



Volume I Technical Proposal

A DESIGN-BUILD PROJECT

I-95 Southbound CD Lanes – Rappahannock River Crossing

From: Truslow Road

To: 1.29 Miles South of Exit 130

Stafford County/City of Fredericksburg, Virginia

State Project No.: 0095-111-259, P101, R201, C501; 0095-089-741
Federal Project No.: IM-5111(235)
Contract ID Number: C00101595DB94



November 14, 2017

ATTACHMENT 4.0.1.1

**I-95 SOUTHBOUND CD LANES – RAPPAHANNOCK RIVER CROSSING PROJECT
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

Offerors shall furnish a copy of this Technical Proposal Checklist, with the page references added, with the Technical Proposal.

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Technical Proposal Checklist and Contents	Attachment 4.0.1.1	Section 4.0.1.1	no	Behind Cover
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6(Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Located in Appendix
Letter of Submittal				
Letter of Submittal on Offeror's letterhead	NA	Sections 4.1		Page 1
Identify the full legal name and address of Offeror	NA	Section 4.1.1	yes	1
Authorized representative's original signature	NA	Section 4.1.1	yes	1
Declaration of intent	NA	Section 4.1.1	yes	1
120 day declaration	NA	Section 4.1.2	yes	1
Point of Contact information	NA	Section 4.1.3	yes	1
Principal Officer information	NA	Section 4.1.4	yes	1
Interim Milestone and Final Completion Date(s)	NA	Section 4.1.5	yes	1
Any Unique Milestone dates introduced by the Offeror	NA	Section 4.1.6	yes	1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.7		
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.8	no	Located in Appendix
Commitment to achieving a Ten percent (10%) DBE	NA	Section 4.1.9	no	Located in Appendix
		Section 4.1.10		1

ATTACHMENT 4.0.1.1

I-95 SOUTHBOUND CD LANES – RAPPAHANNOCK RIVER CROSSING PROJECT

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
participation goal				
Offeror's Qualifications	NA	Section 4.2		Page 2
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any requested changes were previously approved by VDOT	NA	Section 4.2.1	yes	2
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	2
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	2
Design Concept	NA	Section 4.3		Pages 3-19
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	3-13 (Plans located in Volume II)
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	14-19 (Plans located in Volume II)
Project Approach	NA	Section 4.4		Pages 20-35
Environmental Management	NA	Section 4.4.1	yes	20-25
Utilities	NA	Section 4.4.2	yes	25-30
Geotechnical	NA	Section 4.4.3	yes	30-35
Quality Assurance/Quality Control (QA/QC)	NA	Section 4.4.4	yes	

ATTACHMENT 4.0.1.1

**I-95 SOUTHBOUND CD LANES – RAPPAHANNOCK RIVER CROSSING PROJECT
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Construction of Project				
Sequence of Construction	NA	Section 4.5		Pages 36-52
Transportation Management Plan	NA	Section 4.5.1	yes	37-47
<u>11" x 17" graphics demonstrating Sequence of Construction and MOT Phasing</u>	NA	Section 4.5.2	yes	47-52
		<u>Section 4.5.1</u>	<u>yes</u>	Plans located in Volume II
Disadvantaged Business Enterprises (DBE)				
Written statement of percent DBE participation	NA	Section 4.6		Statement on Tab Divider
	NA	Section 4.6	yes	
Proposal Schedule				
Proposal Schedule	NA	Section 4.7		4.7-1 -22
Proposal Schedule Narrative	NA	Section 4.7	no	Located in Volume II
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.7	no	1-22
	NA	Section 4.7	no	CD Envelope



Section 4.1 Letter of Submittal



General Construction | Heavy Civil | Geotechnical

Wagman Heavy Civil
3290 N. Susquehanna Trail
York, PA 17406-9754

November 14, 2017

Mr. Suril R. Shah, P.E.
Alternative Project Delivery Division
Virginia Department of Transportation
1401 E. Broad Street
Richmond, Virginia 23219

RE: **Response to Request for Proposals (RFP)**
I-95 Southbound CD Lanes – Rappahannock River
Stafford County/City of Fredericksburg, Virginia
A Design-Build Project
Contract ID No.: C00101595DB94

Dear Mr. Shah:

Wagman Heavy Civil, Inc. (Wagman) is pleased to submit our Proposal for the above referenced project.

4.1.1 Offeror’s Official Information. The full legal name and address of Wagman is as follows:

Wagman Heavy Civil, Inc. Phone: 717.767.8277
3290 N. Susquehanna Trail, York, PA 17406-9754 Fax: 717.767.5546

4.1.2 Declaration of Intent. If selected, Wagman intends to enter into a contract with VDOT for the Project in accordance with the terms of this RFP.

4.1.3 120 Day Declaration. Pursuant to Part 1, Section 8.2, the offer represented by our Technical and Price Proposals will remain in full force and effect for one hundred twenty (120) days after the date the Technical Proposal is actually submitted to VDOT (“Technical Proposal Submission Date”).

4.1.4 Authorized Representative/Point of Contact
David Lyle, DBIA, VP, D-B/Major Pursuits
26000 Simpson Road, North Dinwiddie, VA 23803-8943
P. 804.631.0003 | F. 804.733.6281
Email. dwlyle@wagman.com

4.1.5 Principal Officer Information
Greg Andricos, PE, President/COO
3290 N. Susquehanna Trail, York, PA 17406-9754
P. 717.767.8292 | F. 717.767.5546
Email. gmandricos@wagman.com

4.1.6 Interim Milestone and Final Completion Date(s). In accordance with RFP Section 2.3.1, the Wagman Team proposes an interim completion date of **September 15, 2021** and a final completion date of **May 26, 2022**.

4.1.7 Unique Milestone Dates: The Wagman Team does not propose any additional milestone dates for the project.

4.1.8 Proposal Payment Agreement or Waiver of Proposal Payment. An executed Proposal Payment Agreement (Attachment 9.3.1) can be found in the tab following this letter.

4.1.9 Certification Regarding Debarment Forms. Certificates Regarding Debarment for the Primary firms (Attachment 11.8.6 (a)) and the Lower Tier firms (Attachment 11.8.6 (b)) are included in the tab following this letter.

4.1.10 Disadvantaged Business Enterprises (DBE) Commitment (10%). The Wagman Team supports the DBE program and is committed to achieving or exceeding the ten percent (10%) DBE participation goal for the entire value of the contract.

The Wagman Team partners each have long and successful histories serving Virginians on numerous projects. As a single, integrated team, we will design and construct the I-95 Southbound CD Lanes – Rappahannock River Crossing Design-Build Project (I-95 CD Lanes) with a focus on maintaining safe and consistent operations throughout the corridor while minimizing impacts to the environment. We will create a transparent relationship with VDOT and third-party stakeholders to promote trust, confidence, and collaboration to deliver the project within budget and ahead of schedule providing overall **best value to VDOT and the public**.

Thank you for the opportunity to submit our Proposal.

Respectfully,
Wagman Heavy Civil, Inc.

David W. Lyle, DBIA
Vice President



Section 4.2 Offeror's Qualifications

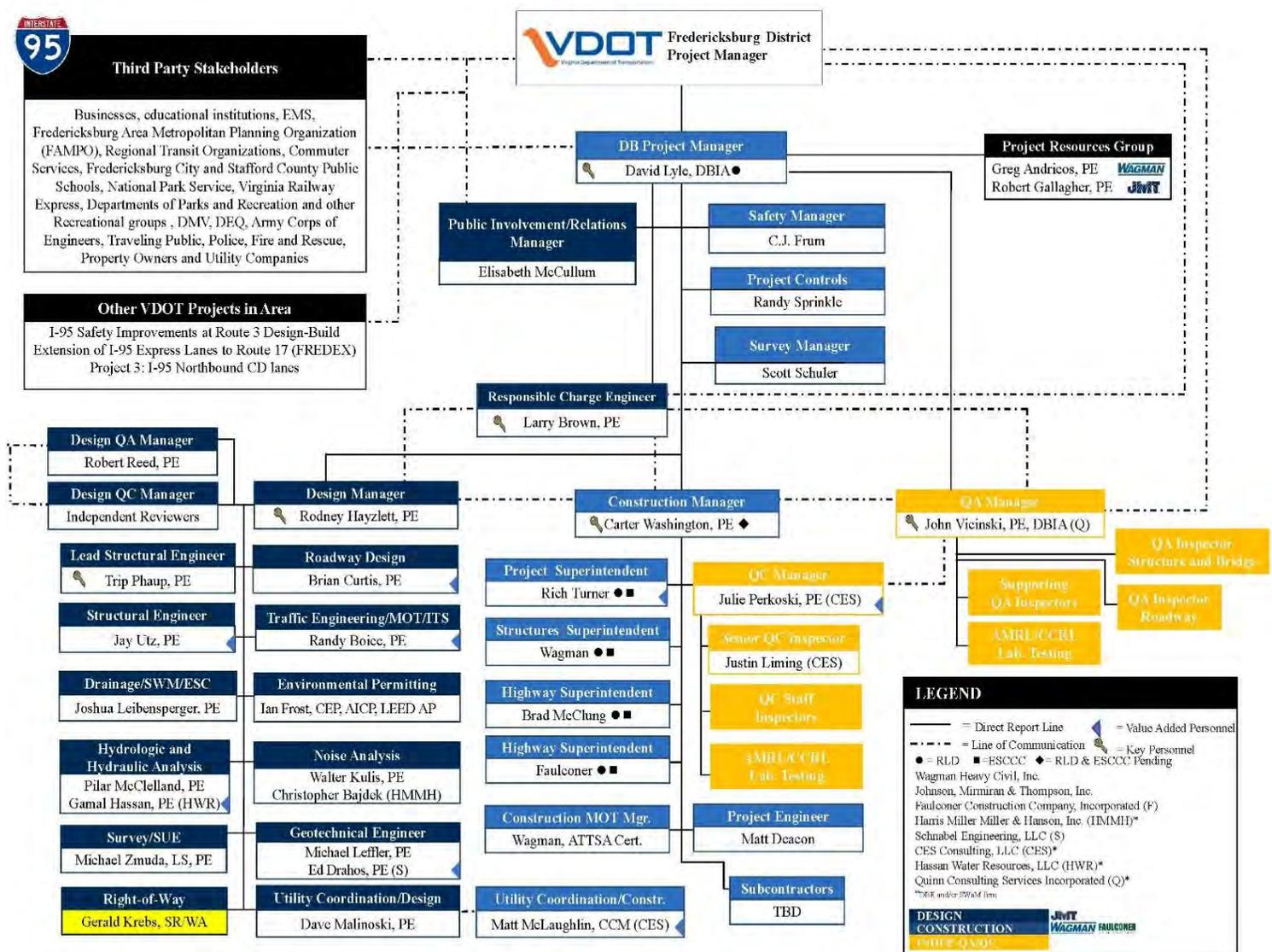
4.2 | OFFEROR'S QUALIFICATIONS

4.2.1 Confirmation of True and Accurate Information

We have modified the structure of our team per VDOT approval on **October 18, 2017**. The proposed organizational structure change involves the substitution of the ROW Manager. We have included the approval email/letter in the Appendix. No other changes have been made to the Wagman Team's organizational structure presented in the SOQ.

4.2.2 Organizational Chart and Revised Narrative

Our organizational chart below indicates the personnel change (indicated in yellow box below) as approved by VDOT on **October 18, 2017**. We have included the approval email/letter in the Appendix. The proposed organizational structure change involves substitution of the ROW Manager. Gerald Krebs, SR/WA of JMT, will replace Joe Sckinto as previously submitted with our RFQ submission. **The functional relationships between positions and roles as described in our SOQ narrative remain unchanged, true, and accurate.**





Section 4.3 Design Concept

4.3 | DESIGN CONCEPT

The Wagman Team will develop a design concept that meets or exceeds the design standards for **I-95 SOUTHBOUND (SB) CD LANES** including the Base Bid and Option 1. Additionally, we will meet or exceed all requirements of the RFP and addenda. The Wagman Team will advance and refine the conceptual design from its current design level into final design, providing VDOT full confidence in meeting all of the Project's priorities: Reducing cost, more efficient design, full constructability, design quality assurance, and a project approach that limits risks to the public and all stakeholders.

The Wagman Team has evaluated the preliminary plans and information provided in the RFP documents and has developed a design concept that will promote benefits to end users in terms of **safety, operations, schedule, construction, public acceptance, and long-term sustainability.**



The Wagman Team's award winning Route 61 over the New River and Route 460 Design-Build project.

Our design team's joint experience from design development through construction on projects similar to I-95 has strengthened the capabilities of our overall D-B team. We will successfully deliver this I-95 Project under the advantages of the D-B process. The I-95 SB CD Lanes Project will benefit from our collective experience and the existing relationship of our team members as demonstrated previously with this team on the Route 61 over the New River and Route 460 and Odd Fellows Road Design Build projects. The Wagman Team has already established highly effective communication protocols that ensure the efficient development, approval, and ultimate implementation of a high-quality design. The Wagman Team will require no learning curve throughout any phase of this project as we are an

established, well-functioning team. This team has delivered similarly challenging projects for VDOT within budget and schedule and will satisfy the I-95 SB CD Lanes project interim milestone and achieve final completion prior to May 26, 2022.

The Wagman Team's design for the I-95 SB CD Lanes Project builds upon our overall D-B and corridor experience to deliver the best value to VDOT and other stakeholders as evidenced by some of the key elements of our design approach and concept. Key aspects and enhancements are highlighted below and are described later in our narrative and on our Conceptual Plans in Volume II.



Safety Improvement Elements

- A roadside protection system that incorporates MASH-tested barriers and guardrails.
- Temporary Traffic Control design provides safe, reliable and predictable traffic flow.
- Design meets AASHTO superelevation standards for 75-mph design speed.
- Incorporation of Southbound I-95 CD lanes to improving merge conditions.



Operations Improvement Elements

- Provides required overhead clearance on the I-95 bridges over Route 17.
- Reduces impacts to Rappahannock River and adjacent trail traffic.
- Enhanced ITS and camera systems.
- Our TMP incorporates a temporary signal at Route 17 that eliminates weaving around the construction work zone by temporarily removing the loop ramps



Schedule Improvement Elements

- Project will include early work packages to allow for advanced MOT and E&S installation for grading and construction opportunities outside of jurisdictional areas.
- Use of temporary signal at Route 17 allows Southbound CD Lane bridge over Route 17 to be constructed in single phase and out of traffic.
- River access developed to remove Rappahannock River bridge from the critical path.
- Approach for obtaining confirmatory borings in river.
- Environmental agency approval of causeway and river access plan.
- Minimize impacts to public and private utilities utilizing early coordination and design avoidance.

4.3 | DESIGN CONCEPT



Construction Improvement Elements

- Incorporates proven means and methods into the design through constructability reviews and task force meetings.
- Minimizes number of piers on bridge over Rappahannock River.
- Construction of Southbound 95 CD bridge over Route 17 in single phase eliminates construction joint in bridge deck.
- Causeway access configuration allows bridge construction from south bank of river only eliminating timely and costly redundant access from the north end.
- Maximizes use of existing pavement to the extent possible with mill and overlay.



Public Acceptance Improvement Elements

- Outreach to recreational groups to minimize impacts to adjacent river and trail traffic.
- Simplify MOT phasing to minimize lane shifts for the travelling public.
- Continued formal outreach to the project Stakeholders and community through our proposed public outreach program.
- Work alongside VDOT's communications staff to provide timely information for use on VDOT's website and social media platforms.
- Maintain a project mailing list and distribute monthly email based newsletters.



Long-Term Asset Performance and Durability

- Considered alternative materials and methods to implement optimal functionality
 - Structural steel types
 - Structural steel vs. prestressed concrete
 - Alternative RFP pavement sections
 - Stormwater Management BMPs (maximum application of nutrient credits, bio-retention, water quality grass swales, retention ponds)

The Wagman Team's design will meet or exceed the design standards for I-95 Southbound CD Lanes Project conforming to the RFP, Addenda, supporting documents, and responses to our Proprietary Meeting minutes, including the Design Criteria listed in *Part 2, Attachment 2.2*. Our design and construction limits will meet the Right-of-Way requirements outlined in the RFP. The Wagman Team will advance and refine the conceptual design from the current completion level into final design, providing VDOT full confidence in the Project's long-term asset performance and durability while satisfying the needs of the traveling public.

We have provided detailed explanations for the enhancements made to the RFP plans (*Volume II Conceptual Plans*). **Our design concept, including proposed stormwater management (SWM) facilities, falls completely within the ROW limits identified in the RFP conceptual plans** (with the exception of temporary and/or permanent easements as allowed by the RFP). Our design applies all standard and/or above standard elements (e.g., stopping-sight distance) **eliminating the need for time consuming approval of any additional design exceptions (DE) or design waivers (DW) beyond those identified in the RFP**. Our proposed design elements are not in conflict with the proposed Fred Ex design as shown on the Public Hearing displays.

4.3.1 Conceptual Roadway Plans

Provided in *Volume II* of our Technical Proposal.

4.3.1 Conceptual Roadway Description

General Geometry (A)

The I-95 SB CD Lanes project includes adding three lanes parallel to the I-95 SB General Purpose (GP) lanes between Truslow Road and 1.29 miles south of Route 3 (Exit 130). The proposed lanes will be designated as general purpose lanes and serve the through traffic while the existing general purpose lanes will be converted to collector- distributor lanes. The project includes associated roadway improvements at Route 17, a new

DM, Rodney Hayzlett, PE brings 10+ years working on VDOT projects with our DBPM, David Lyle and other key members of the Wagman Team. This team has a proven and functioning relationship with established communication protocols allowing efficient issue resolution during both design and construction assuring the project schedule will be met.

4.3 | DESIGN CONCEPT

bridge over the Rappahannock River, three new bridges over Route 17, and associated roadway improvements on I-95 and Route 17. The total length of the project is approximately 6 miles.

The new I-95 SB GP lanes are functionally classified as an Urban Principal Arterial-Interstate. The VDOT geometric design standard that will be utilized for I-95 will be GS-1-Interstate in rolling terrain with a minimum design speed of 75 mph. The typical section includes three (3) 12-foot wide travel lanes with a 4-foot wide paved shoulder left of traffic and 10-foot wide paved shoulder right of traffic.

The I-95 SB CD Lane system (existing I-95 GP lanes) is functionally classified as an Urban Principal Arterial-Interstate. The VDOT geometric design standard that will be utilized for the CD lanes will be GS-1-Interstate in rolling terrain with a minimum design speed of 65 mph. The typical section includes generally three (3) 12-foot wide travel lanes with a 10-foot wide existing paved shoulder left of traffic and 10-foot wide existing paved shoulder right of traffic. Sections where two (2) 12-foot wide travel lanes are proposed the left side paved shoulder is reduced to 4-foot.

The proposed elements for Option 1 include additional pavement and bridge widenings at Route 17 to accommodate and match the I-95 Express Lanes improvements connecting to the north end of this project. The purpose of Option 1 is to limit the overlap of work between the I-95 SB CD Lanes project and the Fred Ex project.

Refer to Design Criteria in our *Volume II Conceptual Plans* which summarizes key geometric features for the major roadway components. Furthermore, the additional criteria listed in the RFP *Part 2 Attachment 2.2* shall be implemented. **These design elements meet or exceed the specified RFP requirements.**

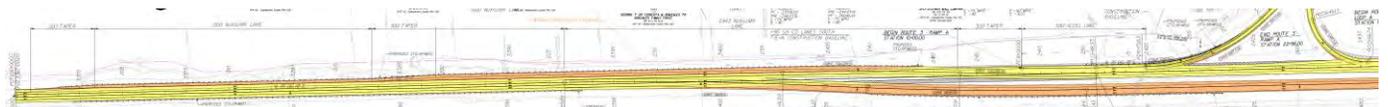
Enhanced Design Elements (General Geometry, Horizontal Alignment & Maximum Grade)

- ✓ **Safety.** Temporary signal at Route 17 provided to improve safety and reduce construction time for I-95 CD lane bridge over Route 17.
- ✓ **Operations.** Improve potential bottleneck at the southern merge of I-95 GP and CD lanes with revised lane drop/transition.
- ✓ **Schedule, & Construction.** Revised profile balancing earthwork reduces construction traffic in the corridor.
- ✓ **Public Acceptance.** Open Roads 3D modeling of corridor to improve visualization of design improvements to the public.

Horizontal Alignments (B)

The Wagman Team's horizontal geometric design meets or exceeds the requirements outlined in the RFP, Addenda, and Attachment 2.2 Design Criteria Table. **The horizontal alignment at the southern terminus for the I-95 SB GP lanes tying back in with the I-95 SB CD lanes improves the RFP design concept.** Our design improves and provides for a quicker tie-in of the GP lanes to the CD lanes optimizing the amount of mill/overlay and buildup of asphalt reducing full depth reconstruction allowing the acceleration of the construction schedule. This design also improves the merge condition from on-traffic from Ramp A at Route 3 providing additional acceleration and taper lengths by approximately 1685' over the RFP design exceeding AASHTO criteria improving safety and operations at this critical merge location as depicted in Figure 4.3.1.1. We expect similar innovation and solutions during the design development task force meetings.

RFP Concept



Wagman Team's Improved Merge Concept

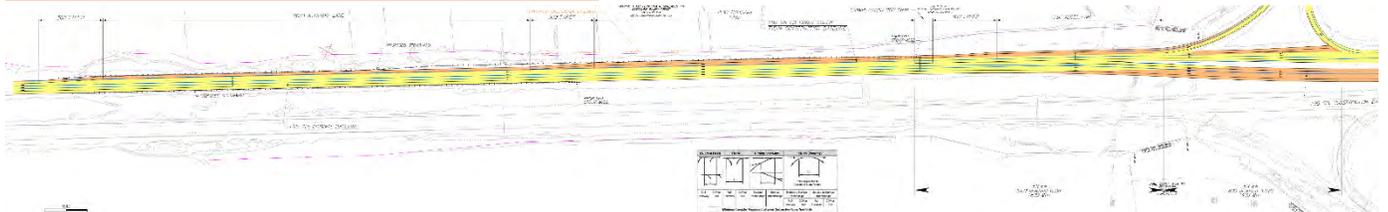


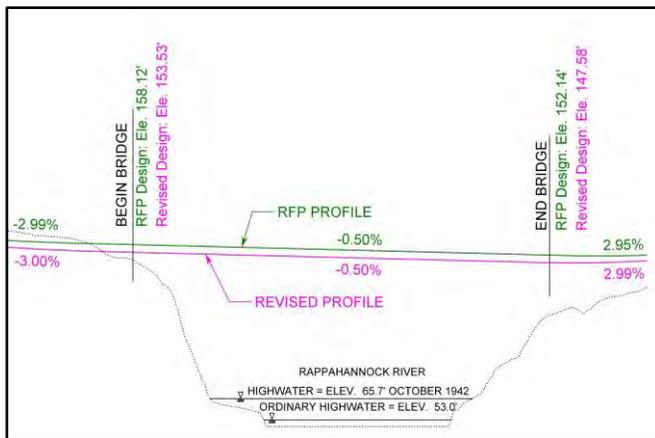
Figure 4.3.1.1: Proposed improved merge at the southern terminus of the project.

4.3 | DESIGN CONCEPT

Maximum Grade for All Segments and Connectors (C)

The Wagman Team’s vertical geometric design meets or exceeds the requirements outlined in the RFP, Addenda, and Attachment 2.2 Design Criteria Table. The Wagman Team’s I-95 SB GP lanes mainline profile grade is generally **engineered to follow the existing profile grade of the I-95 SB CD lanes to minimize bifurcation between the two roadways reducing cost, optimizing the construction schedule, and improving the overall balance of earthwork (minimizing borrow/waste) while adhering to VDOT and AASHTO criteria.**

The profile grades at the Route 17 interchange for I-95 NB, I-95 SB GP, and I-95 SB CD lanes have been engineered to **provide a minimum of 16’-6” vertical clearance over Route 17.** The profile grade for the new I-95 SB GP lanes bridge over the Rappahannock River has been engineered to **reduce MSE retaining wall requirements** at the bridge approaches from the RFP design minimizing the vertical difference between the existing and new bridge structures. The Wagman Team’s design satisfies the RFP requirements for 0.5% minimum and 4.0% maximum grades. Our design concept does not exceed the maximum proposed vertical grades for each roadway alignment (*RFP Part 2 Attachment 2.2*); **actual maximum grades** are shown in tables in *Volume II Conceptual Plans*. **All vertical geometric refinements did not increase length of traffic barrier on the project.**



Vertical Alignment Enhancements:

- Reduces overall project cost.
- Reduces long term maintenance requirements and settlement concerns at bridge abutments.
- Optimized earthwork balance reduces on-road construction truck traffic improving safety and shortening durations.

Figure 4.3.1.2: Proposed improved vertical profile over Rappahannock River.

Typical Sections (D)

The geometry of each roadway element is described above and typical sections for each roadway element are included in *Volume II Conceptual Plans* identifying the number of lanes, lane widths, and shoulder widths and pavement sections as required by the RFP. The Wagman Team will be utilizing the Alternative 1: Standard Flexible Pavement Design as described in the RFP on this project. As discussed in Section 4.4.3, analysis of this design will be undertaken during scope validation to determine if any increase in thickness is required. For all locations on the project where new guardrail is being installed, Standard MC-4 (revised in August 2017) will be followed to reduce roadside maintenance.

The new I-95 SB GP lanes typical section includes three (3) 12-foot wide travel lanes with a 4-foot wide paved shoulder left of traffic and 10-foot wide paved shoulder right of traffic. The I-95 SB CD lanes generally includes three (3) 12-foot wide travel lanes with a 10-foot wide existing paved shoulder left of traffic and 10-foot wide existing paved shoulder right of traffic. Sections where two (2) 12-foot wide travel lanes are proposed, the left side paved shoulder is reduced to 4-foot. See **Figures 4.3.1.3** and **4.3.1.4** below for general typical sections north and south of the Rappahannock River. Route 17 includes six (6) 12-foot wide travel lanes with 8-foot paved shoulders left and right of traffic. Interchange ramps will vary in width depending on number of travel lanes, for two lane ramps will include two (2) 12-foot travel lanes with 4-foot wide paved shoulder left of traffic and 8-foot wide paved shoulder right of traffic. For single lane interchange ramps width of 16-foot minimum travel lanes to be provided or will match the existing travel lane width providing a 4-foot wide paved shoulder left and 8-foot wide paved shoulder right of traffic. Paved shoulders have been extended a minimum of 2 feet to the face of guardrail and barriers. Design waivers have already been granted for the reduced shoulders in certain locations.

4.3 | DESIGN CONCEPT

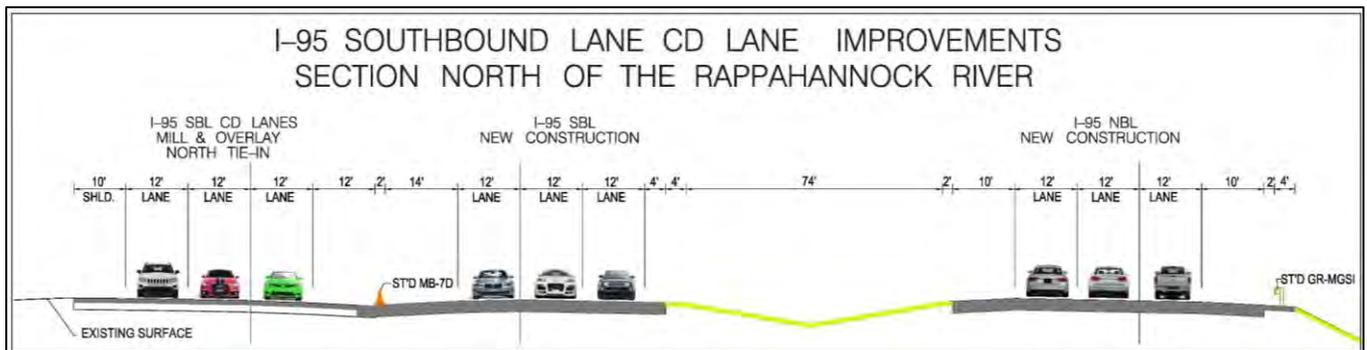


Figure 4.3.1.3: Proposed Typical Section north of the Rappahannock River

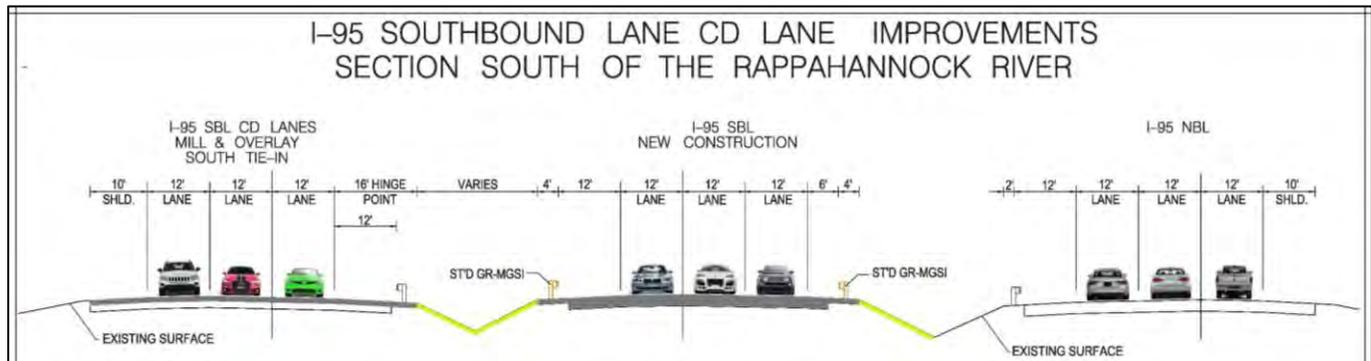


Figure 4.3.1.4: Proposed Typical Section south of the Rappahannock River

Conceptual Hydraulic and Stormwater Management Design (E)

Our drainage and SWM design for this project meet or exceed criteria stipulated in the RFP. Our design applies Virginia Law, the *VDOT Drainage Manual*, applicable IIM's and specifically the technical criteria outlined in Part IIC of the *Virginia Stormwater Management Program (VSMP) Regulations* for I-95 Southbound Collector Distributor Lanes.

Stormwater Drainage Design. The intent of our drainage design is to **maintain the existing drainage patterns and natural divides while managing the additional runoff attributed to the increases in impervious area.**

The Wagman Team has identified where new structures are needed (*Volume II Conceptual Plans*). The proposed conveyance system will consist of ditches, pipe extensions, cross pipes and culverts. New and existing storm sewer systems will be used to effectively drain the proposed SWM facilities. Each drainage system has been designed and located to maintain the existing drainage patterns within the Hydraulic Unit Code (HUC) boundary, while conveying runoff to either a SWM facility or an adequate outfall. The avoidance of the identified and potential locations of acid-sulfate soils was taken into consideration when identifying locations of pipes, ditches and stormwater management facilities. **Our design minimizes impacts to environmentally sensitive natural resources.** (*Volume II Conceptual Plans*).

Stormwater Quality Management. The I-95 SB CD Lanes project has been grandfathered and has been designed in accordance with Part IIC of the *VSMP Regulations*. Performance based criteria for

Improved Design Elements (Hydraulic & SWM)

- ✓ **Operations.** Minimize the number of BMPs to maximum extent practical for easier BMP operation.
- ✓ **Schedule.** Early coordination with VDOT to expedite SWM approach concurrence.
- ✓ **Construction.** Construction and maintenance access were considered in identifying locations of the proposed BMPs.
- ✓ **Public Acceptance.** Eliminates seven (7) bioretention filters from the RFP design concept reducing long term maintenance cost and reoccurring tax payer burden.
- ✓ **Performance/Durability.** Future maintenance and inspection requirements were key factors in selecting proposed BMP types. Bioretention filters and swales will be equipped with sediment forebays and salt tolerant plantings to help minimize future BMP maintenance efforts.

