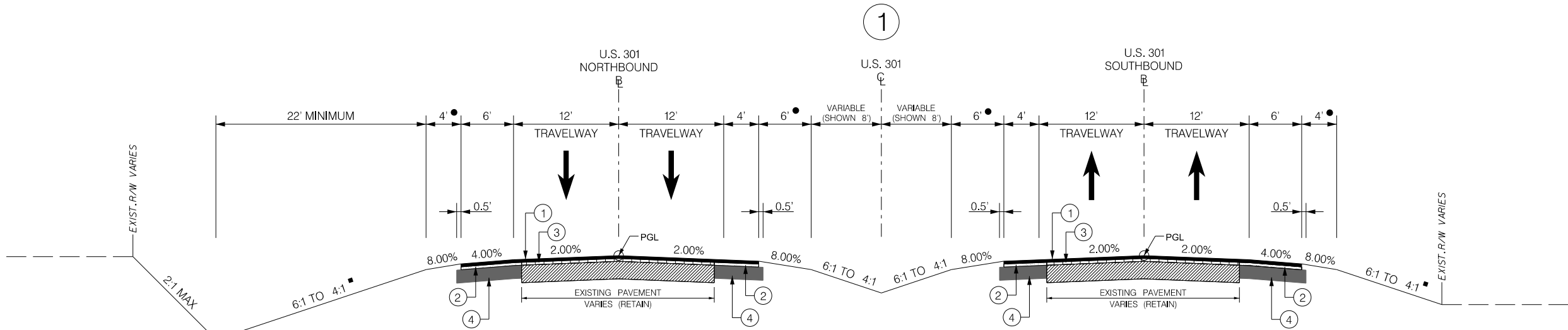
ENGINEER OF RECORD
CONCEPTUAL NOT FOR CONSTRUCTION
FOR CONSTRUCTION : _____
DATE _____

CONSTRUCT DUAL 300' PSC BEAM BRIDGES
STATION 5949+22.50 TO STA. 5952+22.50
(SEE BRIDGE PLANS UNDER SEPERATE COVER)

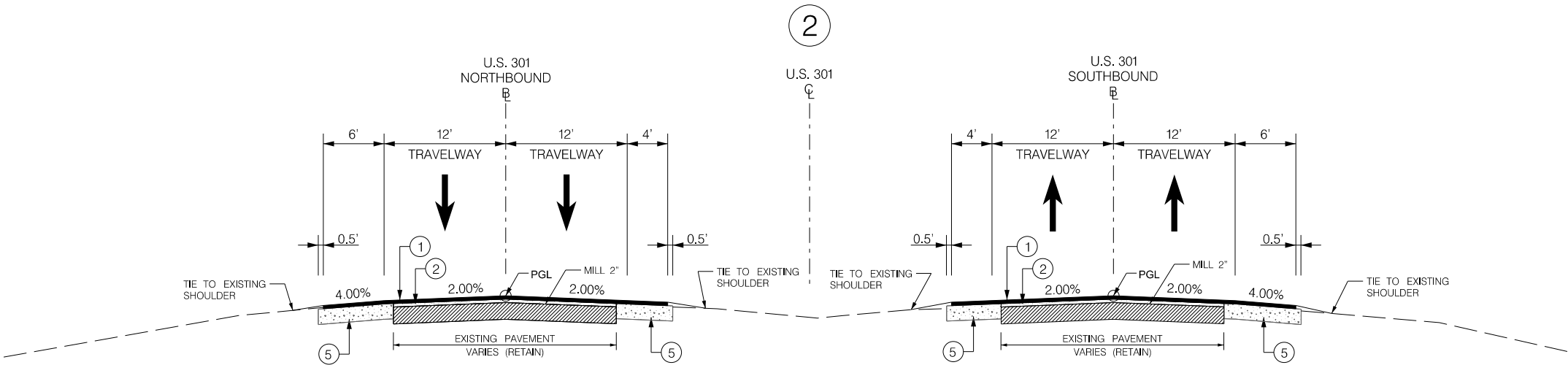
FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD / ROUTE NO.	SHEET NO.
3	SC	ORANGEBURG	0040308	U.S. 301	3

TYPICAL SECTION OF IMPROVEMENT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.

- USE 6:1 SLOPE (0'-5')
4:1 SLOPE (5'-10')
2:1 SLOPE (OVER 10')
- ADD 3.75 WHERE GUARDRAIL IS ERECTED EXCEPT IN AREAS WITH COMPRESSED SHOULDER (SEE STD. DWG. 805-215-00)
- PROVIDE NON-MOW STRIP FOR GUARDRAIL IN ACCORDANCE WITH STD. DWG. 805-525-01



USE THIS SECTION
U.S. 301 (FIVE CHOP ROAD)
STA. 5945 + 45.00 TO STA. 5956 + 07.08 (NB)
STA. 5945 + 27.32 TO STA. 5956 + 09.91 (SB)



USE THIS SECTION
U.S. 301 (FIVE CHOP ROAD)
BETWEEN MP 27.8 AND MP 29.2
NORTHBOUND AND SOUTHBOUND

U.S. 301 DESIGN SPEED: 60 MPH
FUNCTIONAL CLASSIFICATION: RURAL PRINCIPLE ARTERIAL

- 1 HOT MIX ASPHALT SURFACE COURSE TYPE B - 200 LBS. PER S.Y.
- 2 HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B - 200 LBS. PER S.Y.
- 3 VARIABLE HOT MIX ASPHALT FOR BUILDUP (SEE BELOW)
- 4 HOT MIX ASPHALT BASE COURSE TYPE A - 900 LBS. PER S.Y.
- 5 SHOULDER WIDENING MIX - 600 LBS. PER SY.

NOTE:
LIFTS LESS THAN OR EQUAL TO 1.5 INCHES USE HMA SURFACE TYPE E
LIFTS GREATER THAN 1.5 INCHES BUT LESS THAN 3 INCHES USE HMA INTERMEDIATE COURSE TYPE B
LIFTS GREATER THAN 3 INCHES BUT LESS THAN 4.5 INCHES USE HMA BASE COURSE TYPE A



CONCEPTUAL
NOT FOR CONSTRUCTION

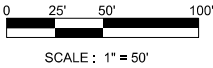
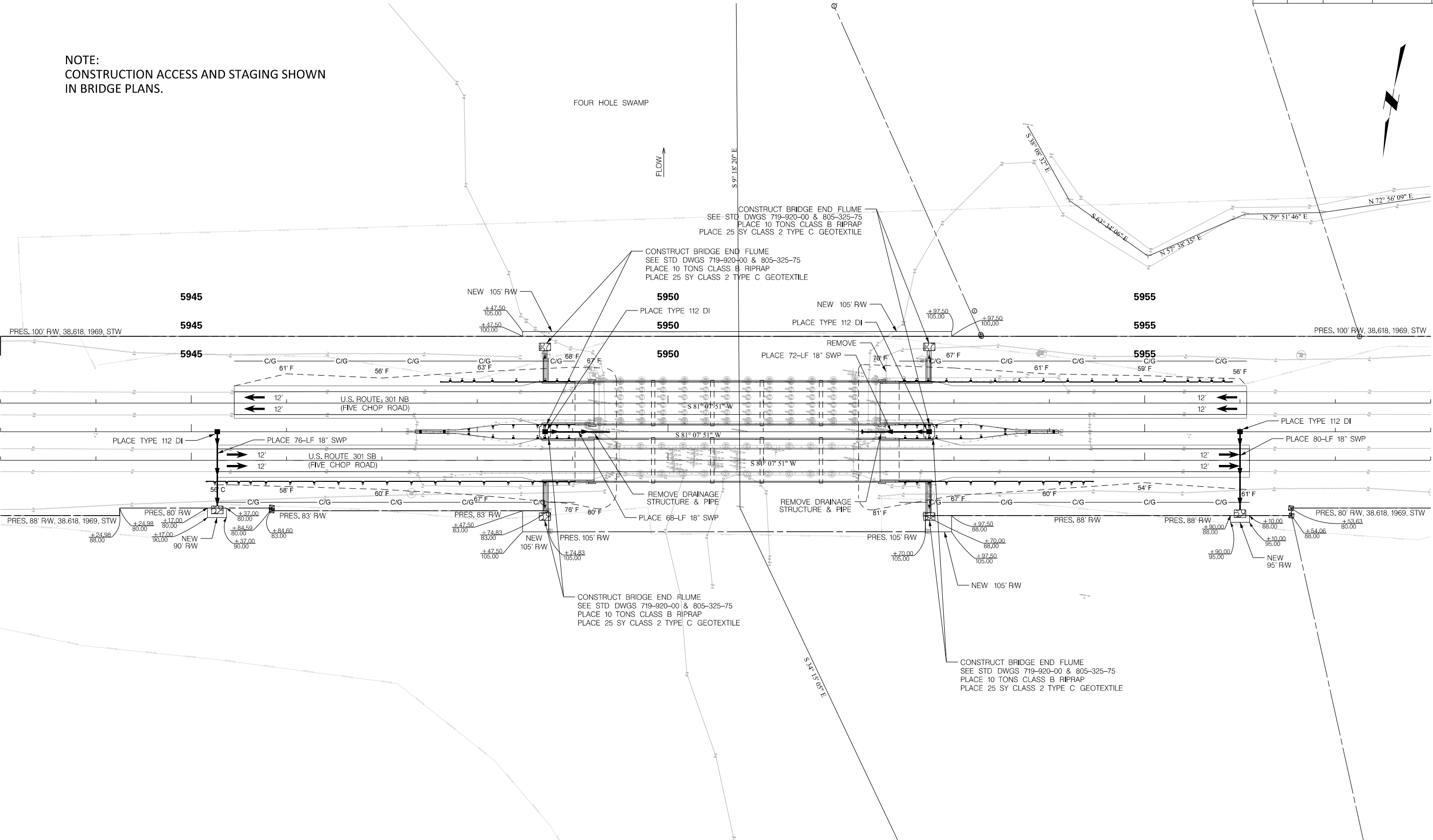
SCALE: NTS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
6			
5			
4			
3			
2			
1			
0			

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
U.S. ROUTE 301 BRIDGE APPROACHES
& SAFETY IMPROVEMENTS
TYPICAL SECTION SHEET

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD / ROUTE NO.	SHEET NO.
3	SC	ORANGEBURG	0040308	U.S. 301	6

NOTE:
CONSTRUCTION ACCESS AND STAGING SHOWN
IN BRIDGE PLANS.



ALIGNMENT CONTROL CAN BE FOUND ON
REFERENCE DATA SHEET 5A



CONCEPTUAL
NOT FOR CONSTRUCTION

SCALE: 1" = 50'

6			
5			
4			
3			
2			
1			
0			
REV. NO.	BY	DATE	DESCRIPTION OF REVISION

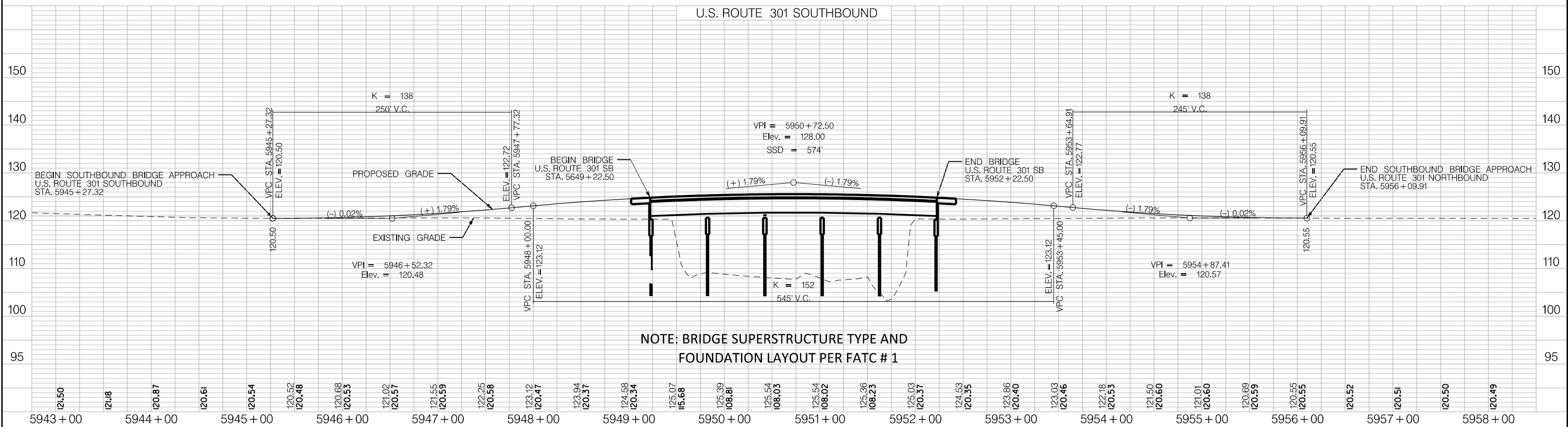
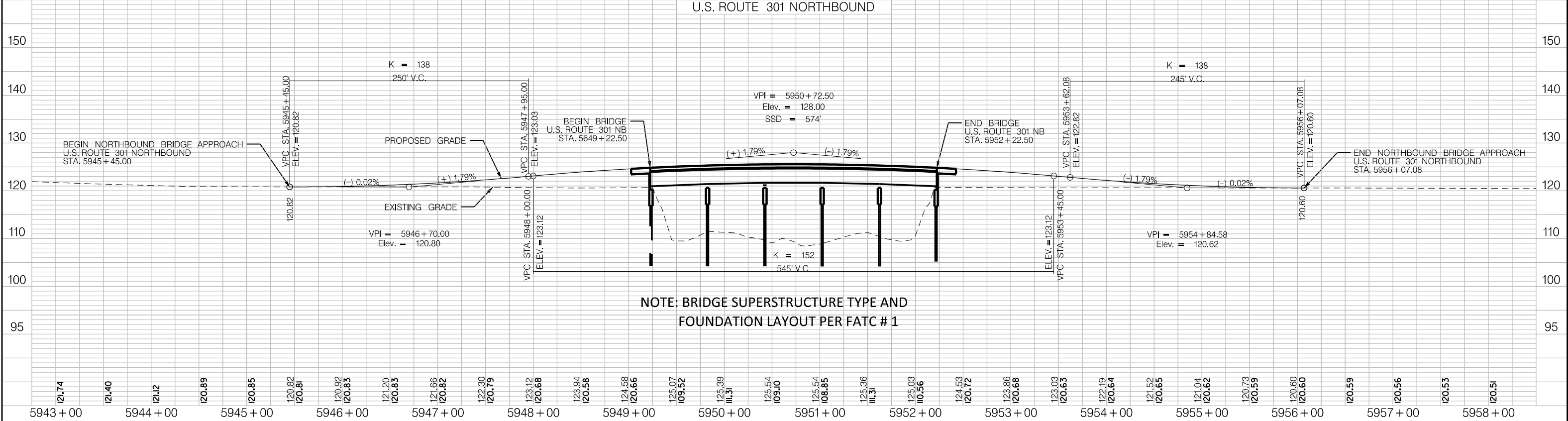
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

U.S. ROUTE 301 BRIDGE REPLACEMENTS
OVER FOUR HOLE SWAMP

PLAN SHEET

Z:\Projects\22-35 US 301 over Four Hole Swamp\Roadway\PLANS\SH1_6A.dgn
8/2/2022

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD / ROUTE NO.	SHEET NO.
3	SC	ORANGEBURG	0040308	U.S. 301	6A



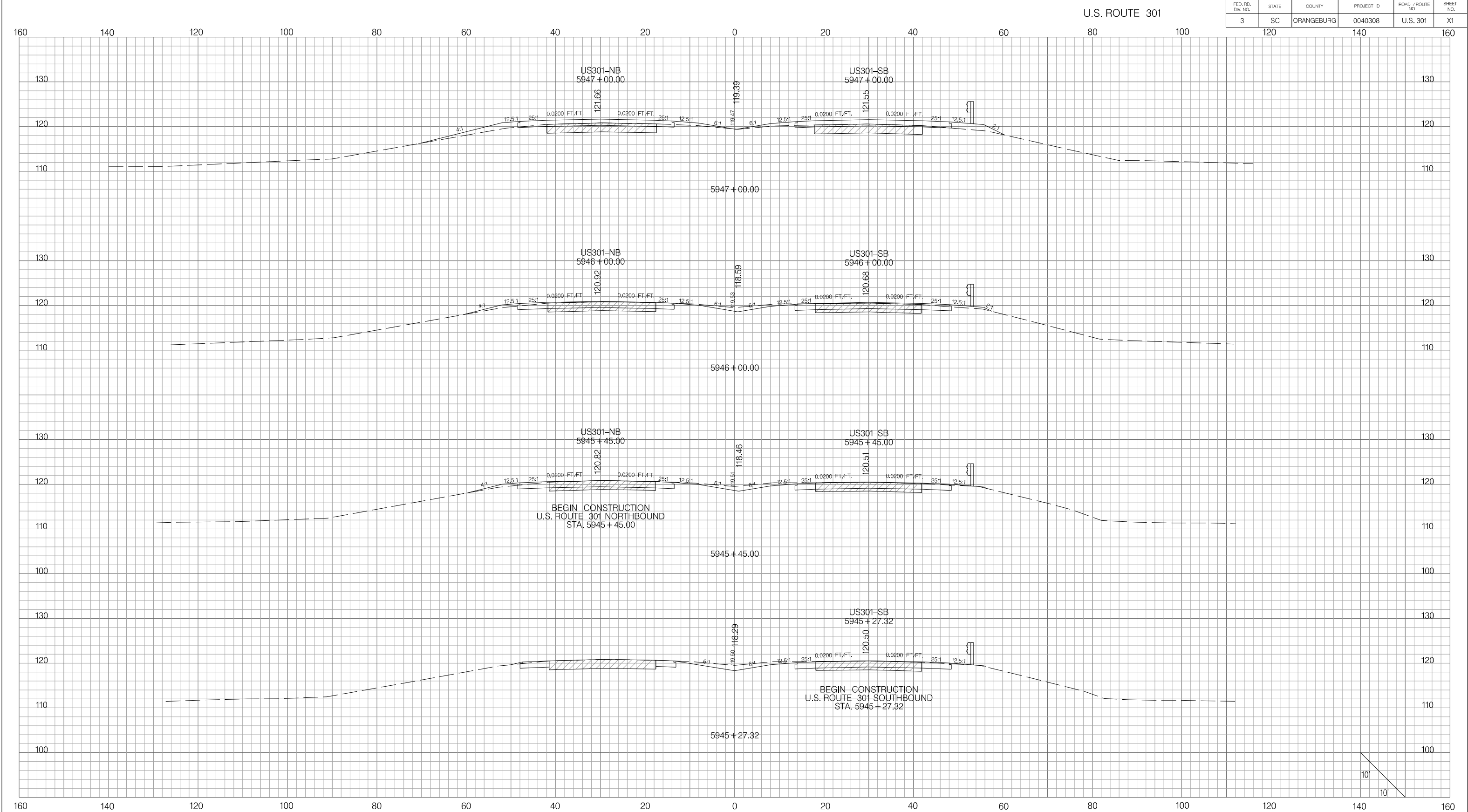
CONCEPTUAL
NOT FOR CONSTRUCTION

SCALE: 1" = 50' HORIZONTAL 1" = 10' VERTICAL

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
6			
5			
4			
3			
2			
1			
0			

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
U.S. ROUTE 301 ROADWAY APPROACHES FOR BRIDGE REPLACEMENT OVER FOUR HOLE SWAMP
PROFILE SHEET

Z:\Projects\22-35 US 301 over Four Hole Swamp\Roadway\DGN\CROSS SECTIONS\22-35_XS_SHEETS.dgn
8/5/2022

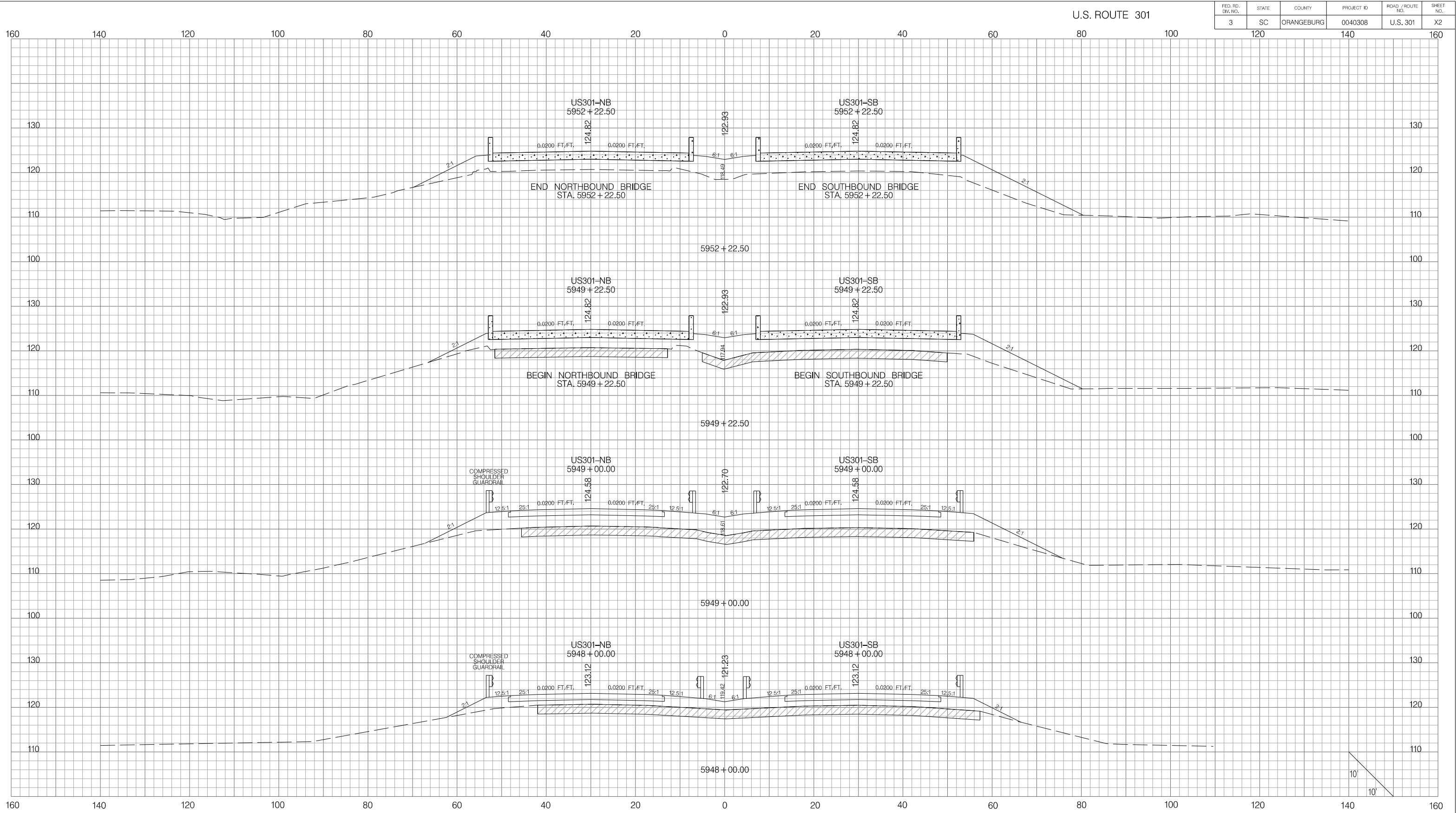


PRELIMINARY
NOT FOR CONSTRUCTION

4			
3			
2			
1			
0			
REV. NO.	BY	DATE	DESCRIPTION OF REVISION

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD / ROUTE NO.	SHEET NO.
3	SC	ORANGEBURG	0040308	U.S. 301	X1
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION			U.S. ROUTE 301 BRIDGE REPLACEMENTS OVER FOUR HOLE SWAMP		
			CROSS SECTION SHEET		