4.3 | DESIGN CONCEPT

evaluation of stormwater quality requirements have been used. The project is anticipated to disturb no more than 151.8 acres which creates a total required phosphorous removal requirement of 67.7 lbs/yr. **Table 4.3.1.5** summarizes the required removal, the anticipated BMPs used to meet the requirements, as well as the anticipated removal rate.

Table 4.3.1.5. Pollutant Removal and Proposed BMP Types for I-95 SB CD Lanes

	Req. Phosphorous Removal (lbs./yr.)	BMP Type (Qty)	Pollutant Removal (lbs./yr.)
Rappahannock River – Hazel Run (RA-46)	67.7	Bioretention Filters (19)	26.8
		Retention II Basins (1)	13.4
		Retention III Basins (2)	5.5
		Water Quality Swales (4)	5.1
Nutrient Credit Purchase (Max 25%)			16.9
TOTAL	67.7		67.7

The Wagman Team will take advantage of purchasing nutrient credits to the maximum extent possible (25%), reducing the number of BMPs to be constructed and reducing maintenance costs for VDOT. The proposed SWM facilities have been evaluated to minimize the number of SWM facilities and impacts to private properties which result in construction and maintenance savings for the Commonwealth. The selection of the combination of BMPs were based on analyzing the capital cost, annual maintenance cost and ease of maintenance of the BMPs as it relates to the pollutant removal efficiencies. Pollutant removal is enhanced through the use of multi-BMP stormwater treatment trains. A stormwater treatment train incorporates at least two processes to maximize the removal of pollutants from the runoff. One of the proposed multi-BMP stormwater treatment trains is illustrated in **Figure 4.3.1.6**. It consists of multiple BMPs operating in series. Stormwater initially goes into the bioretention filter for pollutant removal and then into the water quality swale for additional pollutant removal and finally into another bioretention filter for additional pollutant removal. BMPs in series enhances pollutant removal, reducing the number of BMPs required.

The Wagman Team’s innovative SWM design eliminates the need for seven (7) bioretention filters through the incorporation of water quality swales and use of multi-BMP stormwater treatment trains exceeding the RFPs plan.

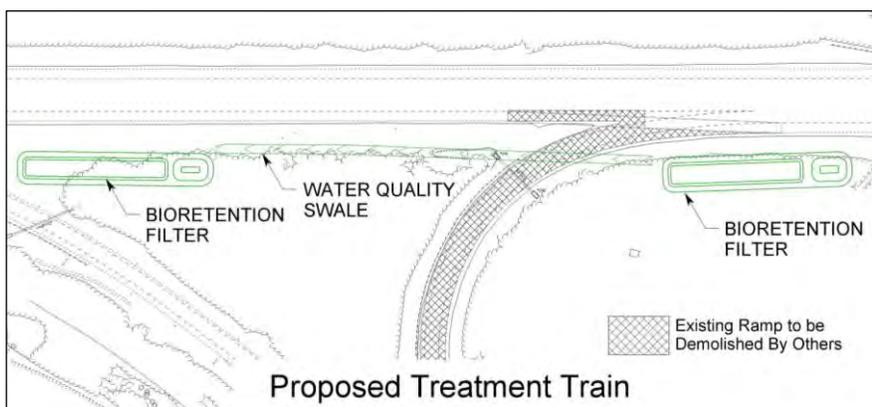


Figure 4.3.1.6. One of the Proposed Treatment Trains for Enhanced

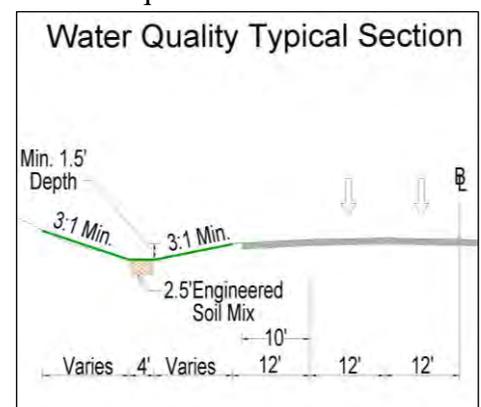


Figure 4.3.1.7 Water Quality Grass Swale

The elimination of seven (7) bioretention filters through the incorporation of water quality swales and the use of treatment trains provides capital cost and long-term maintenance cost savings to the Commonwealth. SWM facilities include water quality swales (35% removal efficiency), retention II basins (50% removal efficiency), retention III basin (65% removal efficiency), and bioretention filters with 65% removal efficiency. Consideration of proper ingress and egress for maintenance vehicles/equipment was performed in the identification of the proposed BMP locations. The water quality swales are spread out throughout the project, outside of the collector/distributor lanes (**Figure 4.3.1.7**). The retention II and III basins are located within or near the Route 3 interchange. All BMPs will be equipped with a sediment forebay and salt tolerant plantings to help minimize future maintenance.

4.3 | DESIGN CONCEPT

Stormwater Quantity Management and Hydrologic and Hydraulic Analysis (H&HA). All design work will be done in accordance with the latest version of IIM-LD-195, Chapter 11 SWM of the VDOT Drainage Manual, as well as the additional standards and reference documents listed in Part 2, Section 2.1 including the Virginia SWM Program Law and Regulations.

In addition, channel and drainage system adequacy have been analyzed and met the Virginia E&S Control Regulations Minimum Standard 19 (MS-19) criteria and Part IIC of the VSMP Regulations. There are seven (7) identified outfalls for this project. All outfalls discharge to natural channels. The receiving channels have been evaluated using the 2 and 10-year storm and appropriate measures, such as retention basins, have been applied to attenuate these storm events. The limits of these analyses were either where the channel enters a mapped floodplain or the drainage area is one hundred times greater than the contributing drainage area (1% of area or flow Rule). Figure 4.3.1.8 depicts the locations of the outfalls. A summary of the Wagman Team’s outfall analysis is summarized in Table 4.3.1.10.

(with Option 1)	
Required Removal (lb/Yr)	67.7
Nutrient Credit Purchase 25%	16.9
Target Removal via Onsite BMPs	50.8
Total Treatment Provided by BMPs	50.8
Net	0.0

Type	Efficiency	Upstream BMP (Treatment Train)	Pollutant Removed (lbs/yr)
Bioretention Filter #1 (2xWQV)	65%		1.1
Bioretention Filter #2 (2xWQV)	65%		2.2
Bioretention Filter #3 (2xWQV)	65%		1.0
Bioretention Filter #4 (2xWQV)	65%	Water Quality Swale #3	1.4
Bioretention Filter #5 (2xWQV)	65%		1.9
Bioretention Filter #6 (2xWQV)	65%		1.0
Bioretention Filter #7 (2xWQV)	65%		1.0
Bioretention Filter #8 (2xWQV)	65%		1.3
Bioretention Filter #9 (2xWQV)	65%		1.2
Bioretention Filter #10 (2xWQV)	65%		0.9
Bioretention Filter #11 (2xWQV)	65%		1.1
Bioretention Filter #12 (2xWQV)	65%		2.4
Bioretention Filter #13 (2xWQV)	65%		1.6
Bioretention Filter #14 (2xWQV)	65%		1.5
Bioretention Filter #15 (2xWQV)	65%		2.2
Bioretention Filter #16 (2xWQV)	65%		1.4
Bioretention Filter #17 (2xWQV)	65%		0.9
Bioretention Filter #18 (2xWQV)	65%		0.7
Bioretention Filter #19 (2xWQV)	65%		2.0
Retention III BMP A (4xWQV with aquatic ben)	65%		4.2
Retention III BMP B (4xWQV with aquatic ben)	65%	Bioretention Filter #7	9.2
Retention II BMP C (4xWQV)	50%		5.5
Water Quality Swale #1	35%		1.0
Water Quality Swale #2	35%		1.8
Water Quality Swale #3	35%	Bioretention Filter #5	1.1
Water Quality Swale #4	35%		1.2
			50.8

Table 4.3.1.9

Legend:
 Treatment Train 1
 Treatment Train 2

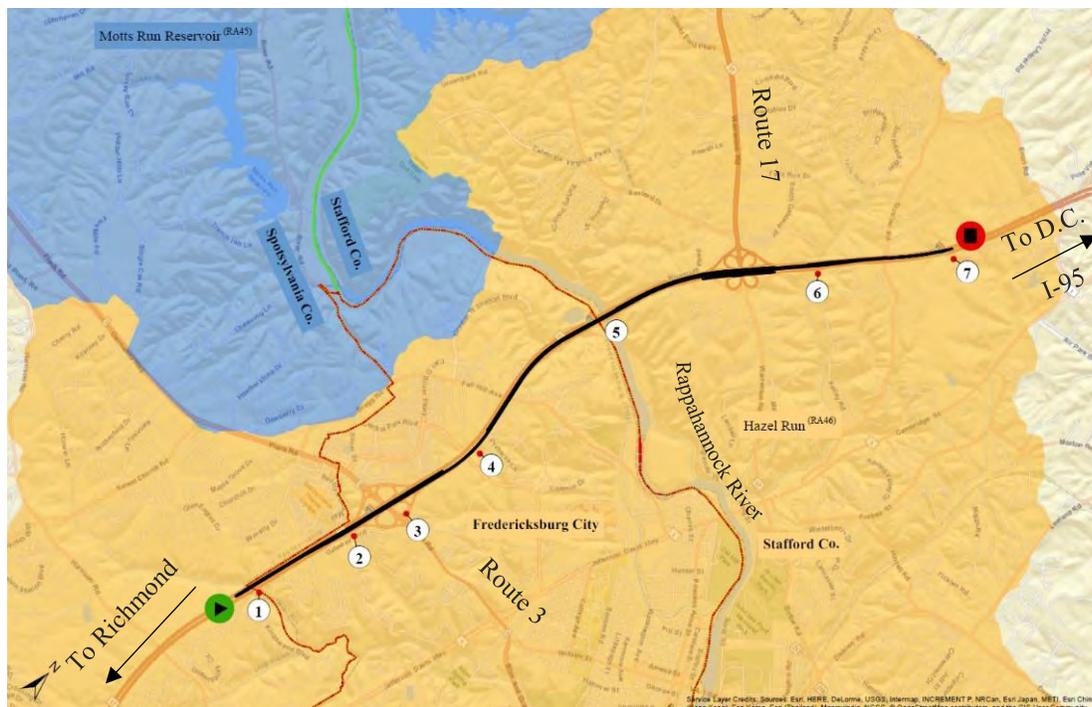


Figure 4.3.1.8. Outfall Locations throughout the Project

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Outfall No.	Stream	1% Rule	2-year and 10-year Storm Analysis
1	Hazel Run	Yes	1% Rule Applied
2	Tributary A to Hazel Run	NA	Proposed Retention Basin to ensure that 2-year storm will not cause channel bed erosion 10-year storm will not overtop channel banks
3	Tributary to Smith Run	NA	Proposed Retention Basin to ensure that 2-year storm will not cause channel bed erosion 10-year storm will not overtop channel banks
4 (A&B)	Smith Run	NA	10-year storm will be contained within the pipe
5	Rappahannock River	Yes	1% Rule Applied
6	Falls Run	Yes	1% Rule Applied
7	Claiborne Run	Yes	1% Rule Applied

Table 4.3.1.10. Outfall Analysis for I-95 SB CD Lanes

The Wagman Team has performed a preliminary hydrologic and hydraulic modeling and analysis (H&HA) for the I-95 Bridge over Rappahannock River including the construction phase and the proposed causeway/temporary bridge. The preliminary H&HA shows that the proposed I-95 Bridge and the proposed in-river causeway will not have a negative impact on the existing flood elevations. The project is located in a flood Zone A (no flood elevations using detailed method) as shown on FEMA’s Flood Insurance Rate Maps (FIRM), 510540184E and 5100650009C.

The Wagman Team utilized the Watershed Modeling System (WMS 10.1), FHWA, to delineate the watershed area (1673.66 sq. miles) and calculate the peak flood discharges and integrated the project survey data and available USGS 3m DEM maps to develop the ground and bathymetric Tin surface file. The Team used the Tin surface file to cut cross sections to develop the HEC-RAS hydraulic model for the preliminary existing and proposed conditions.

The Wagman Team utilized HEC-HMS to calculate the 2-, 5-, 10-, 25-, 50-, 100- and 500-year peak flood discharges and included these discharges in the HEC-RAS hydraulic models. Furthermore, several scenarios have been developed for the construction phase conditions using different causeway designs. Two preliminary HEC-RAS hydraulic models have been developed for the construction phase. The First hydraulic model utilized an in-river causeway constructed from one bank to halfway across the river, which is a typical construction method and the second hydraulic model utilized an **innovative in-river causeway** for the full width of the river and includes four 50’ temporary bridges (Figure 4.4.1-2), which is the proposed causeway for the Wagman Team. Preliminary analysis show that the proposed causeway will not cause a significant increase in the base flow flood levels and 100-year flood level, alter the flow distribution and concentrate flow on piers to change scour. **The Team’s selected causeway configuration optimizes constructability, minimizes temporary impacts, and mitigates time of year and endangered species restrictions.**

Erosion and Sediment (E&S) Control

A good drainage design includes consideration of Erosion & Sediment Control. The Wagman Team anticipates at least a two-phase E&S control plan to be required; other phases may be needed to accommodate segmented construction phasing. A Phase I and II E&S Control Plan will be developed and provided to VDOT for their review and approval that will contain all sediment on-site in accordance with our E&S plans. The E&S Control Plan will consist of the following: silt fencing and super silt fencing throughout the project as appropriate; sediment traps as required; rock check dams for steep graded slopes; check dams prior to entering existing channels; inlet protection; outlet protection; and turbidity curtain for the work in the River as appropriate. Anywhere possible, clean water bypasses will also be utilized as part of the plan. The E&S Plan will include

Maria Mutuc, PE, lead E&S designer will periodically perform joint site inspections (documenting in accordance with VDOT Form C-107) with the construction team throughout the duration of the project to ensure the E&S controls are functioning within the correct sequence and in accordance with the intent of the design.

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measures to stabilize, re-vegetate, and minimize the potential for acidic stormwater runoff from exposed areas with acid-sulfate soils. A more detailed discussion of E&S is contained in sections 4.4 and 4.5.

Proposed Right of Way Limits (F)

The Wagman Team’s conceptual design for the project including Option 1 and SWM facilities is contained within the ROW shown on the RFP Plans. The proposed right of way and limited access lines are shown on the Conceptual Roadway Plans in Volume II. The Wagman Team will work with VDOT to obtain approval for the limited access change from the Commonwealth Transportation Board. The proposed design is fully contained within existing right of way and limited access with the exception of the one parcel identified in the RFP. Acquisition for temporary, permanent, and utility easements will be required and will be identified as the design progresses will be included on the ROW plan submittal. Upon VDOT approval of the ROW plans, land acquisition will commence. Permanent easements for maintenance access for noise barriers will be provided where required.

To access the banks of the Rappahannock River to construct Bridge 604 (I-95 Southbound GP Lanes over the Rappahannock River), the Wagman Team is currently pursuing two options. These include constructing an access road from either Gordon Sheldon Boulevard or Wicklow Drive to the River. Wagman has met with and discussed both construction access roads with adjacent property owners including the City of Fredericksburg, Silver Companies and Diamond Nations, LLC. Wagman will acquire a right of entry from all land owners and secure permitting requirements prior to constructing either access road. All negotiated requirements with land owners of the access agreement including RFP and any stipulations concerning adjacent public trails will be followed by the Design Build Team.

The relevant experience and depth of JMT’s ROW acquisition staff allows the Wagman Team to provide the ROW acquisition services, including appraisals and appraisal reviews, required for this contract. Meeting the proposed interim and final completion date proposed herein will be our priority. We have a veteran staff of former ROW agents and managers who are ROW Utility Management System (RUMS) certified and intimately familiar with VDOT policy and procedures for the variety of ROW services required for this D-B Project. Additionally, our ROW manager, Gerald Krebs, SR/WA, will be assisted by Mr. Rick Mancinelli, SR/WA (the former VDOT S. E. Region R/W Appraisal Manager). His experience and being a certified VDOT Appraisal Reviewer, will assure bona-fide offers of fair compensation and an expedient R/W process in conformance with the applicable laws of 49 CFR and the VDOT Right of Way and Utility Relocation Manuals.

JMT’s proven track record includes the acquisition of ROW for VDOT’s Route 3 D-B Project (60 parcels) and as Wagman’s Lead Design Firm for Odd Fellows Road D-B (37 parcels, including DMV, Virginia Employment Commission, and the Post Office).

Proposed Utility Impacts (G)

To better understand the potential utility conflicts associated with our design the Wagman Team held a project specific utility coordination meeting on October 10, 2017 similar to a UFI meeting with many of the utilities present in the project area. Those in attendance included: Dominion Power, Summitt IG, Stafford County, Verizon, and Colombia Gas.

There are a significant amount of utilities that could impact this project. The utilities are public and privately-owned facilities that include watermains, sanitary sewer mains, fiber optic duct banks, gas mains, transmission and distribution power as well as VDOT fiber and power supplies. We evaluated opportunities to design around the facilities and understand precautions that will be required to protect them in-place or identify the facilities that need to be relocated. Several design and construction decisions have been made to avoid impacts to utilities: 1) Raising the bridges and I-95 mainlines at Route 17 versus lowering Route 17 where a waterline, gas line, and sanitary sewer line are located; 2) Constructing a retaining wall west of the Route 3 Ramp A tie-in to prevent the extension of a triple 6’x 6’ box culvert and relocation of gas main and sanitary sewer line; 3) During construction using low clearance construction vehicles to clear earthwork under Dominion Power lines that have enough road clearance for final I-95 GP lanes profile once construction is complete. **Table 4.3.1.11**

Our Utility Coordinator, Matt McLaughlin, has relevant DB corridor experience on the I-66 MMI, the I-66 Spot 1 & 2 Improvements Projects, and the I-66/Route 29 Gainesville Interchange project. Matt will be available to the project during both design and construction.

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shows those utilities we anticipate to impact the project at this time that will require adjustments or relocations.

Utility	Conflict Location	Solution
Dominion Power-3 Phase Overhead with Cox Communication cable	I-95 GP lanes, Sta.3422+50 & Sta. 3590+50	Replace poles or increase tension to increase clearance
VDOT ITS System – Fiber Optic	Parallel to I-95 SB lanes	Relocate as necessary
Verizon GTE South - Telephone	I-95 GP lanes, Station 3482+62	Replace poles or increase tension to increase clearance
Comcast – Aerial Communication	I-95 GP lanes at Fall Hill Rd	Replace Poles
Dominion Power – 3 Phase Overhead with Verizon Virginia – Fiber Optic	I-95 GP lanes,Sta. 3579+00,	Replace poles to increase clearance
VDOT Power	Sta. 3572+73 & Sta. 3607+90	Relocate power to equipment
Summit IG – Fiber Optic	Sta. 3572+70	Relocate service to CCTV camera
Summit IG – Fiber Optic	Under slope between pier and abutment both sides of Rte 17	Relocate fiber optic cable
Comcast & Cox Communication Cables	Option 1 – Rte 17 Ramp A Acceleration Lane Widening	Raise hand holes to match slope elevation

Table 4.3.1.11 *Utility Conflict Matrix*

Locations will be verified by test pitting before plans are developed to relocate these facilities. The systems that cross the interstate should be clear of conflict. Further investigations, including test holes will be done to reduce the risk to the construction operation by avoiding “utility surprises” which could have monetary and schedule impacts.

While the I-95 SB CD Lanes project does present a number a utility challenges, there is nothing anticipated on this project that the Wagman Team has not successfully resolved on other complex projects in the region. **Our approach is based on proactively identifying and mitigating utility conflicts from pre-investigation through design development and scheduling construction operations to not conflict with utility relocations.**

The Wagman Team will utilize the strategies developed and implemented on the Route 7 Widening/Bridge Rehabilitation over the Dulles Toll Road D-B Project which successfully mitigated over 40 utility conflicts while maintaining project schedule.

Soundwall Locations (H)

Noise barriers will be designed to meet the requirements of the RFP in compliance with VDOT’s noise barrier policy and will be finalized during the Final Noise Analysis process. Based on the preliminary noise Analysis Report, a single noise barrier was found to be feasible and reasonable. Our design includes this noise barrier which is shown on Sheet 7 of the Conceptual Roadway Plans in *Volume II* and is located adjacent to the west side of the I-95 SB CD lanes just south of Fall Hill Avenue. The noise barrier (1) will mitigate the increase in noise associated with this project on the Valor Apartment Homes that are currently under construction. The Wagman Team will work with the Department on the appropriate finish for the noise barrier to aesthetically match the noise barrier being constructed as part of the I-95/Route 3 Safety Improvements Route 3 Design Build Project. Consideration will be given to ensure no adverse drainage impacts due to the proposed noise barrier. It appears that the noise barrier will be contained within the existing right-of-way, however a minimum 10’ buffer for maintenance will be provided for the noise barrier for future maintenance needs once final design confirms location of an easement if necessary.

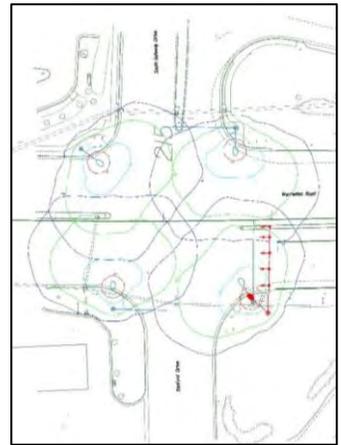
Lighting (I)

Roadway Lighting: The Wagman Team has completed a field review and have confirmed that the existing Sanford Dr./ South Gateway Dr. intersection lighting is LED. We conducted a AGi32 model using the

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existing fixtures, as well as the relocated fixture and found that acceptable lighting levels per IES RP-8 and VDOT's Traffic Engineering Design Manual for the intersection lighting are achievable.

Sign Lighting: The Wagman Team has reviewed the conceptual sign plan, and have found 2 overhead sign structures that will need LED overhead sign lighting per VDOT's IIM-TE-380. These sign structures will be evaluated and modified if required to support the additional loads for the lighting. The other signs will be sufficient with the high grade retroreflective sheeting used for interstate signs. If during the design process, the sign locations change or prevailing conditions show sign lighting will be required, the Wagman Team will provide the sign lighting systems as appropriate.



Guardrail/Barrier (J)

The proposed locations of guardrail and barrier are shown on the Conceptual Roadway Plans in Volume II. Where appropriate, new guardrail and traffic barriers used on this project will be MASH-compliant for **enhanced safety** to include the updated grading requirements (2' extended paved shoulder to face of rail and 4' graded area behind face of rail) for guardrail installations.

Full depth pavement will be extended to the face of guardrail or barrier along the I-95 GP lanes and at locations where the I-95 SB CD lanes are widened.

The Wagman's Team **revised vertical profile for the I-95 SB GP Lanes has not introduced any additional length of concrete barrier** to the project over the RFP design.

Locations of Mill and Overlay/Buildup (K)

The proposed locations of mill and overlay and buildup are shown on the Conceptual Roadway Plans in Volume II. The patterns shown on the plan sheets differentiate which sections of the proposed design are full depth construction or reconstruction and sections of existing lanes that will be milled and overlaid. As shown on the typical sections, existing sections of I-95 and ramps requiring changes in pavement marking will be milled 2.0 inches and then overlaid with 2.0 inches of asphalt concrete Type SM-12.5E. Sections of Route 17 requiring changes in pavement marking will be milled 1.5 inches and then overlaid with 1.5 inches of asphalt concrete Type SM-12.5E. Locations of buildup are not generally expected in mill and overlay sections. Buildup is expected at the following location to bring the superelevation of the existing I-95 lanes up to standards:

- Horizontal Curves on SB CD lanes from STA 283+87.26 to 314+08.21

Buildup is also expected along the existing pavement at both of the merge and diverge locations of the CD / GP lanes in order to accommodate the adjusted profile of the roadway.

The proposed profiles at the reconstructed Route 17 bridges for the SB lanes tie in at or near the 1000' limit, so full depth pavement reconstruction will be utilized. Full depth pavement reconstruction will also be utilized at the reconstructed NB bridge.

Other Key Project Features (L)

ITS Design. The existing traffic management systems in the project area include CCTV surveillance, a remote weather information system, an over height detection system, and a permanent traffic data collection station. The field elements are connected to the traffic operations center via fiber optic cables and powered through individual service drops. The project will maintain these systems through the construction period until the new field elements are installed and operational. The project will also relocate some of the field elements due to the work and will expand the CCTV surveillance to provide complete and overlapping video surveillance coverage on the roadways within the project limits through the project area.

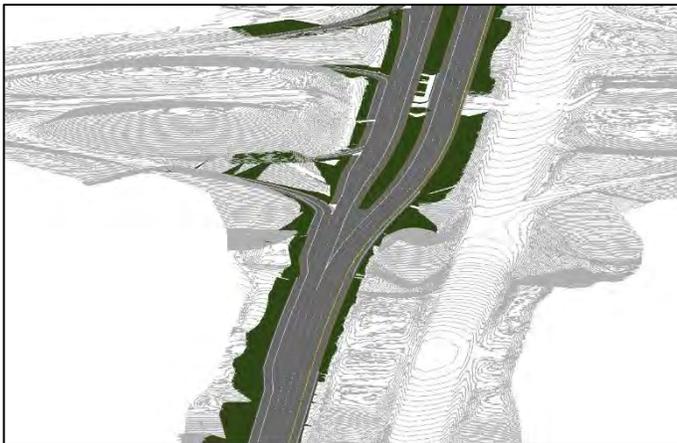
The existing fiber optic communications system operates as a trunk and distribution system. The project will not impact the trunk lines that are located on the northbound side of I-95. However, some distribution lines will be impacted particularly in the US 17 interchange area. The Wagman Team is well versed in the operations of the existing elements and in keeping them operational through construction.

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Open Roads Modeling

The Wagman Team has developed a detailed 3D model of the proposed design that allows effective review of design alternatives, improves decision making and coordination between disciplines, improves quality, produces better designs, and reinforces quality assurance and quality control. We have resolved complex grading issues, eliminated potential constructability concerns, developed an accurate method for quantity take off, and optimized the roadway profile through multiple iterations.

The 3D model will also greatly enhance communications between the engineer and the contractor in the field. The Wagman Team is developing a work flow for using the model to improve project construction, including improved construction surveying and for automated machine guidance. **The 3D model is a useful tool for stakeholder and public outreach meetings with animated virtual tours** of the project.



Southern Gore and Route 3



Route 3 w Bridges

4.3.2 Conceptual Structural Plans and Description

4.3.2 Conceptual Structural Plans

Please see the Conceptual Structural Plans provided in *Volume II*.

4.3.2 Conceptual Structural Narrative

Rappahannock River Bridge

Provided below is a description and structural concept for the bridge structure, retaining walls, horizontal and vertical clearances, and the number and widths of lanes and shoulders for the bridge on I-95 SB GP Lanes over the Rappahannock River. The description are organized by key structural features with bullets highlighting aspects of each feature.



Rendering of Proposed I-95 SB GP Bridge over river

Span Configuration

- The bridge consists of a 5-span continuous structure with spans of 175' – 270' – 270' – 270' -212.5' for a total length of 1197.5' face of backwall to face of backwall.
- The piers are located to match the existing pier 1, 3, 5, and 7 locations for the existing SB lane bridge to minimize changes in the hydraulic behavior of the waterway and to minimize changes in the scour characteristics of the site.
- The two southernmost spans avoid impacting the existing trail and archaeological features associated with the Rappahannock Navigation Canal and Rappahannock Canal Lock #1 / Minor's Lock.

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- The two northernmost spans provide the required clearance for the north channel of the Rappahannock River, defined as the clear distance between existing pier 5 and 6 of the existing SB lane bridge, and allow for construction of a future trail.

Transverse Section

- The bridge transverse section provides a 12' outside shoulder, 3 – 12' lanes, and a 6' inside shoulder – all in accordance with the RFP requirements.

Geometry

- The horizontal geometry of the I-95 SB Lanes Construction Baseline provides a minimum of 10'-0" horizontal clearance between the edge of the new structure and the existing SB bridge.
- The location of the proposed substructure units provides the required horizontal clearances for the trails, archaeologic features, and north channel as described above.
- The vertical profile set for the I-95 SB Lanes Construction Baseline provides final top of deck elevations for the new structure that are not greater than 10' of the corresponding existing top of deck elevations for the existing SB bridge.
- The vertical profile provides a 0.50% grade on the bridge to facilitate adequate drainage and cleaning of the superstructure and locates the low point of the vertical curve off the bridge.
- The vertical profile also provides more than adequate clearance from bottom of superstructure low chord to maximum expected high water elevation.

Superstructure

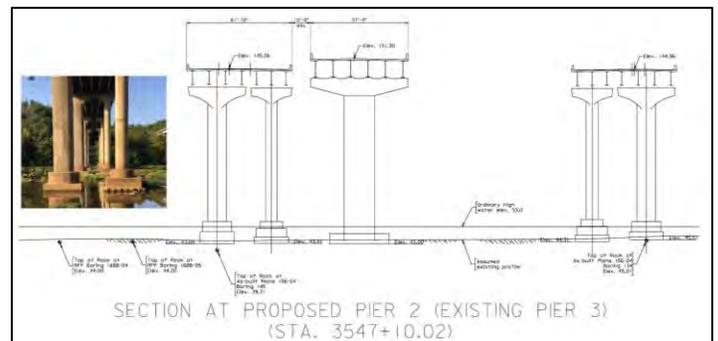
- Low permeability, low shrinkage concrete will be used in the deck slab, parapets, terminal walls, and integral abutment backwall.
- Corrosion resistant reinforcing steel, class III (stainless steel) will be used in the deck slab, parapets, terminal walls, and integral abutment backwalls.
- Structural steel plate girders will be Grade 50 ($f_y = 50$ ksi), weathering steel with no components of the girders painted since the bridge is jointless.
- Bearings will be laminated elastomeric pads with stainless steel sliding plates when necessary to accommodate thermal movements.
- The bridge will have a jointless superstructure using VDOT's Virginia Abutment details.
- A deck slab drainage system will be provided using galvanized grate drainage inlets and galvanized steel pipe downspouts designed to meet allowable spread requirements.
- A 42" high concrete parapet (F-shape) will be provided on both sides of the bridge.

Substructure

- Virginia Abutment details will be provided at both ends of the bridge to provide a jointless structure.
 - The south abutment will be a concrete cantilever type abutment founded on steel H-piles driven to rock.
 - The north abutment will be a concrete stub abutment founded on steel H-piles driven to rock wrapped behind an MSE retaining wall.

Key Items for I-95 Bridge over the Rappahannock River

- Modified RFP profile to more closely match existing bridge profile – minimizes grade differences, reduces approach embankment, and reduces settlements at abutments and MSE wall.
- Reduced number of piers – improves hydraulics, avoids historic features, maintains north channel.
- Wagman will self-perform all construction activities for foundations, substructure, and superstructure except installing reinforcing steel and placing stay-in-place deck slab forms.
- Jointless bridge with continuous weathering steel plate girders – no paint, low maintenance.
- Hammerhead piers and Virginia abutments – conventional construction, proven performance, low maintenance.



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- Aesthetic treatment, using drystack stone with a 2” relief, will be provided on exposed concrete surfaces of the abutments, wingwalls, and MSE walls that are in view of I-95.
- Galvanized tooth joint will be used at each abutment in accordance with Virginia Abutment details.
- Buried approach slabs will be used at each abutment to improve rideability at the bridge approaches.
- Hammerhead piers will be used with “race track” columns, rectangular columns with rounded ends, and spread footings founded on rock.
 - The new pier locations will match the existing pier locations of the existing SB bridge to provide visually clean lines, and an efficient hydraulic opening and to preserve the recreational channel.
 - The bottom of the pier footings will be founded on solid rock at elevations similar to the existing bottom of pier footing elevations of the existing SB bridge.

Risk Mitigation for Foundations

- Wagman can self-perform construction of many Different foundation elements such as driven steel piles or precast concrete piles, drilled shafts, micro-or mini-piles. Wagman can mitigate risk by implementing the appropriate foundation element when it comes to deep foundations.

Wagman and JMT have extensive experience working together on large Design-Build bridge projects for VDOT including the award-winning bridge on the Route 61 over the New River – a 1,140’ long, jointless bridge with many similar details as the Rappahannock River bridge such as:

- Long bridge >1,000’ over major waterway
- Construction access by causeways in river
- River recreation access
- Context Sensitive Solutions
- Pristine riverine ecological environment



Award-winning Route 61 (McArthur Avenue) over the New River, Route 460 and Old Virginia Avenue
Town of Narrows, VA

As described above and as shown on the Conceptual Structural Plans, the Wagman Team’s Design Concept meets or exceeds the Project’s intended scope of work and will benefit end users, particularly in terms of safety, operations, schedule, construction, and public acceptance. Key features include –

- Public Acceptance - Aesthetic treatment, using drystack stone with a 2” relief, will be provided on exposed concrete surfaces of the abutments, wingwalls, and MSE walls that are in view of I-95.
- Public Acceptance – Reducing the number of substructure units than on the existing bridge minimizes the impact to the stream and embankments.
- Operations, Schedule, and Construction – Wagman can self-perform the construction of unique foundation elements such as drilled shafts or drilled-in mini-piles if foundation conditions vary from conditions depicted in the existing plans and Geotechnical Data Report prepared by the Department. The ability to self-perform this work allows Wagman to control the risk associated with encountering unexpected conditions.
- Operations, Schedule, and Construction – The Wagman Team’s Design Concept bridge reduces the number of piers which reduces construction time and reduces future maintenance costs for VDOT.
- Operations, Schedule, and Construction – The innovative causeway access reduces temporary environmental impacts and removes the Rappahannock River bridge from the schedule’s Critical Path.
- Operations, Schedule, and Construction – Construction access from the south side reduces environmental impacts on the north side of the Rappahannock River.
- Safety – Wagman will access the Rappahannock River bridge for construction away from the mainline of I-95 reducing impacts to the travelling public and improving safety during construction.

The Wagman Team has considered the types of materials, methods, and functionality of a number of details and has incorporated them into the Design Concept to reduce the need for future inspection and maintenance

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and to provide VDOT full confidence in the Project’s long-term asset performance and durability. Highlights of these details and features include -

- Using a continuous bridge superstructure to provide redundancy, to improve structural performance, and to eliminate joints.
- Using low permeability, low shrinkage concrete in all superstructure elements.
- Providing corrosion resistant reinforcing steel (Class III – stainless steel) in the deck slab, parapets, terminal walls, and integral abutment backwalls.
- Providing corrosion resistant reinforcing steel (Class I – low carbon, chromium) in all neat portions of the Virginia Abutments.
- Designing a jointless bridge using VDOT’s Virginia Abutment details.
- Using weathering structural steel plate girders and cross frames without the need to paint.
- Using galvanized steel for miscellaneous steel elements – deck drains - without the need to paint.
- Provide long lasting, no maintenance laminated elastomeric bearing pads & stainless steel sliding plates.
- Using buried approach slabs at each abutment to reduce the “bump” at the end of the bridge.
- Providing foundations on spread footings on solid rock or steel H-piles driven to refusal.
- Using a deck slab drainage system to control the amount of water that collects on the bridge.

Route 17 Bridges

Provided below is a description and structural concept for the bridge structures, retaining walls, horizontal and vertical clearances, and the number and widths of lanes and shoulders for the bridges on I-95 SB CD Lanes, I-95 SB GP Lanes, and I-95 NB GP Lanes over Route 17. The description is organized by key structural features with bullets highlighting aspects of each feature.



Span Configuration

- The bridges consist of 2-span continuous for live load structures with spans of 70.5’ – 70.5’ for a total length of 141’ end of slab to end of slab.
- The abutments are located behind the Route 17 shoulders and the center piers are located to match the existing pier 2 locations for the existing bridges.
- The span lengths provide an opening to accommodate an 8’ outside shoulder, 4-12’ lanes, and a 2’ inside shoulder in both the EB and WB directions of Route 17.
- All substructure units are protected by the VDOT Standard Bridge Pier Protection System.

Transverse Sections

- The bridge transverse sections provide the following for each bridge -
 - B606 – SB CD lanes – a 12’ outside shoulder, 4 – 12’ lanes, and a 12’ inside shoulder
 - B651 – SB GP lanes – a 12’ outside shoulder, 3 – 12’ lanes, and a 6’ inside shoulder
 - B652 – NB GP lanes – a 12’ inside shoulder, 3 – 12’ lanes, and a 12’ outside shoulder
- If Option 1 is exercised, the bridge transverse section for the SB CD lanes bridge provides -
 - B606 – Option 1 – SB CD lanes – a 12’ outside shoulder, 2 - 12’ lanes, a 6’ inside shoulder, a 2’ median barrier, a 12’ outside shoulder, 2 – 12’ lanes, and a 6’ inside shoulder

Geometry

- The horizontal geometry of the parallel SB CD and SB GP Lanes Construction Baseline at bridges B606 and B651 provides a separation of the deck with barrier by a 3” wide open joint that will be filled with a Class I joint system as required by the RFP.
- The location of the proposed substructure units provides horizontal clearances that require the use of VDOT’s Standard Bridge Pier Protection System.

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- The vertical profiles set for the SB CD, SB GP, and NB GP Lanes Construction Baselines provides 16'-6" minimum vertical clearance for all three (3) I-95 bridges over Route 17.

Superstructure

- Low permeability, low shrinkage concrete will be used in the deck slabs, parapets, terminal walls, median barrier, and fully integral abutment backwalls.
- Corrosion resistant reinforcing steel, class III (stainless steel) will be used in the deck slabs, parapets, terminal walls, median barrier, and fully integral abutment backwalls.
- Prestressed concrete bulb-T beams with galvanized steel diaphragms will be used. Paint will not be required for any structure elements.
- Bearings at piers will be laminated elastomeric pads and are not required at fully integral abutments.
- The bridge will have a jointless superstructure using VDOT's fully integral abutment details with approach slabs and sleeper pads at each abutment.
- A 42" high concrete parapet (F-shape) will be provided on both sides of bridges. If Option 1 is exercised, a concrete median barrier (F-shape) will be used to separate the I-95 SB CD lanes.
- For Option 1, two (2) – 4" diameter conduits will be provided under the NB GP lanes bridge B652.

Substructure

- Fully integral abutment details will be provided at all three (3) bridges to provide a jointless structure.
 - The abutments will be concrete stub abutments founded on steel H-piles driven to refusal wrapped behind MSE retaining walls.
 - Aesthetic treatment, using drystack stone with a 2" relief, will be provided on all exposed vertical faces of the abutments, wingwalls, and MSE walls.
 - The abutments and MSE retaining walls will be located behind the existing shoulder piers of the existing SB GP and NB GP lanes bridges to provide the required roadway widths and clearances along Route 17.
 - Approach slabs supported on sleeper pads will be used at each abutment to improve rideability at the bridge approaches.
 - VDOT Standard Bridge Pier Protection Systems will be installed in front of the abutments.
- The piers will be concrete cap and multi-column piers on footings founded on a deep foundation system.
 - Depending on the condition and actual capacity of the existing bridge piles for the existing SB GP and NB GP lanes bridges, the deep foundation system may be either steel H-piles driven to refusal or drilled-in mini-piles installed to the required capacities.
 - The pier location for each bridge matches the existing pier 2 location of the existing SB GP and NB GP lanes bridges to provide the required roadway widths and clearances along Route 17.
 - VDOT Standard Bridge Pier Protection Systems will be installed on both sides of the piers.

Wagman and JMT have extensive experience working together on large Design-Build bridge projects for VDOT including the bridge on Odd Fellows Road over Route 460 in Lynchburg, VA – a 274' long, jointless bridge with many similar details as the Route 17 bridges – 2-span bridge, fully integral abutments behind MSE walls, pier founded on deep foundation over heavily traveled primary route.



As described above and as shown on the Conceptual Structural Plans, the Wagman Team's Design Concept meets or exceeds the Project's intended scope of work and will benefit end users, particularly in terms of safety, operations, schedule, construction, and public acceptance. Key features include –

- Safety - Increases vertical clearance to 16'-6" for all three (3) new bridges
- Safety - Provides a wider roadway opening for Route 17 traffic below the bridges.
- Safety - Provides Bridge Pier Protection System in front of all substructure units.
- Operations - Accommodates two (2) future 12' lanes on the east side of the NB GP lanes bridge - B652.

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- Public Acceptance - Aesthetic treatment, using drystack stone with a 2” relief, will be provided on all exposed vertical faces of the abutments, wingwalls, and MSE walls.
- Operations, Schedule, and Construction – Using MSE walls, stub abutments, and prestressed concrete bulb-T beams makes construction easy and reduces the construction schedule.
- Safety, Operations, Schedule, and Construction – Raising the vertical profile of the I-95 bridges versus lowering the vertical profile of Route 17 avoids major traffic impacts, minimizes utility conflicts and relocations, and allows Wagman to maintain control of construction critical path.
- Operations, Schedule, and Construction – Incorporating existing piles at piers of the existing SB GP and NB GP lanes bridges reduces limits of demolition and accelerate construction of the new pier foundations.
- Operations, Schedule, and Construction – Wagman can self-perform the construction of unique foundation elements such as drilled-in mini-piles if the existing foundations and pile locations vary from conditions depicted in the existing bridge plans. The ability to self-perform this work allows Wagman to control the risk associated with encountering unexpected conditions.

The Wagman Team has considered the types of materials, methods, and functionality of a number of details and has incorporated them into the Design Concept to reduce the need for future inspection and maintenance and to provide VDOT full confidence in the Project’s long-term asset performance and durability. Highlights of these details and features include -

- Using a continuous for live load bridge superstructure to provide redundancy, to improve structural performance, and to eliminate joints.
- Using low permeability, low shrinkage concrete in all superstructure elements.
- Providing corrosion resistant reinforcing steel (Class III – stainless steel) in deck slabs, parapets, terminal walls, median barrier, and fully integral abutment backwalls.
- Using corrosion resistant reinforcing steel (Class I – low carbon, chromium) in all neat portions of the fully integral abutment caps, piers, and Bridge Pier Protection Systems.
- Designing a jointless bridge using VDOT’s fully integral abutment details.
- Using prestressed concrete bulb-T beams without the need to paint.
- Galvanized steel for miscellaneous steel elements - diaphragms, sole plates – without the need to paint.
- Providing long lasting, laminated elastomeric bearing pads.
- Using approach slabs with sleeper pads at each abutment to reduce the “bump” at the end of the bridge.
- Providing deep foundations of steel H-piles driven to refusal or drilled-in mini-piles installed to the required capacities.

Key Items for I-95 Bridge over Route 17

- Minimized profile of I-95 over Route 17 – reduces approach earthwork, provides 16’-6” min. vertical clearance.
 - Accommodates ultimate Route17 roadway section.
 - MSE walls configured to allow future I-95 widening.
 - Jointless bridge using prestressed concrete bulb-T beams continuous for live load – no paint, low maintenance.
 - Fully integral abutments, MSE walls, cap and multi-column piers – conventional construction, proven performance, low maintenance.
 - Substructure protected by bridge pier protection system.
 - Accommodates both RFP and Option 1 bridge plan layouts.
-

Fall Hill Avenue over I-95 and Cowan Boulevard over I-95

As described above and as shown on the Conceptual Roadway Plans, the Wagman Team’s Design Concept meets or exceeds the Project’s intended scope of work and will benefit end users, particularly in terms of safety, operations, schedule, construction, and public acceptance. In addition, the Wagman Team has considered the types of materials, methods, and functionality of a number of details and has incorporated them into the Design Concept to reduce the need for future inspection and maintenance and to provide VDOT full confidence in the Project’s long-term asset performance and durability. Highlights of these details and features at the two (2) bridges crossing over I-95 include -

- Safety – Provides Bridge Pier Protection System in front of substructure units in accordance with AASHTO and VDOT requirements.
- Long-Term Asset Performance – Minimizes the impact on the existing structure foundations due to placing additional fill by performing a settlement analysis, performing a structural analysis of the existing structure, and using lightweight fill in the area of the bridge. Total settlement of the existing ground will be limited to ½ inch over 20 years within 100 feet of the bridge.



Section 4.4 Project Approach

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The Wagman Team has thoroughly reviewed the RFP documents. Our integrated approach to managing the I-95 CD Lanes project throughout its lifecycle from design through construction and ultimately final acceptance is summarized below. Our approach is compliant; we have developed appropriate plans based on our team's extensive experience performing design and construction for VDOT.

Additionally, the Wagman Team employs a comprehensive DBE program (outreach, engagement, and support) that has resulted in Wagman exceeding the original DBE goal on both of our current VDOT DB Projects as well as the "Award Winning" Route 61 DB Project. This highly successful program will be employed on this project to maximize DBE participation in both professional and construction services which we expect will ultimately result in the Wagman Team exceeding the 10% DBE goal.



Environmental Management

- The Wagman Team proposes several environmental management enhancements in addition to those required by the RFP, including
 - Development and implementation of comprehensive environmental compliance training
 - Development of written environmental management plan
 - Design elements that avoid and minimize impacts to sensitive resources through elimination of 2 in stream piers, the need for a temporary causeway for geotechnical borings, and use of protective fencing around sensitive areas.
 - Use of STOP WORK AUTHORIZATION by all Wagman employees for environmental concerns identified during construction
 - Wagman will employ a full time E&S manager with RLD & ESCCC certification
 - All project supervisors will have RLD & ESCCC certification



Utilities

- Open, honest, and clear communications with all of the utility companies.
- Use the proven successful approach at the beginning of the project, to understand the full scope, time impacts and monetary affects of all known utility conflicts.
- Optimize design avoidance, evaluate and employ innovative design and construction techniques, utility protection techniques and use "out of the box" approach to avoid utility conflicts.
- Further investigate potential unknown utility conflicts by utilizing the field locator marking by the Miss Utility One Call System when the first stage test pits are performed; this has successfully identified unknown conflicts in previous projects of this scale.



Geotechnical

- Key geotechnical risks include unsuitable soils, fill settlement/downdrag and river access for borings.
- Mitigation of unsuitable soils by removal, replacement, mixing and/or chemical treatment.
- Consolidation and in-situ testing will be performed to evaluate fill settlements.
- Fill settlement/downdrag on existing bridge foundation risk mitigated with lightweight fill and pile supported embankments.
- Confirmatory borings at pier 2 & 3 at the river bridge will be deferred until the construction causeway is in place. Our approach advances the design and subsequent construction while eliminating the need to install and remove a temporary causeway (and associated impacts to the river) for the sole purpose of geotechnical investigations.
- Wagman Team experience in management and avoidance of acid sulfate soils.
- Wagman can self-perform all types of foundation construction to control the critical path of the project.
- Wagman employs full time professional geotechnical engineers licensed in Virginia who will work hand-in-hand with JMT's geotechnical engineers to develop the most efficient solution

4.4.1 Environmental Management

The Wagman Team has developed a thorough and integrated approach to environmental management, and environmental permitting. Our approach anticipates and mitigates for potential project delays and avoids, minimizes and mitigates for impacts to resources/areas of concern. Our schedule integrates environmental activities and key milestones and includes several strategies to ensure the environmental permitting and environmental constraints do not delay the project to include:

- Preparation of the Environmental Management Document (EMD)

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- Robust environmental training and monitoring program
- Early agency involvement

Approach to Environmental Management During Design and Construction

The Wagman Team has developed an integrated and thorough environmental management approach to implement during the design and construction to avoid, minimize, and mitigate impacts to environmental resources, meet NEPA commitments, and secure all required environmental permits expeditiously while minimizing potential project delays. The Team will employ the same successful environmental management strategies that we have used for other complex environmental roadway projects including the Odd Fellows Interchange and the Fairfax County Parkway Design Build Projects. The Wagman Team completed early constructability reviews to ensure all potential impacts were identified. The specific environmental management efforts that the Wagman Team will use are summarized below:

DBPM, David Lyle brings 17+ years working on VDOT projects with our Environmental Manager, Ian Frost on three previous successful design build and multitude of design bid build projects. A proven and functioning relationship with established communication protocols allows efficient issue resolution during both design and construction assuring the project schedule is adhered to.

Streamline NEPA re-evaluation by minimizing disturbance outside existing ROW. Our design avoids disturbance outside of the NEPA Study Area. **As our design progresses, we will ensure that the limits of disturbance and ROW do not expand beyond those evaluated in the Environmental Assessment; thereby avoiding the need for additional NEPA studies and avoiding potential project delays.**

Prepare Environmental Management Document (EMD) During Design. The Wagman Team has prepared an EMD, which identifies all required environmental permits and identifies environmental commitments made in the RFP, amendments, and the 2017 Environmental Assessment/FONSI. This will be incorporated into the Wagman Team’s comprehensive Site-Specific Environmental Health and Safety Plan (EHSP) and include the commitments and conditions in tabular form to: track environmental permit acquisitions, minimize potential project delays, ensure that each environmental permit/approval is accounted for in the Project schedule, and ensure environmental compliance throughout the life of the project.

Environmental Training During Design and Construction. Before construction begins, our environmental team will develop a project specific environmental training session program concerning sensitive environmental resources and permit compliance. This training will identify the resources that must be avoided and highlight the permit compliance requirements. The training session will be video recorded. The Wagman Team requires all new project personnel including subcontractors to receive a formal orientation prior to working on the site including a review of the EHSP and the environmental training video. This will ensure the Wagman Team is aware of all environmental conditions, environmental resources, and commitments and will **minimize potential delays due to permit non-compliance.**

Approach to Environmental Permitting During Design and Construction

The Wagman Team will use the following environmental permitting approach during design and construction to avoid, minimize, and mitigate for impacts to environmental resources and anticipate and minimize potential project delays during the permitting process.

Complete Environmental Resource Surveys/Analysis Early in the Design. To minimize chances of project delays, upon NTP, we will immediately coordinate with the regulatory/consulting agencies to determine if special status species surveys or habitat assessments are required (northern long-eared bat and mussel species). Early coordination will be important because some species surveys have constrained survey windows. Our project schedule included in Section 4.7 includes an activities for natural resource inventories to ensure we don’t miss a survey window and potentially delay the project. We will also complete any additional environmental studies (i.e. wetlands, WOUS, and special status species) shortly after NTP for borrow sites, staging and laydown areas. Surveys for the mussel species will be scheduled immediately prior to instream work to avoid delays associated with the time of year restrictions (as shown in Figure 4.4.1-1) associated with the mussels.

Develop Avoidance and Minimization Measures including Agency Workshops Early in the Design. Our Environmental Lead, Ian Frost will continue to collaborate with the design and construction teams to avoid

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and minimize impacts to important environmental resources. **We will invite the regulatory agencies to participate in workshops to get agency “buy-in” on the avoidance and minimization measures early in the design process. This will help to identify potential agency concerns early and minimize potential delays.** We will ensure wetland impacts are avoided or, at least, minimized to reduce the impacts below the thresholds provided in the NEPA re-evaluation. Our design has eliminated two piers within the Rappahannock River, as well as the need for the causeway within the river for the geotechnical borings reducing impacts and project costs. Our Team has developed an early construction package within the median that avoids impacts to wetlands and WOUS which will enable early construction activities to begin. We will continue to analyze and implement additional cost-effective avoidance and minimization measures, to minimize the potential for project delays from permitting.

Early Agency Involvement in Design. We will begin agency coordination with the permitting agencies (USACE, DEQ, VMRC, USCG) and the other consulting/approval agencies (EPA, USFWS, NMFS, DHR, DGIF, DCR, VDACS, VIMS) immediately upon NTP to pro-actively address avoidance and minimization measures, discuss design for the Rappahannock River causeway, get buy-in for the mitigation measures and compensation requirements, establish alternate Time of Year (TOY) measures, and minimize potential project delays.

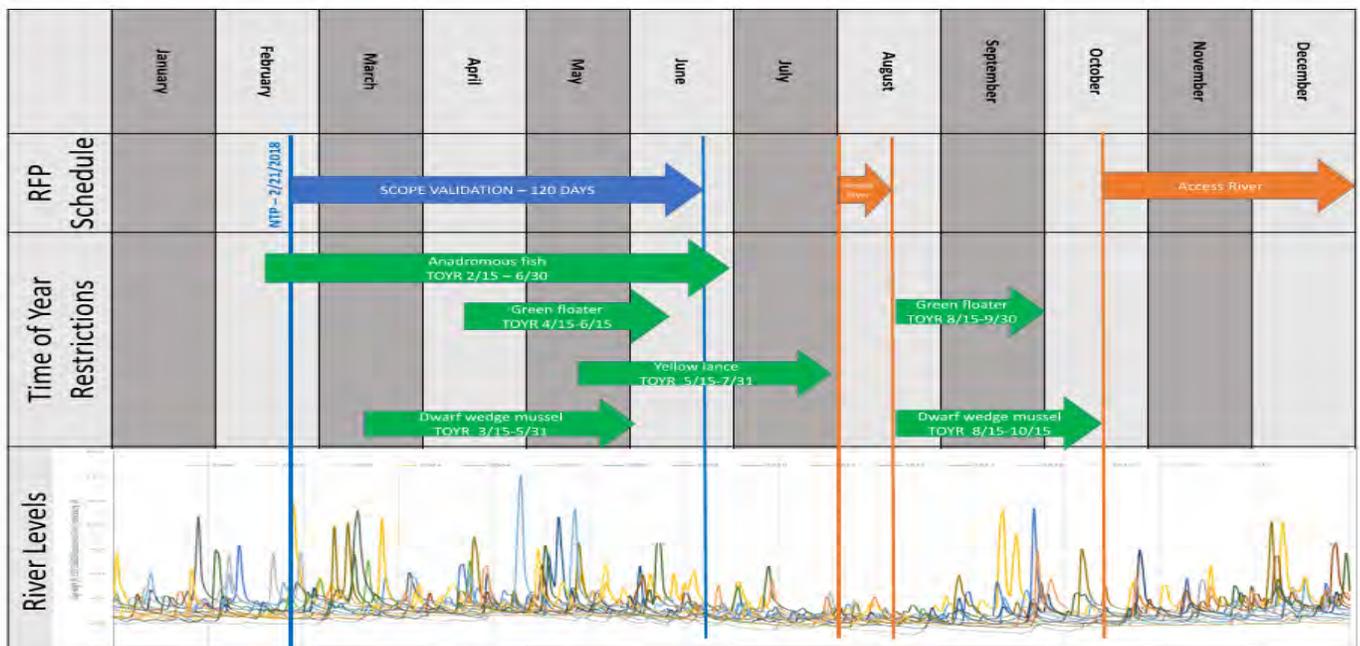


Figure 4.4.1.1 Time of Year Restriction for River Access

We have already discussed our proposed causeway/temporary bridge design for the Rappahannock River with DGIF, USACE and DEQ to gain insight on any potential issues with the preliminary design. Discussions with the agencies indicate that our preliminary design for the causeway is permissible. Our proactive approach will also ensure that the permits are “reasonable” and do not present conditions or limitations that negatively impact the constructability of the project.

Identify Suitable Mitigation Early in the Design. The Wagman Team will work with the regulatory agencies to find acceptable compensation for unavoidable impacts to jurisdictional wetlands and waters. We have already consulted with the approved banks in the appropriate HUC codes to ensure that available credits for all the types of wetland and stream impacts are available. Our discussion with these bank sponsors indicate that there are adequate stream and wetland credits available to compensate for the anticipated impacts. In addition, we will get concurrence from the agencies that compensation for temporary wetland

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impacts and impacts to jurisdictional ditches will not be required. This will ensure our permit application is processed quickly and minimize potential for project delays due to permitting.

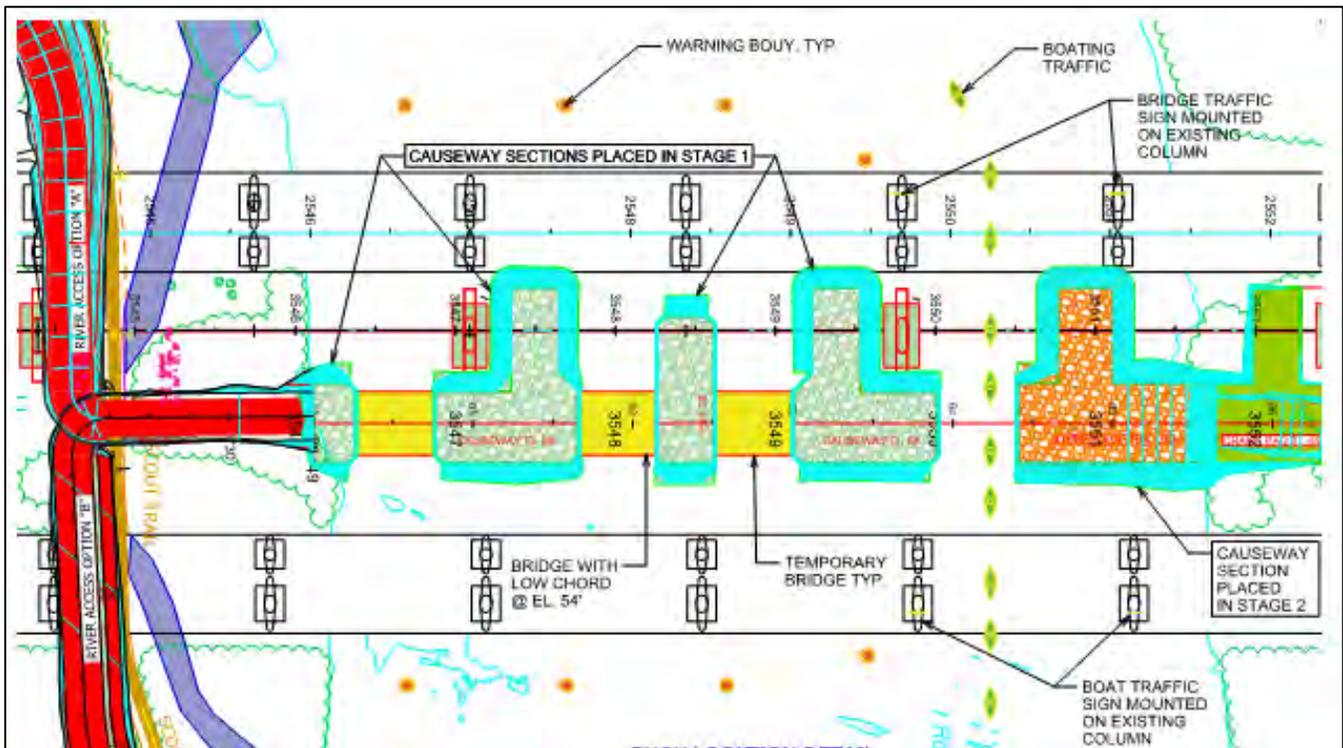
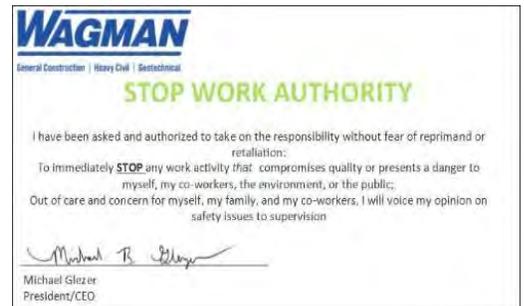


Figure 4.4.1.2 Proposed Causeway/Temporary Bridge Concept for Rappahannock River Bridge Construction

Environmental Permit Compliance Monitoring During Construction. The Wagman Team will monitor environmental compliance during construction as required by the environmental permits to minimize potential permit compliance issues and potential delays due to environmental deficiencies. **The Wagman Team formally extends stop work authority to all project personnel onsite for quality, environmental compliance, health and safety** by issuing cards with contact information for company executives for notification and reporting purposes. In accordance with our EHSP, the Wagman Team will use exclusion fencing and signage around resources/areas of concern to ensure they are not impacted by construction. This will protect resources such as non-impacted wetlands and the historic Rappahannock Canal and the Canal Lock #1/Minor' Lock.



The Wagman Team will develop a VDOT approved Erosion and Sediment Control (ESC) Plan and Stormwater Management Plan (SWM) and conduct the compliance inspections required by the VDOT Standards and Specifications. More details about the ESC and SWM Plan are provided in 4.3.1(E).

Approach and Solution to Environmental Conditions/Areas of Concern within the Project Footprint

The Wagman roadway and bridge design Team will avoid and minimize the impacts to the environmental resources within the project corridor. Our design has two piers within the Rappahannock River eliminating two of the piers shown in the RFP plans. This design will reduce the impacts to this resource and the sensitive species within the river. In addition, the Wagman Team has developed a plan and schedule that will utilize one causeway/temporary bridge within the Rappahannock River eliminating the need for construction of a separate causeway (and associated environmental impacts) for the geotechnical borings required for the bridge pier design. In support of this technique **the Wagman Team agrees to exempt differing subsurface conditions at pier two and three in the Rappahannock River from any scope validation considerations.** This plan will reduce the impacts associated with the construction and removal of an additional causeway for the borings.

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Our Team will use the causeway/temporary bridge installed for the bridge construction to obtain confirmatory borings. This will eliminate the risk associated with the construction of two causeways within the Rappahannock and eliminate the potential delay due to TOY restrictions that would be associated with the additional causeway construction.

As shown in the Table 4.4.1.3, the Wagman Team has identified key Environmental Conditions/ Areas of Concern within the Project footprint, analyzed the risk to that environmental condition/area of concern, and identified avoidance and mitigation strategies to avoid adverse effects.

Table 4.4.1.3. Environmental Mitigation Strategies for Areas of Concern/ Environmental Conditions

Environmental Condition/Area of Concern	Avoidance, Minimization, and Mitigation Strategy
Cultural Resources	<ul style="list-style-type: none"> The bridge design across the Rappahannock River will avoid impacts to historic resources including the remnants of the Rappahannock Canal (DHR Inventory No. 111-0134-002/44SP0064) and the Canal Lock #1/Minor' Lock (DHR Inventory No. 111-0134-001/44SP0074). Construction access across the Navigation Canal and Canal Lock #1 will be limited to areas where only below-ground remains of the Rappahannock Navigation system components survive and temporary protection over these resources will be used during construction activities. Our proposed design currently limits access to the area where below-ground resources are located to avoid impacts to these resources. Preliminary and final design plans in these areas will be submitted to VDOT and DHR for approval. These resources will also be identified on the design plans and the EHSP as areas of concern to be avoided to further protect them.
Section 4(f) resources	<ul style="list-style-type: none"> The design incorporates minimization and mitigation measures to maintain the de-minimis effect to 4(f) resources/recreational facilities within the project corridor. Affected trails and recreation lands will not be permanently interrupted by the proposed design. This includes the Fredericksburg I Battlefield, City-Owned Recreational Lands, Pool Pass Trail, Scout/Embry/Rappahannock Canal Trail, and the Proposed Cannon Ridge-Ferry Farm Trail. The suspension of pedestrian and bicycle traffic on existing trails will be limited to less than 24 hours with a minimum of 24 hours between the next closure. Limitations of access to trails will be coordinated with local stakeholders. All disturbed areas will be fully restored following construction activities. The project will not impact the existing recreational fields located in the project area. Coordinate any applicable design changes with VDOT to support re-evaluation of the 4(f) documentation provided by VDOT.
Noise	<ul style="list-style-type: none"> Complete and furnish a final Noise Analysis Design Report (NADR) for all noise sensitive receptors identified in the project area. Conduct final design noise analysis in compliance with the VDOT State Noise Abatement Policy, VDOT Highway Traffic Noise Impact Analysis and Abatement Guidance Manual. Design and construct noise walls recommended by FHWA, Chief Engineer and Noise Abatement Design Report. Oure noise subconsultant HMMH will review the noise barrier plan and certify that it meets the noise abatement requirements and VDOT's sound wall policy.
Wetlands and Waters of the US (WOUS)	<ul style="list-style-type: none"> Continue to incorporate avoidance and minimization measures through agency workshops to minimize permanent impacts. Design will eliminate two bridge piers within the Rappahannock River and the need for a causeway for the geotechnical borings minimizing impacts. Early coordination with the agencies will be conducted to refine the TOY restrictions. The project schedule will accommodate the TOY restrictions recommended by the reviewing agencies. Complete wetland/WOUS delineation for construction access, laydown, staging, and borrow sites Develop restoration approaches for temporary impact areas and use of mitigation banks for required compensation for permanent impacts Use exclusion fencing along the non-impacted wetlands and historical sites to protect during construction.