Z:\Projects\22-35 US 301 over Four Hole Swamp\Roadway\DGN\CROSS SECTIONS\22-35_XS_SHEETS.dgn
8/5/2022

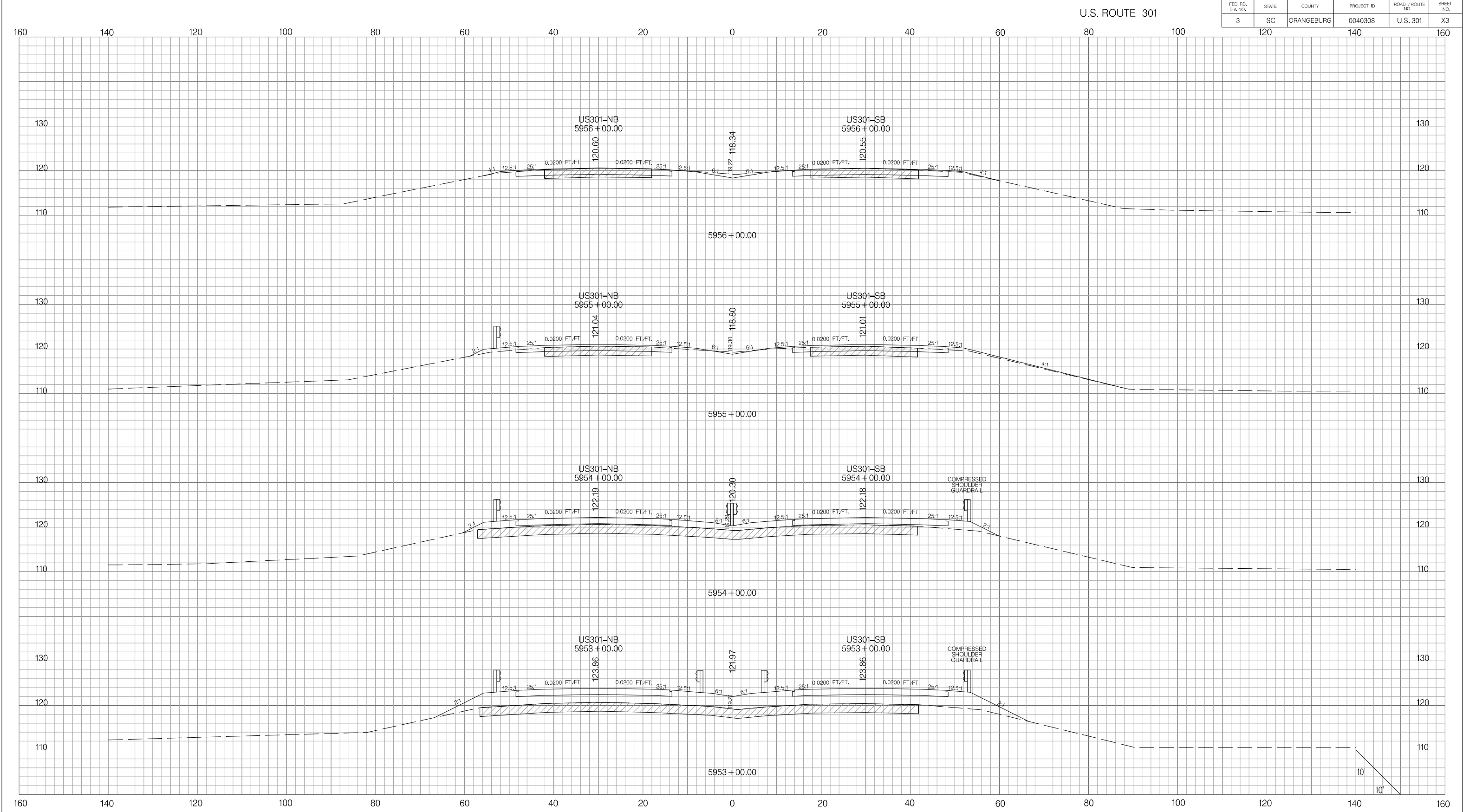


PRELIMINARY
NOT FOR CONSTRUCTION

4			
3			
2			
1			
0			
REV. NO.	BY	DATE	DESCRIPTION OF REVISION

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
U.S. ROUTE 301 BRIDGE REPLACEMENTS OVER FOUR HOLE SWAMP
CROSS SECTION SHEET

Z:\Projects\22-35 US 301 over Four Hole Swamp\Roadway\DGN\CROSS SECTIONS\22-35_XS_SHEETS.dgn
8/5/2022

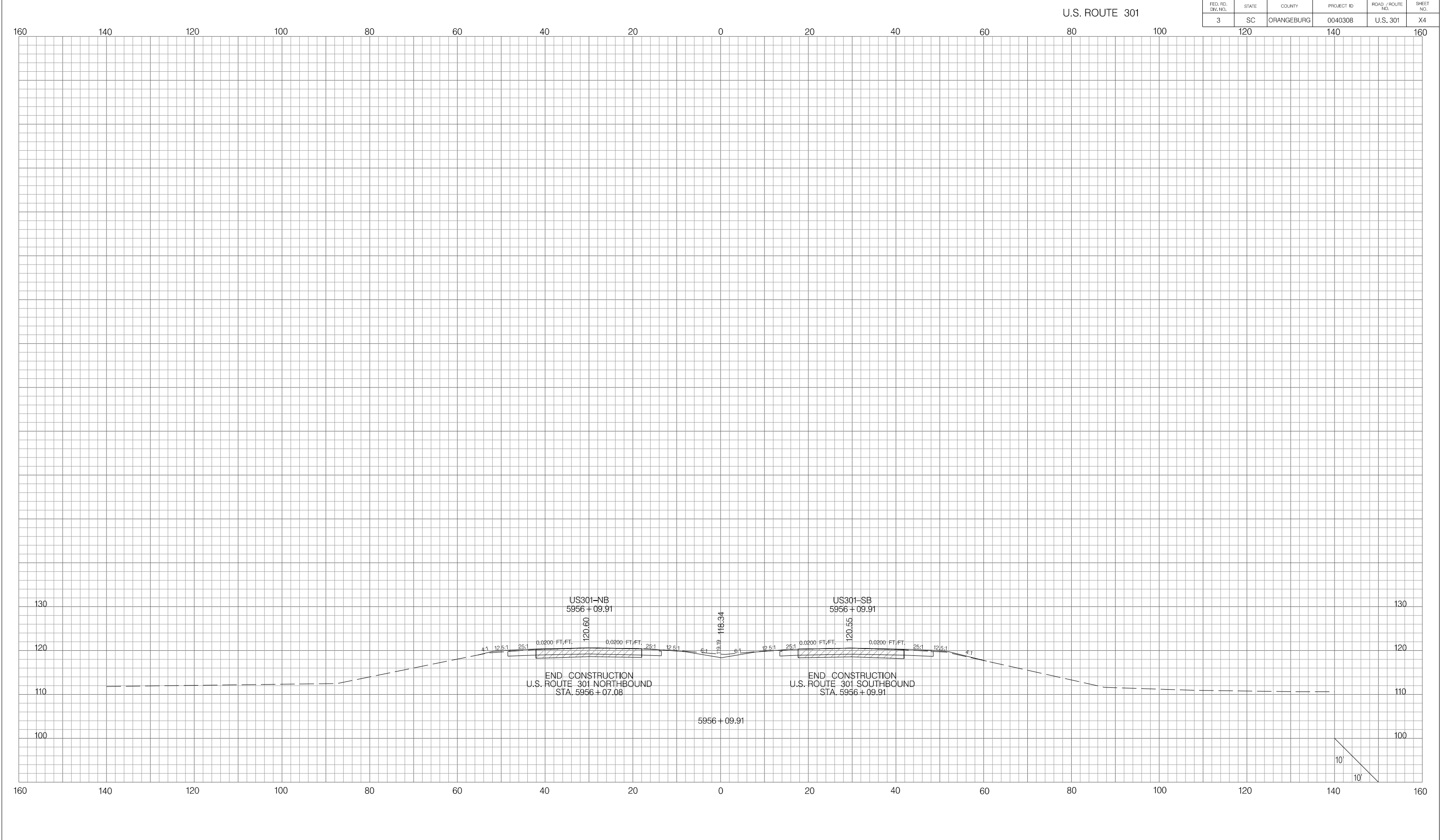


PRELIMINARY
NOT FOR CONSTRUCTION

4			
3			
2			
1			
0			
REV. NO.	BY	DATE	DESCRIPTION OF REVISION

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
U.S. ROUTE 301 BRIDGE REPLACEMENTS OVER FOUR HOLE SWAMP
CROSS SECTION SHEET

Z:\Projects\22-35 US 301 over Four Hole Swamp\Roadway\DGN\CROSS SECTIONS\22-35_XS_SHEETS.dgn
8/5/2022



		PRELIMINARY NOT FOR CONSTRUCTION	4				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
			3				
			2				U.S. ROUTE 301 BRIDGE REPLACEMENTS OVER FOUR HOLE SWAMP
			1				
			0				CROSS SECTION SHEET
			REV. NO.	BY	DATE	DESCRIPTION OF REVISION	

APPENDIX **A**

Conceptual Plans

A.2 – Maintenance of Traffic and / or Documents



Other RFP Requested Data - MOT Plans

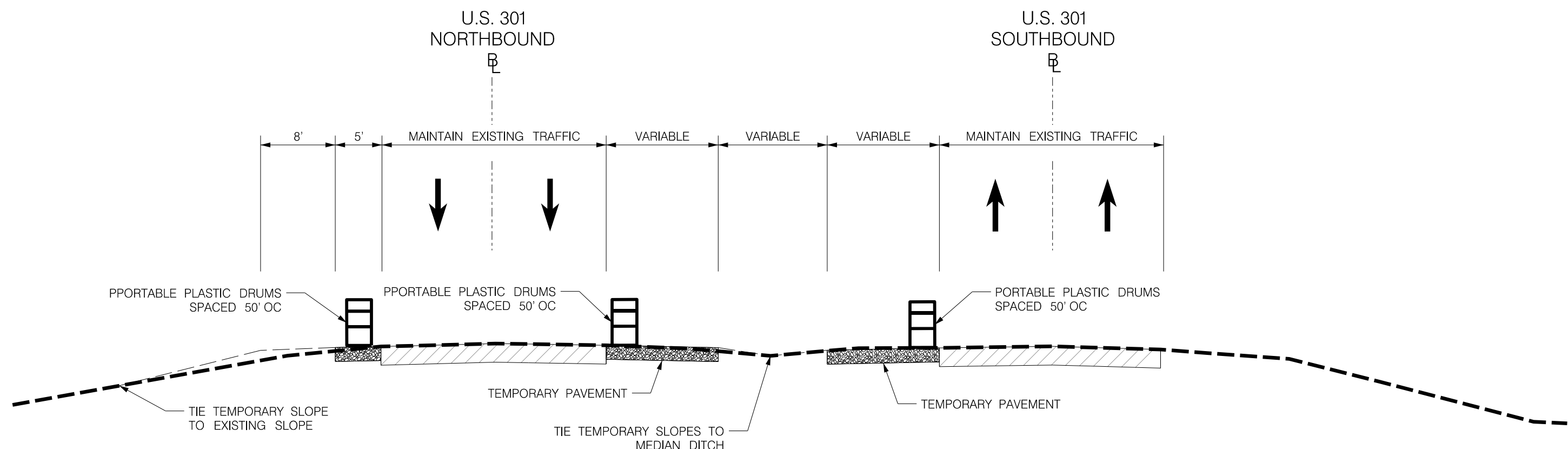
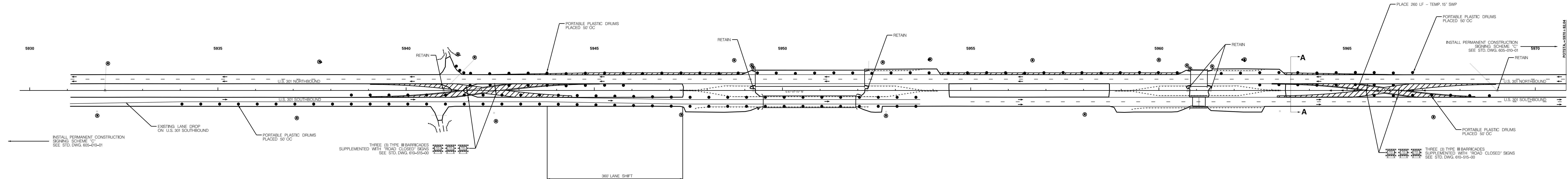
- a. Plan for areas deemed critical by the design team for staging concerns. These areas may require cross sections for more detail. *Material staging areas are shown in the conceptual bridge plans for both the southbound and northbound bridges.*
- b. Plan for access to the median work zone (ingress and egress). *Our plan for accessing the median and bridge construction areas is shown with red arrows as noted in the legend of the Conceptual MOT Plans for Phases 2 and 3.*
- c. Plan for maintaining positive temporary drainage during stages. *Temporary drainage systems are shown in our Conceptual MOT Plans to ensure positive drainage during all phases.*
- d. Plan for notifying the traveling public of upcoming stages. *United's Construction Manager will have constant communication with the Team's Public Information Coordinator (PIC) regarding traffic conditions, alerts, delays, lane closures or any other issues that may impact traffic during construction. For major long-term impacts such as lane shifts, the PIC will inform SCDOT at least 21 days in advance with the exception of emergency situations in which case the SCDOT will be notified immediately. Changeable message signs will be utilized to inform the traveling public of upcoming changes to traffic patterns/MOT phases.*

MOT Phase 1 - Duration = 15 Days

Construct temporary pavement adjacent to the outside lane of Northbound US 301 as illustrated. Install portable plastic drums in accordance with Standard Drawing 601-005-00 "Widening Projects - New Roadway Construction - Primary Routes."

Construct temporary pavement in the median of US 301 as illustrated. Install portable plastic drums in accordance with Standard Drawing 601-005-00 "Widening Projects - New Roadway Construction - Primary Routes."

Prior to entering Phase 2, install temporary concrete barrier supplemented with a portable terminal impact attenuator - Test Level 3 - 60 MPH adjacent to Northbound US 301 as shown in Phase 2 MOT Plan.



SECTION A-A

NOTE:
CONSTRUCT SHOULDER WIDENING AND MEDIAN CROSSOVER PER SCDOT STD. DWG 610-025-00

PHASE 1

LEGEND

- PHASE 1 CONSTRUCTION
- TRAFFIC THIS PHASE
- PORTABLE PLASTIC DRUM

0	100'	200'
ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE DATA SHEET --		
PRELIMINARY NOT FOR CONSTRUCTION		
SCALE: 1" = 100'		
6		
5		
4		
3		
2		
1		
0		
BLVD	BI	ONE
DESCRIPTION OF BRIDGE		
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION		
U.S. 301 BRIDGE REPLACEMENT OVER FOUR HOLE SWAMP		
PHASING /MOT PLAN		

* CROSSOVER CURVE CALCULATION

AASHTO GREENBOOK
EQ. 3-8

$$R_{min} = \frac{V^2}{15(0.01e_{max} + f_{max})}$$

$$V = \text{Design Speed} = 60 \text{ mph}$$

$$e_{max} = \text{Max. Superelevation} = 2.0\%$$

$$f_{max} = \text{Max. Slide Friction Factor} = 0.12$$

$$R_{min} = \frac{60^2}{15(0.01(2.0) + 0.12)} = 1714.29'$$

MOT Phase 2 - Duration = 157 Days

Install long term lane closure in the inside lane of northbound US 301 and shift the outside lane of northbound US 301 as shown in the Phase 2 MOT Plan. Install all advance warning signs, traffic control devices, tapers, and buffer areas of the lane closures as directed by Standard Drawing 610-030-00 "Lane Closure - Nighttime - Multilane Primary Routes."

Install temporary concrete barrier adjacent to the newly relocated northbound US 301 traffic as shown on the Phase 2 MOT Plan.

Reverse the guardrail overlap on the northbound US 301 bridge to match the direction of adjacent relocated southbound traffic.

Shift the southbound US 301 traffic to the new median crossovers and the inside northbound lane as shown on the Phase 2 MOT Plan.

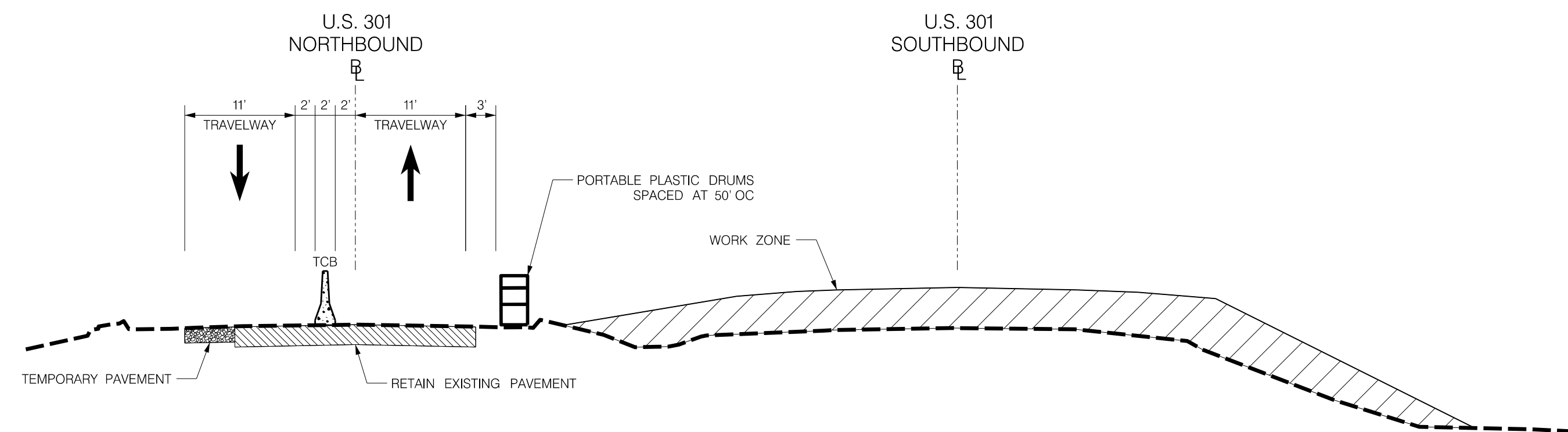
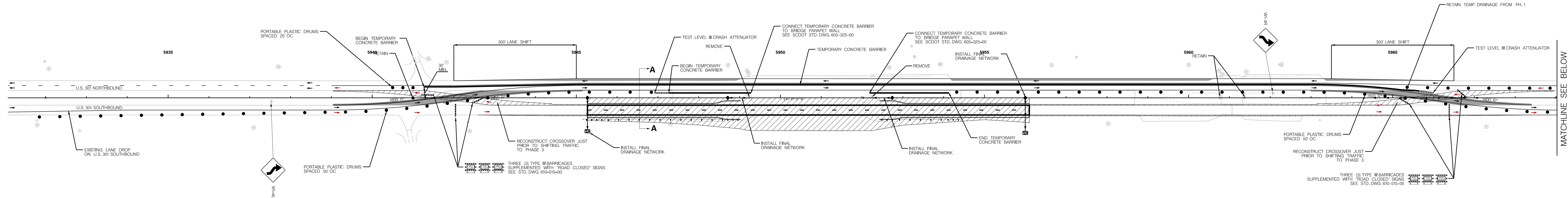
Install temporary concrete barrier supplemented with a portable terminal impact attenuator - Test Level 3 - 60 MPH adjacent to the newly relocated southbound lane of US 301 as shown on the Phase 2 MOT Plan.

Construct the new southbound US 301 Bridge over Four Hole Swamp during this Stage.

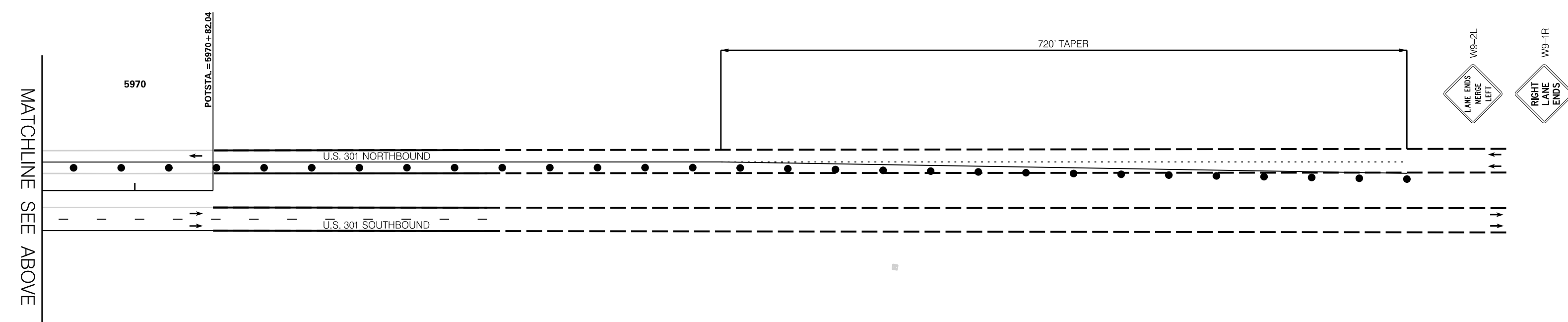
Complete construction of US 301 southbound lanes through the asphalt intermediate course.