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Hazardous Materials	<ul style="list-style-type: none">• EHSP will include a Spill Prevention Control & Countermeasure Plan• The Wagman Team has existing on-call contracts with Clean Harbors for emergency spill response and clean up (24/7)• Compliance with Section 411.01 in the 2007 Road and Bridge Specifications for Type B structures• Follow VDOT Special Provisions for asbestos inspection and abatement<ul style="list-style-type: none">• Conduct Phase I and Phase II ESAs in accordance with ASTM Standard E 1527-13 for ROW and VDOT Special Provision for Phase I and Phase II ESAs for Design Build Projects.
Miscellaneous Environmental Areas of Concern	<ul style="list-style-type: none">• The design traffic control plan for the river, Aids to Navigation (ATON) shall include signage to direct recreational users of the river during the construction of the bridge. A safe passage for the recreational users shall be maintained throughout the life of the construction project.• The Wagman Team is fully compliant with the new OSHA Sillica Standards for worker protection
Special Status Species	<ul style="list-style-type: none">• Coordinate with agencies early in the environmental permitting process, update IPaC etc. information, conduct surveys/habitat assessments of borrow sites, staging, and laydown areas.• A Section 7 determination with the USFWS for tree removals. Bat inventories will be performed to determine their presence on the existing bridges. These inventories will be conducted every two years or until the commencement of construction activities on bridges. Reduce TOY constraints with an approach that eliminates the need for early geotechnical boring on causeway.• Coordinate mussel survey and TOY restrictions with reviewing agencies concerning anadromous fish, dwarf wedge mussel, green floater, and the yellow lance mussel.• Through preliminary discussed we have received verbal concurrence from the agencies on our proposed causeway/temporary bridge concept.• EHSP incorporates TOY restrictions and environmental compliance training for project personnel.

Project Schedule Integration with Environmental Milestones

Obtaining environmental permits and environmental approvals in a timely manner is always a schedule and planning priority for any project because construction cannot start in jurisdictional areas until permits are issued. As described below, we have already integrated the environmental activities with the schedule.

Integration of Environmental Milestones into Project Schedule. We have integrated key environmental permits, environmental hold points, and approval activities into the schedule, including:

- JPA application preparation and submittal- 28 calendar days duration
- JPA application review and issuance of environmental permits- 210 calendar days duration
- EQ103, EQ200, EQ201 reviews- 21 calendar days duration for each
- Wetland delineations and special status studies for construction access points, laydown, borrow sites and staging areas- 28 calendar days duration
- Environmental permit compliance monitoring- duration of the project.

The Wagman Team will track the environmental activities in the project schedule throughout design and construction to ensure that the schedule is met and that permit acquisition does not delay the project.

Account for Time of Year Restrictions in Project Schedule. We have identified TOY restrictions, including a potential TOY for in-stream work due to the migration of anadromous fish and multiple mussel species and a possible TOY for tree-clearing for the northern long-eared bat (NLEB). **We have coordinated with the regulatory agencies for alternate mitigation conditions (such as physically relocating the river mussels outside of the impacted area) for these TOYs so that they do not adversely impact Critical Path activities such as causeway/temporary bridge construction for the bridge and geotechnical borings.** We have factored TOYs and potential TOYs into our Proposal Schedule.

4.4.2 Utilities

The approach that the Wagman Team uses for utility coordination, relocation and adjustments is to have clear, frequent open and honest communication between the utility companies and the Wagman Team. We believe that is the key to reducing the risk that utility conflicts and relocations propose to a project's schedule and budget. With that in mind, the Wagman Team has already begun coordination with the utility companies that have infrastructure within the project limits. Wagman Team held a project specific utility coordination

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meeting on October 10, 2017 similar to a UFI meeting with many of the utilities present in the project area. Those in attendance included: Dominion Power, Summitt IG, Stafford County, Verizon, and Columbia Gas. We have also held phone discussions as well as one on one meetings with the utility companies. This coordination effort has provided the Wagman Team a thorough understanding of the existing utility systems and possible impacts by the proposed design concept.

Upon award of the contract, the Wagman Team will follow the process shown in Figure 4.4.2.1 to verify and finalize our utility relocation plan. We will build on our initial coordination with the utility companies and make sure we have collected all available utility record information including easements. Utility designation (mapping) will be performed at a Quality Level B to determine the approximate horizontal utility locations of the utilities of any new utilizes not included in the RFP SUE files. Potential conflicts will be further evaluated by performing utility location services (test holes – Quality Level A services) to determine the exact horizontal and vertical location of the utilities. When the test pits are performed, the field marking by the Miss Utility One Call System will be evaluated to determine if the utilities shown on the plans are correct and if any undesigned utilities are found. This strategy has uncovered many undesigned utility systems on previous projects.

Upon award of the contract, the Wagman Team will follow the process shown in Figure 4.4.2.1 to verify and finalize our utility relocation plan. We will build on our initial coordination with the utility companies and make sure we have collected all available utility record information including easements. Utility designation (mapping) will be performed at a Quality Level B to determine the approximate horizontal utility locations of the utilities of any new utilizes not included in the RFP SUE files. Potential conflicts will be further evaluated by performing utility location services (test holes – Quality Level A services) to determine the exact horizontal and vertical location of the utilities. When the test pits are performed, the field marking by the Miss Utility One Call System will be evaluated to determine if the utilities shown on the plans are correct and if any undesigned utilities are found. This strategy has uncovered many undesigned utility systems on previous projects.

As the design progresses, we will re-evaluate opportunities to design around the facilities and understand precautions that will be required to protect them in-place or identify the facilities that need to be relocated. The Wagman Team including both our design and construction utility coordinators will then hold a UFI meeting with the utility owners. At the UFI meeting, consensus on utility adjustments and relocations need, prior rights, and relocation schedule will be reached. If utility relocations will be required, then the least evasive and least time-consuming options will be performed. After the meeting, the Wagman Team will prepare UT-9s, coordinate with the VDOT Utility Manager, incorporate necessary easements into the ROW plans and prepare master agreements for the utility relocations. All utility companies will be reminded of the Buy America requirements.

Upon ROW NTP, our ROW Team will acquire the necessary easements while P&Es are being prepared by the utility companies. We will review the P&Es for conformance with our design plans and submit to VDOT for approval. It is important to have bi-monthly coordination with the utility companies and/or their design engineers to ensure that the relocations stay on schedule. All coordination will be documented in RUMS.

The Wagman Team will then hold kickoff meetings with each utility company prior to relocations taking place to review ongoing construction activities, environmental requirements, and safety measures. Wagman

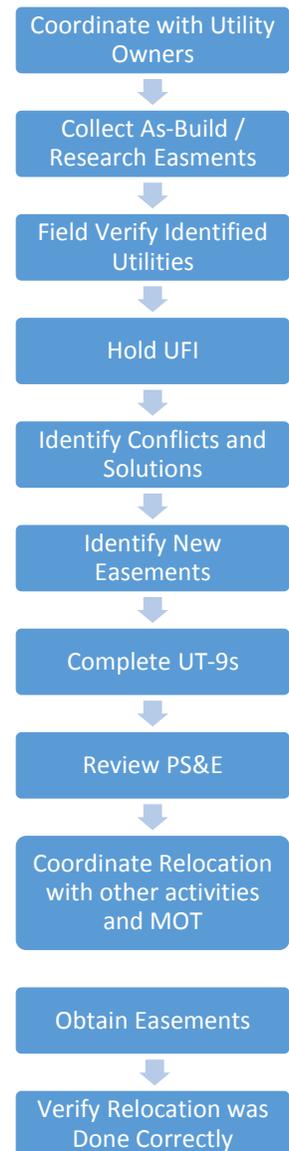


Figure 4.4.2.1
Steps for Utility Relocations

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Team inspectors will proactively survey that the utilities are being moved to the correct horizontal and vertical locations. This will identify mistakes early and reduce risk to project schedule.

Based on our research and initial utility coordination the Wagman Team has identified numerous potential utility conflicts with the proposed design. A Utility Conflict Matrix was created for this project and is shown in Table 4.4.2.2. The Utility Conflict Matrix identifies each potential conflict by type, owner and whether an adjustment or relocation is required. Each utility conflict listed also has an identification number and baseline station to assist in locating them on the Roadway Conceptual Plans in Volume II. **The Wagman Team has evaluated each potential impact and identified those that require adjustments or relocations. These adjustments and relocations have been included in our Technical and Price Proposal.** At this time there are no know utility betterments requested with this project.

Utilities Crossing I-95 Mainline

There are multiple water and sanitary sewer mains owned and operated by the City or Fredericksburg or Stafford County that cross I-95. These utilities are generally deep in the ground and encased from limited access line to limited access line. After discussions with the Service Authorities from the City and County, the Wagman Team does not believe that these systems will be in conflict with the proposed design concept, but we will continue to evaluate the as-built plans for casing lengths and elevations as they are received from the Service Authorities. Columbia Gas also has a high pressure natural gas main crossing that is deep and not expected to be in conflict with the proposed design.

There are several overhead power, telephone and CATV lines crossing I-95 owned and maintained by Dominion, Verizon Virginia, Verizon GTE South, and Comcast. Some of them share the same poles. Each one has been evaluated for conflict. Since the highway improvements are in the median of the existing roadway where the sag points are for the cables, some of the crossings are in conflict with the proposed design as they do not have the sufficient clearance over the highway or the clearance needed for construction operations. None of them create a significant risk in terms of project schedule to relocate. Some of the conflicts maybe resolved by increasing the tension on the power neutral circuit to allow for the lower cables to be raised. Other conflicts will have to be resolved by changing out the existing poles for taller ones. All



of these crossings are being evaluated to ensure that whichever mitigation strategy is used, either changing the pole or re-tensioning the cables, it is adjusted correctly the first time.

There are also VDOT power and Summit IG communication systems that run parallel with I-95 providing connection to VDOT ITS system. At several locations the fiber optic crosses the interstate. Mitigation and construction methods are being discussed in order to avoid conflicts and to keep the ITS cameras and dynamic message signs in operation at all times. There is a large amount of extra cable in the hand holes if adjustments have to be performed to keep the system active, but this will be the last resort.

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Table 4.4.2.2 Utility Conflict Matrix
Relocations and Adjustments highlighted in yellow.

Identifier on Road Plans	I-95 SB GP Lanes BL Station	Utility Owner and Type	Conflict Locations	Solution or Action	Risk Level	Schedule Impact
I-95 South of Rappahannock River Bridge						
	3371+59	City of Fredericksburg - 18" Sanitary Sewer	No Anticipated Conflict due to deep location crossing I-95 and encased in R/W	Verify depths and limits of encasement in R/W	Low	None
	3419+40	Columbia Gas - 8" Gas Main			Low	None
	3419+62	City of Fredericksburg - 8" Sanitary Sewer			Low	None
	3421+58	Summit IG - 3-1 1/2" conduits Fiber Optic Cables			Low	None
1	3422+50	Dominion Energy - 3 Phase OH Power Cox Communications - Communication	Roadway overhead crossing; attached to Dominion Energy Poles; low clearance at sag in median	Replace poles or increase tension to increase clearance	Low	None
	3436+71	City of Fredericksburg - 16" Water Main	No Anticipated Conflict - underground crossing of I-95	Verify depths and limits of encasement	Low	None
	3436+22	Verizon GTE South - Telephone	No Anticipated Conflict - conduit in bridge at Rte 3	Protect In-place	Low	None
2	N of Rte. 3	VDOT ITS System - Fiber Optic	Underground cable shown running parallel to SB Lanes	Validate limits of conflicts and relocate	Low	None
	3456+31	Summit IG - 3-1 1/2" Conduits Fiber Optic	No Anticipated Conflict - roadway underground crossing at Cowan Blvd, in conduit system approximately 15' Deep	Verify depths and limits of encasement	Low	None
	3475+85	City of Fredericksburg - 15" Sanitary Sewer	No Anticipated Conflict - crossing being adjusted by Branch Civil Const; see plans for limits of encasement	Verify depths and limits of encasement	Low	None
3	3482+62	Verizon GTE South - 12 Pair Copper Telephone	Roadway overhead crossing; low clearance at sag in median	Replace poles or increase tension to increase clearance	Moderate	None
	3494+15	City of Fredericksburg - 24" Water Main	No Anticipated Conflict - deep underground crossing of I-95	Verify depths and limits of encasement	Low	None
	3500+15	City of Fredericksburg - 6" Water Main	No Anticipated Conflict - deep underground crossing I-95 North of Fall Hill Road; possibly abandoned	Abandon In-place	Low	None
4	3501+55	Dominion Energy - 3 Phase OH Power Comcast - OH Comm	Roadway overhead crossing; attached to Dominion Energy Poles at Fall Hill Rd; low clearance at sag in median	Replace Dominion Energy Poles	Moderate	None
I-95 North of Rappahannock Bridge						
5	3572+70	Summit IG - Fiber Optic	Communications to traffic camera	Relocate Facility	Moderate	None
6	3572+73	VDOT Power - Power/Comm Service	Power to overhead sign	Relocate Power to Sign	Moderate	None
7	3579+00	Dominion Energy - 3 Phase OH Power Verizon Virginia - Fiber Optic	Roadway overhead crossing; attached to Dominion Energy Poles; low clearance at sag in median	Replace poles to increase clearance	Moderate	None
	3580+50	Stafford Utilities - 30" Water Main	No Anticipated Conflict - deep underground crossing of I-95	Verify depths and limits of encasement	Low	None
8	3590+00	Dominion Energy - 3 Phase OH Power Cox Communication - Fiber Optic	Roadway Overhead Crossing; attached to Dominion Energy Poles; low clearance at sag in median	Replace poles to increase clearance	Moderate	None
	3636+97	Stafford Utilities - 18" Sanitary Sewer	No Anticipated Conflict - deep underground crossing South of Existing Box Culvert	Verify depths and limits of encasement	Low	None
	3640+00	Stafford Utilities - 30" Sanitary Sewer	No Anticipated Conflict - new installation under construction crosin	Verify final location when completed	Low	None
	3661+70	VDOT Power and Comm - Service to OH Sign	No Anticipated Conflict due to deep location crossing I-95 and encased in R/W	Verify depths and limits of encasement	Low	None
US ROUTE 17 & I-95 Interchange (South Side of Route 17)						
9	3606+48	Summit IG - Fiber Optic	Under slope between pier and abutment	Adjust Conduits In-place	Moderate	None
	3606+48	Stafford Utilities - 6" Sanitary Force Main	No Anticipated Conflict - abandoned but used for emergency	Abandoned facility; verify with utility company	Low	None
	3606+73	Columbia Gas - 4" Gas Main	No Anticipated Conflict - In Existing Route 17	Verify location	Low	None
	3606+79	Verizon Virginia - 6x6 duct bank Telephone	No Anticipated Conflict - In Existing Route 17	Verify location	Low	None
US ROUTE 17 & I-95 Interchange (North Side of Route 17)						
	3607+72	Stafford Utilites - 4" Sanitary Force Main	No Anticipated Conflict - abandoned	Abandoned facility; verify with utility company	Low	None
	3607+75	Stafford Utilites - 12" Water Main	No Anticipated Conflict - In existing Route 17	Verify location	Low	None
10	3607+90	VDOT - Power Service	Power Service to Sign Located Behind the Pier	Relocate Facility	Low	None
11	3607+95	Summit IG - 3-1 1/2" conduits Fiber Optic	Under Slope Between Pier 3 and Abutment on North End	Relocate Facility	Moderate	None
12	3607+95	VDOT - 2-2" conduits Power Service	Electrical Conduits Installed on Concrete V Ditch	Relocate Facility	Low	None
Option 1						
	Ramp A	Stafford Utilities - 4" Sanitary Force Main	Under Added Fill Outside of Shoulder of Ramp A Accel Lane	Verify location	Low	None
13	Ramp A	Comcast/Cox Comm - Fiber Optic/Coax	Under Added Fill Outside of Shoulder of Ramp A Accel Lane	Adjust Hand Holes	Low	None
14	Ramp A	Cox Communications - Fiber Optic/Optic	Under Added Fill Outside of Shoulder of Ramp A Accel Lane	Adjust Hand Holes	Low	None

Impacted utilities requiring adjustments or relocations

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Utilities at Route 17 Interchange

The I-95/Route 17 Interchange has a significant amount of underground systems including VDOT power and Summit IG communication, Verizon Virginia duct bank, Columbia Gas main, Stafford County owned utilities including sanitary force mains and a large diameter water main. The VDOT power duct system that is buried is likely not in conflict but if it is then a new system can be built to resolve the conflict. Early test pits will validate this. The other VDOT power duct system that was built behind the barrier and on top of the concrete “v” ditch will be in conflict and needs to be relocated.

The VDOT communication ducts that are on both sides of Route 17 can be lowered in place if in conflict. There is a sufficient amount of cables in the adjacent hand holes to allow for this without splicing. Early test pits will be performed to determine the conflict and scheduled accordingly to be clear prior to construction. In our discussions with Summit IG, there are unnamed non-VDOT users of the fiber optic line. The Wagman Team will work closely with Summit IG to coordinate the construction activities around this sensitive line.

The Stafford County sanitary force mains are not active but one is to be used in the case of a failure in the active main. This one could be removed for a short duration if it's in conflict then reconnected after the construction operation has been completed. The water main is not expected to be in conflict but is made of asbestos cement so special precautions will be taken to avoid impacting this facility.

The Columbia Gas main and the Verizon duct bank are not expected to be in conflict since the drainage system will be designed to avoid them. Once again early test pits will be performed to validate this concept.

The Wagman Team has developed best practices related to utility coordination through the successful delivery on time and within budget on numerous interstate projects for VDOT including DB projects. One of these practices is the early evaluation of known utilities as well as identification of any unknown systems. This allows time to meet with utility companies, the designers and construction managers to resolve conflicts to everyone's satisfaction.

Our Utility Coordinator Matt McLaughlin served in this same role on VDOT's I-66 Spot Improvement Project where he successfully reduced 8 areas of anticipated relocations to 3 actual locations by protecting utilities in-place, changing designs and construction methods.

Utility Relocation and Delay Risk Management

We have managed the utilities on other heavily congested VDOT projects like Stringfellow Road, Route 1/123 Interchange, and Wagman's Route 7 DB Bridge project over the Dulles Toll Road and have been very successful in resolving issues early. This success was accomplished by minimizing relocation efforts through: design changes, alternate construction means and methods, constructing infrastructure (conduits and boxes) for use by 3rd party utility companies, and lowering systems in-place to avoid splicing delays.

Mitigation strategies to offset the potential impacts of utility relocations exceeding estimated timeframes:

The Wagman Team fully understands that utility companies and their on-call designers and on-call contractors are busy and may have many other commitments and priorities. We also understand they have lead times for obtaining materials and scheduling crews and may have seasonal outage windows. All of these can impact agreed upon schedules when a utility relocation may get behind schedule. We will utilize the following strategies to eliminate or minimize a delayed relocation from impacting the schedule.

- Foremost the Team will work hard to prevent delayed relocations by
 - Early engagement with utility owners (already held preliminary UFI October 10, 2017)
 - Design avoidance measures
 - Mandatory bimonthly updates from utility owners on status of PS&Es
 - Prioritizing acquisition of any required utility easements
 - Bimonthly utility matrix update and utility coordination status report
 - Continued design evaluation for avoidance opportunities
 - Develop a base schedule with utilities off the critical path (Submitted schedule does this)
- Manage delayed relocations by
 - Keeping all utility coordination and documentation in RUMS up to date
 - Meet with utilities and the VDOT Utility Manager to discuss opportunities for schedule recovery through reallocation of regional resources or use of additional crews.

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- Rearranging construction activities ensuring utility relocations are not on the critical path.

Mitigation strategies for unidentified/non-located utility being discovered during construction:

Even with a thorough SUE identification process and effort, unidentified utilities could be discovered during construction. The Wagman Team will implement the following strategies to maintain the safety of the workzone and prevent delays from unidentified utilities:

- The Team will work hard to prevent unidentified utilities by following the discovery steps for identifying potential utilities including research, coordination and designation.
- Field verifying horizontal and vertical location of all relocated utilities by QC inspection staff as they are placed to ensure no conflict with future construction activities.
- Construction crews will call Miss Utility to remark utilities prior to beginning construction activities within an area and visual inspect the construction area for signs of utilities being present.
- If an unknown utility is encountered crews will
 - Stop work immediately
 - Contact Matt McLaughlin, Utility Coordinator, Wagman's Assistant Utility Coordinator (Project Engineer), and the VDOT Utility Manager
 - Determine owner
 - Hold a field meeting with the all parties to determine if the line is active or abandoned. No construction activities will continue in the area until this is determined.
- Partner with utility owner to resolve conflict in an expedient manner
- Evaluate impact and magnitude to current work
- Evaluate and manage schedule to look for opportunities outside the conflict area to continue work while relocation is taking place.

Utility Relocation Integrated with Project Sequencing and Schedule

The submitted project schedule has been established to remove utility relocations from the critical path. Three examples are as follows:

- The Wagman Team is raising the profile grade along I-95 roadways to provide required vertical clearance of 16'-6" over Route 17, which will eliminate utility conflicts and impacts to schedule. Choosing to lower Route 17 instead would require multiple additional utility relocations that would be on the critical path for meeting the interim milestone.
- The Wagman Team will work around any clearance concerns of the sag conditions for the aerial crossings of I-95 until permanent adjustments are made by:
 - Flagging and signing the lines and
 - Using low profile construction vehicles to cut out median mounds to grade

There are significant portions of the project such as the large portions of the median of I-95 that do not require relocations. The project's schedule advances construction activities in these areas.

4.4.3 Geotechnical

The Wagman team has identified geotechnical risks on this project utilizing the borings and test results contained in the Geotechnical Data Report (GDR), GDR Supplement and GDR Addendum #1 (the GDRs) provided with the RFP and Addenda. With regards to mitigating these risks, the Wagman Team will provide a final geotechnical engineering report according to the VDOT Materials Manual of Instructions, Chapter III Geotechnical Engineering (MMOI Chapter III), and Chapter VI Pavement Design (MMOI Chapter VI). Our subsurface exploration and testing program will include soil test borings, rock coring, in-situ testing, and laboratory testing. The results of this program will be the basis of our final geotechnical engineering report which will include recommendations to mitigate the potential geotechnical risks identified.

Geotechnical Risk Identification and Mitigation Strategies

Risk Related to Unsuitable Materials: Unsuitable material is defined in the RFP as material used as embankment fill, and in cut areas to a depth of at least 2 feet below subgrade directly beneath pavements and at least 2 feet beneath the bedding of minor structures and laterally at least 2 feet beyond the outside edge of the pavement shoulders and bedding limits of the minor structures that meets one or more of the

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following criteria: classifies as CH, MH, OH and OL in accordance with the Unified Soil Classification System; contains more than 5 percent by weight organic matter; exhibits a swell greater than 5 percent as determined from the California Bearing Ratio (CBR) test using VTM-8; exhibits strength, consolidation, durability of rock or any other characteristics that are deemed unsuitable by the Design-Builders' geotechnical engineer or as denoted in the Contract Documents for use in the Work.

We have reviewed the GDRs written for this project in order to assess the potential for unsuitable soil on this site. GDR Addendum #1 included the logs of 94 borings drilled in the I-95 median where most of the roadway and bridge construction will occur. The table below presents the approximate stations where unsuitable soils are anticipated within 2 feet of the pavement subgrade. Additional undercut greater than 2 feet is anticipated in several areas as indicated below.

Table 4.4.3.1. Summary of Potentially Unsuitable Subgrade Soils at Pavement Subgrade

Boring	Approximate Station Range	Approximate Depth of Undercut (ft)	Reason(s) for Anticipated Undercut
17MB-10	3424+75 to 3427+25	3	Soft Soils, High Plasticity Soils
17MB-20	3450+00 to 3452+25	2	Soft Soils, Low CBR
17MB-22, 23	3454+75 to 3461+00	3	Soft Soils
17MB-25	3462+50 to 3464+75	2	Soft Soils, High Plasticity Soils
17MB-30	3475+00 to 3477+25	3	Deleterious Fill
17MB-33, 34	3480+25 to 3484+75	5+	Soft Soils, Deleterious Fill
17MB-39, 40	3494+75 to 3499+75	3	Low CBR, Soft Soils
17MB-44	3507+25 to 3509+75	3	Soft Soils
17MB-46	3512+25 to 3514+00	2	Low CBR
17MB-55, 56	3527+75 to 3532+25	2	Low CBR
17MB-72, 73, 74	3574+75 to 3583+50	2	High Plasticity Soils, Low CBR
17MB-76, 77, 78	3585+00 to 3592+50	2	High Plasticity Soils, Low CBR

Note: CBR is the California Bearing Ratio test.

The table below represents the approximate stations where unsuitable soils are anticipated within cut areas.

Table 4.4.3.2. Summary of Potentially Unsuitable Soils in Cut Areas

Boring	Approximate Station Range	Approximate Average Depth of Cut (ft)	Approximate Average Depth of Unsuitable Cut Material (ft)	Reasons Soils Considered Potentially Unsuitable
17MB-09, 10, 11	3422+00 to 3430+00	20	8	High Plasticity Soils/Low CBR
17MB-14	3435+00 to 3437+50	4	4	Very Wet/Soft Soils
17MB-20	3450+00 to 3458+00	2	2	Low CBR
17MB-30	3475+00 to 3477+25	2	2	Deleterious Fill
17MB-33	3480+25 to 3482+25	7	7	Deleterious Fill
17MB-40	3497+25 to 3499+75	8	8	Low CBR
17MB-72, 73	3574+75 to 3579+75	7	7	Low CBR/High Moisture/High Plasticity Soils
17MB-77, 78	3587+00 to 3592+50	2	2	Low CBR/High Plasticity Soils

Note: Most of the cut soils that are considered unsuitable can be used as fill up to 2 feet below the subgrade level as long as they can be moisture conditioned to achieve compaction and do not contain deleterious materials (organic or construction debris).

Mitigation Strategies Related to Unsuitable Materials: The program will include soil classification and CBR testing to identify the locations of unsuitable materials. In particular, the testing will include Atterberg

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Limits to evaluate plasticity and CBR tests to assess whether the on-site soils meet the RFP minimum CBR value of 5. Sample swell during soaking will be measured for comparison with the RFP maximum of 5 percent. Standard Penetration Test results and moisture content testing will also be used to evaluate potential unsuitable soils.

Unsuitable soils (except for those containing deleterious materials) will be improved by drying, mixing and/or chemically treating these soils with lime or cement so that they can be reused as compacted fill on this project. Where present in roadway cuts, the unsuitable soils will be undercut and replaced with suitable soils stockpiled from other areas on site, or improved by drying, mixing and/or chemical treatment in place. For high-plasticity soils, this would require removal of the upper 12 inches of subgrade, treating the underlying 12-inch layer, and then replacing the upper 12-inches with chemically treated soil or suitable fill materials.

Risks Related to Pavement Design: The RFP indicates the soils supporting pavements should have a minimum CBR value of 5. The GDR indicates that the average CBR value of soils meeting the RFP criteria for suitable soils is 5. Since this is an average value, it is likely that many of the on-site soils that would otherwise be considered suitable will have a CBR value less than 5 and would be considered unsuitable based on CBR value alone.

Mitigation Strategies Related to Pavement Design: Mitigation will include additional testing for CBR to validate the minimum pavement sections in the RFP. This work will be done during the scope validation period.

Risks Related to Acid-Sulfate Soils: The RFP indicates the soils at the site are known to be potentially acidic due to the presence of acid sulfate soils. All structures in contact with on-site soils shall be designed to resist corrosion and to be functional for the design life indicated in the Contract Documents, unless specific testing determines that the soils are not currently or potentially acidic. The acidic nature of the soils is also problematic for establishing vegetative growth, as such, all cut and fill surfaces shall be treated appropriately such that a high quality vegetative cover can be established.

Roadway cross sections indicate that excavation into the existing cut slope between approximate Stations 3560+00 and 3575+00 will be required to widen the southbound outside shoulder in this area of the project. GDR Boring 16RB-29 drilled in this area of the site indicates that acid-sulfate soils are present in this slope. This area would have to be mitigated if acid-sulfate soils are exposed in the excavation.

Mitigation Strategies Related to Acid-Sulfate Soils: Our testing program will include Acid Base Accounting tests along with pH and sulfur content tests to evaluate the presence and location of acid-sulfate soils. These test results will be used to make recommendations for avoidance by covering these soils with non-aggressive fill, minimization of disturbance by adjusting the design, and neutralization with alkaline materials per the Acid-Base Accounting Test with a minimum of four (4) tons per acre. We will not place this material around structural foundations to reduce potential corrosive conditions. Our recommendations will be supported by the appropriate level of field and laboratory testing.



Risks Related to Stormwater Management: The project design includes the construction of wet ponds, along with bioretention facilities and water quality grass swales that include drainage media and underdrains below these facilities. The wet ponds will have to retain water.

Mitigation Strategies Related to Stormwater Management: We plan to drill borings and install ground water observation wells in stormwater management areas as required by MMOI Chapter III. In addition, we will evaluate the need for liners in wet ponds where permanent pools are needed.

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Risks Related to Existing Slopes: Roadway cross sections indicate that excavation into the existing 2H:1V cut slope between approximate Stations 3560+00 and 3575+00 on the west side of the existing SB lanes will be required to widen the outside shoulder in this area of the project. The slope in this area is also more than 25 feet high which classifies as a critical slope. GDR borings drilled in this area of the site indicate that most of the soils in the slope consist of low-plasticity silt and clay. Since high-plasticity clay was not encountered in the slope, it is likely that the stability of this slope can be evaluated using peak shear strengths, rather than lower fully-softened or residual shear strengths. The existing slope appears to be stable at this time. Other slopes within the median are typically non-critical at slope angles of 2H:1V or flatter.

Mitigation Strategies Related to Existing Slopes: The Wagman team will evaluate the stability of the existing 2H:1V cut slope between Stations 3560+00 and 3575+00 as required by the RFP. We will perform the necessary classification and shear strength testing to evaluate the slope stability. Based on the GDR boring data to date and the condition of the existing 2H:1V slope, the need for stabilization is not anticipated. However, recommendation for stabilization will be provided as needed.

Risks Related to Approach Embankment and MSE Wall Settlement at the Route 17 Bridges: The placement of embankment fill for the new SB GP lanes for I-95 at Route 17 will cause the underlying soils to settle. Settlement of the underlying soils could result in downdrag on the foundations supporting the existing SB bridge. Existing embankments are present at the locations of the NB GP lanes bridge and the new CD Lanes Bridge over Route 17. Accordingly, settlements will be much less at these bridge locations because the new SB GP Lanes Bridge will be constructed first.