Prior to entering Phase 3, install temporary concrete barrier supplemented with a portable terminal impact attenuator - Test Level 3 - 60 MPH adjacent to southbound US 301 as shown in the Phase 3 MOT Plan.

Prior to entering Phase 3, shift southbound US 301 traffic to the outside southbound lane as shown on the Phase 3 MOT Plan.



SECTION A-A



PHASE 2

LEGEND

- PHASE 2 CONSTRUCTION
- PREVIOUS CONSTRUCTION
- PUBLIC TRAFFIC THIS PHASE
- CONSTRUCTION TRAFFIC THIS PHASE
- PORTABLE PLASTIC DRUM

0	100'	200'
ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE DATA SHEET		
PRELIMINARY NOT FOR CONSTRUCTION		
SCALE: 1" = 100'		
6		
5		
4		
3		
2		
1		
0		
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION		
U.S. 301 BRIDGE REPLACEMENT OVER FOUR HOLE SWAMP		
PHASING /MOT PLAN		

* CROSSOVER CURVE CALCULATION

AASHTO GREENBOOK
EQ. 3-8

$$R_{min} = \frac{V^2}{15(0.01e_{max} + f_{max})}$$

$V = \text{Design Speed} = 60 \text{ mph}$

$e_{max} = \text{Max. Superelevation} = 2.0\%$

$f_{max} = \text{Max. Slide Friction Factor} = 0.12$

$$R_{min} = \frac{60^2}{15(0.01(2.0) + 0.12)} = 1714.29'$$

* CROSSOVER CURVE CALCULATION

AASHTO GREENBOOK
EQ. 3-8

$$R_{min} = \frac{V^2}{15(0.01e_{max} + f_{max})}$$

$V = \text{Design Speed} = 60 \text{ mph}$

$e_{max} = \text{Max. Superelevation} = 2.0\%$

$f_{max} = \text{Max. Slide Friction Factor} = 0.12$

$$R_{min} = \frac{60^2}{15(0.01(2.0) + 0.12)} = 1714.29'$$

* CROSSOVER CURVE CALCULATION

AASHTO GREENBOOK
EQ. 3-8

$$R_{min} = \frac{V^2}{15(0.01e_{max} + f_{max})}$$

$V = \text{Design Speed} = 60 \text{ mph}$

$e_{max} = \text{Max. Superelevation} = 2.0\%$

$f_{max} = \text{Max. Slide Friction Factor} = 0.12$

$$R_{min} = \frac{60^2}{15(0.01(2.0) + 0.12)} = 1714.29'$$

* CROSSOVER CURVE CALCULATION

AASHTO GREENBOOK
EQ. 3-8

$$R_{min} = \frac{V^2}{15(0.01e_{max} + f_{max})}$$

$V = \text{Design Speed} = 60 \text{ mph}$

$e_{max} = \text{Max. Superelevation} = 2.0\%$

$f_{max} = \text{Max. Slide Friction Factor} = 0.12$

$$R_{min} = \frac{60^2}{15(0.01(2.0) + 0.12)} = 1714.29'$$

* CROSSOVER CURVE CALCULATION

AASHTO GREENBOOK
EQ. 3-8

$$R_{min} = \frac{V^2}{15(0.01e_{max} + f_{max})}$$

$V = \text{Design Speed} = 60 \text{ mph}$

$e_{max} = \text{Max. Superelevation} = 2.0\%$

$f_{max} = \text{Max. Slide Friction Factor} = 0.12$

$$R_{min} = \frac{60^2}{15(0.01(2.0) + 0.12)} = 1714.29'$$

* CROSSOVER CURVE CALCULATION

AASHTO GREENBOOK
EQ. 3-8

$$R_{min} = \frac{V^2}{15(0.01e_{max} + f_{max})}$$

$V = \text{Design Speed} = 60 \text{ mph}$

$e_{max} = \text{Max. Superelevation} = 2.0\%$

$f_{max} = \text{Max. Slide Friction Factor} = 0.12$

$$R_{min} = \frac{60^2}{15(0.01(2.0) + 0.12)} = 1714.29'$$

* CROSSOVER CURVE CALCULATION

AASHTO GREENBOOK
EQ. 3-8

$$R_{min} = \frac{V^2}{15(0.01e_{max} + f_{max})}$$

$V = \text{Design Speed} = 60 \text{ mph}$

$e_{max} = \text{Max. Superelevation} = 2.0\%$

$f_{max} = \text{Max. Slide Friction Factor} = 0.12$

$$R_{min} = \frac{60^2}{15(0.01(2.0) + 0.12)} = 1714.29'$$

MOT Phase 3 - Duration = 161 Days

After shifting southbound US 301 traffic to the outside southbound lane, adjust the cross slopes of the median crossovers.

Install temporary concrete barrier adjacent to the newly relocated southbound US 301 traffic as shown on the Phase 3 MOT Plan.

Shift the northbound US 301 traffic to the new median crossovers and the inside southbound lane as shown on the Phase 3 MOT Plan.

Install temporary concrete barrier supplemented with a portable terminal impact attenuator – Test Level 3 – 60 MPH adjacent to the newly relocated northbound lane of US 301 as shown on the Phase 3 MOT Plan.

Construct the new northbound US 301 Bridge over Four Hole Swamp during this Stage.

Complete construction of US 301 northbound lanes through the asphalt intermediate course as illustrated.

MOT Phase 3 - Duration = 161 Days

After shifting southbound US 301 traffic to the outside southbound lane, adjust the cross slopes of the median crossovers.

Install temporary concrete barrier adjacent to the newly relocated southbound US 301 traffic as shown on the Phase 3 MOT Plan.

Shift the northbound US 301 traffic to the new median crossovers and the inside southbound lane as shown on the Phase 3 MOT Plan.

Install temporary concrete barrier supplemented with a portable terminal impact attenuator – Test Level 3 – 60 MPH adjacent to the newly relocated northbound lane of US 301 as shown on the Phase 3 MOT Plan.

Construct the new northbound US 301 Bridge over Four Hole Swamp during this Stage.

Complete construction of US 301 northbound lanes through the asphalt intermediate course as illustrated.

MOT Phase 3 - Duration = 161 Days

After shifting southbound US 301 traffic to the outside southbound lane, adjust the cross slopes of the median crossovers.

Install temporary concrete barrier adjacent to the newly relocated southbound US 301 traffic as shown on the Phase 3 MOT Plan.

Shift the northbound US 301 traffic to the new median crossovers and the inside southbound lane as shown on the Phase 3 MOT Plan.

Install temporary concrete barrier supplemented with a portable terminal impact attenuator – Test Level 3 – 60 MPH adjacent to the newly relocated northbound lane of US 301 as shown on the Phase 3 MOT Plan.

Construct the new northbound US 301 Bridge over Four Hole Swamp during this Stage.

Complete construction of US 301 northbound lanes through the asphalt intermediate course as illustrated.

MOT Phase 3 - Duration = 161 Days

After shifting southbound US 301 traffic to the outside southbound lane, adjust the cross slopes of the median crossovers.

Install temporary concrete barrier adjacent to the newly relocated southbound US 301 traffic as shown on the Phase 3 MOT Plan.

Shift the northbound US 301 traffic to the new median crossovers and the inside southbound lane as shown on the Phase 3 MOT Plan.

Install temporary concrete barrier supplemented with a portable terminal impact attenuator – Test Level 3 – 60 MPH adjacent to the newly relocated northbound lane of US 301 as shown on the Phase 3 MOT Plan.

Construct the new northbound US 301 Bridge over Four Hole Swamp during this Stage.

Complete construction of US 301 northbound lanes through the asphalt intermediate course as illustrated.

MOT Phase 3 - Duration = 161 Days

After shifting southbound US 301 traffic to the outside southbound lane, adjust the cross slopes of the median crossovers.

Install temporary concrete barrier adjacent to the newly relocated southbound US 301 traffic as shown on the Phase 3 MOT Plan.

Shift the northbound US 301 traffic to the new median crossovers and the inside southbound lane as shown on the Phase 3 MOT Plan.

Install temporary concrete barrier supplemented with a portable terminal impact attenuator – Test Level 3 – 60 MPH adjacent to the newly relocated northbound lane of US 301 as shown on the Phase 3 MOT Plan.

Construct the new northbound US 301 Bridge over Four Hole Swamp during this Stage.

Complete construction of US 301 northbound lanes through the asphalt intermediate course as illustrated.

MOT Phase 3 - Duration = 161 Days

After shifting southbound US 301 traffic to the outside southbound lane, adjust the cross slopes of the median crossovers.

Install temporary concrete barrier adjacent to the newly relocated southbound US 301 traffic as shown on the Phase 3 MOT Plan.

Shift the northbound US 301 traffic to the new median crossovers and the inside southbound lane as shown on the Phase 3 MOT Plan.

Install temporary concrete barrier supplemented with a portable terminal impact attenuator – Test Level 3 – 60 MPH adjacent to the newly relocated northbound lane of US 301 as shown on the Phase 3 MOT Plan.

Construct the new northbound US 301 Bridge over Four Hole Swamp during this Stage.

Complete construction of US 301 northbound lanes through the asphalt intermediate course as illustrated.

MOT Phase 3 - Duration = 161 Days

After shifting southbound US 301 traffic to the outside southbound lane, adjust the cross slopes of the median crossovers.

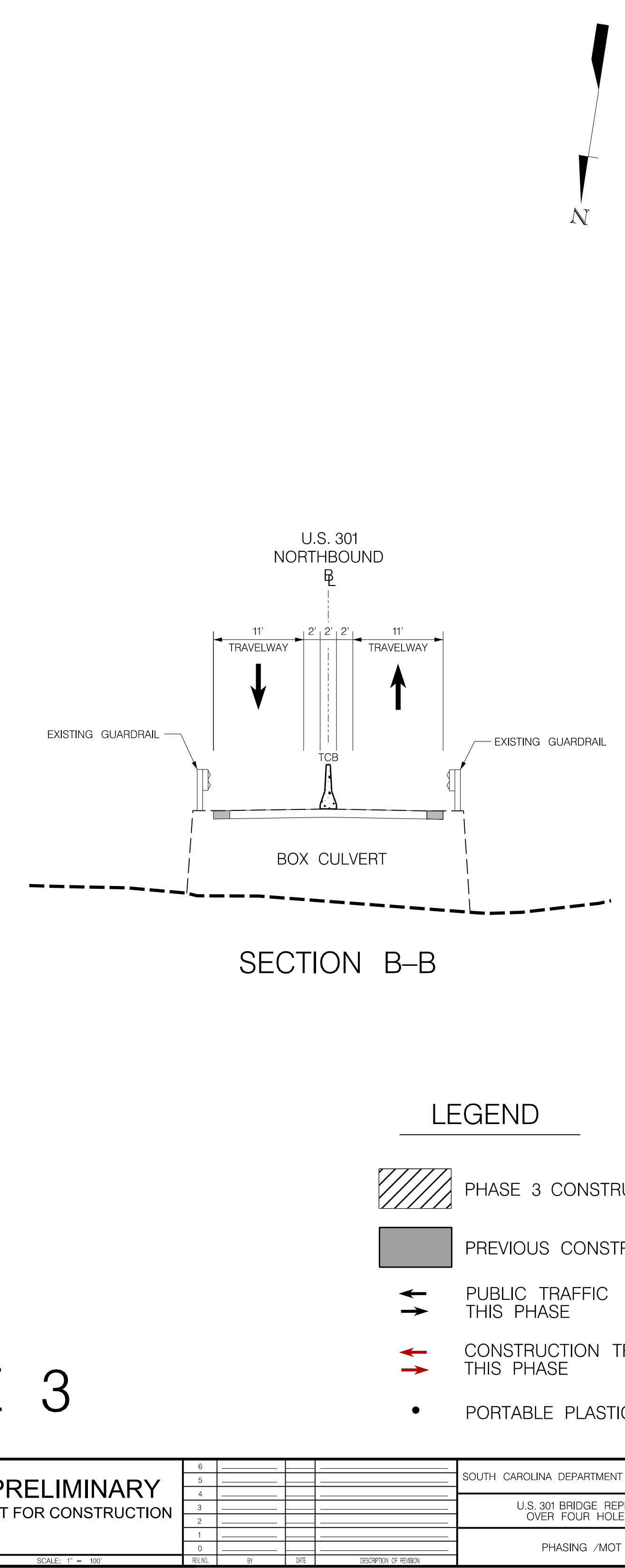
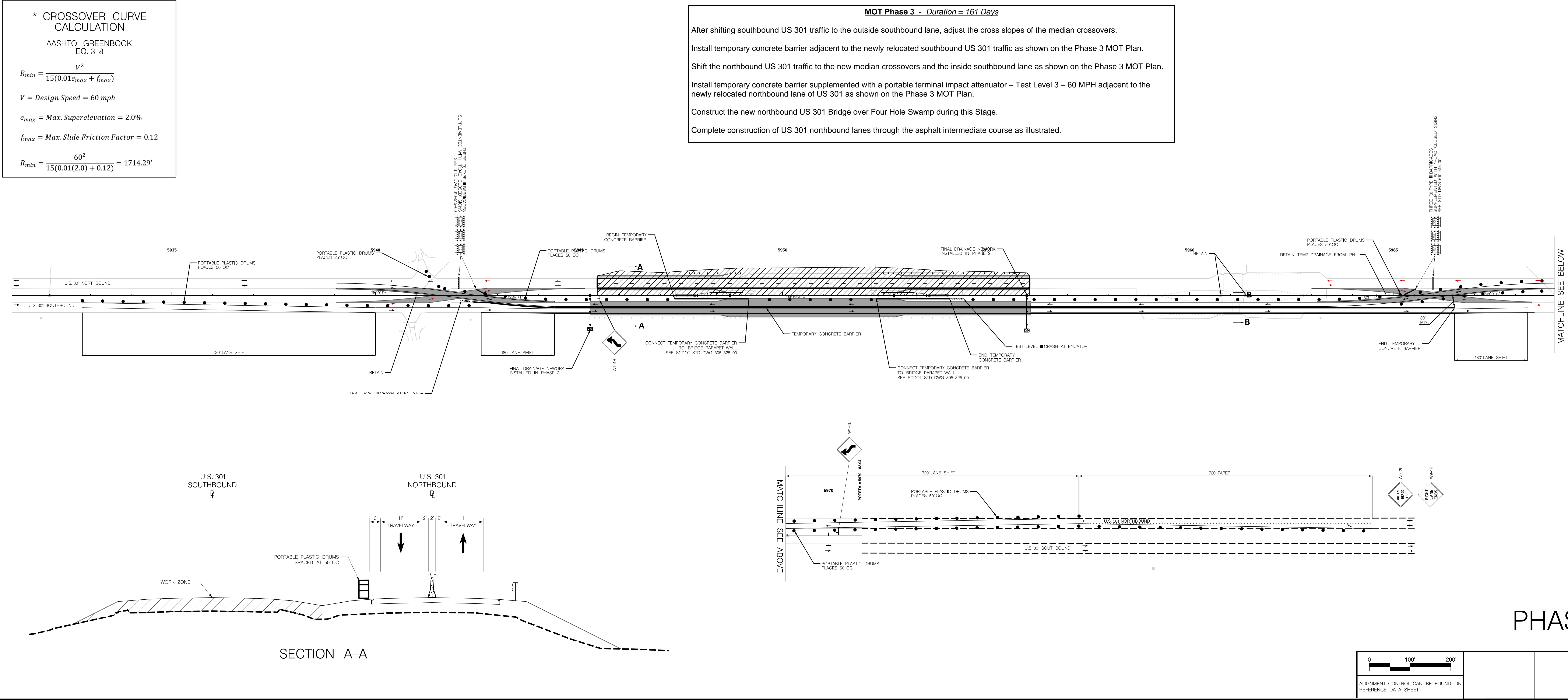
Install temporary concrete barrier adjacent to the newly relocated southbound US 301 traffic as shown on the Phase 3 MOT Plan.

Shift the northbound US 301 traffic to the new median crossovers and the inside southbound lane as shown on the Phase 3 MOT Plan.

Install temporary concrete barrier supplemented with a portable terminal impact attenuator – Test Level 3 – 60 MPH adjacent to the newly relocated northbound lane of US 301 as shown on the Phase 3 MOT Plan.

Construct the new northbound US 301 Bridge over Four Hole Swamp during this Stage.

Complete construction of US 301 northbound lanes through the asphalt intermediate course as illustrated.



SECTION B-B

U.S. 301 NORTHBOUND

EXISTING GUARDRAIL

TRAVELWAY 11'

2' 2'

TCB

BOX CULVERT

LEGEND

- PHASE 3 CONSTRUCTION
- PREVIOUS CONSTRUCTION
- PUBLIC TRAFFIC THIS PHASE
- CONSTRUCTION TRAFFIC THIS PHASE
- PORTABLE PLASTIC

SECTION B-B

U.S. 301 NORTHBOUND

EXISTING GUARDRAIL

TRAVELWAY 11'

2' 2'

TCB

BOX CULVERT

LEGEND

- PHASE 3 CONSTRUCTION
- PREVIOUS CONSTRUCTION
- PUBLIC TRAFFIC THIS PHASE
- CONSTRUCTION TRAFFIC THIS PHASE
- PORTABLE PLASTIC

- SECTION B-B**

U.S. 301 NORTHBOUND

EXISTING GUARDRAIL

TRAVELWAY 11'

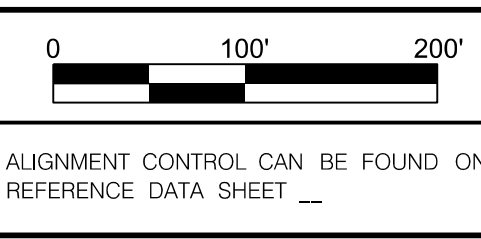
2' 2'

TCB

BOX CULVERT

LEGEND

 - PHASE 3 CONSTRUCTION
 - PREVIOUS CONSTRUCTION
 - PUBLIC TRAFFIC THIS PHASE
 - CONSTRUCTION TRAFFIC THIS PHASE
 - PORTABLE PLASTIC



0 100' 200'

ALIGNMENT CONTROL CAN BE FOUND ON
REFERENCE DATA SHEET __

			<p>PRELIMINARY NOT FOR CONSTRUCTION</p>	
<p>ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE DATA SHEET ___</p>				<p>SCALE: 1" = 100'</p>

			<p>PRELIMINARY NOT FOR CONSTRUCTION</p>	
<p>ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE DATA SHEET ___</p>				<p>SCALE: 1" = 100'</p>

6			
5			
4			
3			
2			
1			
0			
REV. NO.	BY	DATE	DESCRIPTION OF REVISION

6				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
5				
4				U.S. 301 BRIDGE REPLACEMENT OVER FOUR HOLE SWAMP
3				
2				PHASING /MOT PLAN
1				
0				
REVISION	BY	DATE	DESCRIPTION OF REVISION	

6				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
5				
4				U.S. 301 BRIDGE REPLACEMENT OVER FOUR HOLE SWAMP
3				
2				PHASING /MOT PLAN
1				
0				
REVISION	BY	DATE	DESCRIPTION OF REVISION	

6				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
5				
4				U.S. 301 BRIDGE REPLACEMENT OVER FOUR HOLE SWAMP
3				
2				PHASING /MOT PLAN
1				
0				
REVISION	BY	DATE	DESCRIPTION OF REVISION	

Z:\Projects\13125 US 301\Drawings\13125 US 301\Drawings\13125 US 301\Phase4\13125 US 301\Phase4.dwg
8/2/2022

MOT Phase 4 - Duration = 19 Days

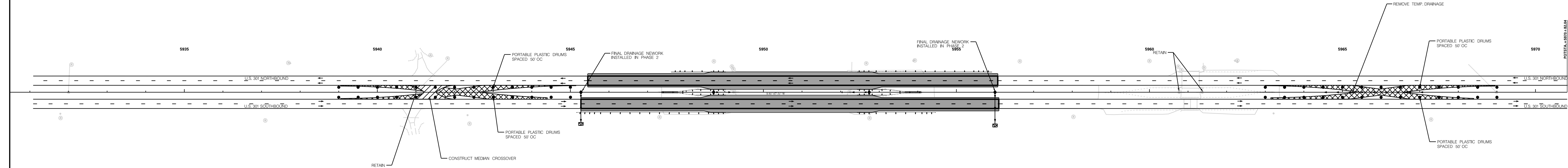
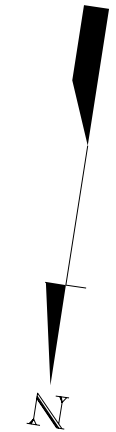
Shift northbound US 301 traffic to the newly constructed northbound lanes as shown on the Phase 4 MOT Plan.

Reverse the guardrail overlap on the southbound US 301 bridge inside lane to match the direction of southbound traffic.

Remove temporary concrete barrier, attenuators and lane closures.

Complete the asphalt surface course, pavement markings and raised pavement markers.

Remove temporary median crossovers and construct permanent median crossover. Install portable plastic drums in accordance with Standard Drawing 601-005-00 "Widening Projects - New Roadway Construction - Primary Routes."



NOTE:
PERFORM PAVEMENT REMOVAL AND CONSTRUCT MEDIAN CROSSOVER
CROSSOVER PER SCDOT STD. DWG 610-025-00

PHASE 4

LEGEND

- CONSTRUCTION THIS PHASE
- PAVEMENT REMOVAL
- PREVIOUS CONSTRUCTION
- TRAFFIC THIS PHASE
- PORTABLE PLASTIC DRUM

0	100'	200'
ALIGNMENT CONTROL CAN BE FOUND ON REFERENCE DATA SHEET __		
PRELIMINARY NOT FOR CONSTRUCTION		
SCALE: 1" = 100'		
6		
5		
4		
3		
2		
1		
0		
REVISION	BY	DATE
DESCRIPTION OF REVISION		
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION		
U.S. 301 BRIDGE REPLACEMENT OVER FOUR HOLE SWAMP		
PHASING /MOT PLAN		

APPENDIX **A**

Conceptual Plans

A.3 – Bridge Plans





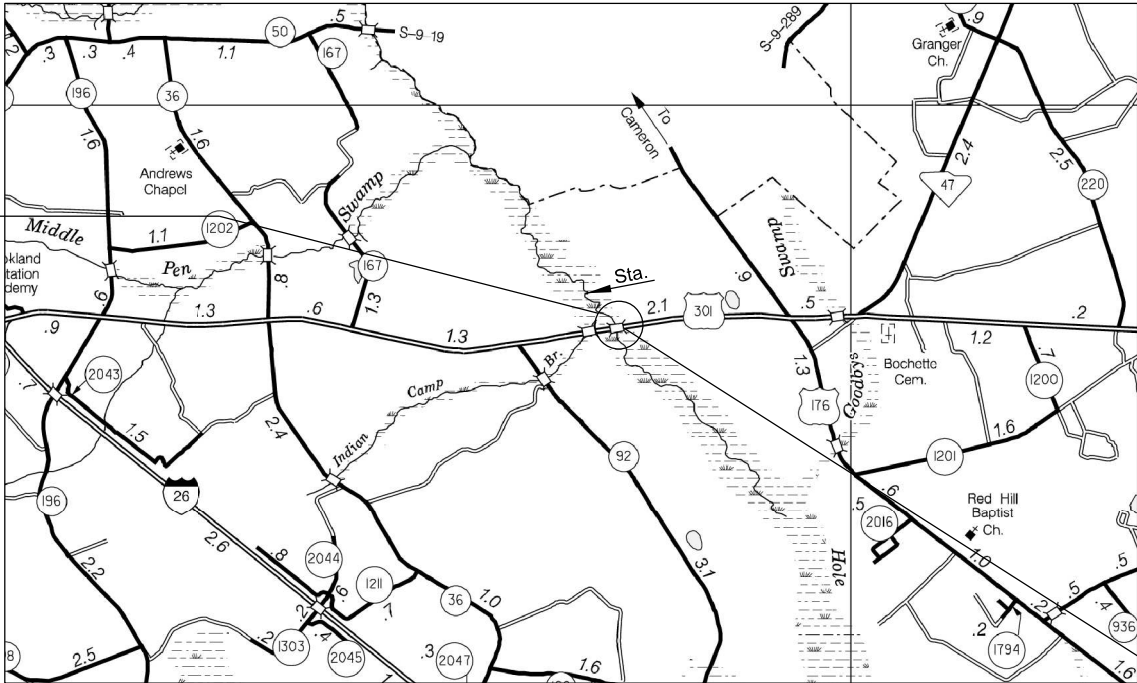
South Carolina Department of Transportation



PROPOSED PLANS
FOR
ORANGEBURG COUNTY
PROJECT ID 0040308
U.S.ROUTE 301 (FIVE CHOP ROAD)
REPLACE DUAL BRIDGES OVER FOUR HOLE SWAMP

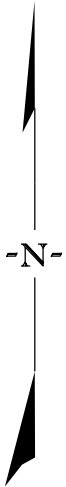
INDEX OF SHEETS

- 1. TITLE SHEET
- 2. BRIDGE PLAN AND PROFILE (NB)
- 3. BRIDGE PLAN AND PROFILE (SB)
- 4. TYPICAL SECTION
- 5. PIPE PILE DETAILS
- 6. CONSTRUCTION ACCESS (SB)
- 7. CONSTRUCTION ACCESS (NB)



SITE LOCATION

Approximate Location of Bridge is
Latitude 33°-27'-27"
Longitude 80°-38'-52"



CONSTRUCT DUAL BRIDGES
STA. 5949+22.50 TO STA. 5952+22.50

LAYOUT

NET LENGTH OF ROADWAY	0.000	MILES
NET LENGTH OF BRIDGES	0.113	MILES
NET LENGTH OF PROJECT	0.113	MILES
LENGTH OF EXCEPTIONS	0.000	MILES
GROSS LENGTH OF PROJECT	0.113	MILES

NOTE: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP ON THIS PROJECT SHALL CONFORM TO THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF THE FINAL RFP.

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 (NB) TBD
ASSET ID (SB) TBD

TRAFFIC DATA			
2022	ADT	10,200	V.P.D.
2042	ADT	15,200	V.P.D.
TRUCKS		13	%



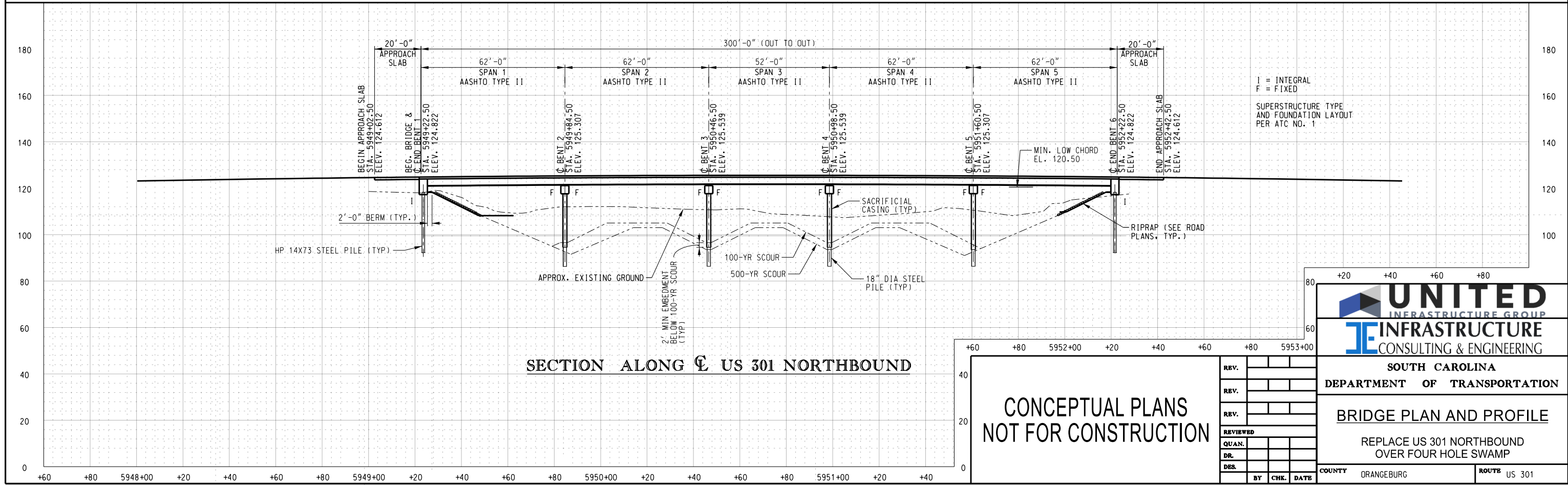
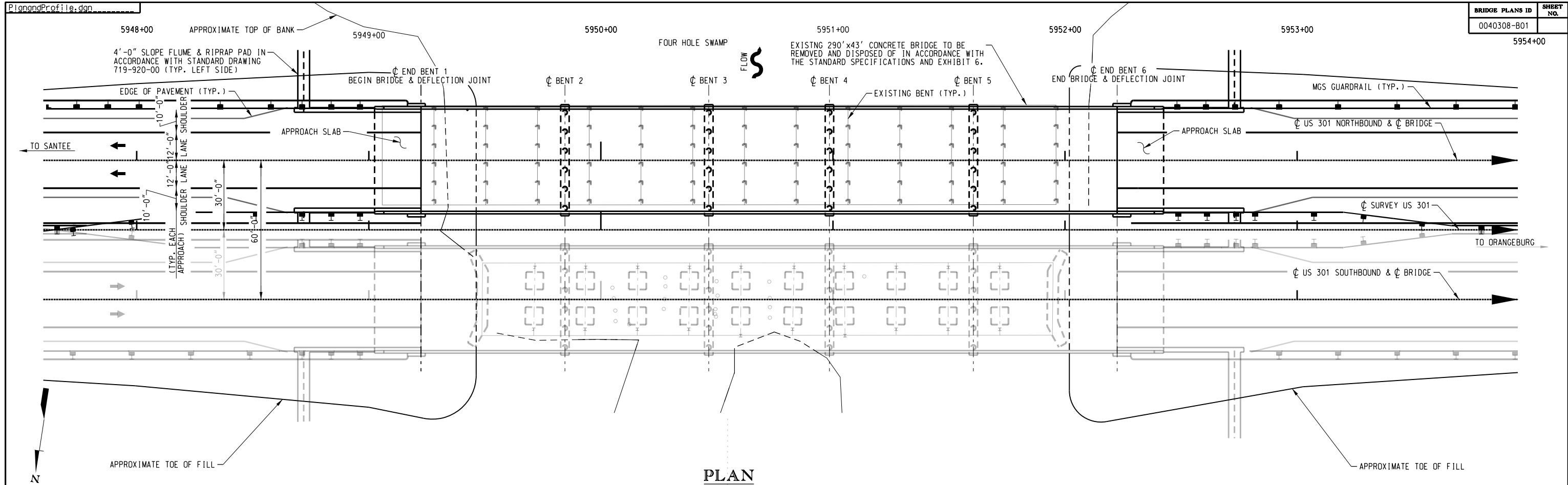
PLANS PREPARED BY:
INFRASTRUCTURE
CONSULTING & ENGINEERING
110 MIDLANDS COURT
WEST COLUMBIA, SC 29269
Telephone: (803) 822-0333

ENGINEER OF RECORD
US 301 DUAL BRIDGE
CONCEPTUAL PLANS
FOR CONSTRUCTION : _____
DATE _____

REVIEWED	DR.	D. YODER	BFS	JPF	02-21	DATE
			BY	CHK		

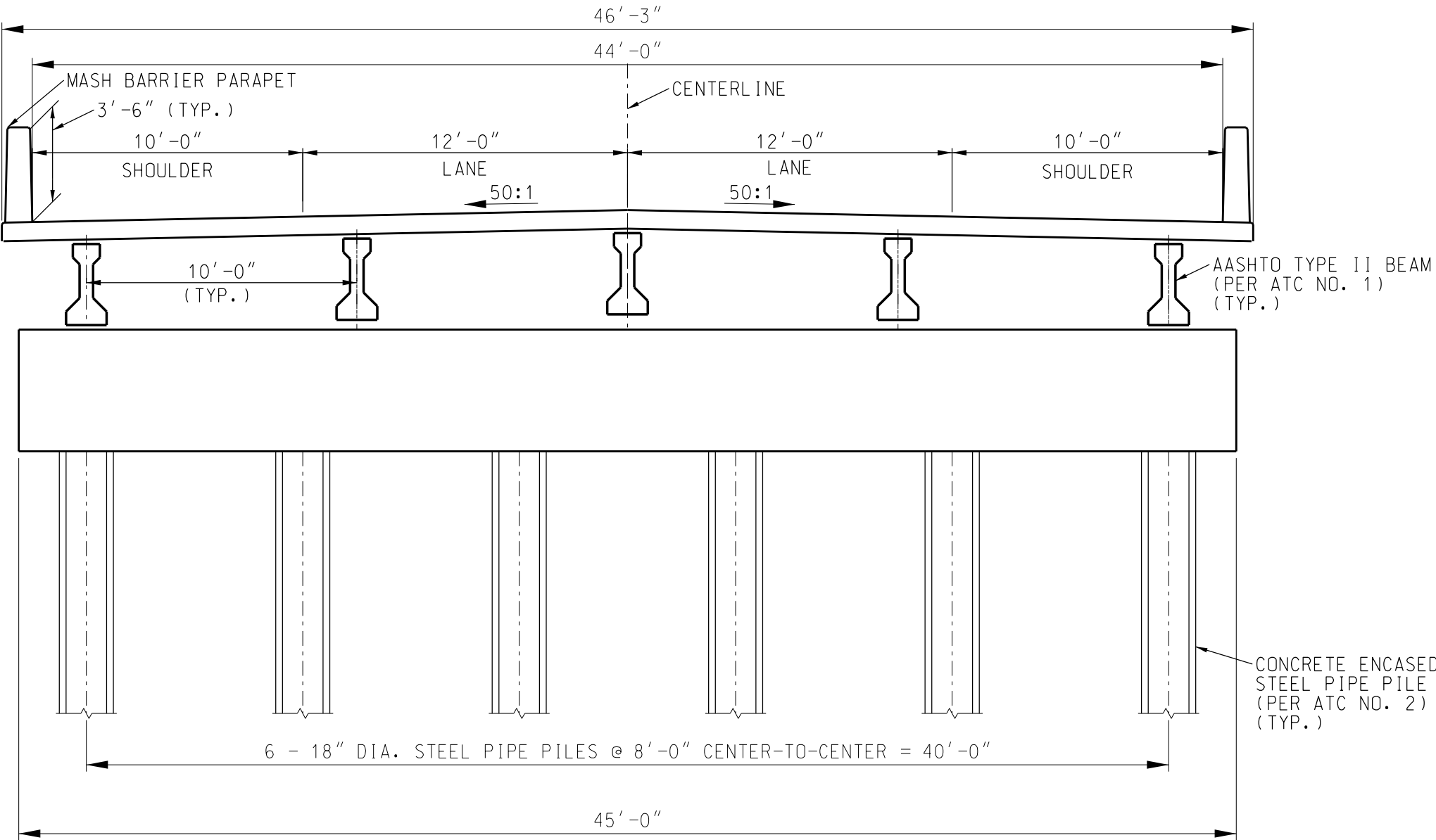
Z:\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01.Pre-Bid Work\Conceptual Bridge Plans (ICE)\Tech. Prop. Dgns\01.TITLE_SHT.dgn 7/19/2022

\\192.168.24.7\1\cecae\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01_Pre-Bid Work\Conceptual Bridge Plans (ICE)\Tech. Prop. Dgns\02-03_PLAN & PROFILE.dgn
8/15/2022
10:47:53 AM



Z:\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01_Prelim\Work\Conceptual Bridge Plans (ICE)\Tech. Prop. Dgns\04_TYPICAL SECTION.dgn
7/21/2022

BRIDGE PLANS ID	SHEET NO.
0040308	



NOTES:

1. ALL INTERIOR BENT BEARINGS WILL BE REINFORCED ELASTOMERIC PADS
2. ALL END BENT BEARINGS WILL BE PLAIN ELASTOMERIC PADS

TYPICAL SECTION
(NB & SB BRIDGES)

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

REV.			
REV.			
REV.			
REVIEWED			
QUAN.			
DR.			
DES.			
BY	CHK.	DATE	

UNITED
INFRASTRUCTURE GROUP

JE INFRASTRUCTURE
CONSULTING & ENGINEERING

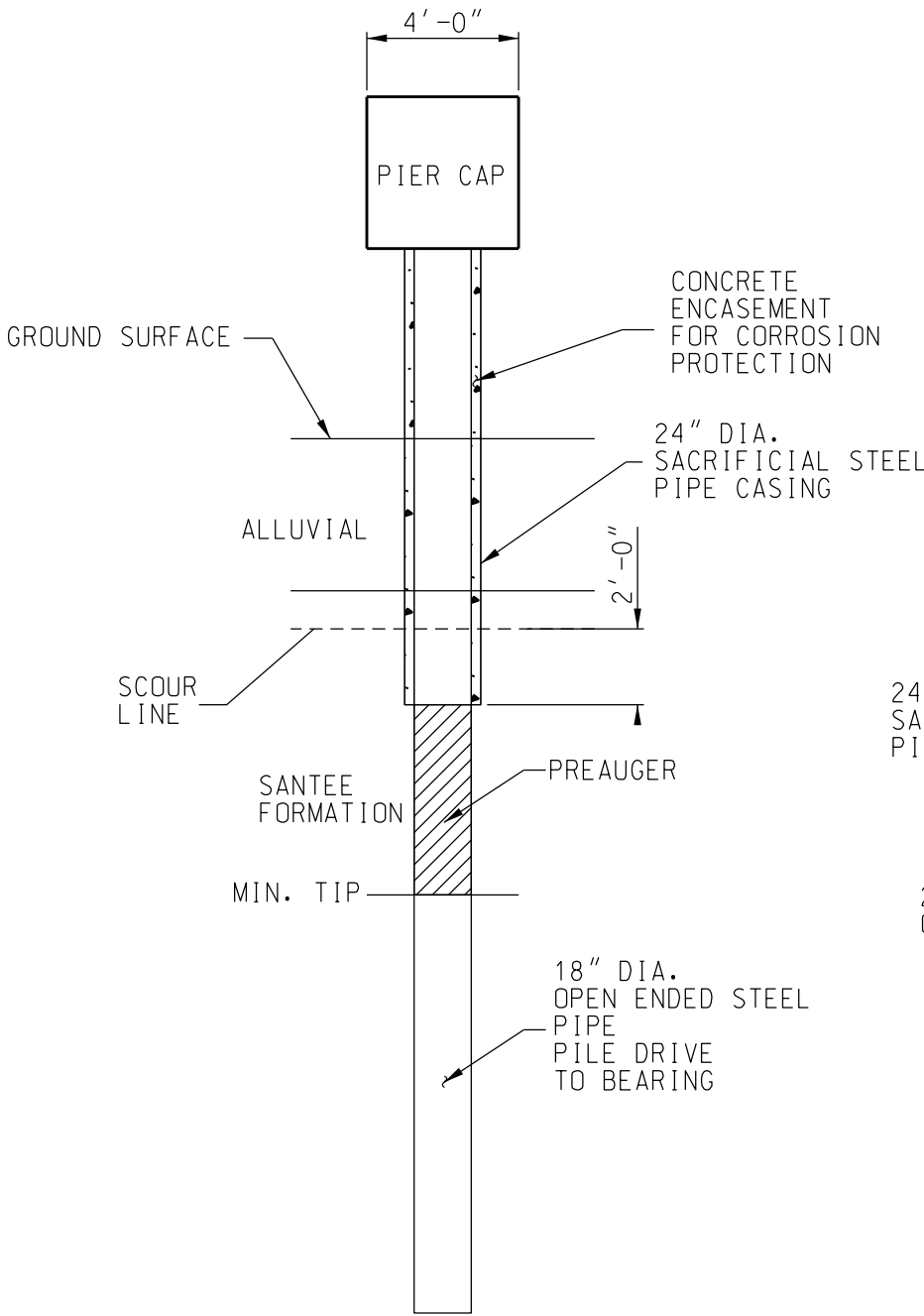
SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION

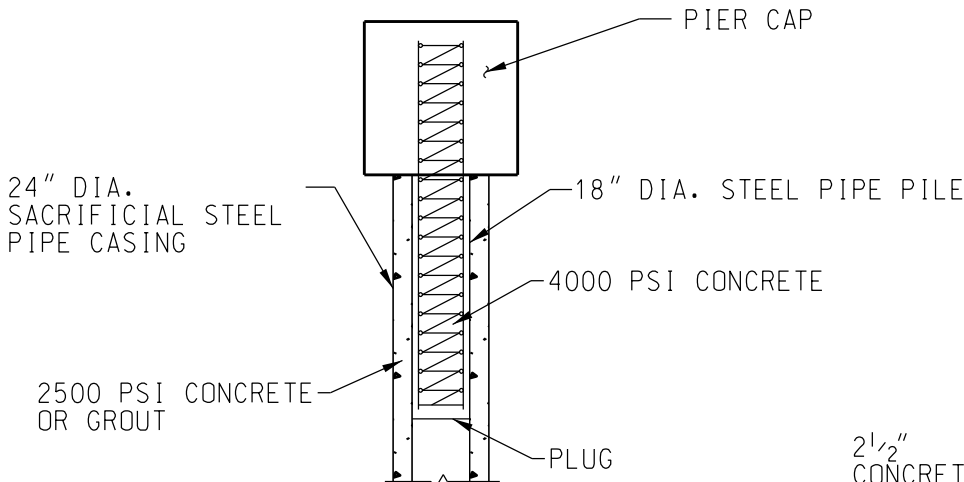
COUNTY ORANGEBURGROUTE US 301

Z:\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01_Pre-Bid Work\Conceptual Bridge Plans (ICE)\Tech. Prop. Dgns\05_PIPE PILE DETAILS.dgn
7/21/2022

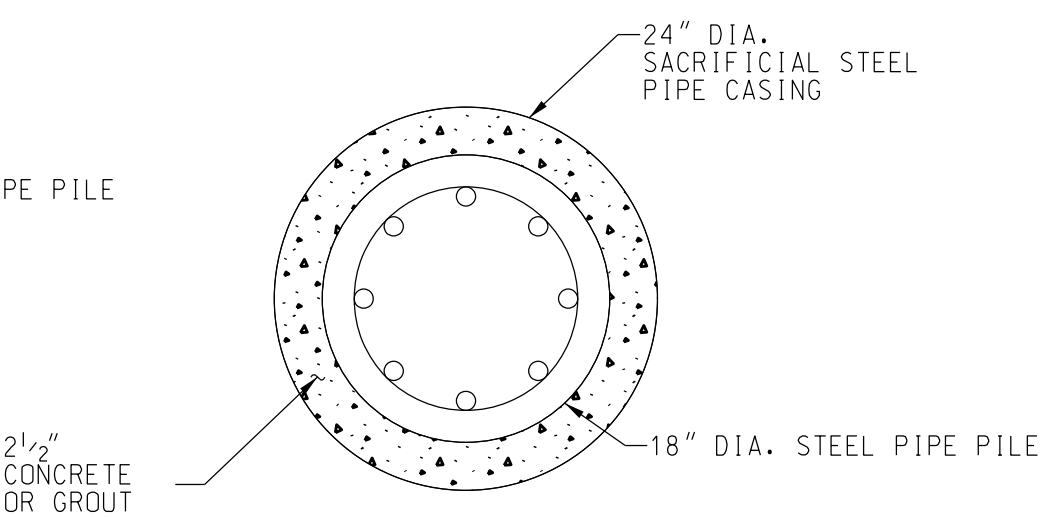
BRIDGE PLANS ID	SHEET NO.
0040308	



ELEVATION



CAP - PIPE PILE CONNECTION



TYPICAL SECTION

CONCRETE ENCASED STEEL PIPE PILE
NOT TO SCALE

- NOTES:
1. INSTALL SACRIFICIAL CASING DOWN 2' BELOW SCOUR
 2. PRE-AUGER TO MIN. TIP
 3. CLEAN OUT INSIDE CASING
 4. DRIVE PIPE PILE TO BEARING
 5. POUR CONCRETE ENCASEMENT AROUND PIPE PILE