Risks Related to Approach Embankment and MSE Wall Settlement at the Rappahannock River Bridge: The placement of embankment fill for the approaches to the new GP lanes for I-95 over the Rappahannock River will cause the underlying soils to settle. These embankments/walls will have to meet the settlement and global stability requirements of the RFP. The GDR borings indicate the soils in this area are typically sandy residual soils. Potentially unsuitable soils would likely include soft or loose, near-surface residual soils or embankment fill placed for approach embankments for the existing bridges.

Risks Related to Embankment Settlement at Cowan Blvd Bridge: The RFP plans indicate up to about 20 feet of fill will be needed to grade the median in the area below the bridge to support the new GP lanes. The bridge includes two pile-supported piers located in the median. The weight of the fill will cause the underlying soils (including the soils surrounding the piles) to settle resulting in downdrag loads on the piles. RFP Addendum #5 and #6 indicates that the total settlement should be limited to ½ inch over 20 years within 100 feet of this bridge.

Mitigation Strategies Related to Embankment Settlement at Route 17, Rappahannock River, and Cowan Blvd: We plan to drill Standard Penetration Test borings, and perform in-situ cone penetrometer (CPT) and dilatometer (DMT) soundings to evaluate settlement and global stability of the bridge approach embankments and MSE wall locations. Our testing will include consolidation tests with time-settlement readings so we can calculate short-term and long-term settlements. Our CPT soundings will include pore-pressure dissipation tests to measure horizontal permeability for evaluation of the time-rate of settlement for ground improvement if needed. The DMT and CPT soundings will be used to obtain soil shear strength parameters, along with triaxial or direct shear testing of undisturbed samples for global stability assessment.

If needed, mitigation measures at the Route 17 bridge approaches will include the use of pile supported embankments to support the MSE walls for the new southbound GP lanes bridge. Use of this technique will permit rapid construction of the MSE walls and approach embankment without long wait times for settlements to dissipate. Alternatives using lightweight fill materials are also considered feasible at this location. Possible lightweight fill materials include expanded polystyrene blocks (aka Geofoam), expanded shale or slate, foamed glass or low density cementitious fill (LDCF). Another alternative is to install a cut-off sheet pile wall parallel to I-95 between the existing and proposed bridge with pile tips deep enough to shield the existing bridge piles and embankment from downdrag effects. At the Rappahannock River Bridge,



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unsuitable soils will likely consist of soft or loose residual soils that would be undercut and replaced, or stabilized in place by drying or possibly chemical stabilization. Lightweight fill materials will likely be incorporated into embankments adjacent to the Cowan Boulevard bridge to satisfy settlement criteria.

Building the new structures while maintaining the existing structures represents a geotechnical challenge, mainly to avoid horizontal and vertical movements that could damage existing structures. The Wagman team plans to provide instrumentation monitoring where necessary so that the effect of new construction on existing can be compared to RFP requirements and industry standards. Instrumentation will include but may not be limited to survey monitoring of lateral movement and settlement of the existing structures, and vibration monitoring. The Wagman Team will install settlement plates to monitor and measure settlement in all bridge approach fills as determined to be necessary by the final GDR.

Risks Related to I-95 Rappahannock River Bridge Foundations: The original GDR included one boring in the river in the area of the proposed bridge. This boring indicated relatively good quality rock at the river bottom. Other borings drilled west of the existing SB Bridge indicated similar good quality rock. Since only one boring was drilled in the area of the new bridge, there is a risk that different subsurface conditions could be encountered at bridge substructure locations in the river.

Mitigation Strategies Related to I-95 Rappahannock River Bridge Foundations: Our subsurface exploration program will include borings and rock coring for bridge foundation design. Our approach and access plan was previously described in Section 4.4.1 and is further clarified below. **In support of this technique the Wagman team agrees to exempt differing subsurface conditions at pier two and three in the Rappahannock River from any scope validation considerations.** Testing will include unconfined compression tests on rock core for evaluation of the factored bearing resistance for footings. Undisturbed samples will also be obtained at this location for strength testing for abutment global stability assessment

River Geotechnical Subsurface Exploration Approach and Access Plan

Access to drill borings in the Rappahannock River for design of pier foundations for the new bridge was an issue during drilling for the original GDR. The drill rig was mounted on a tracked ATV carrier to access borings in the river. The ATV tracks were damaged trying to traverse the uneven rock surface in the river. In fact, several of the planned borings were deleted due to access problems, and a temporary causeway had to be constructed in order to recover the carrier for repairs. There are also time-of-year restrictions (TOYRs) due to the possible presence of various endangered or threatened mussel species in the river, and for anadromous fish.

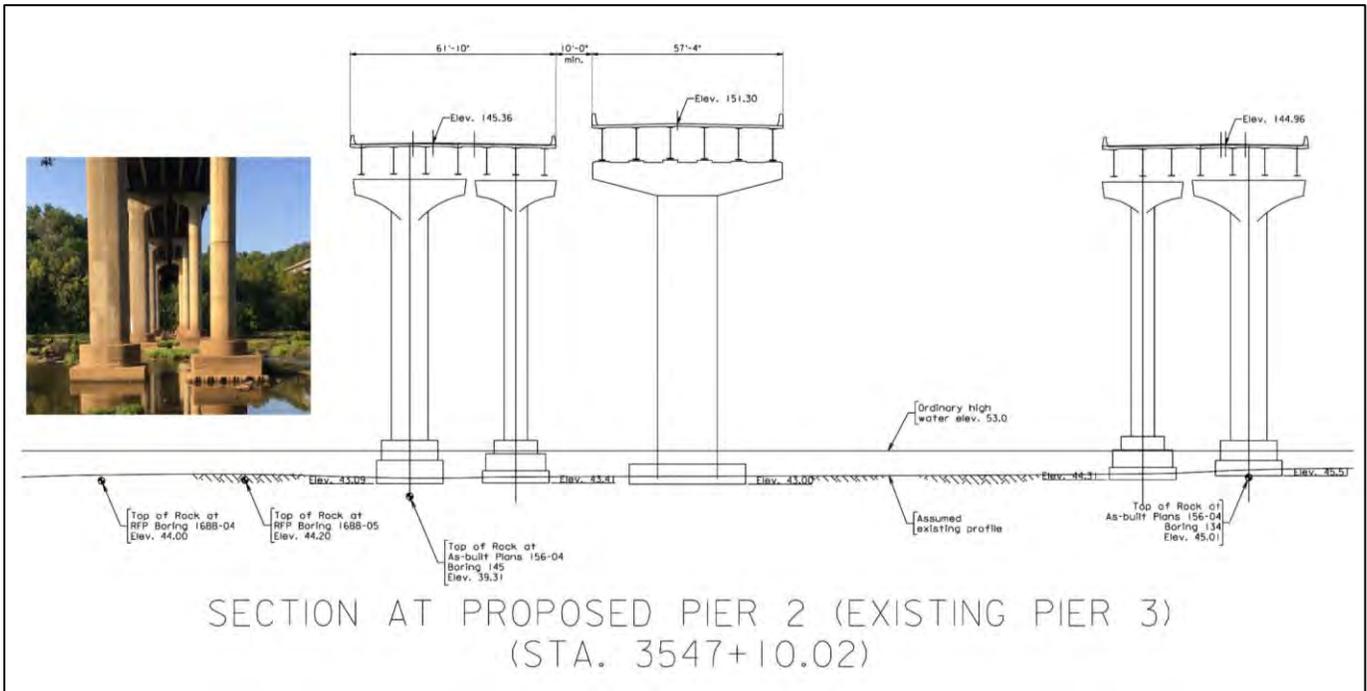
The TOYRs coincide with the proposed scope validation period between February 21 and June 21. The supplemental information VDOT provided with RFP Addendum #3 included a Joint Permit Application for drilling borings in the Rappahannock River. This application indicated the following: “If the DB does the drilling, then the permit would be transferred to the DB and the anticipated start date would be in the summer of 2018. The only window to work without TOYRs is August 1 to 15. VDOT is requesting that the agencies consider permitting a 15 day relaxation of the TOYRs.” The river is also accessible between October 15 and February 15. However, river levels are typically higher during this time of year.

Based on the data contained in the GDRs, the rock cored in borings drilled in the Rappahannock River is considered of good quality. The data reviewed included rock core recovery and Rock Quality Designation (RQD) values, rock core photographs and unconfined compressive strengths of rock core samples. RQD values were greater than 50% below a depth of 1 feet, and the average unconfined compressive strength was greater than 10,000 psi. The RQD values indicate that scour was not an issue at the GDR boring locations.

The pier configuration figures shown in Figure 4.4.3.3 shows as-built bottom of footing elevations for the existing piers, proposed bottom of footing elevations for the new piers, and top of rock elevations from as-built and RFP plan borings. The footing elevations at existing Pier 3 and Pier 5 are very consistent and the Wagman Team is comfortable assuming proposed bottom of footing elevations for use during design and plan preparation. These piers are adjacent to proposed Piers 2 and 3.

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Figure 4.4.3.3 Elevations of Existing Bridge Footings (Proposed Pier 2, Existing Pier 3)



The Wagman Team will eliminate the risk associated with irregular rock surfaces, variable river levels, and TOYRs by performing confirmatory borings in the river after installation of the causeway required for construction access to build the bridge. We will drill the borings as soon as the causeway is built, core the rock to the required depth, test selected rock samples for compressive strength, and submit an addendum to the geotechnical engineering report (GER). The GER will be submitted well before the addendum and in advance of final plans in accordance with RFP requirements. The GDR will include all recommendations for bridge pier and abutment foundations and bridge approach embankments and walls, except for two piers in the river.

The following is the Wagman Team's process for approval of the foundation for the two (2) proposed river piers (Piers 2 and 3):

During Design Phase

- Submit preliminary GDR including all field and laboratory data and engineering calculations and recommendations. Provide a discussion of anticipated conditions at proposed river Piers 2 and 3.
- 90-day VDOT review
- Submit final bridge plans for approval and request for preliminary or conditional approval for proposed river Piers 2 and 3.
- 21-day VDOT review
- Release for Construction (RFC) Approval for bridge plans including preliminary or conditional approval for proposed river Piers 2 and 3.
-

During Construction Phase

- Build causeway (after receiving all environmental approvals and permits)
- Drill geotechnical confirmatory borings at proposed river Piers 2 and 3. Develop updated recommendations for the GDR for foundations at Piers 2 and 3.
- Submit updated recommendations for the GDR
- 90-day VDOT review
- Submit final bridge plans for proposed river Piers 2 and 3.
- 21-day VDOT review
- RFC Approval for bridge plans at proposed river Piers 2 and 3.



Section 4.5 Construction of Project

4.5 | CONSTRUCTION OF PROJECT

In this section, the Wagman Team addresses our approach to safely constructing and completing the project in a manner that minimizes impacts to the travelling public, both local commuter and I-95 through traffic, recreational facility users and adjacent properties / facilities. Our approach incorporates lessons we have learned while delivering numerous interstate and large river crossing projects. We commit our vast local resources (manpower, equipment, and facilities) to this project and will meet the Interim Milestone Date of **September 15, 2021** and achieve Final Completion by **May 26, 2022** through partnership with VDOT and other stakeholders. Wagman's proposed final completion date improves on the contract completion date by over 2 months and provides the completed facility to the traveling public before Memorial Day weekend and summer travel and summer recess.



Safety Improvement Elements

- Work Area Ingress & Egress to areas designed to minimize traffic disruptions.
 - Temporary Traffic Control design that provides safe, reliable and predictable traffic flow through the project while providing sufficient emergency pull off areas on outside shoulders.
 - Construction access to I-95 median provided from Route 17 instead of I-95
 - Improved lane merge at southern terminus of project.
- Construction sequencing of Route 17 Interchange
Sequencing of the Route 17 interchange construction separates public from active construction



Operations Improvement Elements

- Use of a temporary signal at Route 17 Interchange to improve interim traffic flow on 17 and eliminate merge/weave conflicts during construction of new I-95 SB CD Lane bridge
- Causeway/temporary bridge design minimizes disturbance in the Rappahannock River.
- Access to causeway/temporary bridge from South end only significantly reduces temporary disturbance areas along the Rappahannock River
- Marked ingress/egress with dedicated separate acceleration/deceleration lanes for material deliveries and construction access



Schedule Improvement Elements

- Early Works Package allows construction to begin in all non jurisdictional areas early.
- Minimizes lane shifts to reduce MOT requirements.
- Final project completion by May 26, 2022 improving the RFP date by over two months.
- Innovative causeway/temporary bridge design and river access removes the I-95 SB GP bridge over the Rappahannock River from the critical path



Geotechnical Constraints

- Wagman Team's self-performs all the foundation systems (driven pile, micro-pile, drilled shafts, auger cast piles) that can be implemented on this project controlling cost and schedule regardless of geological conditions.
- Elimination of Rappahannock River scope validation concerns for VDOT due to the D B Teams unique approach.



Environmental/Noise Impacts

- Causeway/temporary bridge design reduces temporary impacts in the Rappahannock River.
- Bridge substructure layout reduces permanent impacts in the Rappahannock River.
- Limiting access to the causeway/temporary bridge from the South end significantly reduces temporary disturbance areas along the Rappahannock River.
- Soundwall installation in the early phases of project reduces noise impacts to affected landowners.

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Construction Improvement Elements

- Incorporates proven means and methods into the design through constructability reviews and task force meetings.
- Reduced number of piers in the Rappahannock River reduces construction time and environmental impacts.
- Causeway design and implementation recognizes the Rappahannock River and banks as an important public recreational resource.
- Dedicated hydroseeder and mulcher stationed on job for quick stabilization
- Improved profile for better balance of earthwork minimizing on-road hauling
- Designer to participate in E&S inspections



Public Involvement

- Extensive experience with both VDOT Mega Projects, I-95 Corridor as well as ‘microscopically’ scrutinized projects with multiple stakeholders in the nearby vicinity.
- We will engage stakeholders early in the process to facilitate numerous Pardon our Dust meetings and public information / involvement meetings on behalf of VDOT.
- Weekly Updates to VDOT’s Fredericksburg Communications Office
- Provide Virginia Tourism Corporation and the Virginia Welcome Center with additional signage and written media and host construction open houses prior to any major traffic shifts.
- Partner with river and trail users for a “positive experience” for the public.



Transportation Management Plan

- Minimizes traffic shifts and reduces MOT durations and impacts to traveling public.
- Route 17 temporary signal improves safety and operations during construction
- Weekly updates to Fredericksburg communication office for website update
- Staging and laydown areas strategically located to reduce impacts to the traveling public
- Robust incident management plan coordinated with stakeholders and first responders with continuous updates and distribution throughout the construction duration

4.5.1 Sequence of Construction (SOC)

The Wagman Team has developed a sequence of construction that allows the Team to complete the base scope of work and Option 1 by the contract milestone date and improve on the final completion date by over two months. The planned sequence of construction and related schedule shown in Section 4.7 is based on beginning work in areas as soon as possible after constraints are removed or required pre-work such as design is completed. The key items that influenced the planned sequence of construction for this project include:

- Identifying work activities that could begin early that are not constrained by
 - completing geotechnical analysis,
 - obtaining all environmental permits,
 - acquiring right of way and relocating utilities.
- Working around environmental time of year restrictions
- Minimizing any disruption and safety concerns to the traveling public by minimizing number of major traffic shifts/detours required to maintain traffic.
- Maintaining a reasonable design schedule providing enough time for comprehensive QA/QC review and all required agency reviews.
- Maximizing prime construction seasons; and
- Providing ample lead time to secure materials.
- Adjusted profile improves earthwork balance for project.
- Early identification of soil conditions on-site to determine appropriate remediation and accommodate settlement periods

The Wagman Team will construct this project in three major construction segments and work areas that can generally be built independently from each other and have separate maintenance of traffic (MOT) phases. The three major segments are:

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South Segment: I-95 South of the Rappahannock River including Route 3 Interchange

River Segment: I-95 General Purpose Lanes Bridge over Rappahannock River and associated access

North Segment: I-95 North of the Rappahannock River including Route 17 Interchange and Option 1

The Sequence of Construction (SOC) and MOT phasing for each of these three major construction segments are summarized in **Figure 4.5.1.1** and shown graphically in *Volume II*. The table and the graphics show how each segment is broken down into distinct construction phases based on the key items determining sequencing listed above. Key construction activities as well as major MOT features are listed for each distinct construction phase.

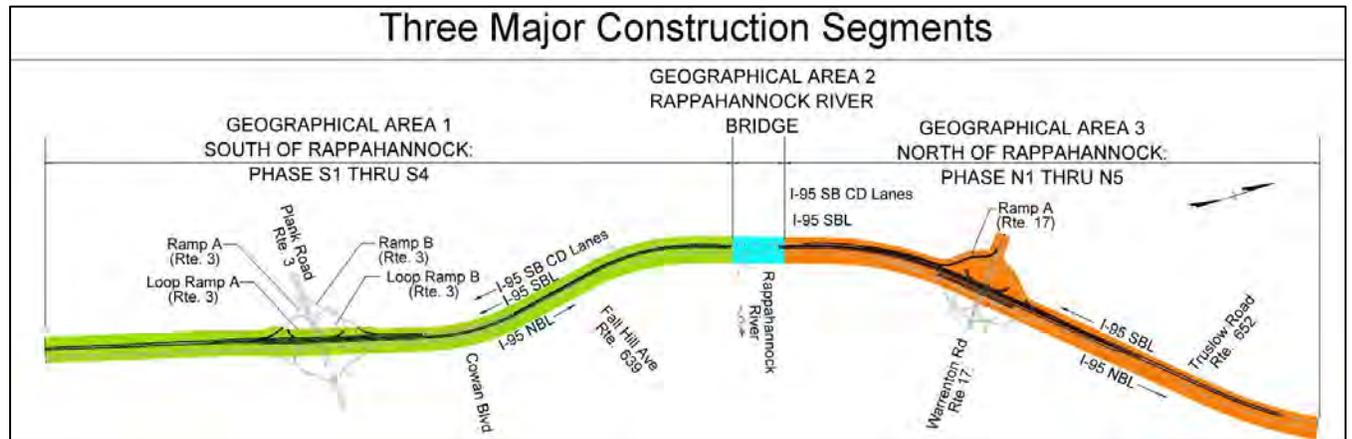


Figure 4.5.1.1 Three Major Construction Segments for the Project

South Segment (I-95 South of Rappahannock River): As shown in **Figure 4.5.1.1**, four distinct construction phases labeled S1 through S4 have been identified to complete all the construction activities occurring south of the River.

Phase S1 includes early construction activities in the I-95 median that are outside of jurisdictional wetland areas. The Wagman Team will prepare an early works package (E&S, grading, MOT) of design plans and Traffic Management Plan (TMP) to allow the Team to begin construction during the last half of the 2018 construction season. Work zone signing, temporary barrier, and traffic control devices will be installed per the approved TMP. Work area ingress/egress zones will be strategically located with acceleration and deceleration lanes so that construction traffic entering and exiting the work zone will not impact traffic. Erosion and siltation controls will be immediately established per the approved early works package plans allowing clearing and earthwork to commence in the median.

During Phase S2, outside ramp widening south of the Route 3 Interchange and the associated drainage and storm water management ponds will be accessed and completed once all environmental permits and right of way are obtained and Release for Construction Plans are approved by VDOT. Work will continue in median on the I-95 SB GP Lanes.

In Phase S3, work will continue in the median on the I-95 SB General Purpose Lanes including constructing the merge between the GP Lanes and the CD lanes. At the end of Phase S3, completion of final paving, pavement markings and permanent traffic control devices will have occurred. The completion of Phase S3 is planned to occur concurrently with the completion of the new Rappahannock River Bridge so I-95 SB through traffic can be shifted to the new I-95 SB GP Lanes.

Phase S4 includes completing the remaining Route 3 improvements within the interchange that takes the existing three SB lanes and auxiliary lane between the loop ramps and converts them into the final SB I-95 CD lanes configuration with two through lanes and an auxiliary lane and tying in the loop ramps. Final mill, overlay and pavement markings will complete this segment to include bioretention filters. At the end of this phase all traffic will be located in its final configuration.

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North Segment (I-95 North of the Rappahannock River): As shown in **Figure 4.5.1.1**, five distinct construction phases labeled N1 through N5 have been identified to complete all the construction activities occurring north of the River including the Route 17 Interchange improvements and Option 1. North of the River, four major shifts in traffic are required to complete the improvements. The construction phases correlate to these traffic shifts.

Similar to Phase S1 on the south end, Phase N1 involves beginning construction activities in the second half of the 2018 construction season as soon as an early works package and TMP is approved. Phase N1 includes construction activities in the I-95 median that are outside of jurisdictional wetland areas. Work zone signing, temporary barrier, and traffic control devices will be installed per an approved TMP. Work area ingress/egress zones will be strategically located with acceleration and deceleration lanes so that construction traffic entering and exiting the work zone will not impact traffic. Erosion and siltation controls will be immediately installed per the approved early work package plans. Clearing and earthwork will commence in the median. **Staging areas and laydown areas** will be established. Fill is required to be placed in the median north of the River. **Borrow pits have been identified to minimize impacts to traffic.** Construction entrances from Route 17 to the median will be utilized to minimize construction traffic entering and exiting the work zone from mainline I-95.

During Phase N2, the new GP Lane bridge and roadway approaches will be built in the existing median of I-95 once all environmental permits and Release for Construction Plans are approved by VDOT.

At the start of Phase N3, at the completion of the new GP Lane bridge and approaches, NBL I-95 traffic will be shifted to the new bridge. The existing I-95 NBL bridge will be replaced with a new structure that provides the RFP required clearance over Route 17. I-95 NBL bridge approaches will be reconstructed to provide the correct final roadway grades and typical section. Work will continue in median on the I-95 SB GP Lanes including constructing the diverge from existing SB I-95. Improvements to Route 17 and Ramp will be constructed. At the completion of N3 NB traffic will be shifted to the new I-95 NBL bridge.

At the start of Phase N4, SBL I-95 traffic not destined for Route 17 will be shifted to the new SB GP lanes bridge and then shifted back to existing I-95 prior to reaching the river. The existing I-95 SBL bridge (new I-95 SB CD lane bridge) will be replaced with a new structure that provides the RFP required clearance over Route 17. I-95 SB CD lanes bridge approaches will be reconstructed to provide the correct final roadway grades and typical section. The Route 17 NB to SB loop on-ramp will be closed and entering traffic will be **diverted through a temporary signal on Route 17** with a temporary connection to Ramp A. The Interstate 95 SB to Route 17 SB loop off-ramp will also be closed and exiting traffic will be diverted to Ramp B and then through the temporary signal. Details of the temporary ramp connections and temporary signal are shown in *Volume II*. This **separates the merge traffic from the on and off ramps of Route 17 conflicting with the work zone improving safety during construction.**

During Phase N4, outside ramp widening south and north of the Route 17 Interchange and the associated drainage will be constructed. After the outside work is completed ramp traffic will be diverted to the outside pavement and any remaining median work will be constructed.

Work will also continue in median on the I-95 SB GP Lanes near the river including, completion of final paving, pavement markings and permanent traffic control devices. Completion of Phase N4 is planned to occur concurrently with the completion of the new Rappahannock River Bridge so I-95 SB through traffic can be moved to the new I-95 SB GP Lanes across and south of the River. SB I-95 CD lane traffic will be shifted to the new I-95 SB CD lane bridge and the Route 17 loop ramps reopened. All major traffic shifts will be done. At the completion of Phase N4, all work north of Sta. 3595+00 will be done allowing the Wagman Team to meet the interim milestone.

Phase N4 also includes completing the remaining Route 17 improvements within the interchange that takes the existing three SB lanes and auxiliary lane between the loop ramps and converts them to the final SB I-95 CD lanes configuration with a barrier. Final mill and overlay and pavement marking will complete this segment as will any bioretention filters. At the end of this phase all traffic will be located in its final configuration.

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Phase N5 involves removing the temporary pavement associated with the last diversion and finishing any shoulders and median barrier between the SB I-95 GP and CD lanes. Final mill and overlay and pavement marking will be completed on the SB I-95 CD lanes south of Sta. 3595+00. With the completion of Phases N5 and S4, the project will be completed. The Wagman Team will beat the July 30, 2022 final completion date by **completing the project on May 26, 2022**. Delivering the final project **completion over two months early allows the traveling public full access to the completed project prior to the close of local schools, summer vacation season and in advance of the holiday travel for Memorial Day Weekend**.

Public Safety Commitment Example:

- ✓ \$50M plus project on I-95 near I-395 in Baltimore, MD was completed ahead of schedule.
- ✓ 47 successful traffic switches with ADT over 100,000.
- ✓ 2016 ENR's Best Specialty Contracting Project in the Mid-Atlantic Region Awards of Excellence
- ✓ 2017 MdQI Partnering Construction Gold Award
- ✓ 2017 MdQI Modal Award Over \$5 Million
- ✓ 2017 MdQI Project of the Year Over \$5 Million
- ✓ Honorable Mention during the 2017 Excellence in Concrete Awards by the Maryland Chapter of the American Concrete Institute
- ✓ MDTA 2017 MBE General Contractor of the Year

Maintaining Traffic Through all Phases of Construction

One of the key considerations when developing the SOC and MOT phasing for the project was to minimize any disruption and safety concerns to the traveling public by minimizing the major traffic shifts/detours required to maintain traffic. As shown on graphics in *Volume II*, our design requires only four major traffic shifts and detours for the project. **Table 4.5.1.5** summarizes the number of traffic shifts required for each major traffic movement within the project area. All the major movements are only shifted a maximum of two times, initially at the start of construction and then again to return to existing location or to the final location.

The Wagman Team, inclusive of Design and Construction Professionals, have worked together to identify all critical construction activities, including access points and staging requirements, and we have developed a plan that accommodates these activities with minimal impact to the traveling public. For example, we will provide detailed plans including acceleration/deceleration lanes, temporary pavement, temporary barrier walls and additional signage to safely guide construction equipment and material deliveries in and out of the work zone areas. We will analyze and construct temporary drainage during all construction phases to ensure that the travel lanes are free of water ponding during storm events. Significant advantages of our MOT scheme is that it provides separation between opposing traffic at the Route 17 Interchange, minimizes the number of construction phases and requires only four major mainline traffic shifts.

Table 4.5.1.5: Number of Traffic Shifts for Major Traffic Movements

Major Traffic Movement	Number of Major Shifts	Shift 1	Shift 2
NB I-95 Through ¹ Traffic	2	Phase N3: Traffic is diverted to new I-95 SB GP lanes/bridge while I-95 NB bridge over Route 17 is reconstructed.	Phase N4: Traffic diverted back to new I-95 NB Bridge.
NB I-95/Route 17 Interchange Traffic	None	No traffic shift required.	No traffic shift required.
SB I-95/Route 17 Ramp B and Ramp A Traffic	None	No traffic shift required.	No traffic shift required.
SB I-95/Route 17 Loop Ramps	2	Phase N4: SB I-95 to SB Route 17 off-Ramp traffic diverted to Ramp B and through temporary signal (dual left turn lanes). Phase N4: NB Route 17 to SB I-95 on-ramp traffic diverted through temporary signal (single NB left turn lane) and then onto Ramp A.	Phase N5: Traffic diverted to its final location over new I-95 SB CD Lanes Bridge

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SB I-95 Through ² Traffic	2	Phase N4: Traffic is diverted to new I-95 SB GP lanes/bridge and shifted back over the existing SB Rappahannock River bridge while I-95 SB CD Lanes Bridge over Route 17 is reconstructed.	Phase N5: Traffic is carried over the new I-95 SB GP lanes bridge over the Rappahannock River at its final location.
SB I-95 Virginia Welcome Center Traffic and SB I-95 /Route 3 Off Ramps	2	Phase N4: Traffic is diverted to new I-95 SB GP lanes/bridge and shifted back over the existing SB Rappahannock River Bridge while I-95 SB CD lane bridge over Route 17 is reconstructed.	Phase N5: Traffic is shifted back to the reconstructed I-95 SB CD lanes, which is the final location.
SB I-95/Route 3 On-Ramps	None	No traffic shift required.	No traffic shift required.

¹. NB Traffic that does not access Route 17 Interchange Ramps

². SB Traffic that does not access Route 3 Interchange Ramps or Welcome Center

Public Safety and Mobility

The Wagman Team’s top priority on the project is safety of our employees, subcontractors, and the traveling public. We have a proven record of safely delivering multiphase interstate projects as evidenced by Wagman’s current Experience Modification Rating (EMR) of 0.66 and recent national and regional industry safety awards from ARTBA, VTCA, and AGC-MD. In addition to OSHA 30, VDOT ESCC, and VDOT Intermediate Traffic Control our Project Environmental Health & Safety Manager, CJ Frum recently obtained the ARTBA Safety Certification for Transportation Project Professionals. Mr. Frum will oversee the projects safety program from development of the EHSP throughout physical construction and project acceptance.

Safety for the traveling public will be assured by development of a detailed Traffic Control Plan (TCP). This plan will minimize traffic shifts and lane closures, maintain or exceed minimum lane widths, consider line of site when planning for ingress to and egress from construction work areas, and avoid reductions in speed limits. Temporary concrete barrier wall will be used to protect long-term work areas. We will utilize a certified, experienced traffic control supervisor and crew dedicated to install, maintain and remove the temporary traffic control devices. We will conduct regular drive-through video inspections of the project and review for compliance with the approved TCP.

The Wagman Team appreciates the criticality of keeping **vehicular traffic moving safely** while making the necessary infrastructure improvements; to accomplish this, we plan to perform the majority of our construction behind barrier. This also enables us to perform substantive portions of the work during the daytime. Our construction team has already worked closely with our design team in locating entrances to the work zone and will continue to perform detailed constructability reviews of the TMP and MOT plans, ensuring that our plans provide; safe and effective advance warning and transit through the work zone. Additionally, our plan will provide the following; on-call towing service, emergency pull off/refuge areas, access through all work zones for emergency responders, pre-approved messaging for a variety of incidents, and an emergency contingency plan (notification and response matrix coordinated with VA511 and approved detour routes with staged equipment and materials.)

Additionally, the Wagman Team supports the traveling public by making it one of our priorities to be cognizant of the overall traveler mobility limitations that may be present due to the on-going construction activities of both adjacent and regional projects. We understand the requirements of the RFP, particularly Part 2 Section 2.10, we are conscious of other construction projects and the traffic ramifications they may pose and will work with VDOT to minimize impediments to the travelling public and maintain a safe work zone throughout the I-95 corridor under construction through coordination with other contractors and VDOT. The Wagman Team has personnel trained and familiar with the use of VDOT LCAMS.

The **mobility and safety of recreational/pedestrian users** of the Rappahannock River and adjacent trails is also a priority for the Wagman Team. The Wagman Team has met with user groups such as Friends of the Rappahannock to fully understand both river and trail users’ interests and concerns. We have visited and used these river and trail facilities ourselves and are particularly engaged to make sure that these facilities

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are maintained and possibly improved. We have designed a causeway/temporary bridge construction access system that minimizes interruption and impacts to both river and trail users. Trail detours and river portages will be utilized, while keeping users safe, and all recreational facilities available for use at all times. The North bank portage that will be provided during construction can be left in place as a permanent trail where a future trail system has already been designated.

Geotechnical Constraints

The Wagman Team will utilize the extensive resources and experience of our geotechnical division to self-perform the geotechnical construction activities for this project. Wagman can perform permanent foundations such as drilled shafts, micro-piles, or auger cast piles in addition to conventional driven piles. The Wagman Team's experienced geotechnical engineers and construction specialists are familiar with the challenges presented by this project including; working in close proximity to high traffic volumes or environmentally sensitive locations, and installation of drilled shafts, drilled pile, micro pile, and auger cast piles. We also understand the diverse geotechnical constraints whether it is acid-sulfate soils, rock foundations, settlement sensitive fills or poor subsurface soils. Our ability to self-perform various types of foundations, support of excavation, retaining walls and ground improvements enables us to control cost and maintain schedule. Wagman's geotechnical and construction engineers are engaged during pre-bid design development and for consultation and over the shoulder reviews during design execution.



Wagman self-performs all non-disruptive foundations types (such as micro-pile pictured here on Route 7) controlling cost, schedule and reducing work zone requirements.

The Wagman Team has taken geotechnical considerations into the design and construction of the project to include rock constraints in the corridor since the RFP prohibits the blasting of rock. A usable access road to the Rappahannock River from the North side would require a significant rock cut excavation. We have designed our causeway/temporary bridge and causeway access to be from the South side of the river only, thus eliminating a large construction and schedule risk.

The most significant geotechnical constraint on the project is obtaining confirmatory geotechnical borings for all piers in the Rappahannock River. Getting to those boring locations has been extensively discussed in other areas of this proposal. Wagman has chosen to eliminate that risk by making prudent design assumptions and taking confirmatory borings once the construction causeway has been installed. We have designed our sequence of construction to eliminate time of year restrictions that would control installing access for geotechnical borings in the conventional and logical sequence. **In support of this technique the Wagman Team agrees to exempt differing subsurface conditions at piers two and three in the Rappahannock River from any scope validation considerations.**

The Wagman Team has identified unsuitable soils as a potential schedule constraint. Our mitigation plan begins with a robust geotechnical investigation to identify as many areas as possible and provide engineering solutions that include removal and replacement, drying, soil mixing or soil amendments.

Environmental and Noise Impacts

The Wagman Team's extensive constructability reviews during the design phase will promote environmental cognizance and integrate our **best practices** construction techniques into the design. This has already resulted in betterments during the development of this proposal with associated noise reduction and mitigation. The noise barrier will be constructed early in the project. Based on lessons learned on bridge demolition in densely populated areas, we will maximize the use of specialty demolition means & methods (such as saw cutting/controlled lift out) in lieu of conventional breaking and will restrict any breaking to daytime operations. These and other engineered controls (including those related to dust and silica) will be incorporated during design development to further minimize environmental impacts.

The most significant environmental feature of the project is the Rappahannock River. The time of year restrictions for various endangered mussel and fish species is capable of controlling the project duration. We

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have designed the bridge to minimize piers in the river, a causeway/temporary bridges and causeway access that minimizes temporary impacts to the Rappahannock River ecosystem and recreational users.

Our Early Works construction package avoids disturbance of construction in jurisdictional wetlands. This technique preserves schedule and minimizes the potential for permit delays to control the project.

The Wagman Team has a proven history of coordinating construction environmental practices and environmental performance with VDOT statewide on previous projects, most recently on nearby Route 7 in the NOVA District and Odd Fellows Road in the Lynchburg District, both design-build projects.

The Wagman Team has developed and refined numerous best practices related to SWM/ESC/P2 in our delivery of VDOT DB projects in multiple districts. These practices have resulted in excellent performance on our projects as validated by internal and external (VDOT MS4 Coordinator, DEQ, and JMT) audits and inspections and the following practices will be implemented on this project:

- Wagman will designate a primary ESC Manager from the construction team as well as two alternates all of whom will possess both RLD and ESCC Certifications.
- Additional Wagman Team Members (SWM/ESC Design Lead, RCE, Safety Manager, Sr. QA Inspector, and Sr. QC Inspector) will assist the ESC Manager by rotating their participation in the Construction Runoff Control Inspections (CRCI).
- CRCI will occur twice a week at a minimum and after every measurable storm event.
- Stabilization Equipment (Hydro-seeder and mulch truck) will be permanently stationed at project site with sufficient inventory of temporary materials so daily stabilization can occur as required.
- Temporary concrete washout facilities will be constructed and regularly maintained throughout the site as designated by the Environmental Health and Safety Plan (EHSP).
- Temporary fuel will be stored outside of environmentally sensitive areas and all fuel storage tanks will utilize dual containment systems in accordance with the EHSP.
- SWPP will be updated and maintained with all proper official documentation.

Right-of-Way Impacts

The Wagman Team has developed an approach that allows for the majority of the project to be constructed within the existing VDOT ROW. While Right of Way Impacts are minimal, they remain an important project requirement. We have prioritized the ROW acquisitions to prompt those required to advance construction activities first. During the development of this technical proposal the Wagman Team has extensively studied the ROW requirements of this project relative to other projects along the I-95 corridor. The Wagman Team has compiled the collective lessons learned from these ROW managers from other projects to develop a strategy to implement best practices related to ROW clearance to optimize the construction schedule. We have minimized the need for construction easements by conducting most of our construction work from the road side of the project.

Staging and Storage Areas

As previously mentioned, the Wagman Team possesses extensive local resources including: over 600 construction professionals, an equipment fleet valued at over \$50M and have agreements with local property owners for convenient offsite staging. The resources are available 24/7 allowing us to maximize work outside of peak traffic periods. We will stage materials and schedule deliveries during non-peak hours whenever possible to minimize disruptions to the traveling public. The Wagman Team will separate construction from the traveling public and will provide proper and well signed ingress, egress, and refuge areas. These staging and storage areas are strategically located to minimize construction traffic and deliveries disrupting traffic on I-95. The specific locations are shown on the MOT/SOC plans in *Volume II*.

Incident Management

The Wagman Team's approach to incident management is detailed below in the Incident Management Plan in Section 4.5.2.3 as part of the Transportation Management Plan.

Public Outreach

The Wagman Team members have extensive experience with NOVA Mega Projects as well as I-95 construction projects throughout the Mid-Atlantic states. As part of these projects, our team, in partnership

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with VDOT, has regularly coordinated with public entities, homeowner associations, individual homeowners, businesses, county governments, federal agencies, civic groups, historic properties, protected watersheds and various other groups during both design and construction. In particular, the Wagman Team members hosted extensive and numerous **Pardon our Dust** and other public meetings on behalf of VDOT. These have been well received by local communities and have served as a key to our success in keeping the public fully informed.

The Wagman Team's public relations staff, led by Elisabeth McCullum, will develop a Public Outreach Plan in conjunction with VDOT's Fredericksburg District Communication Manager Kelly Hannon and her office. The plan will detail the types of information, the frequency and to whom the information will be disseminated throughout the duration of the project.

The Wagman Team will **exceed the RFP requirements** and will increase the required public outreach efforts. In addition to the RFP requirements, we will **conduct a drive-thru construction open house prior to each major traffic shift**, set-up at the rest stop along I-95 SB located within the corridor. The objective for this type of event is to provide a very **convenient avenue for the area residents and traveling public to obtain information about the project and upcoming activities**. We expect this type of event to be very effective as it will capture motorists who reside outside of the guidelines for communication but who are nonetheless impacted. It will provide an opportunity for motorists traveling home after work to swing into the dedicated drive-thru location to meet with the Project Team and pick-up a fact sheet and view the Team's public presentation display boards of the proposed design and sequence of construction. This event offers a cost-effective and creative way for the Wagman Team together with VDOT to disseminate timely information to the surrounding communities and will keep the public up to date on the project's progress. The Wagman Team will coordinate this event with VDOT's Public Information Point of Contact (POC) and will occur prior to start of construction and prior to any major traffic switch.

Government Approvals

The complex nature of this project will require approvals from agencies outside of VDOT's control. The Wagman Team has experience with all the agencies involved. The construction segments have been developed as a direct result of the advanced discussions and coordination we have performed with agencies such as the City of Fredericksburg, Spotsylvania County and Stafford County, bearing in mind the need to expedite approvals and provide packages that are acceptable to VDOT.

The Wagman Team's advanced engagement with Department of Game & Inland Fisheries, Department of Environmental Quality and the Corps of Engineers has fostered the development and confidence in a plan of execution that reduces the environmental impacts associated with the Rappahannock River, effectively removing the Rappahannock River Time of Year Restrictions from the project's critical path.

Additional engagement with these permitting agencies has provided the Wagman Team with an approach to begin work in non-jurisdictional areas (Early Works Package) to maximize the opportunity to begin work early and complete the project ahead of schedule.

Mitigation of Delays

The Wagman Team's long history of delivering projects on time can be attributed to effectively partnering with VDOT. This experience has compelled frequent, open and honest communication between the Wagman Team and VDOT at all levels to complete DB projects on schedule. Our team can self-perform all critical construction elements (roadway, drainage, structures, utilities, geotechnical, noise barrier) and includes significant local manpower, equipment, and material resources. These resources are available for reassignment to this project (24/7) to supplement the project team and accelerate the project should the project be impacted by issues beyond the control of the Wagman Team or VDOT. We utilize multiple tools (baseline project schedule, three-week look ahead schedules, weekly schedule and quality coordination meetings, and day-to-day coordination meetings) to anticipate potential delays and effectively communicate these with appropriate mitigation strategies to VDOT.

The Wagman Team has developed a very detailed CPM schedule that has integrated the design and construction activities (see proposal schedule in Section 4.7). Our schedule is the result of close coordination between the design and construction team; is based on available design and construction resources; allows for quality control checking of all deliverables; includes review times of all submittals, including shop

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drawings; includes time for all design, permitting, ROW acquisitions, utility relocations, construction and material fabrication. Our approach to scheduling the project to mitigate delays includes the following:

- Minimize the duration of impacts to the traveling public
- Place traffic on permanent pavement as early as possible
- Avoid utility conflicts
- Avoid Right of Way acquisition delays
- Clearly identify the project's critical path
- Reduce contract duration

The project schedule will be updated monthly during the duration of the project and will include design, permitting, submittal/shop drawing reviews, procurement of materials, subcontractors and construction activities. Quality Control(Q/A) and Quality Assurance(Q/C) hold points and witness points will be clearly defined. The schedule will be continuously monitored and updated to ensure that released-for-construction (RFC) plans are available when required, that resources are adequate and that materials are available when needed. The schedule is a dynamic tool and provides a basis for identifying opportunities for improvements to project completion through resequencing, adjusting resources or altering the means and methods for performance of the work. Updating the schedule monthly will allow us to identify any delay early and develop a recovery schedule as needed to complete the project on or ahead of the required contract completion date.

The project schedule along with 3 week look ahead schedules will facilitate scheduling QA/QC testing and inspection resources and manpower planning. Scheduled witness and hold points in the schedule will clearly highlight these critical quality activities to all parties.

In addition to the Wagman Team's self-performing construction capabilities, we are partnering with subcontractors, vendors and suppliers that not only have the same Core Values but compliment and add considerable strength to the project team.

Faulconer Construction Co., Inc. adds value, strength, and proven interstate widening experience in earthwork, grading, and storm sewer. With a past history of working together, and with their proven track record of safely delivering quality projects on time and within budget, Faulconer's resources and local knowledge are an asset to the team and to the project. Although Wagman has in-house capabilities to self-perform this work, we chose to bolster our resources and optimize project execution by bringing them into our fold. With their previous successes working in the Fredericksburg/Stafford area, including their current operations at the University of Mary Washington, our team benefits from Faulconer's expertise and participation in this endeavor. As an equity and managing partner with CH2M Hill, they were an integral part of the success on VDOT's I-81 Truck Climbing Lane design-build project in Montgomery County. Furthermore, they are currently working on, have played a key role, or have led more than 20 design-build projects worth in excess of \$200M. As a fully integrated and embedded partner, Faulconer is well poised to add tremendous value from design concept review through construction.

CES, LLC (in particular Matt McLaughlin) providing Utility Coordination and Management Services brings years of proven experience in managing utility avoidance and relocations. Our *prebid, preliminary UFI meeting* held on October 10, 2017 (**exceeding the RFP requirements**) is a prime example of the positive working relationships with utility owners. One of the most common causes of construction delays are utility relocation issues. JMT will use the power of the 3D model while coordinating with Matt and the utility agencies to ensure that the means and methods required to relocate utilities will be compatible with the proposed construction plan. As an integral part of the Wagman Team, Matt's experience and input into project planning and scheduling has guided utility avoidance concepts in both design development and construction scheduling. Matt will be engaged in the project throughout design and construction maximizing the probability of anticipating and being able to mitigate utility delays and expedite utility work to increase the opportunity to improve upon stated completion dates.

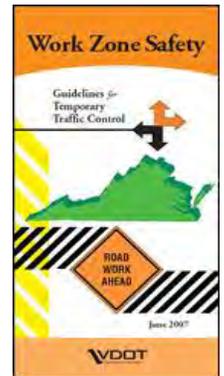
The Wagman Team has completed a full risk mitigation workshop identifying the critical risks on the project and have discussed and implemented mitigation strategies throughout our response to the RFP. We have mitigated the project's risks identified to meet schedule requirements and achieve all incentive milestones.

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4.5.2 Transportation Management Plan (TMP)

The Wagman Team is dedicated to minimizing impacts to the public and all stakeholders during all phases of construction. Our TMP and MOT Plans have been developed thus far with an emphasis on maximizing safety for the traveling public, construction personnel and will work to minimize travel delays throughout all stages of construction. To accomplish these safety and public mobility goals, we have committed to mitigation and communication strategies that exceed the requirements of the RFP. Some of these strategies are detailed on the following pages.

To facilitate the construction of the I-95 SB CD Lanes and Rappahannock River Crossing project, a Type C TMP will be developed per the *VDOT IIM 241.7 (TED 351.4)* and designed in accordance with the methodology provided in the *Virginia Work Area Protection Manual (VAWAPM), Revised April 2015*; the *Manual on Uniform Traffic Control Devices (MUTCD), Year 2009 Edition*; and the *Virginia Supplement to the Manual on Uniform Traffic Control Devices, Year 2011 Edition/Revised September 2013*. The TMP will include a *Temporary Traffic Control Plan*, a *Public Communication Plan* and a *Transportation Operations Plan (TOP)* in order to reduce multi-modal traffic impacts, improve safety, and enhance coordination within and around the work zones. The proper planning of construction activities is critical in promoting worker and traveler safety as well as in preventing unreasonable travel delays and vehicular queues. **Our personnel involved in the design and implementation of the work zones are experienced and certified with VDOT Advanced Work Zone Training.**



4.5.2.1 Temporary Traffic Control Plan (Maintenance of Traffic)

The Wagman Team has developed an MOT plan that consists of five (N1-N5) construction phases north of the Rappahannock River and four construction phases south (S1-S4) of the Rappahannock River (see MOT plan sheets and Table 4.5.1-1) and four major traffic shifts. Our plan will minimize disruptions to the traveling public and place traffic on permanent roadway early while minimizing temporary lane closures.

During construction of the project, the Wagman Team will maintain safe access to and from the ramps at the Route 17 Interchange and the Route 3 Interchange, as well as safe ingress and egress along I-95 NB and SB for construction of the new I-95 General Purpose (GP) lanes in the median. Methods to be used to minimize impacts to the traveling public include the following:

- Provide clear and safe access for traffic through the project
- Full paved shoulder maintained for majority of I-95 for incident management
- Minimizing temporary lane closures as allowed by RFP
- Place traffic on permanent pavement as early as possible
- Coordinate lane closures and traffic shifts with adjacent construction projects
- Complete the project ahead of the schedule required by the RFP
- Provide detailed work plans to all construction crews, to include subcontractors, for every step and construction phase

MOT inspections will occur seven days a week and will be documented in the project files. Team members will be on-call 24 hours a day, seven days a week to assist with any traffic-related issues along the corridor.

- All new MOT patterns will be videotaped immediately after installation and verified for conformity and operational acceptance
- All MOT will be videotaped at the end of the work week for documentation

The Wagman Team's recommended traffic management strategy for this high-profile project centers around minimizing traffic restrictions on I-95, Route 17 and Route 3 providing improved traffic flow at ramps/loops, and reducing overall construction time. Lane closures will only be implemented during off-peak hours as designated in the RFP Part 2, Section 2.10.3 Lane and Road Closure Restrictions. Our TMP will describe and explain the assessment of the construction impacts, an assessment of the shoulder(s)/lane closure strategy, and the required collaboration needed to ensure this strategy is successful and acceptable to the public. It will describe the proposed shoulder(s)/lane closures and estimated impacts, special signing and the

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Temporary Traffic Control layout, transportation operations strategies, incident management, and public communication strategies.

Proposed Lane or Ramp Closures

Temporary complete closure of the Route 17 NB or SB lanes during week days (i.e. Monday thru Friday) night-time period will be necessary for bridge girder erection or bridge demolition on the bridges over Route 17, but will be limited to 30 minutes or less per the RFP requirements. These temporary closures are currently necessary to ensure the traveling public's safety. Closures will be planned months in advance and will be communicated to the public well in advance.

The Wagman Team is proposing to incorporate a **temporary traffic signal at the Route 17** interchange to accommodate the closure of the I-95 SB off-ramp to SB Route 17 (Loop B) and the NB Route 17 on-ramp to I-95 SB (Loop A) for the construction of the I-95 SB CD bridge over Route 17. This eliminates the merge/weave concerns in the proximity of the bridge construction greatly **improving safety and operations**. Our analysis indicates that incorporating a temporary traffic signal on Route 17, interconnected with adjacent signals, will improve traffic operations on adjacent signals at the Route 17 Interchange.

Temporary Detours

The Wagman Team has designed our construction access to minimize impacts to trail or river traffic. However, with the highest regard to public safety, short-term detours (less than 24 hours) communicated to and approved by VDOT are planned for both **river and trail users**. Detours will be advance signed, well-marked and communicated in advance. River users will be provided with well marked portages with advance notice markers. Both trail detours and river portages will be **planned and communicated in advance to VDOT and other stakeholders, such as Friends of the Rappahannock**. Detour routes will be addressed in a contingency plan should any unforeseen conditions present themselves within the work zone.

The Wagman Team is proposing to incorporate a **temporary traffic signal at the Route 17** interchange which will require the I-95 SB off-ramp to SB Route 17 (Loop B) and the NB Route 17 on-ramp to I-95 SB (Loop A) to be detoured to the new signal location as discussed above.

Mainline I-95 NB and SB will be shifted north and south of the Route 17 interchange as needed to facilitate the construction of the new bridge structures along I-95 over Route 17.

Time of Day Restrictions

The Wagman Team will adhere to the RFP requirements for the time of day restrictions for allowable lane and short-term shoulder closure times. This will be included in the Public Communication and Incident Management Plan along with updates to VDOT's Regional Traffic Operations Center.

Flagging Operations

Quarry Road, the adjacent trail and Wagman Team constructed River Portages at each end of the causeway are the only locations on the project that the Wagman Team anticipates the use of flagging operations. Pedestrians, bicyclist or river portagers crossing the causeway access road or ends of the causeway will be protected from construction operation traffic at any time construction in that area needs to cross a designated trail. . Flagmen will be used when any construction traffic or adjacent/overhead work could pose a potential safety hazard on the project and to the traveling public..

Minimum Lane Widths during Construction

The Wagman Team plans to conform to the RFP and will strive to provide 12-foot wide travel lanes where possible with maintaining a minimum of 11-foot travel lanes on I-95 and 10-foot on Route 17. Two foot minimum offset to the barrier will be maintained throughout the project.

Work Zone Speed Reductions

The Wagman Team does not expect to request any work zone speed reductions. All temporary lane shifts and merges will be designed for the posted speed limit. All temporary geometry and shifts will meet the standards for the full posted speed limit.

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Construction Entrances

The Wagman Team will maintain access to the existing I-95 median crossover locations during construction. The construction ingress and egress points are strategically placed within the project limits prioritizing safety and operations. These access points will include advance warning notification and acceleration/deceleration lanes outside through lanes so that construction traffic at the least amount of impact of the traveling public possible. The access points are noted below and are identified graphically on our MOT plans in *Volume II*:

- Ingress/Egress Construction Entrances into the Median along I-95
- Ingress/Egress Construction Entrance from Route 17 to access median of I-95
- Construction Entrance for River access from private property

Project Stakeholders

The Wagman Team has identified a wide range of stakeholders that may be impacted by the construction of the project's Base Scope and Option 1. These stakeholders have been grouped into three categories; 1) those whose property is physically impacted by construction activities; 2) those whose operations may be affected by the construction and 3) those impacted by temporary traffic control. Our communication/mitigation strategies will be proactive and not reactive exceeding the project's requirements.

Table 4.5.1.6: Summary of Stakeholders Potential Impacted by Construction of Project.

Stakeholders whose Property is Physically Impacted by Construction		
Stakeholder	Potential Impact(s)	Communication/Mitigation Measures
Property Owners	Property is being acquired Construction Noise	Property owner notification letters will be sent prior to entering any properties for data collection efforts Team ROW agents will follow VDOT Right of Way Manual of Instructions Property owners will be invited to Pardon our Dust Meetings Soundwall construction moved up in schedule to be completed early in the project schedule
Utility Companies	Facilities are in direct conflict with proposed construction and require relocations or adjustments	Section 4.4.2 discusses the Wagman Team's approach to utility company coordination and relocation
Environmental Agencies (DEQ, USACOE, National Park Service)	Construction impacts resources and lands protected by agencies	Section 4.4.1 discusses the Wagman Team's approach to coordination with environmental agencies and mitigation being provided
Stakeholders whose Operations are Impacted by Construction		
Stakeholder	Potential Impact(s)	Mitigation Measures
EMS, Police and Fire for City of Fredericksburg, Stafford County and Spotsylvania County and Area Hospitals	Quickest routes to facilities change based on approved TMP/MOT Closed shoulders or lane closures could impact maneuvering around congestion	Hold a separate Pardon Our Dust meeting for the project to discuss planned TMP/MOT schemes and invite emergency service providers, school transportation, and regional transportation service providers. Solicit concerns and address as necessary Hold additional Pardon Our Dust meetings prior to major traffic shifts
City of Fredericksburg, Stafford County, Spotsylvania County Schools, FAMPO	Bus Routes may be impacted by lane closures and increased congestion	See above

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Regional Organizations Commuter Services VRE	Transit	Bus Routes may be impacted by lane closures and increased congestion	See above
Virginia Corporation	Tourism	Perception that the Virginia Welcome Center may be closed.	Access to the Virginia Welcome Center will be maintained at all times. Provide additional signage to let motorist know Welcome Center is open. Provide a one-page fact sheet, project design display boards, conduct a drive-thru construction open house prior to each major traffic shift updated as necessary to help Welcome Center Staff communicate to motorists about the project.
Friends of the Rappahannock and other recreational groups		Rappahannock River Bridge construction will reduce river width available for recreation activities. Trails parallel construction access road and pass through work zone at River.	Wagman has already reached out the Friends of the Rappahannock and the City of Fredericksburg Parks and Recreation. Frequent direct stakeholder outreach through one on one meetings. Designed save passage routes through workzones. See <i>Volume II</i>
Stakeholders whose Travel is Impacted by MOT Concepts			
Local Traffic Regional Traffic Interstate Traffic Trucking Industry Local Business Delivery		Diversions, lane closures, shoulder closures could increase delays and provide confusion for drivers.	Assist VDOT with information campaign supplying information and graphics for websites and sharing with local media. Hold Pardon Our Dust meetings prior to commencing construction and before major traffic shifts. Send interested citizen's an electronic monthly newsletter with project updates. Maintain a log of comments, questions, and complaints along with resolutions.

The Sequence of Construction and MOT Phasing plan contained in *Volume II* provides detailed explanation of The Wagman Team's plan for maintaining traffic through all phases of construction.

The TMP will address all users including pedestrians, bicyclists, transit vehicles and motorists. It will accommodate safe and efficient snow removal operations and ensure proper drainage during all phases of construction. Access to all businesses, residential communities and private entrances will be maintained.

4.5.2.2 Public Communications Plan

The second component of Wagman Team's Traffic Management Plan will include a Public Communication Plan. Comprehensive public outreach of reliable information are critical to the success of a project's TMP because of the negative effects work zones can have on traffic safety, mobility, accessibility and user satisfaction. The Wagman Team's public relations staff led by Elisabeth McCullum will develop a Public Communications Plan in conjunction with VDOT's Fredericksburg District Communication Manager Kelly Hannon and her office. The plan will detail the types of information, the frequency and to whom the information will be disseminated throughout the duration of the construction.

Key components (as described above in previous sections) of the public communication plan will be;

- Virginia 511 Notifications
- Use of Virginia State Police
- Portable Changeable Message Signs
- Virginia Welcome Center
- Rappahannock River Waterway and Trail Users

4.5 | CONSTRUCTION OF PROJECT

The increased use and availability of social media has opened new opportunities to engage the traveling public. The Wagman Team embraces the application of these technologies, and is currently using them for their work on several transportation projects. Project brochures, newsletters, project web pages, portable dynamic message and variable message signs and media campaigns all may be used to communicate work zone information to the public, detailing alternative routes, travel times and delays, new traffic patterns and project schedule. New techniques, such as Twitter alerts, are being used to alert the trucking community about changes in traffic patterns.

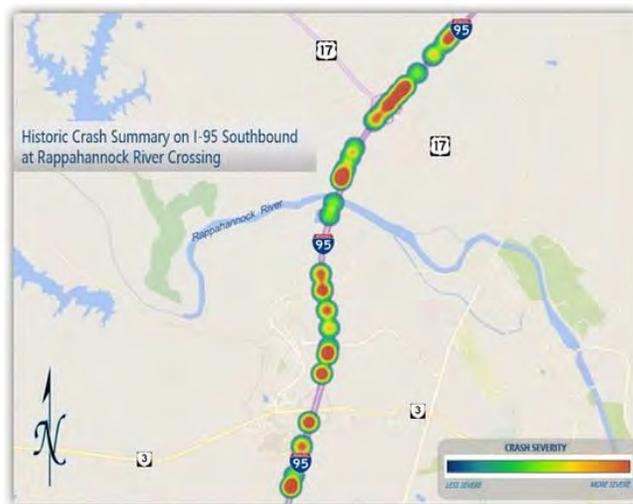
4.5.2.3 Incident Management/Transportation Operations Plan

The Wagman Team recognizes the need to respond quickly to random or unexpected events such as traffic accidents, severe weather or special events that may occur in surrounding communities throughout the construction work zones. We also understand the significant interest that VDOT places in minimizing impacts to the traveling public during these types of work zone incidents. Therefore, we will develop an Incident Management Plan (IMP) and implement before start of any construction activity that may impact both travel lanes and shoulders. The IMP will include:

- Stakeholder identification and notification tree
- Response goals and objectives
- Strategies to manage and clear work zones

The adjacent graphic is a historic crash summary of I-95 SB within the project limits. The Wagman Team will utilize this data while working with local first responders to establish the incident management plan for the project.

The safety of the traveling public is our highest priority. We will coordinate our efforts with VDOT and all appropriate emergency and law enforcement agencies. Meeting with first responders on-site to educate them about the project and the project's access points is integral to our EHSP. The Wagman Team will hold a stakeholder meeting to brief everyone on the approved Incident Management Plan. We will also conduct training with first responders on project safety techniques such as fall retrieval systems.



The incident management plan will be coordinated with adjacent projects. The plan will be developed and approved by VDOT and be in full force prior to any field work that impacts travel lanes or shoulders, including but not limited to construction, geotechnical investigations and survey work.

The incident plan will establish priorities, goals and key points of contact required to effectively respond to various incidents with the overall objective of reducing the time needed to reopen travel lanes and improve safety in the event of an incident. Responding effectively to incidents requires a planned and coordinated effort by many different agencies, from law enforcement and fire departments, to emergency medical personnel, towing companies, spill/hazard response teams, and VDOT maintenance crews. The plan will define how workers' priorities will be shifted to restoring normal traffic flow as soon as practical. The key elements of the plan will include the following:

- Contact lists for notifications communications protocols and 24/7 points of contacts for local emergency providers (fire, police, and EMS for Spotsylvania County, Stafford County and City of Fredericksburg); Stafford, Northern Virginia, and Richmond TOCs; Virginia State Police; Interstate Maintenance Contractor, and Virginia Tourism Corporation.
 - Preplanned messages for PCMS and ITS message boards
 - Preplanned access to work zones for local emergency providers
 - Predetermined detour routes for emergency road closures
- Clear plan outlining the process from start to finish
- Well-defined responsibilities and priorities for each worker

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- Training of workers

By developing a comprehensive incident management plan, our team will ensure that the impact of a significant incident will be minimized.

After any incident, The Responsible Charge Engineer and Construction Manager will work with VDOT to evaluate whether the project had any impact on the incident and whether any adjustments need to be made to the implemented MOT and/or the incident management plan. Any changes to either will be communicated to all affected stakeholders.

Quality Control/Quality Assurance Pledge

The Wagman Team has developed and refined numerous best practices related to QA/QC in our delivery of VDOT DB projects in multiple districts. These practices have recently been enhanced to satisfy the expectations communicated to our overall industry by VDOT Senior Management. This excellent performance was recently validated by the VDOT OIA initial QCIP audit of our Rte. 7 DB Project where the Design Builder (Wagman) obtained a score of 92.06. The following practices will be implemented on this project:

- All key and value added staff will remain committed to the project and not delegate their duties.
- The CPM schedule will include separate activities for constructability and QA/QC reviews by the Wagman Team as well as VDOT and agency reviews. The RCE will ensure these reviews occur and that the design submittals will be stamped after review and prior to formal submission.
- Written work plans are developed for construction activities with noted witness and hold points for safety, QA, and QC inspections. These written plans will be reviewed and incorporated into the formal Preparatory Meetings
- Proactive QA/QC inspections with vigilant written documentation (inspection logs, Deficiencies, and NCRs) of any issues with potential to affect quality or safety for tracking and follow through until formal resolution by the RCE and/or Designer/Engineer of Record as required.
- The QAM will hold formal QA/QC meetings at the project field office at least weekly to review: look ahead schedules, staffing assignments, preparatory meetings, QA/QC logs, inspection reports, and the quantity ledger book.
- Additional Wagman Team Members (SWM/ESC Design Lead, RCE, Safety Manager, Sr. QA Inspector, and Sr. QC Inspector) will assist the ESC Manager by rotating their participation in the Construction Runoff Control Inspections (CRCI).
- CRCI will occur twice a week at a minimum and after every measurable storm event.
- Contractor QA/QC Plan will be updated and maintained with all proper official documentation.

The Wagman Team Construction Commitment

The Wagman Team is absolutely committed to maintaining a safe workzone for both our workers and the traveling public. With safety as a core value, we have incorporated and will continue to identify enhancements that exceed the requirements of the RFP because it means a safer and healthier environment for everyone. Our enhancements include:

- Temporary signal at Route 17.
- Improved median ingress/egress access with dedicated acceleration/deceleration lanes for construction traffic.
- Portage option for river traffic.
- Causeway and river access coexists with river and trail users.

Our sequence of construction and maintenance of traffic have been integrated to minimize traffic shifts and impact durations to the traveling public. A safe project is a successful project.



Section 4.6 Disadvantaged Business Enterprises (DBE)

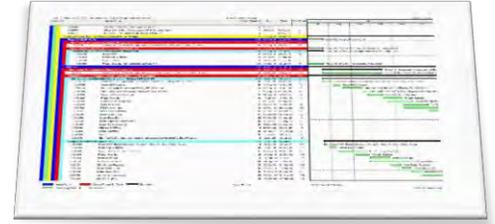
***Refer to Section 4.1.10 of the Letter of Submittal**



Section 4.7 Proposal Schedule

4.7 | PROPOSAL SCHEDULE

The Wagman Team has provided a Proposal Schedule and Proposal Narrative demonstrating our understanding of the complexities and interrelationships of the technical elements of the Project. PDF copies of the Proposal Schedule and narrative as well as a back-up copy of the Proposal Schedule's source document have been provided on a CD-ROM.