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

REV.			
REV.			
REV.			
REVIEWED			
QUAN.			
DR.			
DES.			
BY	CHK.	DATE	

UNITED
INFRASTRUCTURE GROUP

JE INFRASTRUCTURE
CONSULTING & ENGINEERING

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

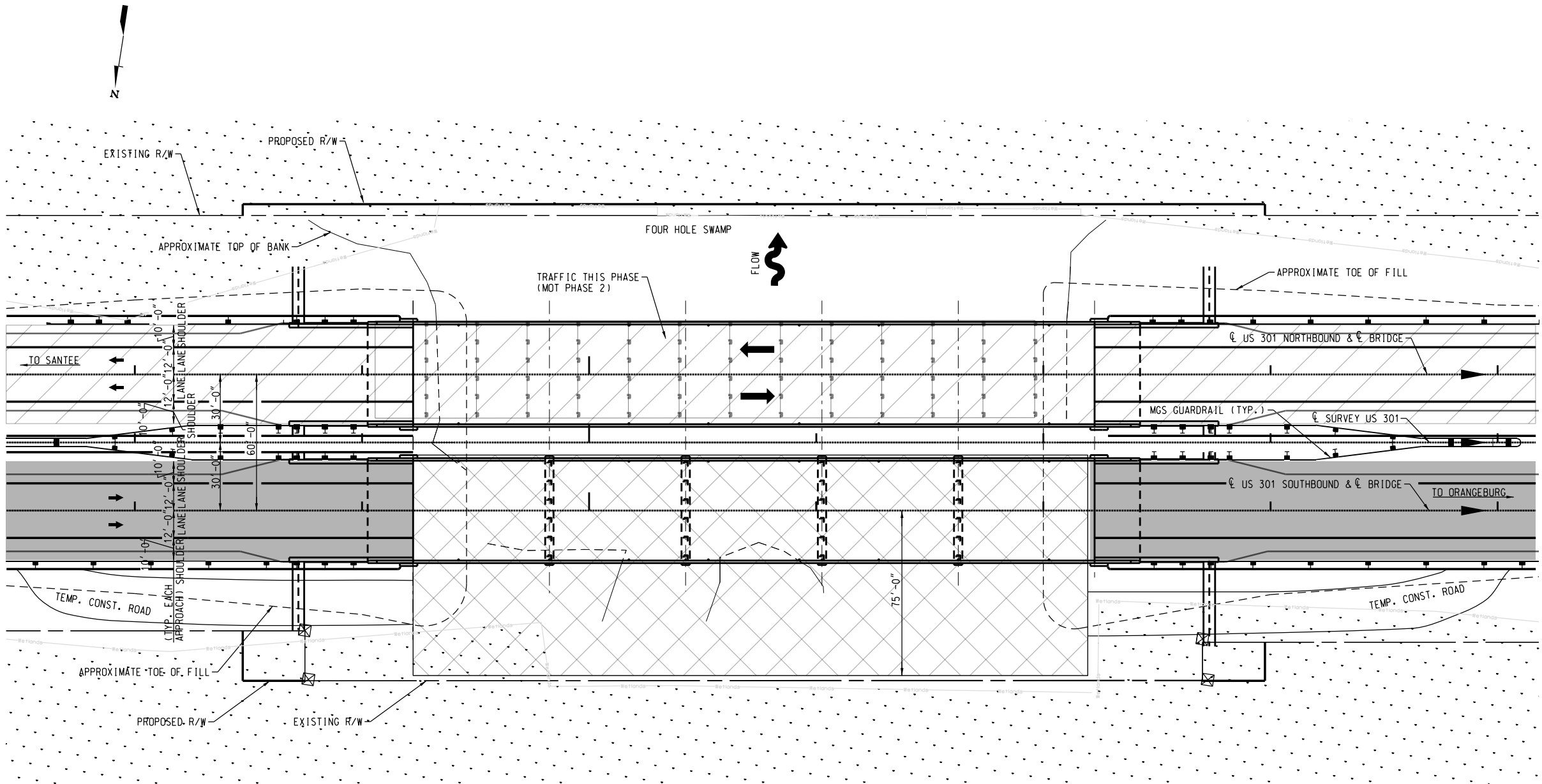
PIPE PILE DETAILS

COUNTY ORANGEBURG




ROUTE US 301

Z:\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01_Prelim\Work\Conceptual Bridge Plans (ICE)\Tech, Prop. Dgns\06-07_CONSTR_ACCESS.dgn
8/4/2022

BRIDGE PLANS ID	SHEET NO.
0040308	



LEGEND

-  PROPOSED EQUIPMENT & MATERIAL HANDLING / STAGING LOCATIONS
-  PROPOSED CONSTRUCTION ACCESS
-  TRAFFIC THIS PHASE


NOTES:

- ACCESS FOR CONSTRUCTION OF INTERIOR BENTS WILL BE CONSTRUCTED USING FLOATING BARGES. BARGES WILL ALSO BE USED FOR MATERIAL STORAGE AND STAGING / HANDLING.
- TEMP. CONSTRUCTION ROAD: WOODEN OR STEEL MATS WILL BE USED TO ACCESS WITHIN PERMITTED CLEARING LIMITS OF JURISDICTIONAL WETLANDS.
- STONE ON FABRIC WILL BE USED FOR AREAS OUTSIDE OF WETLANDS.

CONSTRUCTION ACCESS & STAGING PLAN
SOUTHBOUND BRIDGE

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

REV.			
REV.			
REV.			
REVIEWED			
QUAN.			
DR.			
DES.			
BY	CHK.	DATE	



UNITED
INFRASTRUCTURE GROUP
INFRASTRUCTURE
CONSULTING & ENGINEERING

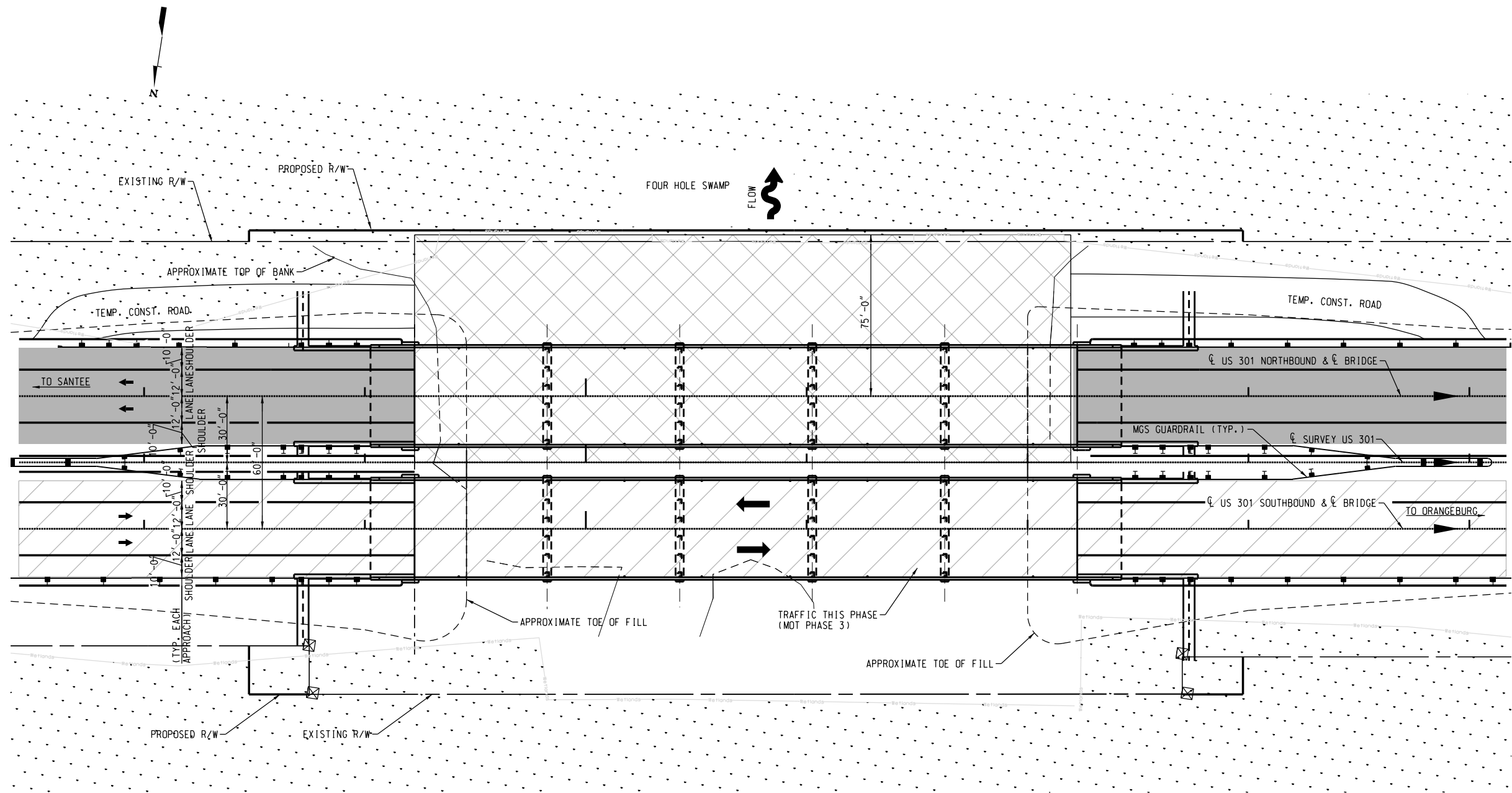
SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION
ACCESS/STAGING PLAN
US 301 SB

COUNTY	ORANGEBURG	ROUTE	US 301
--------	------------	-------	--------

Z:\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01_Prelim\Work\Conceptual Bridge Plans (ICE)\Tech, Prop. Dgns\06-07_CONSTR_ACCESS.dgn
8/4/2022

BRIDGE PLANS ID	SHEET NO.
0040308	



LEGEND

- PROPOSED EQUIPMENT & MATERIAL HANDLING / STAGING LOCATIONS
- PROPOSED CONSTRUCTION ACCESS
- TRAFFIC THIS PHASE

NOTES:

ACCESS FOR CONSTRUCTION OF INTERIOR BENTS WILL BE CONSTRUCTED USING FLOATING BARGES. BARGES WILL ALSO BE USED FOR MATERIAL STORAGE AND STAGING / HANDLING.

TEMP. CONSTRUCTION ROAD: WOODEN OR STEEL MATS WILL BE USED TO ACCESS WITHIN PERMITTED CLEARING LIMITS OF JURISDICTIONAL WETLANDS.

STONE ON FABRIC WILL BE USED FOR AREAS OUTSIDE OF WETLANDS.

CONSTRUCTION ACCESS & STAGING PLAN
NORTHBOUND BRIDGE

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

REV.			
REV.			
REV.			
REVIEWED			
QUAN.			
DR.			
DES.			
BY	CHK.	DATE	

UNITED
INFRASTRUCTURE GROUP
JE INFRASTRUCTURE
CONSULTING & ENGINEERING

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION
ACCESS/STAGING PLAN
US 301 NB

COUNTY	ORANGEBURG	ROUTE	US 301
--------	------------	-------	--------

APPENDIX **A**

Conceptual Plans

A.4 – CPM Schedule



Activity ID	Activity Name	Original Duration	Start	Finish	2022		2023				2024				2025				2026	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	
US 301 Over Four Hole Swamp		526d	15-Aug-22	26-Aug-24																
Milestones		526d	15-Aug-22	26-Aug-24																
M1000	Submittal of Technical Proposal	0d	15-Aug-22*		◆ Submittal of Technical Proposal															
M1010	Submittal of Cost Proposal	0d	15-Sep-22		◆ Submittal of Cost Proposal															
M1005	Public Announcement	0d	16-Sep-22*		◆ Public Announcement															
M1020	Award	0d	29-Sep-22		◆ Award															
M1030	Execute Contract	0d	27-Oct-22		◆ Execute Contract															
M1040	Notice to Proceed	0d	16-Nov-22*		◆ Notice to Proceed															
M1120	Construction Work Begins	0d	12-Jun-23		◆ Construction Work Begins															
M1110	Substantial Completion [560 Days from NTP - No Later than 05/29/2024]	0d		29-May-24*	◆ Substantial Completion [560 Days from NTP - No															
M1130	Final Completion	0d		26-Aug-24*	◆ Final Completion															
Design		236d	29-Sep-22	30-Aug-23																
Design Review Submittal 000		28d	03-Oct-22	09-Nov-22																
A1060	Prepare and Submit Design QC Plan	5d	03-Oct-22	07-Oct-22	▮ Prepare and Submit Design QC Plan															
A1070	Prepare and Submit Design Submittal Schedule	5d	03-Oct-22	07-Oct-22	▮ Prepare and Submit Design Submittal Schedule															
A1080	SCDOT Review - Submittal 000	10d	10-Oct-22	21-Oct-22	▮ SCDOT Review - Submittal 000															
A1090	ICE - Adress Comments & Resubmit	3d	24-Oct-22	26-Oct-22	▮ ICE - Adress Comments & Resubmit															
A1100	SCDOT Review/Approval - Submittal 000	10d	27-Oct-22	09-Nov-22	▮ SCDOT Review/Approval - Submittal 000															

Project Name: US 301 Over Four Hole Swamp Project ID: 0040308			US 301 Over Four Hole Swamp Design-Build Project Project ID: 0040308					Technical Proposal CPM Schedule								Print Date: 10-Aug-22						
Activity ID		Activity Name			Original Duration	Start	Finish	2022		2023				2024				2025				2026
								Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Roadway Submittal Packages					145d	29-Sep-22	25-Apr-23															
Preliminary Right-of-Way Submittal Package					73d	29-Sep-22	13-Jan-23															
A1110	Prepare Right-of-Way Plans				34d	29-Sep-22	15-Nov-22	<div></div>	Prepare Right-of-Way Plans													
A1260	Prepare Right-of-Way Hydraulic Reports				34d	29-Sep-22	15-Nov-22	<div></div>	Prepare Right-of-Way Hydraulic Reports													
A1290	Prepare Conceptual Work Zone Traffic Control Plans				34d	29-Sep-22	15-Nov-22	<div></div>	Prepare Conceptual Work Zone Traffic Control Plans													
A1310	Prepare Right-of-Way Drainage Design Report				34d	29-Sep-22	15-Nov-22	<div></div>	Prepare Right-of-Way Drainage Design Report													
A1320	Prepare Preliminary Road Geotech Report				34d	29-Sep-22	15-Nov-22	<div></div>	Prepare Preliminary Road Geotech Report													
A1330	Submit Right-of-Way Submittal Package				0d		16-Nov-22	<div></div>	Submit Right-of-Way Submittal Package													
Review					39d	16-Nov-22	13-Jan-23															
A1340	Review Right-of-Way Submittal Package				15d	16-Nov-22	08-Dec-22	<div></div>	Review Right-of-Way Submittal Package													
A1350	Respond to Comments				5d	09-Dec-22	15-Dec-22	<div></div>	Respond to Comments													
A1360	Status Comments				5d	16-Dec-22	22-Dec-22	<div></div>	Status Comments													
A1370	Submit Responses				4d	27-Dec-22	30-Dec-22	<div></div>	Submit Responses													
A1380	Update Statuses / Closeout Comments				10d	02-Jan-23	13-Jan-23	<div></div>	Update Statuses / Closeout Comments													
Final Roadway Submittal Package					70d	16-Jan-23	21-Apr-23															
A1390	Prepare Final Roadway Plans				30d	16-Jan-23	24-Feb-23	<div></div>	Prepare Final Roadway Plans													
A1400	Prepare Final Survey Control Data Sheet				30d	16-Jan-23	24-Feb-23	<div></div>	Prepare Final Survey Control Data Sheet													
A1410	Prepare Final Work Zone Traffic Control Plans				30d	16-Jan-23	24-Feb-23	<div></div>	Prepare Final Work Zone Traffic Control Plans													

Remaining Level of Effort

Primary Baseline

Actual Work

Critical Remaining Work

Remaining

Baseline Milestone

Milestone

Page 2 of 17

Project ID: P0040308 | United Infrastructure Group w/ICE | Design-Build Project | Data Date: 15-Aug-22

US 301 over Four Hole Swamp | Orangeburg County, South Carolina

UNITED
INFRASTRUCTURE GROUP

Project Name: US 301 Over Four Hole Swamp Project ID: 0040308			US 301 Over Four Hole Swamp Design-Build Project Project ID: 0040308					Technical Proposal CPM Schedule								Print Date: 10-Aug-22										
Activity ID		Activity Name	Original Duration	Start	Finish	2023		2024				2025				2026										
						Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1						
	A1430	Prepare Final Roadway Drainage Design Report	30d	16-Jan-23	24-Feb-23			<div></div>	Prepare Final Roadway Drainage Design Report																	
	A1440	Prepare Final Road Drainage Report	30d	16-Jan-23	24-Feb-23			<div></div>	Prepare Final Road Drainage Report																	
	A1450	Submit Final Roadway Submittal Package	0d		24-Feb-23			<div></div>	Submit Final Roadway Submittal Package																	
	Review		40d	27-Feb-23	21-Apr-23																					
	A1460	Review Final Roadway Submittal Package	15d	27-Feb-23	17-Mar-23			<div></div>	Review Final Roadway Submittal Package																	
	A1470	Respond to Comments	5d	20-Mar-23	24-Mar-23			<div></div>	Respond to Comments																	
	A1480	Status Comments	5d	27-Mar-23	31-Mar-23			<div></div>	Status Comments																	
	A1490	Submit Responses	5d	03-Apr-23	07-Apr-23			<div></div>	Submit Responses																	
	A1500	Update Statuses / Closeout Comments	10d	10-Apr-23	21-Apr-23			<div></div>	Update Statuses / Closeout Comments																	
	RFC Roadway Submittal Package			2d	24-Apr-23	25-Apr-23																				
	A1510	Sign and Submit RFC Roadway Plans	2d	24-Apr-23	25-Apr-23			<div></div>	Sign and Submit RFC Roadway Plans																	
	A1530	Sign and Submit RFC Work Zone Traffic Control Plans	2d	24-Apr-23	25-Apr-23			<div></div>	Sign and Submit RFC Work Zone Traffic Control Plans																	
	A1550	Sign and Submit RFC Road Geotech Reports	2d	24-Apr-23	25-Apr-23			<div></div>	Sign and Submit RFC Road Geotech Reports																	
	A1560	Sign and Submit RFC Design Calculations	2d	24-Apr-23	25-Apr-23			<div></div>	Sign and Submit RFC Design Calculations																	
	Bridge Submittal Packages			236d	29-Sep-22	30-Aug-23																				
	SB Bridge Submittal Packages			176d	29-Sep-22	07-Jun-23																				
	Preliminary SB Bridge Submittal Package			74d	29-Sep-22	16-Jan-23																				
A1570	Prepare Preliminary SB Bridge Plans	34d	29-Sep-22	15-Nov-22			<div></div>	Prepare Preliminary SB Bridge Plans																		

Remaining Level of Effort

Primary Baseline

Actual Work

Critical Remaining Work

Remaining

Baseline Milestone

Milestone

Page 3 of 17

Project ID: P0040308 | United Infrastructure Group w/ICE | Design-Build Project | Data Date: 15-Aug-22

US 301 over Four Hole Swamp | Orangeburg County, South Carolina

UNITED
INFRASTRUCTURE GROUP

Activity ID	Activity Name	Original Duration	Start	Finish	2022		2023				2024				2025				2026		
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1		
A1580	A1580	Prepare Preliminary SB Bridge Hydraulic Design Report	34d	29-Sep-22	15-Nov-22		<div><div></div></div>	Prepare Preliminary SB Bridge Hydraulic Design Report													
	A1590	Prepare Preliminary SB Bridge Geotech Report	34d	29-Sep-22	15-Nov-22		<div><div></div></div>	Prepare Preliminary SB Bridge Geotech Report													
	A1600	Prepare Preliminary SB Bridge Seismic Design Summary Report	34d	29-Sep-22	15-Nov-22		<div><div></div></div>	Prepare Preliminary SB Bridge Seismic Design Summary Report													
	A1610	Submit Preliminary SB Bridge Submittal Package	0d		16-Nov-22		<div><div></div></div>	Submit Preliminary SB Bridge Submittal Package													
	Review		40d	16-Nov-22	16-Jan-23																
	A1630	Review Preliminary SB Bridge Submittal Package	15d	16-Nov-22	08-Dec-22		<div><div></div></div>	Review Preliminary SB Bridge Submittal Package													
	A1640	Respond to Comments	5d	09-Dec-22	15-Dec-22		<div><div></div></div>	Respond to Comments													
	A1650	Status Comments	5d	16-Dec-22	22-Dec-22		<div><div></div></div>	Status Comments													
	A1660	Submit Responses	5d	27-Dec-22	02-Jan-23		<div><div></div></div>	Submit Responses													
	A1670	Update Statuses / Closeout Comments	10d	03-Jan-23	16-Jan-23		<div><div></div></div>	Update Statuses / Closeout Comments													
	Final SB Bridge Submittal Package		100d	17-Jan-23	05-Jun-23																
	A1680	Prepare Final SB Bridge Plans	60d	17-Jan-23	10-Apr-23		<div><div></div></div>	Prepare Final SB Bridge Plans													
	A1690	Prepare Final SB Bridge Hydraulic Design Report	60d	17-Jan-23	10-Apr-23		<div><div></div></div>	Prepare Final SB Bridge Hydraulic Design Report													
	A1700	Prepare Final SB Bridge Geotech Report	60d	17-Jan-23	10-Apr-23		<div><div></div></div>	Prepare Final SB Bridge Geotech Report													
	A1710	Prepare Final SB Bridge Seismic Design Summary Report	60d	17-Jan-23	10-Apr-23		<div><div></div></div>	Prepare Final SB Bridge Seismic Design Summary Report													
A1720	Prepare Final SB Bridge Load Rating Documentation	60d	17-Jan-23	10-Apr-23		<div><div></div></div>	Prepare Final SB Bridge Load Rating Documentation														
A1730	Submit Final SB Bridge Submittal Package	0d		10-Apr-23		<div><div></div></div>	Submit Final SB Bridge Submittal Package														
Review		40d	11-Apr-23	05-Jun-23																	

Project Name: US 301 Over Four Hole Swamp Project ID: 0040308			US 301 Over Four Hole Swamp Design-Build Project Project ID: 0040308						Technical Proposal CPM Schedule								Print Date: 10-Aug-22						
Activity ID		Activity Name	Original Duration	Start	Finish	2		2023				2024				2025				2026			
						Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1			
	A1740	Review Final SB Bridge Submittal Package	15d	11-Apr-23	01-May-23																		
	A1750	Respond to Comments	5d	02-May-23	08-May-23																		
	A1760	Status Comments	5d	09-May-23	15-May-23																		
	A1770	Submit Responses	5d	16-May-23	22-May-23																		
	A1780	Update Statuses / Closeout Comments	10d	23-May-23	05-Jun-23																		
	RFC SB Bridge Submittal Package		2d	06-Jun-23	07-Jun-23																		
	A1790	Sign and Submit RFC SB Bridge Plans	2d	06-Jun-23	07-Jun-23																		
	A1800	Sign and Submit RFC SB Bridge Hydraulic Design Report	2d	06-Jun-23	07-Jun-23																		
	A1810	Sign and Submit RFC SB Bridge Geotech Report	2d	06-Jun-23	07-Jun-23																		
	A1820	Sign and Submit RFC SB Bridge Seismic Design Summary Report	2d	06-Jun-23	07-Jun-23																		
	A1830	Sign and Submit RFC SB Bridge Design Calculations	2d	06-Jun-23	07-Jun-23																		
	A1840	Sign and Submit SB Bridge Load Rating Documentation	2d	06-Jun-23	07-Jun-23																		
	NB Bridge Submittal Packages		236d	29-Sep-22	30-Aug-23																		
	Preliminary NB Bridge Submittal Package		79d	29-Sep-22	23-Jan-23																		
	A1850	Prepare Preliminary NB Bridge Plans	39d	29-Sep-22	22-Nov-22																		
	A1860	Prepare Preliminary NB Bridge Hydraulic Design Report	39d	29-Sep-22	22-Nov-22																		
	A1870	Prepare Preliminary NB Bridge Geotech Report	39d	29-Sep-22	22-Nov-22																		
	A1880	Prepare Preliminary NB Bridge Seismic Design Summary Report	39d	29-Sep-22	22-Nov-22																		
<div><div></div> Remaining Level of Effort</div> <div><div></div> Primary Baseline</div> <div><div></div> Actual Work</div> <div><div></div> Critical Remaining Work</div>			<div><div></div> Remaining</div> <div><div></div> Baseline Milestone</div> <div><div></div> Milestone</div>			Page 5 of 17						Project ID: P0040308 United Infrastructure Group w/ICE Design-Build Project Data Date: 15-Aug-22						<div><div></div><div></div></div> <div>UNITED INFRASTRUCTURE GROUP</div>					
US 301 over Four Hole Swamp Orangeburg County, South Carolina																							

[illegible]

Activity ID		Activity Name	Original Duration	Start	Finish	2023		2023				2024				2025				2026
						Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
	A2040	Submit Responses	5d	08-Aug-23	14-Aug-23					<div></div>	Submit Responses									
	A2050	Update Statuses / Closeout Comments	10d	15-Aug-23	28-Aug-23					<div></div>	Update Statuses / Closeout Comments									
	RFC NB Bridge Submittal Package		2d	29-Aug-23	30-Aug-23															
	A2060	Sign and Submit RFC NB Bridge Plans	2d	29-Aug-23	30-Aug-23					<div></div>	Sign and Submit RFC NB Bridge Plans									
	A2070	Sign and Submit RFC NB Bridge Hydraulic Design Report	2d	29-Aug-23	30-Aug-23					<div></div>	Sign and Submit RFC NB Bridge Hydraulic Design Report									
	A2080	Sign and Submit RFC NB Bridge Geotech Report	2d	29-Aug-23	30-Aug-23					<div></div>	Sign and Submit RFC NB Bridge Geotech Report									
	A2090	Sign and Submit RFC NB Bridge Seismic Design Summary Report	2d	29-Aug-23	30-Aug-23					<div></div>	Sign and Submit RFC NB Bridge Seismic Design Summary Report									
	A2100	Sign and Submit RFC NB Bridge Design Calculations	2d	29-Aug-23	30-Aug-23					<div></div>	Sign and Submit RFC NB Bridge Design Calculations									
	A2110	Sign and Submit NB Bridge Load Rating Documentation	2d	29-Aug-23	30-Aug-23					<div></div>	Sign and Submit NB Bridge Load Rating Documentation									
	Right of Way		80d	16-Jan-23	05-May-23						<div></div>	Tax Parcel 0260-00-01-008.00 (SB Bridge ROW)								
	P1010	Tax Parcel 0260-00-01-008.00 (SB Bridge ROW)	80d	16-Jan-23	05-May-23						<div></div>	Tax Parcel 0260-00-01-008.00 (SB Bridge ROW)								
	P1080	Tax Parcel 0260-00-02-007.000 (NB Bridge ROW)	80d	16-Jan-23	05-May-23						<div></div>	Tax Parcel 0260-00-02-007.000 (NB Bridge ROW)								
	Permitting		75d	27-Feb-23	09-Jun-23															
	Land Disturbance Permit (NOI)		35d	10-Apr-23	26-May-23															
	A1120	Prepare and Submit NOI Application & SWPPP	5d	10-Apr-23	14-Apr-23					<div></div>	Prepare and Submit NOI Application & SWPPP									
	A1130	SCDOT to Submit NOI to DHEC	5d	17-Apr-23	21-Apr-23					<div></div>	SCDOT to Submit NOI to DHEC									
	A1140	DHEC Review	20d	24-Apr-23	19-May-23					<div></div>	DHEC Review									
A1180	Respond to DHEC Comments and Resubmit	5d	22-May-23	26-May-23					<div></div>	Respond to DHEC Comments and Resubmit										



Project Name: US 301 Over Four Hole Swamp Project ID: 0040308			US 301 Over Four Hole Swamp Design-Build Project Project ID: 0040308					Technical Proposal CPM Schedule								Print Date: 10-Aug-22					
Activity ID		Activity Name			Original Duration	Start	Finish	2023		2024				2025				2026			
								Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1			
A1150		Recieve NOI Approval			0d		26-May-23				◆	Recieve NOI Approval									
USACE 404 Permit					75d	27-Feb-23	09-Jun-23														
A2120		Prepare and Submit 404 Permit			5d	27-Feb-23	03-Mar-23					Prepare and Submit 404 Permit									
A2130		SCDOT Review of 404 Permit			5d	06-Mar-23	10-Mar-23					SCDOT Review of 404 Permit									
A2140		Respond to SCDOT Comments and Submit to USACE			5d	13-Mar-23	17-Mar-23					Respond to SCDOT Comments and Submit to USACE									
A2150		USACE Review of 404 Permit			50d	20-Mar-23	26-May-23				■	USACE Review of 404 Permit									
A2170		Respond to USACE Comments and Resubmit			10d	29-May-23	09-Jun-23				■	Respond to USACE Comments and Resubmit									
A2160		Recieve USACE Approval			0d		09-Jun-23				◆	Recieve USACE Approval									
Utility Coordination / Relocation					331d	16-Nov-22	27-Feb-24														
A1160		Utility Coordination / No Conflict Letters			109d	16-Nov-22	21-Apr-23				■	Utility Coordination / No Conflict Letters									
A1170		Relocation of Telecom (NB Bridge)			60d	16-Jan-23	07-Apr-23				■	Relocation of Telecom (NB Bridge)									
A2210		Relocation of Gas Line (NB)			60d	06-Dec-23	27-Feb-24						■	Relocation of Gas Line (NB)							
Construction					316d	12-Jun-23	26-Aug-24														
Construction Milestones					239d	12-Jun-23	09-May-24														
A2180		Begin Roadwork			0d	12-Jun-23					◆	Begin Roadwork									
A2190		Begin SB Bridge			0d	30-Jun-23					◆	Begin SB Bridge									
A2240		Begin Final Surfacing			0d	29-Sep-23						◆	Begin Final Surfacing								
A2220		Complete SB Bridge			0d		27-Nov-23						◆	Complete SB Bridge							

Remaining Level of Effort

Primary Baseline

Actual Work

Critical Remaining Work

Remaining

◆

Baseline Milestone

◆

Milestone


Page 8 of 17

Project ID: P0040308 | United Infrastructure Group w/ICE | Design-Build Project | Data Date: 15-Aug-22

US 301 over Four Hole Swamp | Orangeburg County, South Carolina

UNITED

INFRASTRUCTURE GROUP

 Remaining Level of Effort  Primary Baseline  Actual Work  Critical Remaining Work	 Remaining  Baseline Milestone  Milestone	Page 9 of 17	Project ID: P0040308 United Infrastructure Group w/ICE Design-Build Project Data Date: 15-Aug-22 US 301 over Four Hole Swamp Orangeburg County, South Carolina	
---	--	--------------	---	---

 Remaining Level of Effort  Primary Baseline  Actual Work  Critical Remaining Work	 Remaining  Baseline Milestone  Milestone	Page 10 of 17	Project ID: P0040308 United Infrastructure Group w/ICE Design-Build Project Data Date: 15-Aug-22 US 301 over Four Hole Swamp Orangeburg County, South Carolina	
---	--	---------------	---	---



[illegible]

Project Name: US 301 Over Four Hole Swamp Project ID: 0040308			US 301 Over Four Hole Swamp Design-Build Project Project ID: 0040308					Technical Proposal CPM Schedule								Print Date: 10-Aug-22			
Activity ID		Activity Name			Original Duration	Start	Finish	2023		2024				2025				2026	
								Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	PB2061	Drive Bent 4 Piles - SB			7d	18-Aug-23	28-Aug-23					<div></div>	Drive Bent 4 Piles - SB						
	Substructure				20d	09-Aug-23	06-Sep-23												
	PB2050	Form/Pour/Strip End Bent 1 Cap - SB			5d	09-Aug-23	15-Aug-23					<div></div>	Form/Pour/Strip End Bent 1 Cap - SB						
	PB2200	Form/Pour/Strip End Bent 6 Cap - SB			5d	09-Aug-23	15-Aug-23					<div></div>	Form/Pour/Strip End Bent 6 Cap - SB						
	PB2060	Construct Wingwall/Backwall 1 & Place Rip-Rap - SB			5d	16-Aug-23	22-Aug-23					<div></div>	Construct Wingwall/Backwall 1 & Place Rip-Rap - SB						
	PB2080	Construct Wingwall/Backwall 2 & Place Rip-Rap - SB			5d	16-Aug-23	22-Aug-23					<div></div>	Construct Wingwall/Backwall 2 & Place Rip-Rap - SB						
	PB2121	Form/Pour/Strip Bent 2 Cap - SB			5d	23-Aug-23	29-Aug-23					<div></div>	Form/Pour/Strip Bent 2 Cap - SB						
	PB2424	Form/Pour/Strip Bent 5 Cap - SB			5d	23-Aug-23	29-Aug-23					<div></div>	Form/Pour/Strip Bent 5 Cap - SB						
	PB2222	Form/Pour/Strip Bent 3 Cap - SB			5d	30-Aug-23	06-Sep-23					<div></div>	Form/Pour/Strip Bent 3 Cap - SB						
	PB2321	Form/Pour/Strip Bent 4 Cap - SB			5d	30-Aug-23	06-Sep-23					<div></div>	Form/Pour/Strip Bent 4 Cap - SB						
	Superstructure				45d	07-Sep-23	08-Nov-23												
	PB2090	Install Bearings & Beams - SB			5d	07-Sep-23	13-Sep-23					<div></div>	Install Bearings & Beams - SB						
	PB3270	Install Diaphragms - SB			5d	14-Sep-23	20-Sep-23					<div></div>	Install Diaphragms - SB						
	PB2100	Install Deck Form Work - SB			6d	21-Sep-23	28-Sep-23					<div></div>	Install Deck Form Work - SB						
	PB2110	Install Deck Reinforcing Steel - SB			6d	29-Sep-23	06-Oct-23					<div></div>	Install Deck Reinforcing Steel - SB						
	PB2120	Dry-Run Deck Pour - SB			5d	09-Oct-23	13-Oct-23					<div></div>	Dry-Run Deck Pour - SB						
	PB2130	Pour Deck w/curing - SB			8d	16-Oct-23	25-Oct-23					<div></div>	Pour Deck w/curing - SB						
	PB2140	Strip Deck Form Work - SB			5d	26-Oct-23	01-Nov-23					<div></div>	Strip Deck Form Work - SB						

Remaining Level of Effort

Primary Baseline

Actual Work

Critical Remaining Work

Remaining

Baseline Milestone

Milestone

Page 12 of 17

Project ID: P0040308 | United Infrastructure Group w/ICE | Design-Build Project | Data Date: 15-Aug-22

US 301 over Four Hole Swamp | Orangeburg County, South Carolina

UNITED

INFRASTRUCTURE GROUP

Project Name: US 301 Over Four Hole Swamp Project ID: 0040308			US 301 Over Four Hole Swamp Design-Build Project Project ID: 0040308					Technical Proposal CPM Schedule								Print Date: 10-Aug-22				
Activity ID		Activity Name	Original Duration	Start	Finish	2023		2024				2025				2026				
						Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	PB2150	Finish Deck & Waterproof - SB	5d	02-Nov-23	08-Nov-23															
	PB2160	Construct Parapet Wall - SB	5d	02-Nov-23	08-Nov-23															
	Finishes		10d	09-Nov-23	27-Nov-23															
	PB2170	Construct Approach Slabs - SB	5d	09-Nov-23	16-Nov-23															
	PB2180	Groove Deck - SB	5d	17-Nov-23	27-Nov-23															
	Roadway		110d	30-Jun-23	30-Nov-23															
	PR2055	Ground Modifications [EQ Drains] at Bridge Approaches - SB Lanes	20d	30-Jun-23	27-Jul-23															
	PR2220	Grading Operations - SB Lanes	15d	28-Jul-23	17-Aug-23															
	PR2210	Culvert Asphalt Widening	10d	15-Aug-23	28-Aug-23															
	PR2230	Fine Grading Operations - SB Lanes	10d	18-Aug-23	31-Aug-23															
PR2240	Base Pavement - SB Lanes	10d	01-Sep-23	14-Sep-23																
PR2250	Intermediate Pavement - SB Lanes	10d	15-Sep-23	28-Sep-23																
PR2260	Final Surface Pavement - SB Lanes	12d	29-Sep-23	16-Oct-23																
PR2200	Construct Median Crossovers - NB to SB	10d	17-Nov-23	30-Nov-23																
Phase 3		115d	01-Dec-23	09-May-24																
MOT		3d	01-Dec-23	05-Dec-23																
PM3000	Mobilize & Set Traffic Control Devices [Phase 3]	2d	01-Dec-23	04-Dec-23																
PM3010	Temporary Striping - NB	1d	01-Dec-23	01-Dec-23																

Remaining Level of Effort

Primary Baseline

Actual Work

Critical Remaining Work

Remaining

Baseline Milestone

Milestone

Page 13 of 17

Project ID: P0040308 | United Infrastructure Group w/ICE | Design-Build Project | Data Date: 15-Aug-22

US 301 over Four Hole Swamp | Orangeburg County, South Carolina

UNITED
INFRASTRUCTURE GROUP

Activity ID		Activity Name	Original Duration	Start	Finish	2023		2023				2024				2025				2026	
						Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	
	PM3020	Set Temporary Barrier Wall & portable Drums - NB	1d	04-Dec-23	04-Dec-23								Set Temporary Barrier Wall & portable Drums - NB								
	PM3030	Switch Traffic to Phase 3 Configuration	1d	05-Dec-23	05-Dec-23								Switch Traffic to Phase 3 Configuration								
	Demolition & Removal - NB		12d	06-Dec-23	21-Dec-23																
	PD3000	Bridge Demolition - NB	12d	06-Dec-23	21-Dec-23								<div></div>	Bridge Demolition - NB							
	Bridge Construction - NB		100d	22-Dec-23	09-May-24																
	Mobilization		2d	22-Dec-23	27-Dec-23																
	PB3000	Mobilize Bridge Crews - NB	2d	22-Dec-23	27-Dec-23								<div></div>	Mobilize Bridge Crews - NB							
	Foundation		31d	28-Dec-23	08-Feb-24																
	PB3010	Set-up Pile Driving Operations - NB	5d	28-Dec-23	04-Jan-24								<div></div>	Set-up Pile Driving Operations - NB							
	PB3040	Dynamic Pile Analysis - NB	31d	28-Dec-23	08-Feb-24								<div></div>	Dynamic Pile Analysis - NB							
	PB3020	Drive End Bent 1 Piles - NB	10d	05-Jan-24	19-Jan-24								<div></div>	Drive End Bent 1 Piles - NB							
	PB3030	Drive End Bent 6 Piles - NB	10d	05-Jan-24	19-Jan-24								<div></div>	Drive End Bent 6 Piles - NB							
	PB3190	Drive Bent 2 Piles - NB	7d	22-Jan-24	30-Jan-24								<div></div>	Drive Bent 2 Piles - NB							
	PB3220	Drive Bent 5 Piles - NB	7d	22-Jan-24	30-Jan-24								<div></div>	Drive Bent 5 Piles - NB							
	PB3200	Drive Bent 3 Piles - NB	7d	31-Jan-24	08-Feb-24								<div></div>	Drive Bent 3 Piles - NB							
	PB3210	Drive Bent 4 Piles - NB	7d	31-Jan-24	08-Feb-24								<div></div>	Drive Bent 4 Piles - NB							
	Substructure		21d	22-Jan-24	20-Feb-24																
PB3050	Form/Pour/Strip End Bent 1 Cap - NB	5d	22-Jan-24	26-Jan-24								<div></div>	Form/Pour/Strip End Bent 1 Cap - NB								

Project Name: US 301 Over Four Hole Swamp Project ID: 0040308			US 301 Over Four Hole Swamp Design-Build Project Project ID: 0040308					Technical Proposal CPM Schedule					Print Date: 10-Aug-22							
Activity ID		Activity Name	Original Duration	Start	Finish	2023		2023				2024				2025				2026
						Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
	PB3070	Form/Pour/Strip End Bent 6 Cap - NB	5d	22-Jan-24	26-Jan-24															
	PB3060	Construct Wingwall/Backwall 1 & Place Rip-Rap - NB	6d	29-Jan-24	05-Feb-24															
	PB3080	Construct Wingwall/Backwall 2 & Place Rip-Rap - NB	6d	29-Jan-24	05-Feb-24															
	PB3230	Form/Pour/Strip Bent 2 Cap - NB	5d	06-Feb-24	13-Feb-24															
	PB3260	Form/Pour/Strip Bent 5 Cap - NB	5d	06-Feb-24	13-Feb-24															
	PB3240	Form/Pour/Strip Bent 3 Cap - NB	5d	14-Feb-24	20-Feb-24															
	PB3250	Form/Pour/Strip Bent 4 Cap - NB	5d	14-Feb-24	20-Feb-24															
	Superstructure			46d	21-Feb-24	25-Apr-24														
	PB3090	Install Bearings & Beams - NB	6d	21-Feb-24	28-Feb-24															
	PB3280	Install Diaphragms - NB	5d	29-Feb-24	06-Mar-24															
	PB3100	Install Deck Form Work - NB	6d	07-Mar-24	14-Mar-24															
	PB3110	Install Deck Reinforcing Steel - NB	6d	15-Mar-24	22-Mar-24															
	PB3120	Dry-Run Deck Pour - NB	5d	25-Mar-24	29-Mar-24															
	PB3130	Pour Deck w/curing - NB	8d	01-Apr-24	11-Apr-24															
	PB3140	Strip Deck Form Work - NB	5d	12-Apr-24	18-Apr-24															
	PB3150	Finish Deck & Waterproof - NB	5d	19-Apr-24	25-Apr-24															
	PB3160	Construct Parapet Wall - NB	5d	19-Apr-24	25-Apr-24															
	Finishes			10d	26-Apr-24	09-May-24														

Remaining Level of Effort

Primary Baseline

Actual Work

Critical Remaining Work

Remaining

Baseline Milestone

Milestone

Page 15 of 17

Project ID: P0040308 | United Infrastructure Group w/ICE | Design-Build Project | Data Date: 15-Aug-22

US 301 over Four Hole Swamp | Orangeburg County, South Carolina

UNITED

INFRASTRUCTURE GROUP

Project Name: US 301 Over Four Hole Swamp Project ID: 0040308			US 301 Over Four Hole Swamp Design-Build Project Project ID: 0040308					Technical Proposal CPM Schedule					Print Date: 10-Aug-22					
Activity ID		Activity Name			Original Duration	Start	Finish	2023		2024				2025				2026
								Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
<div></div>	PB3170	ConstructApproach Slabs - NB			5d	26-Apr-24	02-May-24											
	PB3180	Groove Deck - NB			5d	03-May-24	09-May-24											
	Roadway			80d	06-Dec-23	26-Mar-24												
	PR3050	Ground Modifications [EQ Drains] at Bridge Approaches - NB Lanes			20d	06-Dec-23	02-Jan-24											
	PR3000	Grading Operations - NB Lanes			15d	08-Jan-24	26-Jan-24											
	PR3010	Fine Grading Operations - NB Lanes			10d	29-Jan-24	09-Feb-24											
	PR3020	Base Pavement - NB Lanes			10d	12-Feb-24	23-Feb-24											
	PR3030	Intermediate Pavement - NB Lanes			10d	26-Feb-24	08-Mar-24											
	PR3040	Final Surface Pavement - NB Lanes			12d	11-Mar-24	26-Mar-24											
	Phase 4			11d	10-May-24	24-May-24												
	MOT			3d	10-May-24	15-May-24												
	PM4000	Mobilize & Set Traffic Control Devices & Construction Signage [Phase 4]			2d	10-May-24	14-May-24											
	PM4020	Set Temporary Barrier Wall & Portable Drums - SB			1d	10-May-24	10-May-24											
	PM4030	Switch Traffic to Phase 4 Configuration			1d	15-May-24	15-May-24											
	Roadway			7d	16-May-24	24-May-24												
	PM4040	Remove Median Crossovers			5d	16-May-24	22-May-24											
	PM4090	Permanent Striping			5d	20-May-24	24-May-24											
Finishes			3d	23-May-24	28-May-24													

Remaining Level of Effort

Primary Baseline

Actual Work

Critical Remaining Work

Remaining

Baseline Milestone

Milestone


Page 16 of 17

Project ID: P0040308 | United Infrastructure Group w/ICE | Design-Build Project | Data Date: 15-Aug-22

US 301 over Four Hole Swamp | Orangeburg County, South Carolina

UNITED

INFRASTRUCTURE GROUP

 Remaining Level of Effort  Primary Baseline  Actual Work  Critical Remaining Work	 Remaining  Baseline Milestone  Milestone	Page 17 of 17	Project ID: P0040308 United Infrastructure Group w/ICE Design-Build Project Data Date: 15-Aug-22 US 301 over Four Hole Swamp Orangeburg County, South Carolina	
---	--	---------------	---	---



APPENDIX **B**

Required Forms



12. STIPEND ACKNOWLEDGEMENT FORM

Stipend Acknowledgement Form

US 301 Over Four Hole Swamp Orangeburg County

Proposer: United Infrastructure Group, Inc.