4.7.1 Project Schedule

The Wagman Team has developed a Proposal Schedule (located in Volume II), which takes into account the internal plan reviews, VDOT plan reviews and approvals, environmental permitting and constraints, right of way acquisition, utility relocation, required submittals to include shop drawings, construction activities and QA/QC inspection and testing. RFP Section 2.3.1 provides Interim and Final Completion Milestones. Our Interim Milestone Date of **September 15, 2021** meets the RFP requirement and Final Completion Date of **May 26, 2022 exceeds** the RFP requirement of July 30, 2022 by over two months. The Wagman Team will aggressively manage the project schedule to achieve the maximum early completion incentive for both the Interim Milestone and Final Completion Date.

The Proposal Schedule depicts the Wagman Team's proposed overall sequence of work and duration for each work task and deliverables required to complete the Project. The schedule is organized using a hierarchical Work Breakdown Structure (WBS), divided into major phases of the Project.

4.7.2 Project Schedule Narrative

In addition to the technical elements, the narrative also describes the Wagman Team's plan to accomplish the Work including, but not limited to, the overall sequencing, a description and explanation of the Critical Path, proposed means and methods, and other key elements upon which the Proposal Schedule is based.

Schedule Development

The Wagman Team has reviewed in detail the scope and schedule requirements outlined in the RFP and has developed a Proposal Schedule outlining our plan to successfully manage all phases of the I-95 Southbound CD Lanes – Rappahannock River Crossing Project.

The Wagman Team is committed to providing
VDOT with a completed project by
**May 26, 2022, over 2 months earlier than
required by the RFP**

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Project Milestones

Table 4.7-1: Project Milestones

Notice of Intent to Award	12/28/2017
Notice of Award	1/9/2018
Notice to Proceed	2/21/2018
QA/QC Plan Approval	3/18/18
RFC Plans for Early Work Packages	8/3/2018
RFC Plans for Early Work Packages Option 1	8/3/2018
Start Construction Access Work at B-604	8/28/18
Start Construction (Early Work Package)	8/28/2018
Start Construction - Option 1 (Early Work Package)	8/28/2018
RFC Plans B-651	10/18/2018
RFC Plans B-604 (w/ Preliminary/Conditional Approval of Piers 2 & 3)	12/7/18
Utility Relocations Complete	1/21/2019
RFC Plans B-606	4/9/2019
RFC Plans B-606 Option 1	4/9/19
RFC Plans B-652	4/9/2019
RFC Retaining Walls	5/10/2019
RFC Plans Remainder of Work Packages	5/10/19
RFC Plans Remainder of Work Packages Option 1	5/10/2019
RFC Plans B-604 (Final Approval of Piers 2 & 3)	6/15/2019
Interim Milestone Completion (Including Option 1)	9/15/2021
Final Completion	5/26/2022

Work Breakdown Structure (WBS)

The Team has organized the schedule into a hierarchical Work Breakdown Structure (WBS) to demonstrate the relationship and activity durations amongst the milestones, scope validation period, design, public involvement, environmental permitting, ROW acquisition, utility relocation, construction, and project management disciplines for the I-95 Southbound CD Lanes – Rappahannock River Crossing Project. The following is a summary of our schedule organization followed by the complete WBS listing in *Table 4.7-2*.

Project Milestones: This section provides for quick review of project milestones and overall status.

QA/QC Plan: This section contains QA/QC Milestones.

Design: Includes preliminary engineering services, plan development, QA/QC reviews, submittal milestones, internal reviews, VDOT plan reviews and approvals, other regulatory agency reviews.

Environmental: This section includes hazardous material plan development and inspections, threatened or endangered species surveys and relocations, permit development and acquisition, noise abatement and VDHR reviews.

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Right-of-Way: This section includes all work necessary to obtain the ROW required by the Wagman Team's design including limited access modification, hold points, appraisals, reviews, negotiations and clearing of ROW. As we prepare our Baseline CPM we may further break down the project ROW into packages to facilitate prioritization and tracking of critical parcels.

Utilities: This section contains all Utility designations, coordination, design, relocation, and as-builts anticipated by the Wagman Team's design. As we develop our Baseline CPM we will further refine our utility relocation requirements to ensure and track priority relocations.

Public Involvement: This section includes the public outreach plan, updates and meetings. This section will be further refined as we develop and update the Baseline CPM during the course of the project.

Construction: Includes all components of roadway and bridge construction as well as MOT, construction access, noise barriers, and drainage. This section is further broken down to show the Wagman Team's logical progress of work.

4.7 | PROPOSAL SCHEDULE

Table 4.7-2:. Work Breakdown Structure

		13-Nov-17 08:36
WBS Code	WBS Name	
C00101595DB94	I-95 Southbound CD Lanes - Rappahannock River Crossing Technical Proposal	
C00101595DB94.1	Project Milestones	
C00101595DB94.2	QA/QC Plan	
C00101595DB94.3	I-95 Design / Environmental / Right-of-Way / Utilities	
C00101595DB94.3.1	Scope Validation Period	
C00101595DB94.3.2	Existing Drainage Culverts	
C00101595DB94.3.3	Design Phase	
C00101595DB94.3.3.1	Design Exceptions & Waivers	
C00101595DB94.3.3.1.1	Design Exceptions & Waivers - Option 1	
C00101595DB94.3.3.2	Supplemental Mobile Scanning / Field Surveys	
C00101595DB94.3.3.2.1	Mobile Scanning Surveys	
C00101595DB94.3.3.2.2	Field Surveys	
C00101595DB94.3.3.2.2.1	Field Surveys - Option 1	
C00101595DB94.3.3.3	Geotechnical Engineering & Subsurface Investigations	
C00101595DB94.3.3.3.1	Geotechnical Engineering & Subsurface Investigations - Option 1	
C00101595DB94.3.3.4	Roadway Design	
C00101595DB94.3.3.4.1	Develop Right-of-Way Plans	
C00101595DB94.3.3.4.1.1	Develop Right-of-Way Plans - Option 1	
C00101595DB94.3.3.4.2	Early Work Package (EWP) Clearing / Grading / E&S / MOT & TMP	
C00101595DB94.3.3.4.2.1	Early Work Package (EWP) Clearing / Grading / E&S / MOT & TMP - Option 1	
C00101595DB94.3.3.4.3	Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP	
C00101595DB94.3.3.4.3.1	Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP - Option 1	
C00101595DB94.3.3.5	Bridge Design	
C00101595DB94.3.3.5.1	Bridge B651 I-95 SB GP Lanes Over Route 17 (B651)	
C00101595DB94.3.3.5.2	Bridge B606 I-95 SB CD Lanes Over Route 17 (B606)	
C00101595DB94.3.3.5.2.1	Bridge B606 I-95 SB CD Lanes Over Route 17 (B606) - Option 1	
C00101595DB94.3.3.5.3	Bridge B652 I-95 NB GP Lanes Over Route 17 (B652)	
C00101595DB94.3.3.5.4	Bridge B604 I-95 SB GP Lanes Over Rappahannock River	
C00101595DB94.3.3.6	Retaining Walls	
C00101595DB94.3.4	Environmental	
C00101595DB94.3.4.1	Hazardous Materials	
C00101595DB94.3.4.2	Threatened & Endangered Species	
C00101595DB94.3.4.2.1	Bat Species & Mussel Inventory	
C00101595DB94.3.4.3	Environmental Permits	
C00101595DB94.3.4.3.1	Environmental Permit Applications	
C00101595DB94.3.4.3.2	Issuance & Approval of Environmental Permits (All Permitted Construction Activities are Hold Points)	
C00101595DB94.3.4.4	Noise Abatement	
C00101595DB94.3.4.5	VDHR Plan Review	
C00101595DB94.3.5	Right-of-Way	
C00101595DB94.3.6	Utilities	
C00101595DB94.3.6.1	Utility Delineation	
C00101595DB94.3.6.2	Utility Coordination	
C00101595DB94.3.6.3	Utility Design (By Others)	
C00101595DB94.3.6.3.1	Utility Relocation Design	
C00101595DB94.3.6.3.2	Utility P&E Development	
C00101595DB94.3.6.3.3	No Conflict Utilities	
C00101595DB94.3.6.3.3.1	Utilities with No Conflict	
C00101595DB94.3.6.3.3.4	Utility Relocation Construction	
C00101595DB94.4	Public Involvement	
C00101595DB94.5	Construction	
C00101595DB94.5.1	Construction Submittals	
C00101595DB94.5.1.1	Noise Barrier Wall	

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4.7 | PROPOSAL SCHEDULE

		13-Nov-17 08:36
WBS Code	WBS Name	
C00101595DB94.5.1.2	B604 Rappahannock River Bridge	
C00101595DB94.5.1.3	Bridge B651 Proposed I-95 SB GP Lanes over Route 17	
C00101595DB94.5.1.4	Bridge B652 I-95 NB GP Lanes over Route 17	
C00101595DB94.5.1.5	Bridge B606 Proposed I-95 SB CD Lanes over Route 17	
C00101595DB94.5.2	Acquisitions	
C00101595DB94.5.2.1	Noise Barrier Wall	
C00101595DB94.5.2.2	B604 Rappahannock River Bridge	
C00101595DB94.5.2.3	Bridge B651 Proposed I-95 SB GP Lanes over Route 17	
C00101595DB94.5.2.4	Bridge B652 I-95 NB GP Lanes over Route 17	
C00101595DB94.5.2.5	Bridge B606 Proposed I-95 SB CD Lanes over Route 17	
C00101595DB94.5.3	Mobilization	
C00101595DB94.5.4	Major Traffic Shifts	
C00101595DB94.5.5	Improvements South of Rappahannock River Bridge	
C00101595DB94.5.5.1	Phase S1 (Early Work)	
C00101595DB94.5.5.1.1	Stormwater Management at Route 3 Interchange	
C00101595DB94.5.5.1.2	Proposed GP Lane Construction in Existing Median	
C00101595DB94.5.5.1.2.1	Station 3420 to Rappahannock River Bridge B604	
C00101595DB94.5.5.2	Phase S2	
C00101595DB94.5.5.2.1	Stormwater Management at Route 3 Interchange	
C00101595DB94.5.5.2.2	Improvements to Proposed SB CD Lanes (Existing SB GP Lanes)	
C00101595DB94.5.5.2.2.1	Merge Lane and Shoulder Construction (Station 3367 to 3420)	
C00101595DB94.5.5.2.2.2	Ramp A Improvements at Route 3	
C00101595DB94.5.5.2.2.3	Station 3482 to 3495	
C00101595DB94.5.5.2.3	Proposed GP Lane Construction in Existing Median	
C00101595DB94.5.5.2.3.1	Station 3420 to Rappahannock River Bridge B604	
C00101595DB94.5.5.3	Phase S3	
C00101595DB94.5.5.3.1	Station 3367 to 3420	
C00101595DB94.5.5.4	Phase S4	
C00101595DB94.5.5.4.1	Stormwater Management	
C00101595DB94.5.5.4.2	Loop Ramp Improvements at Route 3 Interchange	
C00101595DB94.5.5.4.3	Improvements to Proposed SB CD Lanes (Existing SB GP Lanes)	
C00101595DB94.5.6	B604 Rappahannock River Bridge	
C00101595DB94.5.6.1	Abutment A	
C00101595DB94.5.6.2	Abutment B	
C00101595DB94.5.6.3	Pier 1	
C00101595DB94.5.6.4	Pier 2	
C00101595DB94.5.6.5	Pier 3	
C00101595DB94.5.6.6	Pier 4	
C00101595DB94.5.6.7	Superstructure	
C00101595DB94.5.7	Improvements North of Rappahannock River Bridge	
C00101595DB94.5.7.1	Phase N1 (Early Work)	
C00101595DB94.5.7.1.1	Proposed GP Lane Construction in Existing Median	
C00101595DB94.5.7.1.1.7	Rappahannock River Bridge B604 to Station 3655	
C00101595DB94.5.7.1.1.7.1	Rappahannock River Bridge B604 to Station 3655 - Option 1	
C00101595DB94.5.7.1.1.1	Temporary Median Crossovers for NBL Traffic at Route 17 Bridge	
C00101595DB94.5.7.2	Phase N2	
C00101595DB94.5.7.2.1	Route 17 Mainline/Ramp A & Ramp A Acceleration Lane	
C00101595DB94.5.7.2.1.1	Route 17 Mainline/Ramp A & Ramp A Acceleration Lane - Option 1	
C00101595DB94.5.7.2.2	Proposed GP Lane Construction in Existing Median	
C00101595DB94.5.7.2.2.1	NB Crossover South of Route 17 to Station 3655	
C00101595DB94.5.7.2.2.1.1	NB Crossover South of Route 17 to Station 3655 - Option 1	
C00101595DB94.5.7.2.2.2	Temporary Median Crossovers for NBL Traffic at Route 17 Bridge	

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		13-Nov-17 08:36
WBS Code	WBS Name	
C00101595DB94.5.7.2.2.3.1	Bridge B651 Proposed I-95 SB GP Lanes over Route 17	
C00101595DB94.5.7.2.2.3.1.1	Abutment A	
C00101595DB94.5.7.2.2.3.1.2	Pier	
C00101595DB94.5.7.2.2.3.1.3	Abutment B	
C00101595DB94.5.7.2.2.3.1.4	Superstructure	
C00101595DB94.5.7.3	Phase N3	
C00101595DB94.5.7.3.1	Route 17 Mainline/Ramp A & Ramp A Acceleration Lane	
C00101595DB94.5.7.3.1.1	Route 17 Mainline/Ramp A & Ramp A Acceleration Lane - Option 1	
C00101595DB94.5.7.3.2	Temporary Ramp Modifications at Route 17 Interchange	
C00101595DB94.5.7.3.3	Proposed GP Lane Construction in Existing Median	
C00101595DB94.5.7.3.3.1	Rappahannock River Bridge B604 to NB Crossover South of Route 17	
C00101595DB94.5.7.3.3.1.1	Rappahannock River Bridge B604 to NB Crossover South of Route 17 - Option 1	
C00101595DB94.5.7.3.4	Improvements to Existing NB GP Lanes Station 4604 to 4627	
C00101595DB94.5.7.3.5	Bridge B652 I-95 NB GP Lanes over Route 17	
C00101595DB94.5.7.3.5.1	Abutment A	
C00101595DB94.5.7.3.5.2	Pier	
C00101595DB94.5.7.3.5.3	Abutment B	
C00101595DB94.5.7.3.5.4	Superstructure	
C00101595DB94.5.7.4	Phase N4	
C00101595DB94.5.7.4.1	Stormwater Management	
C00101595DB94.5.7.4.2	Improvements in Existing Median of I-95	
C00101595DB94.5.7.4.2.1	Temporary Median Crossovers for NBL Traffic at Route 17 Bridge	
C00101595DB94.5.7.4.3	Improvements to Existing SB GP Lanes	
C00101595DB94.5.7.4.3.1	Widening at West Side of Existing GP Lanes (Station 3620 to 3687)	
C00101595DB94.5.7.4.3.1.1	Widening at West Side of Existing GP Lanes (Station 3620 to 3687) - Option 1	
C00101595DB94.5.7.4.3.2	Improvements to Existing SB GP Lanes Station 3595 to 3620 Including Exist. Loop Ramps	
C00101595DB94.5.7.4.3.2.1	Improvements to Existing SB GP Lanes Station 3595 to 3620 Including Exist. Loop Ramps - Option 1	
C00101595DB94.5.7.4.3.3	Bridge B606 Proposed I-95 SB CD Lanes over Route 17	
C00101595DB94.5.7.4.3.3.4	Abutment A	
C00101595DB94.5.7.4.3.3.6	Pier	
C00101595DB94.5.7.4.3.3.1	Abutment B	
C00101595DB94.5.7.4.3.3.7	Superstructure	
C00101595DB94.5.7.4.3.3.5	Bridge B606 Proposed I-95 SB CD Lanes over Route 17 - Option 1	
C00101595DB94.5.7.4.3.3.5.1	Abutment A - Option 1	
C00101595DB94.5.7.4.3.3.5.2	Pier - Option 1	
C00101595DB94.5.7.4.3.3.5.3	Abutment B - Option 1	
C00101595DB94.5.7.4.3.3.5.4	Superstructure - Option 1	
C00101595DB94.5.7.5	Phase N5	
C00101595DB94.5.7.5.1	Proposed GP Lane Construction in Existing Median	
C00101595DB94.5.7.5.1.1	Rappahannock River Bridge B604 to Station 3655	
C00101595DB94.5.7.5.2	Temporary Ramp Modifications at Route 17 Interchange	
C00101595DB94.5.7.5.3	Improvements to Existing SB GP Lanes and Route 17 Ramps	
C00101595DB94.5.7.5.3.1	Improvements to Existing SB GP Lanes and Route 17 Ramps - Option 1	

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Calendars

The Wagman Team has incorporated six (6) calendars into the Project Schedule:

- **Calendar 1 – “C00101595DB94 – 5 Day”** This calendar is based on five (5) working days per week. In addition to weekends, this calendar designates all major holidays as non-working days. This calendar is used for all production activities that are not affected by weather.
- **Calendar 2 – “C00101595DB94 – 7 Day”** This calendar holds every day as a work day. This calendar has been assigned to all administrative, design, and review activities. For example, this calendar has been assigned to VDOT’s 21 calendar day review activities.
- **Calendar 3 – “C00101595DB94 – Bridge Concrete”** This calendar is based on five (5) working days per week. In addition to weekends and major holidays, this calendar also designates the period from December 15th to February 15th as non-working days. This calendar has been assigned to all concrete-related bridge superstructure construction activities such as bridge deck and parapet wall pours.
- **Calendar 4 – “C00101595DB94 – Grading”** This calendar is based on five (5) working days per week. In addition to weekends and major holidays, this calendar also designates the period from January 1st to February 28th as non-working days. This calendar has been assigned to all roadway grading-related construction activities such as rough grading and installation of stone base material.
- **Calendar 5 – “C00101595DB94 – In Stream TOYR”** This calendar is based on five (5) working days per week. In addition to weekends and major holidays, this calendar also designates the period from February 15th to June 30th as non-working days. This calendar has been assigned to all bridge construction activities that occur in the Rappahannock River, and are subject to environmental time-of-year restrictions. For example, this calendar has been assigned to causeway and cofferdam construction at B604.
- **Calendar 6 – “C00101595DB94 – Paving”** This calendar is based on five (5) working days per week. In addition to weekends and major holidays, this calendar also designates the period from December 15th to March 15th as non-working days. This calendar has been assigned to all roadway paving activities such as the installation of base, intermediate, and surface asphalt.

	C00101595DB94 - 5 day
	C00101595DB94 - 7 day
	C00101595DB94 - Bridge Concrete
	C00101595DB94 - Grading
	C00101595DB94 - In Stream TOYR
	C00101595DB94 - Paving

Our project schedule incorporates the following holidays:

- **New Year’s Day Holiday** – Holiday from 7:00AM December 31st until 7:00 AM the next work day following New Year’s Day, unless the holiday occurs on a Sunday. If holiday falls on Sunday, then Monday will also be considered a holiday, and work will not occur until 7:00 AM on Tuesday.
- **Easter Holiday** – Holiday from 7:00AM on Good Friday until 7:00 AM on the Monday following Easter Sunday.
- **Memorial Day Holiday** – Holiday from 7:00AM on Friday prior to Memorial Day until 7:00 AM on the Tuesday following Memorial Day.
- **Independence Day Holiday** – Holiday from 7:00AM on the day prior to July 4th, until 7:00 AM the next work day following July 4th unless the holiday occurs on a Sunday. If holiday falls on Sunday, then Monday will also be considered a holiday, and work will not occur until 7:00 AM on Tuesday.
- **Labor Day Holiday** – Holiday from 7:00AM on the Friday before Labor Day until 7:00 AM on the Tuesday following Labor Day.
- **Thanksgiving Day Holiday** – Holiday from 7:00AM on the Wednesday before Thanksgiving Day until 7:00 AM on the Monday following Thanksgiving Day.
- **Christmas Day Holiday** – Holiday from 7:00AM on the day prior to December 25th until 12:00 PM the day after December 25th.

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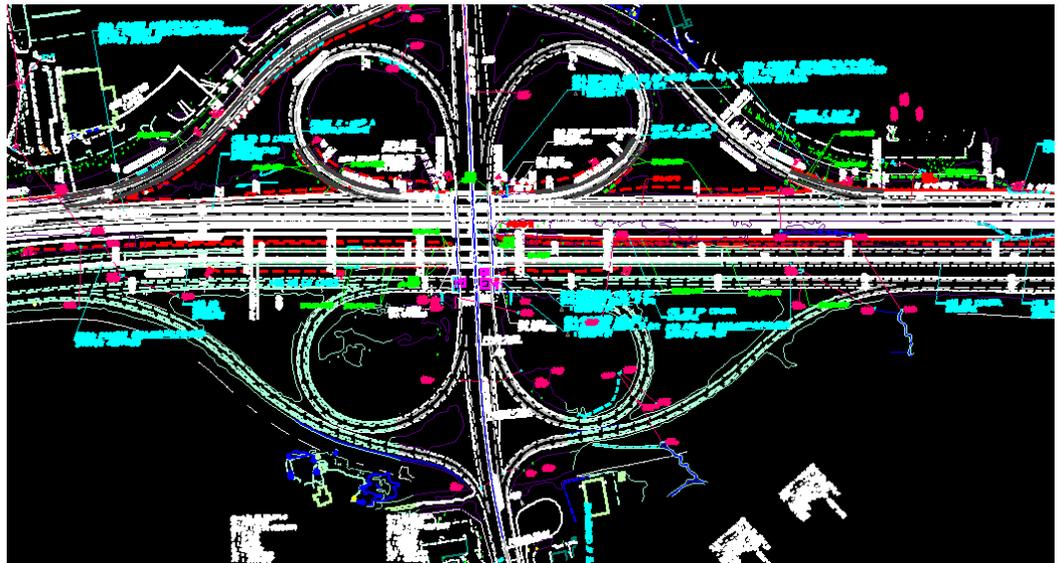
Plan to Accomplish the Work

The narrative below describes the Wagman Team's project delivery plan grouped by major Work Breakdown Structure (WBS) divisions. These include quality control, design, geotechnical investigation, right-of-way acquisition, environmental investigation & permitting, utility relocation, public involvement, and construction. The overall project delivery sequence was developed based on the roadway and bridge improvement concepts shown in the RFP, along with the MOT, geotechnical, environmental, existing utility, and end user requirements identified by the RFP and the Wagman Team. The Wagman Team divided the project into three (3) geographic areas, each area with multiple construction phases.



Design Phase

The Wagman Team will finalize the design from the current RFP documents to obtain approval on the Release for Construction (RFC) plan set. Design activities will include surveying, roadway design, bridge design, retaining wall design, traffic control, MOT plans, signs, signals, guardrail, pavement markings, drainage design, design of SWM facilities, geotechnical



investigation (including borings and analysis), materials analysis, hydraulic design and pavement design. The project will be delivered by completing roadway design in two phases of design: ROW design, and final design (RFC). Structure plans will have a Stage 1 and Stage 2 submittal. Design-related activities to be performed during each phase are outlined below.

ROW Design submittal activities will focus on expanding the RFP documents. The Wagman Team will perform numerous independent studies of the information contained in the RFP documents to confirm that the information provided to date is correct and suitable for use in designing the project. These additional studies will include performing supplemental field surveying to confirm horizontal and vertical control of key project features verifying type and location of existing subsurface utilities; performing legal research to confirm existing ROW and property limits; and performing a thorough geotechnical field investigation to confirm geotechnical conditions for the bridge foundations and roadway design. The findings of these studies will be summarized in a series of reports and, if discrepancies occur between the information in the RFP documents and the Wagman Team studies, these results will be presented to VDOT for review and evaluation as outlined in the Scope Validation process for the project.

Roadway plans will be developed including performing geometric design; preparing cross sections and defining limits of construction; completing SWM and E&S control design; preparing plans for traffic control devices as well as a TMP; and completing the preliminary bridge plans working closely with the geotechnical

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engineers. Required ROW limits will be evaluated and depicted on the plans, and preliminary utility relocation plans will be prepared. The goal of this submittal is to gain ROW Authorization to proceed with ROW acquisition services on the project.

The ROW, environmental coordination and approval, and utility relocation plan activities will be developed for individual submissions to VDOT and other regulatory agencies for review and approval.

Construction Plan submittal will occur after receiving ROW design approval with the ROW authorization from VDOT. The Wagman Team will submit the final design plans and reports to VDOT for review and approval. To take full advantage of the accelerated/early construction opportunities afforded by the Design-Build project delivery method, the Wagman Team intends to develop Early Work and Final RFC plan sets as follows:

- RFC Plan Set for Early Roadway Work Activities – Clearing, Grading, E&S, MOT & TMP
- RFC Plan Set for Final Roadway Work Activities – Final Roadway, Drainage, SWM, E&S, Sound Barrier, and Retaining Wall
- RFC Plan Set for Proposed SB GP Lanes Bridge Over Rappahannock River B604 (w/ Preliminary Design for Piers 2 & 3)
- RFC Plan Set for Proposed SB GP Lanes Bridge Over Rappahannock River B604 (w/ Final Design for Piers 2 & 3)
- RFC Plan Set for Proposed SB GP Lanes Bridge Over Route 17 B651
- RFC Plan Set for Proposed SB CD Lanes Bridge Over Route 17 B606
- RFC Plan Set for Proposed NB GP Lanes Bridge Over Route 17 B652

Environmental Permitting activities will begin shortly after receiving NTP and will include a thorough environmental evaluation and confirmation of the information provided in the RFP documents. The Wagman Team will prepare a comprehensive environmental management plan that includes a matrix of environmental commitments and compliance requirements that; identifies milestone dates and integrates those into the project schedule; identifies the responsible party; and summarizes requirements.

The final noise analysis will be conducted including the public polling of property owners which are affected and benefited by the effected noise abatement measures.

Final environmental activities will begin immediately after receiving preliminary plan approval from VDOT. At this point in the design, the footprint for the project will be firmly established and the Wagman Team will identify the final environmental impacts required to construct the project in its entirety. The Wagman Team will strive to avoid and minimize environmental impacts during design development and construction. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and the registration statement for the Virginia Stormwater Management Permit will be submitted immediately following the SWPPP development.

Right-of-Way Acquisition - Starting at NTP the Wagman Team will evaluate the proposed ROW, permanent easements, and temporary easements as shown on the plans. If changes are required, either due to a change in the required ROW or a change based on the results of legal research, the Wagman Team will prepare updated preliminary ROW plans and a ROW data sheet and will submit to VDOT for review and approval. Preliminary ROW activities will begin after receiving NTP. The Wagman Team will begin performing the legal research for the identified parcels on the preliminary plans at the same time that our survey crew is validating the survey information provided in the RFP package.

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Utility Relocations – The Wagman Team’s project schedule includes activities for holding the Utility Field Investigation (UFI) meeting, followed by preparation of the Plan & Estimate (P&E) estimates by the utility owner, approval of the P&E, and construction of the relocation. Although we have already met with each individual utility company to discuss the proposed relocations and prior rights, the utility relocation schedule starts with formal UFI meetings following completion of all utility test pits. This will enable our Team to confirm and adjust our list of utility conflicts based on the field test pit data prior to holding the formal UFI meeting. We will continue this early coordination of utilities throughout the Design Phase of the Project to ensure that our Design Plans are coordinated with the utility relocation plans. The utility relocations are anticipated to be completed prior to impacting construction operations, this avoiding potential construction delays.



Critical Design/Permitting Hold Points have been incorporated in our project schedule as required by the RFP and are shown below.

Planned Schedule Hold Point	Hold Point Duration
VDOT Review and Approve Existing Drainage Culvert Report	21 Calendar Days
Agency Review and Meeting for Design Exception(s)/Waiver(s)	21 Calendar Days
Agency Review & Approval of Exception(s)/Waiver(s)	21 Calendar Days
VDOT Review Geotechnical Boring Location Plan	21 Calendar Days
VDOT Review Bridge Geotechnical Engineering Report B604 (Except Piers 2 & 3)	90 Calendar Days
VDOT Review Bridge Geotechnical Engineering Report B604 for Piers 2 & 3	90 Calendar Days
VDOT Review Bridge Geotechnical Engineering Report B606	90 Calendar Days
VDOT Review Bridge Geotechnical Engineering Report B651	90 Calendar Days
VDOT Review Bridge Geotechnical Engineering Report B652	90 Calendar Days
VDOT Review Retaining Walls Geotechnical Engineering Report	90 Calendar Days
VDOT Review Roadway Geotechnical Engineering Report Remainder of WP's	90 Calendar Days
VDOT Review Noise Walls Geotechnical Engineering Report	90 Calendar Days
VDOT Review and Comment ROW Plans 1st Submittal	21 Calendar Days
VDOT Review / Approve ROW Plans Final	21 Calendar Days
VDOT/FHWA Review and Comment EWP 1st Submittal	21 Calendar Days
VDOT/FHWA Review/Approve and Comment EWP Final Submittal	21 Calendar Days
VDOT/FHWA Review and Comment/Approval Remainder WPs 1st Submittal	21 Calendar Days
VDOT/FHWA Review and Comment/Approval Remainder WPs Final Submittal	21 Calendar Days
VDOT/FHWA Review, Comment & Approve B651 Stage I Submission	21 Calendar Days
VDOT/FHWA Review/Approval B651 Stage II Submission	21 Calendar Days
VDOT/FHWA Review, Comment & Approve B606 Stage I Submission	21 Calendar Days
VDOT/FHWA Review/Approval B606 Stage II Submission	21 Calendar Days

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VDOT/FHWA Review, Comment & Approve B652 Stage I Submission	21 Calendar Days
VDOT/FHWA Review/Approval B652 Stage II Submission	21 Calendar Days
VDOT/FHWA Review, Comment & Approve B604 Stage I Submission	21 Calendar Days
VDOT/FHWA Review/Approval B604 Stage II Submission & Prelim./Conditional Approval of Piers at Existing Piers 2 & 3	21 Calendar Days
VDOT/FHWA Review/Approval B604 Stage II Submission Piers at Existing Piers 2 & 3	21 Calendar Days
VDOT/FHWA Review, Comment & Approve Retaining Walls Preliminary Submission	21 Calendar Days
VDOT/FHWA Review/Approval Retaining Walls Stage II Submission	21 Calendar Days
VDOT Review/Approval SPCC	21 Calendar Days
VDOT/FHWA Hazardous Material Phase I ESA - Hold Point	21 Calendar Days
Agency Reviews and Issuance of Section 404 Permit, WPP, SBP - Hold Point	210 Calendar Days
Agency Reviews and Issuance of EWP VPDES Stormwater General Permit & SWPPP Segment-Hold Point	25 Calendar Days
Agency Reviews and Issuance of Remainder WPs VPDES Stormwater General Permit & SWPPP-Hold Point	25 Calendar Days
VDOT Review and Approve EQ-201 NEPA Re-evaluation for ROW - Hold Point	21 Calendar Days
VDOT Rvw.&Approve EWP EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Const.-Hold Point	21 Calendar Days
VDOT Rvw.&Approve Remainder WPs EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Const.-Hold Point	21 Calendar Days
VDOT Review/Approval Noise Wall Design	21 Calendar Days
VDHR Review B604 Stage I Design Plans	30 Calendar Days
VDHR Review B604 Stage II Design Plans	30 Calendar Days
VDOT Review and Approve Acquisition Plan Inc. EQ-201 Revaluation - Hold Point	21 Calendar Days
VDOT Rvw & Appr. Appraisal Packages, Just Compensation, Relocation Benefits and Admin. Settlements-Acquisitions	31 Calendar Days
VDOT/FHWA Issue Clearance for Construction - Acquisitions-Hold Point	21 Calendar Days
VDOT Rvw.&Approve EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Causeway	21 Calendar Days
VDOT Review & Approve Utility Assembly	21 Calendar Days

Scope Validation - The scope validation period is 120 days after NTP, and the schedule depicts activities that are relevant to the validation work, and VDOT review of the submittal.