ADDRESS: 3800 Arco Corporate Drive, Charlotte NC 28273

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:

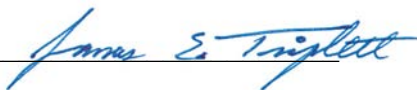
- 1) to execute and include the Stipend Agreement in Article XIII of the RFP with its RFP response;
- 2) to submit an invoice with FEIN number for the stipend amount to the SCDOT POC after SCDOT's posting of the Notice of Award on SCDOT's Design-Build Website.;
- 3) to transfer all rights to its Work 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.

07/18/2022
Date

United Infrastructure Group, Inc.
Proposer

James E. Triplett
Print Name



13. STIPEND AGREEMENT

STIPEND AGREEMENT
Project ID: 0040308
US 301 Over Four Hole Swamp
Orangeburg County

THIS STIPEND AGREEMENT (the “Agreement”) is made and entered into as of the 18th day of July, 2022 by and between the SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (hereinafter “SCDOT”), and United Infrastructure Group, Inc. (“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 \$50,000.00 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.

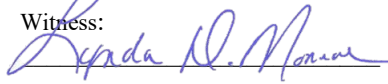
IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

Witness:

Recommended:

Brooks Bickley
Design-Build Program Manager

Witness:



Lynda Monroe

SOUTH CAROLINA DEPARTMENT
OF TRANSPORTATION

By: _____
Jae Mattox
Design-Build Engineer

Proposer

United Infrastructure Group, Inc.
Name of Proposer

By: James E. Triplett 

Its: _____
President

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 07/18, 20 22 .

Signed: 
(Officer/PROPOSER)

Title: President

Company: United Infrastructure Group, Inc.

Address: 5562 Pendergrass Boulevard, Great Falls, SC 28273

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: 0040308

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 07/18/2022
(Date)

Signed: James E. Triplett 
(Officer/Proposer)

President / CEO
(Title)

5562 Pendergrass Boulevard
(Address)

Great Falls, SC 29055

NOTICE OF RECEIPT
US 301 Over Four Hole Swamp
Design-Build – Project ID 0040308
Orangeburg County

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

07/18/2022
Date

James E. Triplett
Printed Name

For: United Infrastructure Group, Inc.
Design-Build Team Name



NOTICE OF RECEIPT
US 301 Over Four Hole Swamp
Design-Build – Project ID 0040308
Orangeburg County

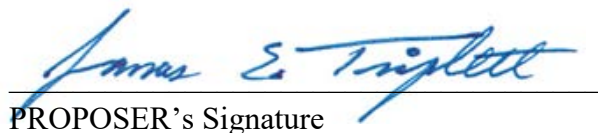
Addendum 2

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

7/18/2022

Date

James E. Triplett
Printed Name

For: United Infrastructure Group, Inc.
Design-Build Team Name



NOTICE OF RECEIPT
US 301 Over Four Hole Swamp
Design-Build – Project ID 0040308
Orangeburg County

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

07/22/2022
Date

James E. Triplett
Printed Name

For: United Infrastructure Group, Inc.
Design-Build Team Name



NOTICE OF RECEIPT
US 301 Over Four Hole Swamp
Design-Build – Project ID 0040308
Orangeburg County

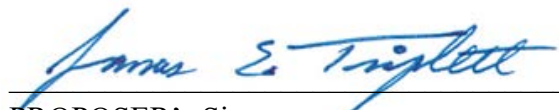
Addendum 4

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

08/08/2022

Date

James E. Triplett

Printed Name

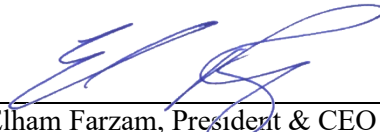
For: United Infrastructure Group, Inc.
Design-Build Team Name



Statement of Availability


On behalf of direct employer Infrastructure Consulting & Engineering, PLLC the undersigned states that the Key Individual, **Lead Design Engineer, Rafi Jamaluddin, PE** identified in the Team Organizational Chart for the US 301 over Four Hole Swamp Design-Build Project, 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.

Signed this 15th day of July 2022



Elham Farzam, President & CEO
Infrastructure Consulting & Engineering, PLLC

Co-Signed

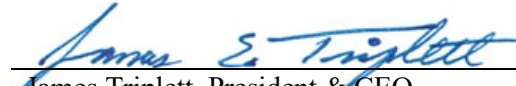


Wayne Whiting, Project Manager
United Infrastructure Group, Inc.

Statement of Availability

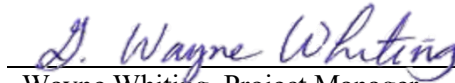
On behalf of direct employer United Infrastructure Group, Inc. the undersigned states that the Key Individual, **Construction Manager, Chris Fennel** identified in the Team Organizational Chart for the US 301 over Four Hole Swamp Design-Build Project, will be available, barring any unforeseen circumstances, 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.

Signed this 15th day of July 2022



James Triplett, President & CEO
United Infrastructure Group, Inc.

Co-Signed

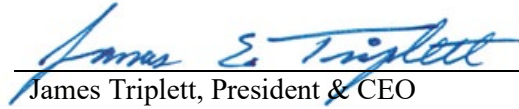


Wayne Whiting, Project Manager
United Infrastructure Group, Inc.

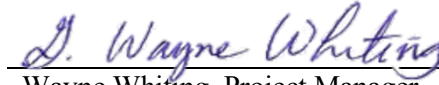
Statement of Availability

On behalf of direct employer United Infrastructure Group, Inc. the undersigned states that the Key Individual, **Project Manager, Wayne Whiting** identified in the Team Organizational Chart for the US 301 over Four Hole Swamp Design-Build Project, 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.

Signed this 15th day of July 2022


James Triplett, President & CEO
United Infrastructure Group, Inc.

Co-Signed


Wayne Whiting, Project Manager
United Infrastructure Group, Inc.



PROJECT MANAGER
George Wayne Whiting ^{UIG}

Executive Management
United & ICE

SCDOT RCE
(D7)

Quality Management /
Construction QC Team
ICE

Project, Subcontractor, &
Supplier Administration
United

Safety
United

Public Relations
ICE

PRE-CONSTRUCTION TEAM

CONSTRUCTION TEAM

LEAD DESIGN ENGINEER
Rafi Ahmad Jamaluddin, PE ^{ICE}

DESIGN BUILD COORDINATOR
United

CONSTRUCTION MANAGER
Christopher Dale Fennel ^{UIG}

Structural Engineering
ICE

Hydraulic Engineering
ICE

Utility Coordination
ICE

ROW Acquisition
Services
PAN

Roadway Engineering
ICE

Geotech Engineering
ICE & STE (drilling)

Pre-Design Surveys
ICE & CSS

Environmental
Compliance / Permitting
ICE / Palustrine Group

Design Quality Review Team (DQRT)
ICE
(Structures, Geotech, Roadway, Hydrology/Hydraulic)

Bridge & Demolition
Superintendents
United

Construction Engineers / Surveyors
United

Utility Coordination
ICE / United

Grading & Drainage
Superintendents
United

Major Subcontractors
Paving

Specialty Subcontractors
Traffic Control, Erosion Control, Signs,
Guardrail, Pavement Markings, Rebar,
Barrier, Grooving,

FIRM LEGEND

Construction
United – United Infrastructure Group, Inc. (DUNS 021395108)
Design
ICE – Infrastructure Consulting & Engineering, PLLC (DUNS 058232290)
STE – SubTerra Exploration, LLC (DUNS 117173167)
CSS – Construction Support Services, LLC (DBE) (DUNS 146508721)
PAN – Property Acquisition & Negotiations, Inc. (DUNS 946746620)
PG – Palustrine Group (DUNS 080188768)



G. CONFIDENTIAL AND PROPRIETARY INFORMATION PAGE LIST

There are no pages in this Technical Proposal that are considered confidential and proprietary.



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.

UNITED INFRASTRUCTURE GROUP, INC.

Vendor ID: 1UN002

Issued : November 17, 2021

Expires: December 31, 2022

Approved By: *Maria C. Smith*
Prequalification Coordinator

Quality Credit Matrix

Number	Description	Added Value/Benefits	Cost/Schedule Impacts	Self-imposed Assurance
1	FATC 1 - Beam Superstructure / Alternative Foundation Layout	This FATC has significant added value in the reduction of future maintenance cost by reducing obstructions in the waterway for debris collection and providing a jointless bridge.	Due to the reduction of interior bents this FATC provides significant cost and schedule savings associated with installation of bridge foundations.	This FATC allows our Team to be able to submit the most cost effective design. Our price proposal will include the savings associated with this design so we consider this FATC as a contractual requirement that is part of the Agreement.
2	FATC 2 - Concrete Encased Steel Pipe Piles	<ul style="list-style-type: none"> Provides a foundation system that is constructible in the challenging soil conditions to meet the demands of the scour and seismic design Eliminates risk for potential damage during pile installation. Sacrificial outer casing, with a useful life longer than the bridge design life, provides improved corrosion protection compared to prestressed concrete piles. 	<p>Reduces schedule risk compared to concrete pile installation and provides schedule certainty.</p> <p>The estimated cost to implement this ATC is similar to RFP compliant options, but will reduce the contingency cost associated with foundations.</p>	This FATC is essential for our Team to provide a constructable foundation. We can provide contractual assurances that this will be the foundation used for all interior bents.
3	Substantial Completion in 560 Days	UIG commits to completing construction in 560 days - 100 days ahead of 660 day requirement. This accelerated schedule reduces the impact on the traveling public.	<p>Early Completion by 100 Days</p> <p>Minimal cost increase associated with expedited schedule</p>	UIG will increase the LD rate from \$3,400 to \$5,000 per day, thus providing the ultimate and meaningful assurance to SCDOT of a timely completion.
4	Sod shoulders and median at bridge site and median crossovers. (5940+00 - 5968+00)	Use of sod (in leu of hydroseeding) will minimize washout and debris accumulations in the bottom of drainage ditches, ultimately minimizing downstream sedimentation within WOUS.	<p>No schedule impact.</p> <p>Additional cost associated with installation of sod compared to hydroseeding.</p>	UIG will credit the Department the cost of this item if quality credit points are assigned for it and it is not provided or if the Department does not want it incorporated into the project.
5	Extended Bridge Warranty	Increase from 3 years to 5 years for product defects and workmanship based on terms outlined in the RFP	<p>No schedule impact.</p> <p>Additional cost associated with extended warranty.</p>	UIG will credit the Department the cost of this item if quality credit points are assigned for it and it is not provided, or if the Department does not want it incorporated into the project.
6	Extend corrosion protection to 500-year scour depth	Increased resiliency to major flooding events causing scour.	<p>No schedule impact.</p> <p>Additional cost associated with increased casing length and concrete encasement.</p>	UIG will credit the Department the cost of this item if quality credit points are assigned for it and it is not provided or if the Department does not want it incorporated into the project.

Cost/Schedule Impacts – Describe the Cost and/or Schedule impacts 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



ALTERNATIVE TECHNICAL CONCEPTS

US 301 over Four Hole Swamp - Project ID 0040308 - Orangeburg County

Formal ATCs

Date Received: 6/13/2022

Reponse Sent: 6/22/2022

UIG - ICE			SCDOT	
ATC No.	Primary Discipline	Concept	Response	Justification
1	Structures	Use of AASHTO Type II Beams and an alternative foundation layout.	Need Info	Will sufficient design be performed during ATC development to demonstrate that hydraulic criteria will be met while also tying the profile down vertically to avoid replacement of the Indian Camp Branch Structures? If all other design criteria is met, this concept is favorable.
2	Structures	Use of concrete encased steel pipe piles at interior bents.	Approved	
3	Traffic	Due to the close proximity of the Mountaineer Motel driveway we propose to reduce the length of taper to 1000 feet for median cross-over #1.	Not Approved	This would be a reduction in Criteria, refer to Section 2.6 of Exhibit 4d part II.



See following page for Approval of ATC 1






RE: US 301 - FATC Responses for UIG - ICE



Wright, Carmen L <WrightCL@scdot.org>

To  Josh Apsitis;  Mike Grey

Cc  Bickley, Brooks J.;  Gambrell, Brian C.

 You forwarded this message on 7/21/2022 4:45 PM.

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments.

Good afternoon,

Please find below SCDOT's final determination on your team's Formal ATCs.

FINAL DETERMINATION

UIG - ICE

Response

Approved

Approved

Not Approved

Please confirm receipt of this email.

Thanks,

Carmen Wright



Formal Alternative Technical Concepts Submittal Form

Project: US 301 Over Four Hole Swamp Project ID: 0040308

ATC No.: 1 Priority: High Team: UIG/ICE Date: 7/8/22

Description (required):

Utilize AASHTO Type II Beams and an alternative foundation layout to increase span lengths and reduce the number of required foundations. Proposed span arrangements and a typical section are shown in Attachment 1.

Usage:

This ATC would be used for both NB and SB US 301 bridges over Four Hole Swamp.

Deviations (required):

Exhibit 4b - Structures Design Criteria, Section 2.1.6 (Span Arrangement and Superstructure Type)
"Cast-in-place reinforced concrete Flat Slab superstructure... with interior bent locations shown on the Conceptual Bridge Plans"

Justification:

AASHTO Type II Beams are an approved beam type in the Bridge Design Manual and normally the only limitations imposed on the use of prestressed girders is that they be "I" shaped.

This ATC would allow for a jointless bridge, therefore improving the seismic performance of the structure. The proposed superstructure will have substantially less dead load and consequently lower seismic demand thereby reducing the number of piles needed in the foundations.

Foundations have been arranged to avoid conflicts with existing bridge foundations for both NB and SB bridges.

RFP Hydraulic criteria will be met while also tying the profile down vertically to avoid replacement of the Indian Camp Branch Structures.

Schedule:

Approval of this ATC will reduce the number of foundations required therefore allowing the bridges to be replaced on an expedited schedule.

Impacts:

There are no additional impacts to right of way.

This ATC produces approximately 0.01 acres of additional wetland impacts compared with the conceptual bridge plan with the RFP hydraulic criteria applied. The design build team will investigate all options for mitigation bank credits. However, if none are available the design build team will request credits from the Black River Mitigation Bank.

History:

AASHTO Type II Beams have been used throughout the country and most all prestressed concrete beam fabricators are able to supply this section.

Risks:

Approval of this ATC will reduce risks on the project by decreasing the number of foundations to be installed.



Formal Alternative Technical Concepts Submittal Form

Project: US 301 Over Four Hole Swamp Project ID: 0040308

ATC No.: 1 Priority: High Team: UIG/ICE Date: 7/8/22

Costs (required):

There will be a savings associated with the reduction in foundations with the use of longer spans. The estimated savings is \$1,200,000.00.

Quality:

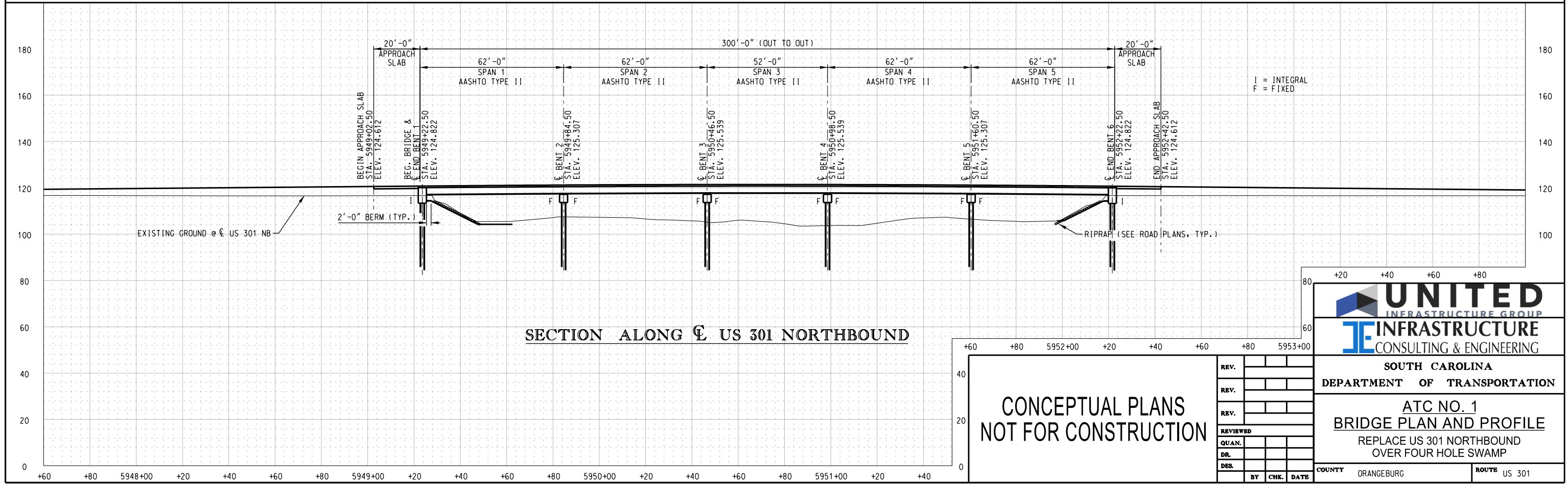
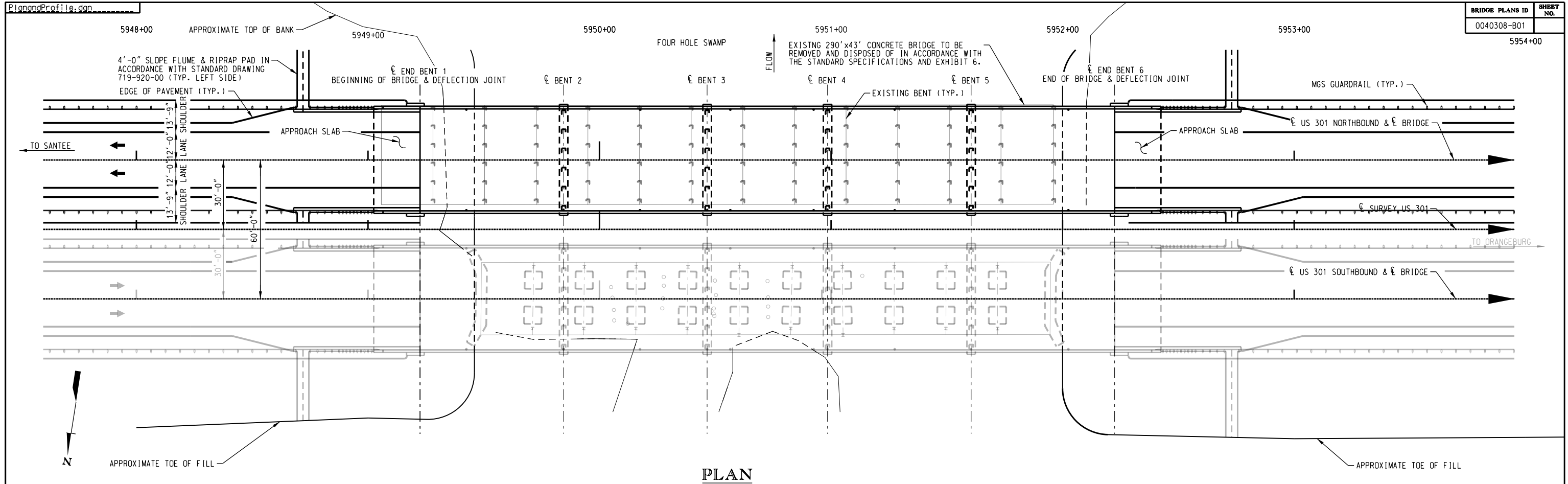
The quality of this ATC will be equal or better to the conceptual flat slab design.

Operations & Maintenance:

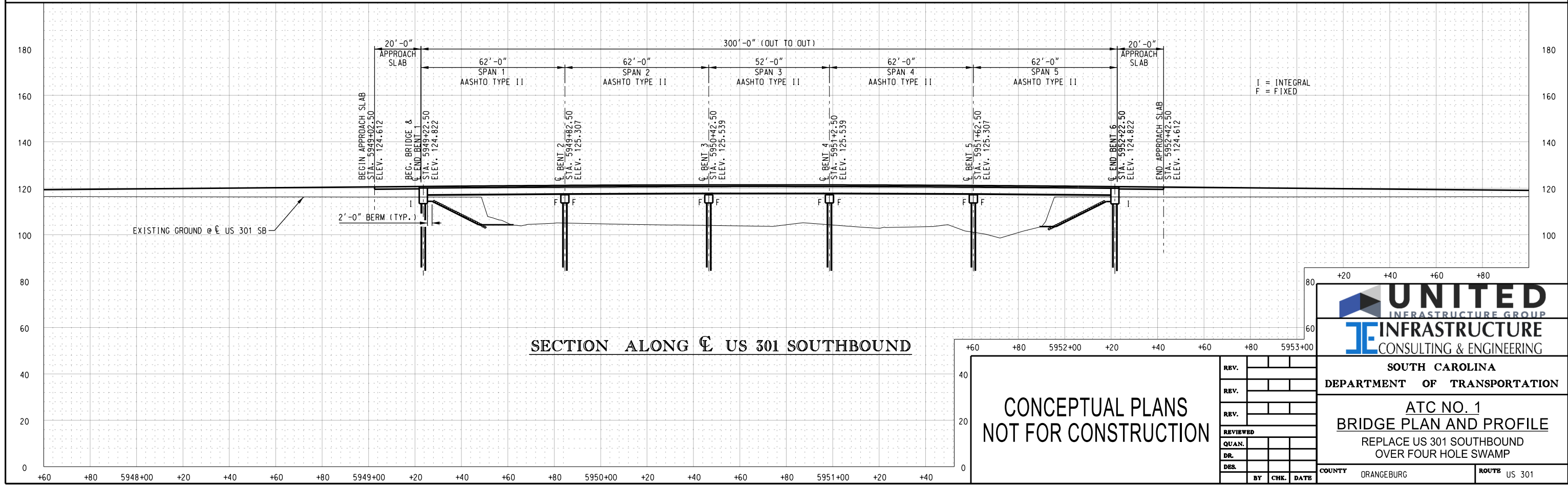
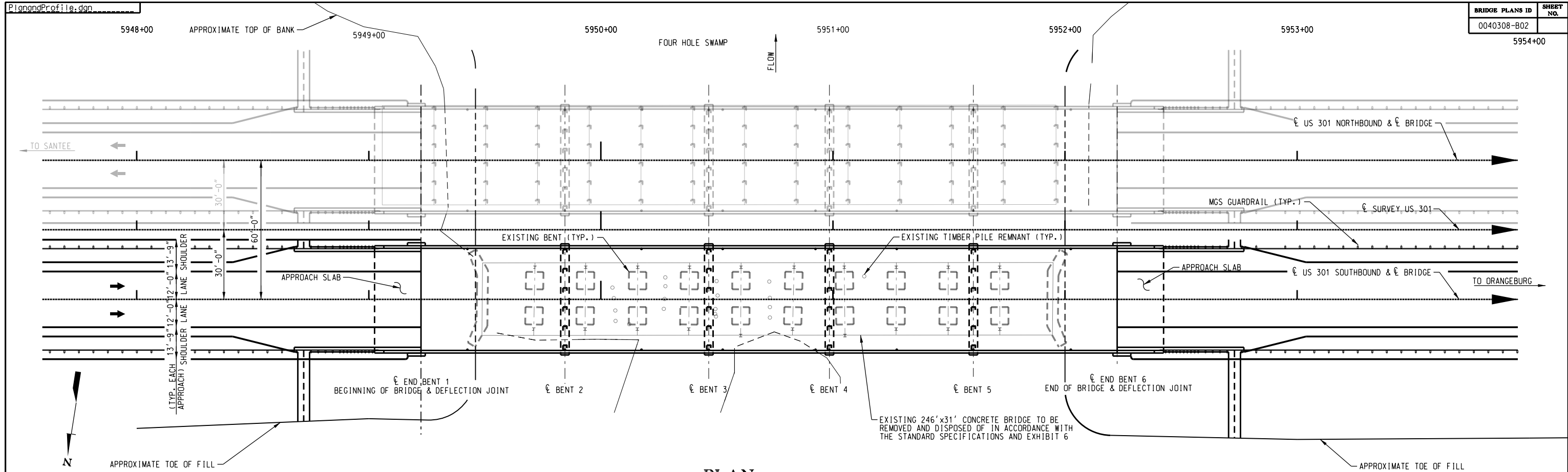
As the new bridges have only five spans each, the potential for scour and debris build up is greatly reduced thus saving on maintenance and future repair costs.

The new structure would be jointless, therefore reducing the future maintenance cost and providing better rideability.

Z:\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01-Pre-Bid Work\Conceptual Bridge Plans (ICE)\Tech, Prop. Dgns\02-03_PLAN & PROFILE.dgn
6/9/2022
9:10:44 AM

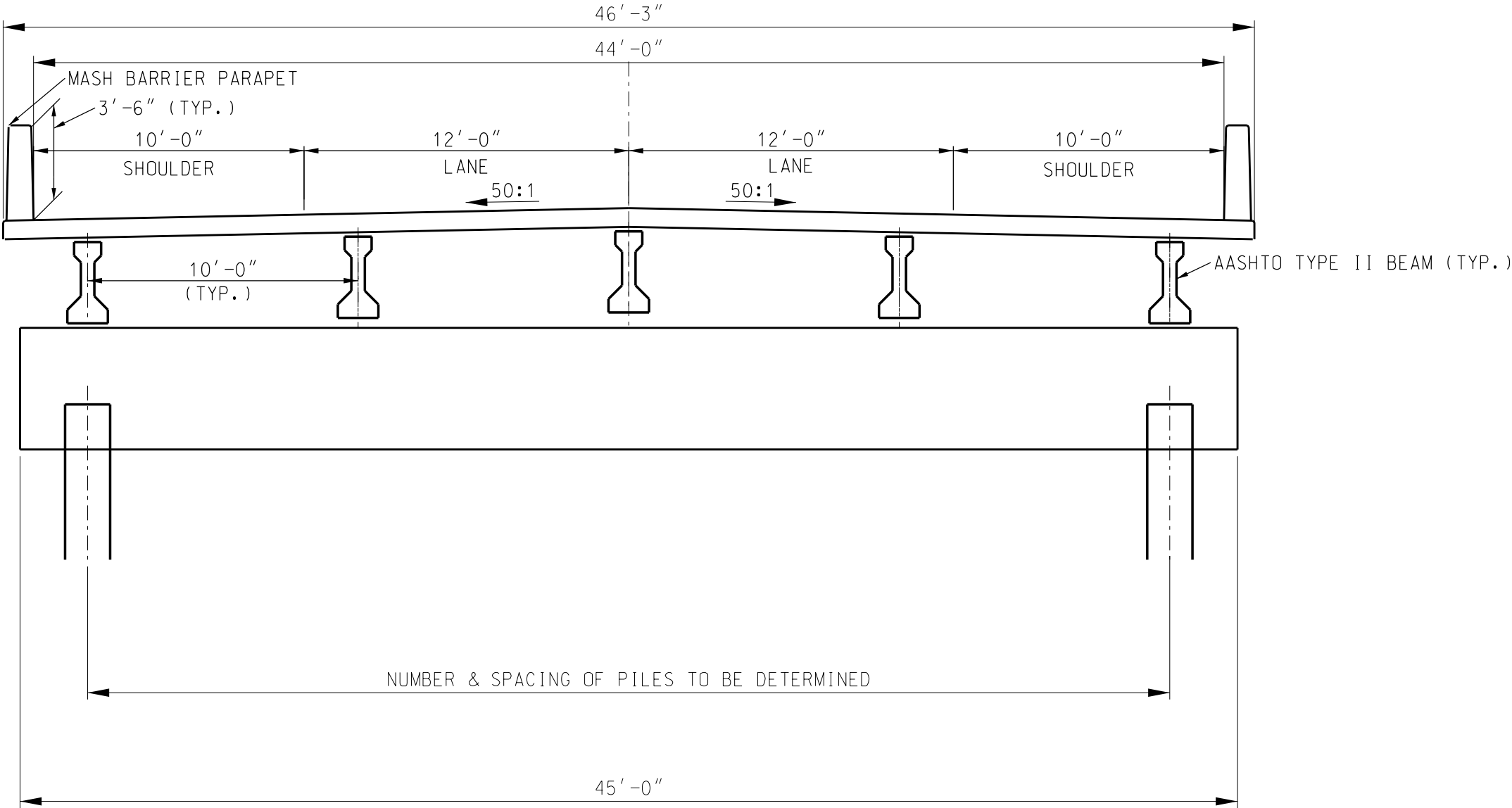


Z:\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01-Pre-Bid Work\Conceptual Bridge Plans (ICE)\Tech, Prop. Dgns\02-03_PLAN & PROFILE.dgn
6/9/2022
9:10:58 AM



Z:\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01_Prelim\Work\Conceptual Bridge Plans (ICE)\Tech. Prop. Dgns\04_Typical Section.dgn
6/10/2022

BRIDGE PLANS ID	SHEET NO.
0040308	



SECTION THRU SUPERSTRUCTURE

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

REV.			
REV.			
REV.			
REVIEWED			
QUAN.			
DR.			
DES.			
BY	CHK.	DATE	

UNITED
INFRASTRUCTURE GROUP

JE
INFRASTRUCTURE
CONSULTING & ENGINEERING

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ATC NO. 1
TYPICAL SECTION

COUNTY	ORANGEBURG	ROUTE	US 301
--------	------------	-------	--------



Formal Alternative Technical Concepts Submittal Form

Project:

Project ID:

ATC No.:

Priority:

Team:

Date:

Description (required):

Propose to use steel pipe piles at interior bents. Steel pipe piles will be concrete encased (2.5") to a depth of 2 feet below the scour elevation. A steel casing will be used as a stay in place form for this concrete encasement providing primary corrosion protection. The steel casing would have an minimum thickness of 3/8". Based on corrosion rates shown in attachment 2 this casing would have useful life longer than the bridge design life.

A sketch has been provided in Attachment 1.

Usage:

For the construction of interior bents of both NB and SB bridges of US 301 Over Four Hole Swamp in lieu of prestressed concrete piles, which present drivability concerns and concerns about highly variable pile lengths.

Deviations (required):

Deviation is from Exhibit 4b - Structures Design Criteria, 2.1.17 Substructures, which does not allow the use of steel piles at interior pile bents.

Justification:

1. Based on geotechnical conditions and our experience there is a low probability of driving prestressed concrete piles to required depths without causing damage to the piles.

2. Steel piles are much more adaptable to conditions where highly variable lengths are anticipated due to variable soil conditions.

Schedule:

The use of this proposed ATC will greatly reduce schedule risk compared to concrete pile installation and provide much greater schedule certainty.

Impacts:

There are no additional impacts to human and/or natural environment. The installation of concrete encased steel pipe piles results in less spoils than created by conventional drilled shaft construction.

History:

Steel Pipe Piles are commonly used for foundations of bridges and concrete encasement is a proven method for corrosion protection in various bridge elements.

The 2017 As-Let Bridge Plans for US-301 (SB) Over Four Hole Swamp utilized a similar foundation to this ATC.

The current Berlin Myers Parkway project utilizes concrete encased steel piles.

Risks:

Approval of this ATC greatly reduces the foundation installation and design risk by making driven pile foundations a feasible option.



Formal Alternative Technical Concepts Submittal Form

Project:

Project ID:

ATC No.:

Priority:

Team:

Date:

Costs (required):

The lineal cost of steel pipe piles usually exceeds that of prestressed concrete piles. However, under a combination of circumstances, concrete encased steel pipe piles will be a cost-effective option, and potentially the only feasible constructible option.

Due to the difficult drivability of prestressed concrete piles into the Santee limestone formation, the use of concrete encased pre-drilled steel pipe piles will enable the Team to complete the substructure installation in a timely fashion and to easily adjust pile lengths in the highly variable soil conditions.

The estimated cost to implement this ATC is similar to RFP compliant options, but will reduce the contingency cost associated with foundations.

Quality:

Implementation of this ATC will result in a more predictable foundation installation and improve long term performance.

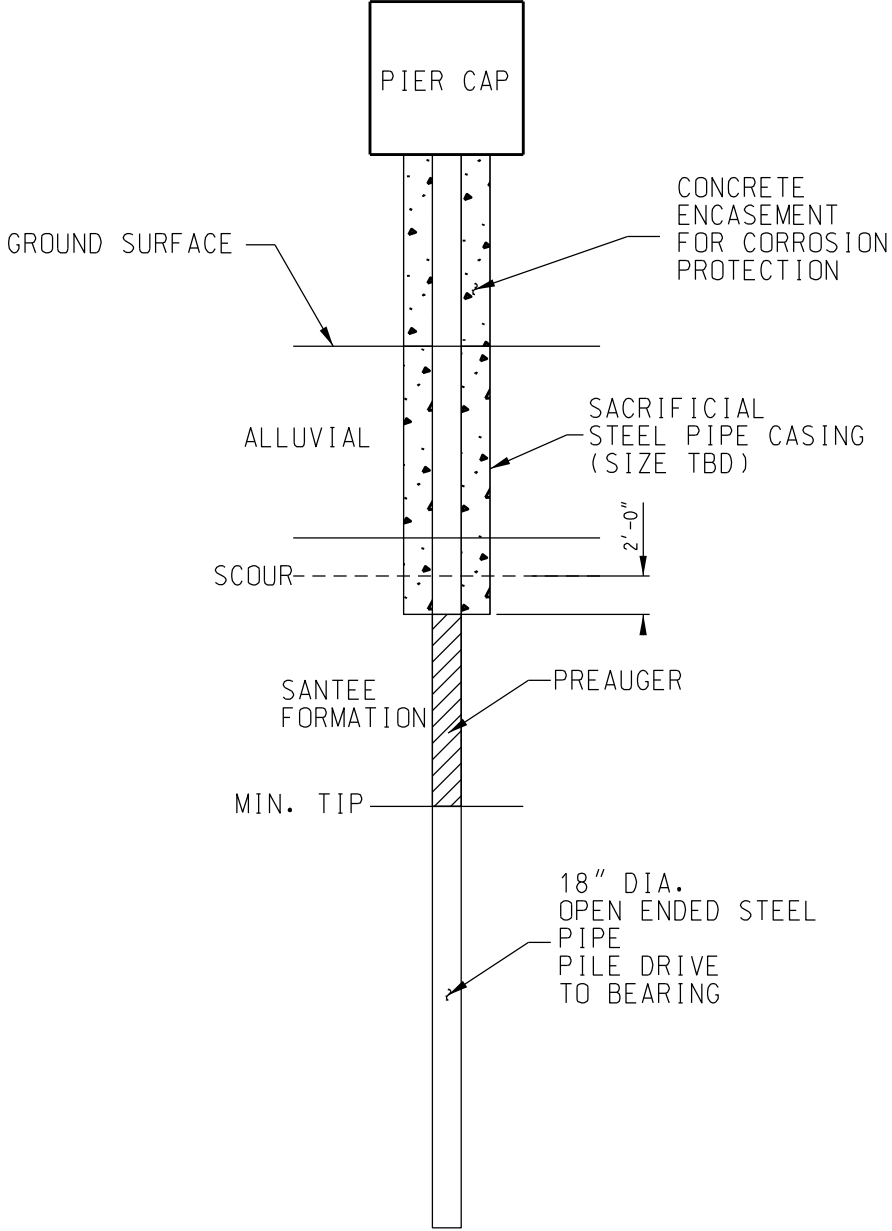
Operations & Maintenance:

No adverse operations or maintenance issues are anticipated with this ATC proposal. Once installed, the concrete encased steel pipe piles will have the same life span and perform equally to prestressed concrete pile foundations.

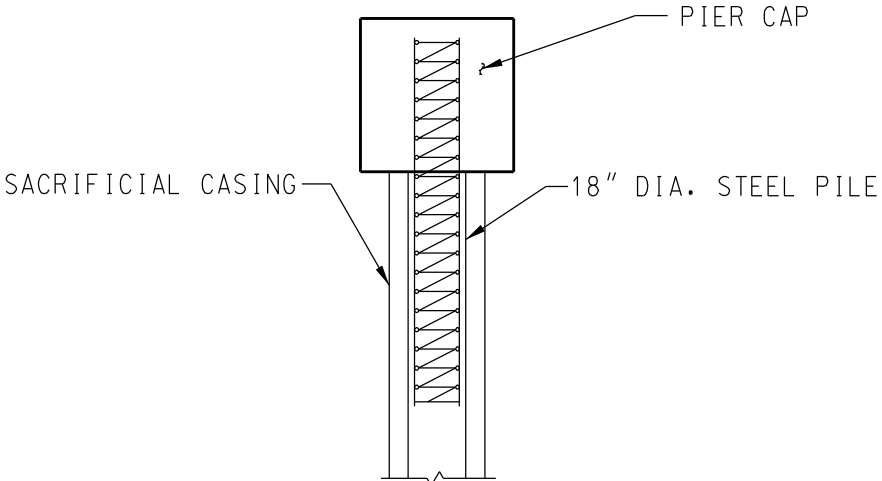
Z:\Projects\22-35 US 301 over Four Hole Swamp\STRUCTURES\01_Pre-Bid Work\Conceptual Bridge Plans (ICE)\Tech. Prop. Dgns\05.ATC NO. 2.dgn
6/9/2022

BRIDGE PLANS ID	SHEET NO.
0040308	

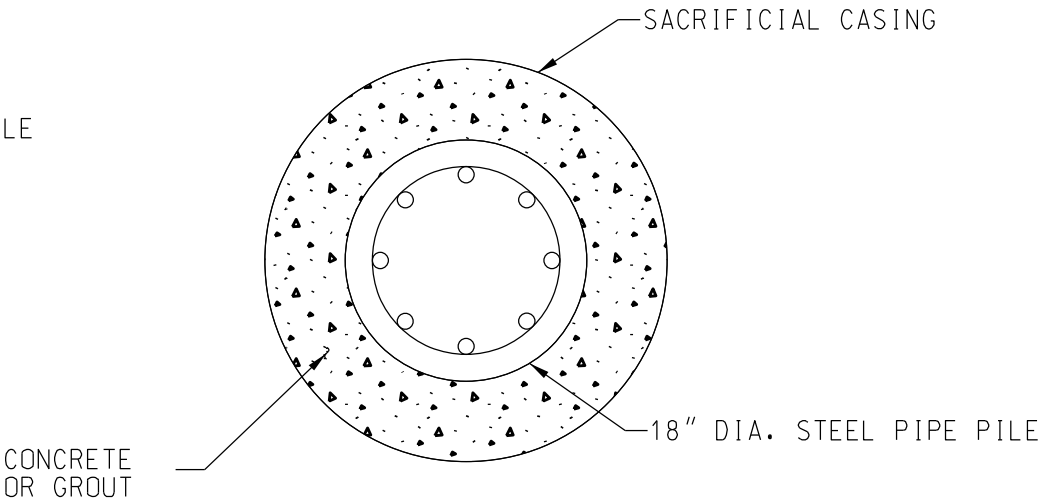
ATTACHMENT 01



ELEVATION



CAP - PIPE PILE CONNECTION



TYPICAL SECTION

CONCRETE ENCASED STEEL PIPE PILE

NOT TO SCALE

- NOTES:
1. INSTALL SACRIFICIAL CASING DOWN 2' BELOW SCOUR
 2. CLEAN OUT INSIDE CASING
 3. PRE-AUGER TO MIN. TIP
 4. DRIVE PIPE PILE TO BEARING
 5. POUR CONCRETE ENCASEMENT AROUND PIPE PILE

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

REV.			
REV.			
REV.			
REVIEWED			
QUAN.			
DR.			
DES.			
BY	CHK.	DATE	

UNITED
INFRASTRUCTURE GROUP

JE INFRASTRUCTURE
CONSULTING & ENGINEERING

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ATC NO. 2
CONCRETE ENCASED STEEL PIPE PILE

COUNTY ORANGEBURG

ROUTE US 301



Attachment 2 – FATC #02 – Loss of thickness by corrosion

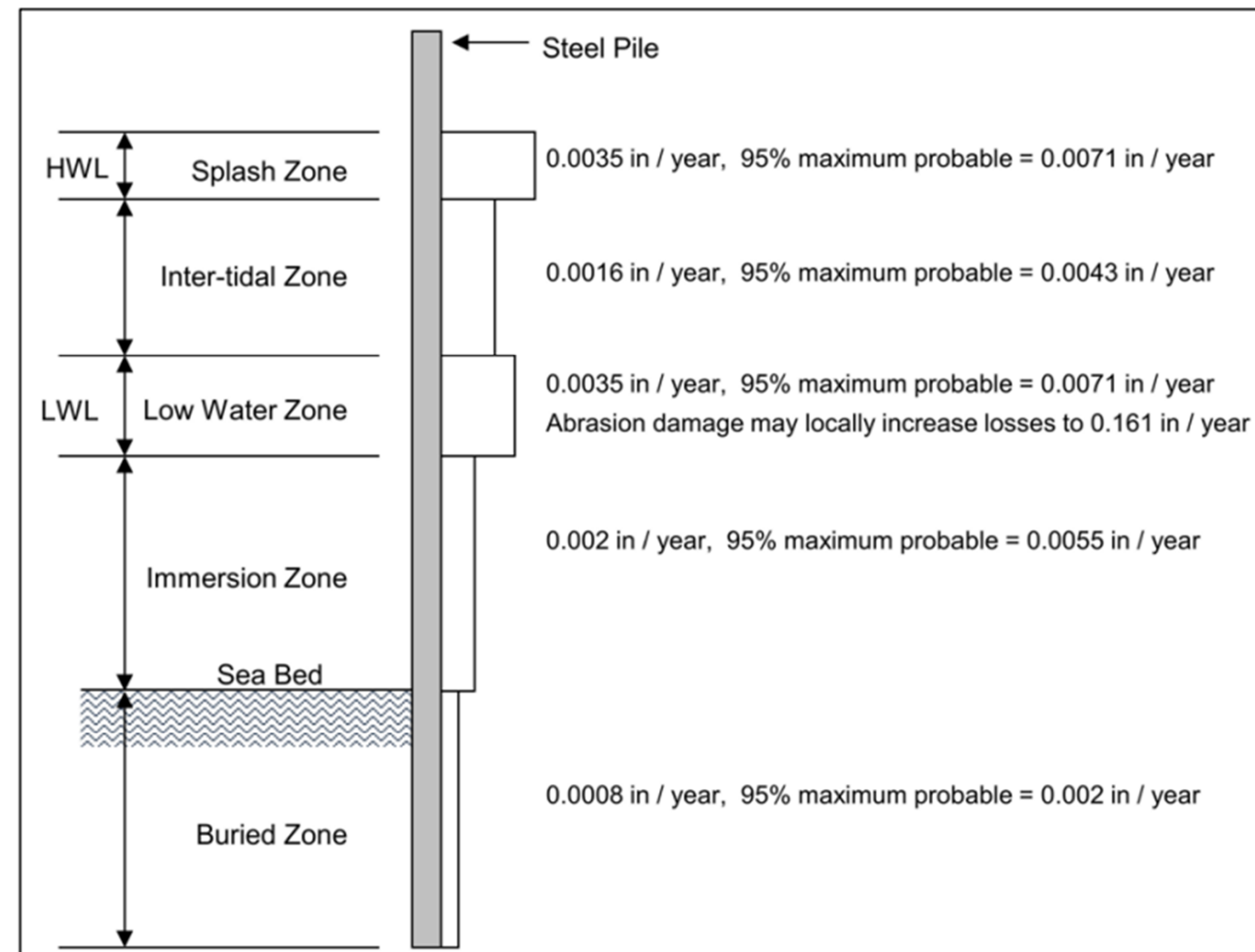


Figure 6-29 Loss of thickness by corrosion for steel piles in seawater (after Morley and Bruce 1983).

From: Publication No. FHWA-NHI-16-009 Federal Highway Administration
FHWA GEC 012 – Volume I July 2016