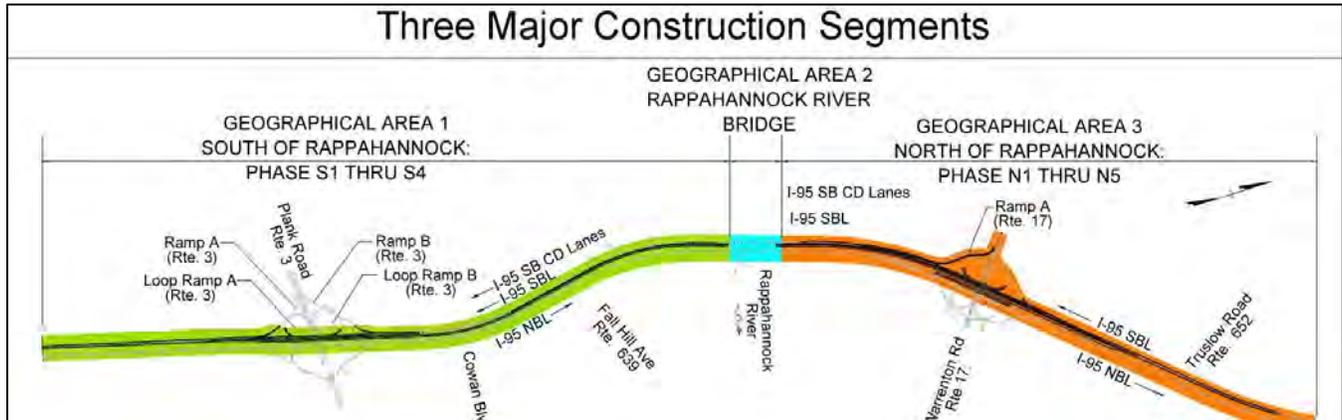
Public Outreach - The public outreach schedule includes developing and submitting our Emergency Contact List and Response Plan upon Notice to Proceed, holding citizen information meetings during the design phase, public information “Pardon our Dust” meetings at the start of construction and prior to major traffic switches, providing frequent updates to the Office of Public Affairs, and additional specific group meetings as necessary. The schedule includes “level of effort” type activities for these Public Information meetings intended to also cover many other public involvement activities that our Team will perform, including meeting with local businesses and affected property owners, attending meetings with homeowners associations, local government representatives, and community groups, and providing

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information for regular updates at progress meetings and weekly lane closure plans. These “level of effort” type activities will be further defined during development of our Baseline CPM.

Project Construction

The Wagman Team plans to use phased construction within three (3) distinct geographical areas to build and manage the project.



Geographical Area 1 – I-95 Corridor South of the Rappahannock River (Including Route 3 Interchange)

- **Phase S1** – During Phase S1, the Wagman Team will perform initial mobilization activities, and proceed with the improvements associated with our planned Early Work design package. This early work will consist of the following construction activities:
 - Construction of initial storm water management facilities at Route 3 Interchange
 - MOT deployment, E&S installation, clearing, grubbing, and rough grading within the existing median of I-95 from Station 3420 to the Rappahannock River. All clearing and grading work will be confined to those areas outside of the identified Jurisdictional Areas of the project. The purpose of the initial early work is to advance the construction of the proposed SB GP lanes south of the river.
- **Phase S2** – During Phase S2, the Wagman Team will proceed with work included in the RFC plan set for final roadway improvements within the I-95 corridor. This work will consist of the following construction activities:
 - Construction of additional storm water management facilities at Route 3 Interchange
 - Final clearing and rough grading, fine grading, drainage, underdrain, median barrier walls, base stone installation, asphalt paving, guardrail, striping, and signs within the existing median of I-95 from Station 3420 to the Rappahannock River. The purpose of this work is to complete the proposed roadway improvements from Station 3420 to the Rappahannock River.
 - MOT deployment, E&S installation, clearing, grubbing, rough grading, fine grading, drainage, underdrain, median barrier walls, base stone installation, asphalt paving, guardrail, striping, and signs associated with the proposed Route 3 merge lanes and ramp west of the existing SB GP lanes from the southern terminus of the project to Station 3420. The purpose of this work is to complete the proposed improvements west of the existing SB GP lanes so that work can commence in the median on the proposed SB GP lanes from the southern terminus of the project to Station 3420 to the Rappahannock River.
 - During Phase S2, the Wagman Team will construct the proposed sound barrier wall and water quality swale located west of the existing SB GP lanes between Cowan Boulevard and Fall Hill Avenue.

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- **Phase S3** – During Phase S3, the Wagman Team will start and complete the work included in the RFC plan set for final roadway improvements within the I-95 corridor from the southern terminus of the project to Station 3420. Work in Phase 3 will overlap with work previously commenced in Phase S2. The Phase S3 work will consist of the following construction activities:
 - MOT deployment, E&S installation, clearing, grubbing, rough grading, fine grading, drainage, underdrain, base stone installation, asphalt paving, guardrail, striping, and signs within the existing median of I-95 from the southern terminus of the project to Station 3420. The purpose of this work, along with the work from Phase S2, is to complete all proposed SB GP lane improvements in the median of I-95 south of the Rappahannock River.
- **Phase S4** – During Phase S4, the Wagman Team will complete all remaining work south of the Rappahannock River. The Phase S4 work will include the following activities:
 - Completion of remaining loop ramp improvements at the Route 3 Interchange.
 - Installation of the balance of the proposed storm water management facilities south of the Rappahannock River.
 - Completion of all final paving (mill/overlay), striping, and signs south of the Rappahannock River.

Geographical Area 2 – Rappahannock River Crossing Bridge for Proposed SB GP Lanes

- **Rappahannock River Bridge B604** – Within this area of the project, the Wagman Team will construct the proposed bridge over the Rappahannock River. This work will include the following activities:
 - Construction of temporary construction access road to south bank of the Rappahannock River.
 - Installation of the temporary causeway/bridge access in Rappahannock River.
 - Construction of Abutments A & B
 - Construction of Piers 1 & 4 (on land)
 - Construction of Piers 2 & 3 (in river)
 - Erection of bridge girders
 - Forming, pouring, curing, and stripping of bridge deck/parapet walls
 - Bridge deck grooving

Geographical Area 3 – I-95 Corridor North of the Rappahannock River (Including Route 17 Interchange)

- **Phase N1** – During Phase N1, the Wagman Team will perform initial mobilization activities, and proceed with the improvement associated with our planned Early Work design package. This early work will consist of the following Base Scope and Option 1 construction activities:
 - MOT deployment, E&S installation, clearing, grubbing, and rough grading within the existing median of I-95 from the Rappahannock River to the northern terminus of the project. All clearing and grading work will be confined to those areas outside of the identified Jurisdictional Areas of the project. The purpose of the initial early work is to advance the construction of the proposed SB GP lanes north of the river, and the temporary median crossovers north and south of the Route 17 bridges.
- **Phase N2** – During Phase N2, the Wagman Team will proceed with work included in the RFC plan set for final roadway improvements within the I-95 corridor. This work will consist of the following Base Scope and Option 1 construction activities:
 - Final clearing and rough grading, fine grading, drainage, underdrain, median barrier walls, base stone installation, asphalt paving, guardrail, striping, and signs within the existing median of I-95 from the proposed temporary median crossover south of Route 17 to the northern terminus of the project. The purpose of this work is to complete the proposed roadway improvements necessary for shifting existing NB traffic off of the existing NB GP bridge over Route 17.

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- MOT deployment, E&S installation, clearing, grubbing, rough grading, fine grading, drainage, underdrain, base stone installation, asphalt paving, guardrail, striping, and signs associated with the proposed Route 17 mainline, Ramp A, and Ramp A acceleration lane, improvements at the southwest quadrant of the Route 17 Interchange. The purpose of this work is to start the proposed improvements associated with Route 17.
- Construction of the proposed SB GP lanes bridge over Route 17 (B651).
- Phase N3 – During Phase N3, the Wagman Team will continue with work included in the RFC plan set for final roadway improvements within the I-95 corridor. This work will consist of the following Base Scope and Option 1 construction activities:
 - Final clearing and rough grading, fine grading, drainage, underdrain, median barrier walls, base stone installation, asphalt paving, guardrail, striping, and signs within the existing median of I-95 from the Rappahannock River to the temporary median crossover south of Route 17. The purpose of this work is to complete the balance of the proposed SB GP lane roadway improvements in the median of I-95 north of the Rappahannock River.
 - MOT deployment, E&S installation, clearing, grubbing, rough grading, fine grading, drainage, underdrain, base stone installation, asphalt paving, guardrail, striping, and signs associated with the balance of the proposed Route 17 mainline, and inside of Ramp A at the southwest quadrant of the Route 17 Interchange. The purpose of this work is to complete the proposed improvements associated with Route 17.
 - Temporary realignment of existing ramps and the installation of a temporary traffic signal on the west side of Route 17 Interchange to facilitate the switching of existing SB GP lane traffic off of the existing SB GP lane bridge over Route 17.
 - Construction of the proposed NB GP lanes bridge over Route 17 (B652).
 - MOT deployment, E&S installation, clearing, grubbing, rough grading, fine grading, drainage, underdrain, base stone installation, asphalt paving, guardrail, striping, and signs associated with the proposed NB GP lane approaches to the proposed NB GP lanes bridge over Route 17 (B652). The purpose of this work is to build the roadway approaches necessary to put the newly constructed NB GP lanes bridge over Route 17 into service upon completion of the bridge work.
- Phase N4 – During Phase N4, the Wagman Team will continue with work included in the RFC plan set for final roadway improvements within the I-95 corridor. This work will consist of the following Base Scope and Option 1 construction activities:
 - Construction of proposed storm water management facilities north of the Rappahannock River.
 - Removal of the temporary median crossover between the existing NB GP lanes and the proposed SB GP lanes.
 - MOT deployment, E&S installation, clearing, grubbing, rough grading, fine grading, drainage, underdrain, base stone installation, asphalt paving, guardrail, striping, and signs associated with the outside widening west of the existing SB GP lanes north of Route 17. The purpose of this work is to complete the proposed improvements associated with Route 17 Interchange.
 - Construction of the proposed SB CD lanes bridge over Route 17 (B606).
 - MOT deployment, E&S installation, clearing, grubbing, rough grading, fine grading, drainage, underdrain, base stone installation, asphalt paving, guardrail, striping, and signs associated with the proposed SB CD lane approaches to the proposed SB CD lanes bridge over Route 17 (B606). The purpose of this work is to build the roadway approaches necessary to put the newly constructed SB CD lanes bridge over Route 17 into service upon completion of the bridge work.
- Phase N5 – During Phase N5, the Wagman Team will complete all remaining work north of the Rappahannock River including all work tied to the Interim Milestone Date of September 15, 2021. The Phase N5 work will include the following Base Scope and Option 1 activities:
 - Removal of temporary traffic signal at Route 17 Interchange, and the restoration of the existing Route 17 ramp alignment.

4.7 | PROPOSAL SCHEDULE

- Removal of temporary crossover and closing of the proposed median barrier wall between the proposed SB CD lanes and the proposed SB GP lanes.
- Completion of all final paving (mill/overlay), striping, and signs north of Station 3595 prior to Interim Milestone Date.
- Completion of all final paving (mill/overlay), striping, and signs north of the Rappahannock River to Station 3595.

Major Traffic Shifts

The Wagman Team's plan for project construction anticipates the following major traffic switch and MOT milestones during construction:

Planned Traffic Shifts / MOT Milestone	Planned Shift Date
Switch Existing NBL to Proposed GP Lanes at Route 17	20-Jan-20
Switch NBL to New B652	19-Oct-20
Activate Temporary Traffic Signal at Route 17	20-Oct-20
Switch SBL to Proposed GP Lanes at Route 17 Bridge	2-Nov-20
Place SBL Traffic in Final Location GP & CD Lanes Open	3-Aug-21
De-Activate Temporary Traffic Signal at Route 17	3-Aug-21

Project Critical Path

The Critical Path will be continually analyzed throughout the project to ensure the entire team is concentrating on activities required to ensure achievement of key project milestones. The complete critical path of the project is shown in the table below, and summarized as follows:

- Right-of-Way Plan Approval
- Environmental Permit Approval
- RFC Plan Approval for Proposed Final Roadway Improvement
- Final NEPA Review
- Construction of Phase N2 Roadway Work (Approaches to Proposed SB GP Lanes Bridge over Route 17)
- Construction of Proposed NB GP Lanes Bridge over Route 17
- Construction of Proposed SB CD Lanes Bridge over Route 17
- Final Roadway Milling, Overlay, Striping and Signs

4.7 | PROPOSAL SCHEDULE

I-95 Southbound CD Lanes - Rappahannock		Classic Schedule Layout	13-Nov-17 08:07		
Activity ID	Activity Name	Start	Finish	Total Float	
I-95 Southbound CD Lanes - Rappahannock River Crossing Technical Proposal		28-Dec-17	26-May-22	0	
Project Milestones		28-Dec-17	26-May-22	0	
G1070	Notice of Intent to Award	28-Dec-17		1	
G1000	CTB Approval / Notice of Award	09-Jan-18		1	
G1020	Design-Build Contract Execution	16-Feb-18		1	
G1080	Notice to Proceed	21-Feb-18		1	
G1060	Interim Milestone Punchlist Work	09-Sep-21	15-Sep-21	0	
G1050	Interim Milestone - September 15, 2021		15-Sep-21*	0	
G1040	Final Punchlist	27-Apr-22	26-May-22	0	
G1030	Final Completion - May 26, 2022		26-May-22*	0	
I-95 Design / Environmental / Right-of-Way / Utilities		22-Feb-18	26-May-19	1	
Design Phase		22-Feb-18	05-Apr-19	1	
Roadway Design		22-Feb-18	05-Apr-19	1	
Develop Right-of-Way Plans		22-Feb-18	07-Sep-18	1	
D2570-0	Right-of-Way/Roadway Plan Development 1st Submittal	22-Feb-18	20-Jul-18	1	
D1700-0	Develop Drainage/SWM, E&S Plans and Drainage/SWM Report 1st Submittal	22-Feb-18	20-Jul-18	1	
D1840-0	Develop Signing, Marking, Lighting, Signal, ITS, MOT Plans & Draft TMP 1st Submittal	01-Mar-18	20-Jul-18	1	
D1610-0	Design QA/QC ROW Plans 1st Submittal	21-Jul-18	27-Jul-18	1	
D2910-0	Submit ROW Plans 1st Submittal	30-Jul-18	30-Jul-18	1	
D3190-0	VDOT Review and Comment ROW Plans 1st Submittal	31-Jul-18	20-Aug-18	1	
D1150-0	Address Comments Develop ROW Plans Final	21-Aug-18	04-Sep-18	1	
D1630-0	Design QA/QC ROW Plans Final Submittal	05-Sep-18	06-Sep-18	1	
D2930-0	Submit ROW Plans Final Submittal	07-Sep-18	07-Sep-18	1	
Develop Right-of-Way Plans - Option 1		22-Feb-18	07-Sep-18	1	
D2570-1	Right-of-Way/Roadway Plan Development 1st Submittal	22-Feb-18	20-Jul-18	1	
D1700-1	Develop Drainage/SWM, E&S Plans and Drainage/SWM Report 1st Submittal	22-Feb-18	20-Jul-18	1	
D1840-1	Develop Signing, Marking, Lighting, Signal, ITS, MOT Plans & Draft TMP 1st Submittal	01-Mar-18	20-Jul-18	1	
D1610-1	Design QA/QC ROW Plans 1st Submittal	21-Jul-18	27-Jul-18	1	
D2910-1	Submit ROW Plans 1st Submittal	30-Jul-18	30-Jul-18	1	
D3190-1	VDOT Review and Comment ROW Plans 1st Submittal	31-Jul-18	20-Aug-18	1	
D1150-1	Address Comments Develop ROW Plans Final	21-Aug-18	04-Sep-18	1	
D1630-1	Design QA/QC ROW Plans Final Submittal	05-Sep-18	06-Sep-18	1	
D2930-1	Submit ROW Plans Final Submittal	07-Sep-18	07-Sep-18	1	
Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP		08-Sep-18	05-Apr-19	1	
D1800-0	Develop Remainder WPs Roadway Plans 1st Submittal	08-Sep-18	21-Feb-19	1	
D1780-0	Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans and Drainage/SWM Report 1st Submittal	08-Sep-18	21-Feb-19	1	
D1820-0	Develop Remainder WPs Sign, Marking, Lighting, Signal Design, ITS, MOT& TMP (Traffic) 1st Submittal	15-Sep-18	21-Feb-19	1	
D1560-0	Design QA/QC Remainder WPs 1st Submittal	22-Feb-19	28-Feb-19	1	
D2850-0	Submit Remainder WPs Roadway / Drainage / SWM & Plantings / E&S / Traffic / MOT Plans & TMP 1st Submittal	01-Mar-19	01-Mar-19	1	
D3430-0	VDOT/FHWA Review and Comment/Approval Remainder WPs 1st Submittal	02-Mar-19	22-Mar-19	1	
D1090-0	Address Comments Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans Final Submittal	23-Mar-19	05-Apr-19	1	
Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP - Option 1		08-Sep-18	05-Apr-19	1	
D1800-1	Develop Remainder WPs Roadway Plans 1st Submittal	08-Sep-18	21-Feb-19	1	
D1780-1	Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans and Drainage/SWM Report 1st Submittal	08-Sep-18	21-Feb-19	1	
D1820-1	Develop Remainder WPs Sign, Marking, Lighting, Signal Design, ITS, MOT& TMP (Traffic) 1st Submittal	15-Sep-18	21-Feb-19	1	
D1560-1	Design QA/QC Remainder WPs 1st Submittal	22-Feb-19	28-Feb-19	1	
D2850-1	Submit Remainder WPs Roadway / Drainage / SWM & Plantings / E&S / Traffic / MOT Plans & TMP 1st Submittal	01-Mar-19	01-Mar-19	1	
D3430-1	VDOT/FHWA Review and Comment/Approval Remainder WPs 1st Submittal	02-Mar-19	22-Mar-19	1	
D1090-1	Address Comments Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans Final Submittal	23-Mar-19	05-Apr-19	1	
Environmental		30-Mar-19	26-May-19	1	
Environmental Permits		30-Mar-19	26-May-19	1	
Environmental Permit Applications		30-Mar-19	10-Apr-19	1	
D1690	Develop and Submit Remainder WPs VPDES Stormwater General Permit Application & SWPPP	30-Mar-19	10-Apr-19	1	
Issuance & Approval of Environmental Permits (All Permitted Construction Activities are Hold Points)		11-Apr-19	26-May-19	1	
D1230	Agency Reviews and Issuance of Remainder WPs VPDES Stormwater General Permit & SWPPP-Hold Point	11-Apr-19	05-May-19	1	
D3370	VDOT Rvw.&Approve Remainder WPs EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Con	08-May-19	26-May-19	1	
Public Involvement		21-Feb-18	26-May-22	0	
G1130	Develop & Maintain Public Information Log/Database	21-Feb-18	26-May-22	0	
G1140	Public Information Preparation & Release and Content for Project Website	21-Feb-18	26-May-22	0	
G1150	Pardon Our Dust and Other Stakeholders Meetings	21-Feb-18	26-May-22	0	

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4.7 | PROPOSAL SCHEDULE

I-95 Southbound CD Lanes - Rappahannock		Classic Schedule Layout		13-Nov-17 08:07	
Activity ID	Activity Name	Start	Finish	Total Float	
Construction		28-May-19	26-Apr-22	0	
Major Traffic Shifts		14-Jan-20	03-Aug-21	0	
CG1600	Switch Existing NBL to Proposed GP Lanes at Route 17	14-Jan-20	20-Jan-20	0	
CG1610	Switch NBL to New B652	13-Oct-20	19-Oct-20	0	
CG1620	Switch SBL to Proposed GP Lanes at Route 17 Bridge	20-Oct-20	02-Nov-20	0	
CG1000	Activate Temporary Traffic Signal at Route 17	20-Oct-20		0	
CG1200	Place SBL Traffic in Final Location GP & CD Lanes Open	28-Jul-21	03-Aug-21	0	
Improvements South of Rappahannock River Bridge		04-Aug-21	26-Apr-22	0	
Phase S4		04-Aug-21	26-Apr-22	0	
Loop Ramp Improvements at Route 3 Interchange		04-Aug-21	05-Apr-22	0	
CS1550	Install MOT (Partial Closure of Loops - Keep One Lane Width Open)	04-Aug-21	10-Aug-21	33	
CS1470	Install E&S Controls	11-Aug-21	17-Aug-21	33	
CS1910	Sawcut & Demo Existing Pavement	19-Aug-21	24-Aug-21	33	
CS1860	Rough Grading	25-Aug-21	08-Sep-21	33	
CS1400	Install Drainage	09-Sep-21	22-Sep-21	33	
CS1190	Fine Grade Roadway	23-Sep-21	29-Sep-21	33	
CS1680	Install Underdrain	30-Sep-21	06-Oct-21	33	
CS1300	Install Base Stone	07-Oct-21	13-Oct-21	33	
CS1020	Asphalt to Intermediate	14-Oct-21	20-Oct-21	33	
CS2040	Signs & Striping	21-Oct-21	27-Oct-21	33	
CS1580	Install MOT to Complete Remaining Loop Ramp Work	28-Oct-21	03-Nov-21	47	
CS1480	Install E&S Controls	04-Nov-21	10-Nov-21	47	
CS1960	Sawcut & Demo Pavement	11-Nov-21	17-Nov-21	47	
CS1870	Rough Grading	18-Nov-21	02-Dec-21	47	
CS1410	Install Drainage	03-Dec-21	16-Dec-21	47	
CS1200	Fine Grade Roadway	17-Dec-21	23-Dec-21	47	
CS1690	Install Underdrain	27-Dec-21	31-Dec-21	47	
CS1310	Install Base Stone	03-Jan-22	07-Jan-22	47	
CS1030	Asphalt to Intermediate	16-Mar-22	22-Mar-22	0	
CS2050	Signs & Striping	23-Mar-22	29-Mar-22	0	
CS1800	Remove Ramp & Loop MOT (Traffic in Final Location)	30-Mar-22	05-Apr-22	0	
Improvements to Proposed SB CD Lanes (Existing SB GP Lanes)		06-Apr-22	26-Apr-22	0	
CS1770	Mill & Overlay Proposed CD Lanes 3367 to 3461 Including Rt 3 Ramps & Existing SB Shoulder	06-Apr-22	19-Apr-22	0	
CS1130	Final Striping & RPM's Proposed CD Lanes 3367 to 3461 Including Route 3 Ramps	13-Apr-22	19-Apr-22	0	
CS1780	Permanent Signs Proposed CD Lanes 3367 to 3461 Including Route 3 Ramps	20-Apr-22	26-Apr-22	0	
Improvements North of Rappahannock River Bridge		28-May-19	08-Sep-21	0	
Phase N2		28-May-19	13-Jan-20	0	
Proposed GP Lane Construction in Existing Median		28-May-19	13-Jan-20	0	
NB Crossover South of Route 17 to Station 3655		28-May-19	13-Jan-20	0	
CN1090-0	Clear & Grub (Jurisdictional Areas)	28-May-19	10-Jun-19	0	
CN3150-0	Rough Grade (Jurisdictional Areas)	11-Jun-19	09-Jul-19	0	
CN3290-0	Sawcut Existing Shoulder	10-Jul-19	30-Jul-19	0	
CN1970-0	Install Drainage	31-Jul-19	27-Aug-19	0	
CN2310-0	Install Median Barrier (Leave Opening for Phase N4 Temp Crossover)	28-Aug-19	25-Sep-19	0	
CN1390-0	Fine Grade Roadway	26-Sep-19	23-Oct-19	0	
CN2770-0	Install Underdrain	24-Oct-19	30-Oct-19	0	
CN1800-0	Install Base Stone	31-Oct-19	06-Nov-19	0	
CN1740-0	Install Asphalt to Intermediate	07-Nov-19	27-Nov-19	0	
CN2690-0	Install Surface Asphalt	29-Nov-19	05-Dec-19	0	
CN3390-0	Striping & RPM's	06-Dec-19	12-Dec-19	0	
CN2250-0	Install Guardrail	13-Dec-19	27-Dec-19	0	
CN3320-0	Signs	30-Dec-19	13-Jan-20	0	
NB Crossover South of Route 17 to Station 3655 - Option 1		28-May-19	13-Jan-20	0	
CN1090-1	Clear & Grub (Jurisdictional Areas)	28-May-19	10-Jun-19	0	
CN3150-1	Rough Grade (Jurisdictional Areas)	11-Jun-19	09-Jul-19	0	
CN3290-1	Sawcut Existing Shoulder	10-Jul-19	30-Jul-19	0	
CN1970-1	Install Drainage	31-Jul-19	27-Aug-19	0	
CN2310-1	Install Median Barrier (Leave Opening for Phase N4 Temp Crossover)	28-Aug-19	25-Sep-19	0	
CN1390-1	Fine Grade Roadway	26-Sep-19	23-Oct-19	0	
CN2770-1	Install Underdrain	24-Oct-19	30-Oct-19	0	
CN1800-1	Install Base Stone	31-Oct-19	06-Nov-19	0	

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I-95 Southbound CD Lanes - Rappahannock		Classic Schedule Layout		13-Nov-17 08:07	
Activity ID	Activity Name	Start	Finish	Total Float	
CN1740-1	Install Asphalt to Intermediate	07-Nov-19	27-Nov-19	0	
CN2690-1	Install Surface Asphalt	29-Nov-19	05-Dec-19	0	
CN3390-1	Striping & RPM's	06-Dec-19	12-Dec-19	0	
CN2250-1	Install Guardrail	13-Dec-19	27-Dec-19	0	
CN3320-1	Signs	30-Dec-19	13-Jan-20	0	
Phase N3		21-Jan-20	12-Oct-20	0	
Improvements to Existing NB GP Lanes Station 4604 to 4627		21-Jan-20	27-Jan-20	0	
CN2090	Install E&S Controls	21-Jan-20	27-Jan-20	0	
Bridge B652 I-95 NB GP Lanes over Route 17		28-Jan-20	12-Oct-20	0	
CN1250	Demo Existing NB Bridge	28-Jan-20	24-Feb-20	0	
Abutment A		25-Feb-20	01-Oct-20	0	
CN2610	Install SOE Abutment A	25-Feb-20	09-Mar-20	0	
CN2490	Install Select Backfill Abutment A	21-Sep-20	23-Sep-20	0	
CN2550	Install Sleeper Slab Abutment A	24-Sep-20	28-Sep-20	0	
CN1690	Install Approach Slab Abutment A	29-Sep-20	01-Oct-20	0	
Pier		24-Mar-20	01-Jul-20	0	
CN2670	Install SOE Pier	24-Mar-20	06-Apr-20	0	
CN1360	Excavate Footing Pier	07-Apr-20	21-Apr-20	0	
CN2230	Install Foundation Pier	22-Apr-20	05-May-20	0	
CN1600	Form, Pour, Cure & Strip Footing Pier	06-May-20	18-May-20	0	
CN1510	Form, Pour, Cure & Strip Column Pier	20-May-20	03-Jun-20	0	
CN1070	Backfill Footing & Remove SOE Pier	04-Jun-20	10-Jun-20	0	
CN1630	Form, Pour, Cure & Strip Pier Cap Pier	11-Jun-20	24-Jun-20	0	
CN3060	Prep Bearing Seats & Install Bearing Assemblies Pier	25-Jun-20	01-Jul-20	0	
Abutment B		10-Mar-20	01-Oct-20	0	
CN2640	Install SOE Abutment B	10-Mar-20	23-Mar-20	0	
CN2520	Install Select Backfill Abutment B	21-Sep-20	23-Sep-20	0	
CN2580	Install Sleeper Slab Abutment B	24-Sep-20	28-Sep-20	0	
CN1720	Install Approach Slab Abutment B	29-Sep-20	01-Oct-20	0	
Superstructure		02-Jul-20	12-Oct-20	0	
CN1300	Erect Girders Span A	02-Jul-20	09-Jul-20	0	
CN1330	Erect Girders Span B	10-Jul-20	16-Jul-20	0	
CN1920	Install Deck Forms Span A	17-Jul-20	23-Jul-20	0	
CN1950	Install Deck Forms Span B	24-Jul-20	30-Jul-20	0	
CN2370	Install Overhangs Span A	31-Jul-20	06-Aug-20	0	
CN2400	Install Overhangs Span B	07-Aug-20	13-Aug-20	0	
CN2430	Install Rebar Span A	14-Aug-20	20-Aug-20	0	
CN2460	Install Rebar Span B	21-Aug-20	27-Aug-20	0	
CN2960	Pours Backwalls & Deck	28-Aug-20	11-Sep-20	0	
CN1230	Cure Deck	12-Sep-20	18-Sep-20	2	
CN2140	Install East Parapet	02-Oct-20	06-Oct-20	0	
CN2850	Install West Parapet	07-Oct-20	08-Oct-20	0	
CN1660	Groove Deck	09-Oct-20	12-Oct-20	0	
Phase N4		03-Nov-20	27-Jul-21	0	
Improvements to Existing SB GP Lanes		03-Nov-20	27-Jul-21	0	
Improvements to Existing SB GP Lanes Station 3595 to 3620 Including Exist. Loop Ramps		03-Nov-20	09-Nov-20	0	
CN2120-0	Install E&S Controls	03-Nov-20	09-Nov-20	0	
Improvements to Existing SB GP Lanes Station 3595 to 3620 Including Exist. Loop Ramps - Option 1		03-Nov-20	09-Nov-20	0	
CN2120-1	Install E&S Controls	03-Nov-20	09-Nov-20	0	
Bridge B606 Proposed I-95 SB CD Lanes over Route 17		10-Nov-20	27-Jul-21	0	
CN1280	Demo Existing SB Bridge	10-Nov-20	08-Dec-20	0	
Abutment A		08-Dec-20	16-Jul-21	0	
CN2620-0	Install SOE Abutment A	09-Dec-20	22-Dec-20	0	
CN2500-0	Install Select Backfill Abutment A	06-Jul-21	08-Jul-21	0	
CN2560-0	Install Sleeper Slab Abutment A	09-Jul-21	13-Jul-21	0	
CN1700-0	Install Approach Slab Abutment A	14-Jul-21	16-Jul-21	0	
Pier		08-Jan-21	16-Apr-21	0	
CN2680-0	Install SOE Pier	08-Jan-21	21-Jan-21	0	
CN1370-0	Excavate Footing Pier	22-Jan-21	04-Feb-21	0	
CN2240-0	Install Foundation Pier	05-Feb-21	18-Feb-21	0	
CN1610-0	Form, Pour, Cure & Strip Footing Pier	19-Feb-21	04-Mar-21	0	
CN1520-0	Form, Pour, Cure & Strip Column Pier	05-Mar-21	18-Mar-21	0	

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I-95 Southbound CD Lanes - Rappahannock		Classic Schedule Layout		13-Nov-17 08:07	
Activity ID	Activity Name	Start	Finish	Total Float	
CN1080-0	Backfill Footing & Remove SOE Pier	19-Mar-21	25-Mar-21	0	
CN1640-0	Form, Pour, Cure & Strip Pier Cap Pier	26-Mar-21	09-Apr-21	0	
CN3070-0	Prep Bearing Seats & Install Bearing Assemblies Pier	12-Apr-21	16-Apr-21	0	
Abutment B		23-Dec-20	15-Jul-21	0	
CN2650-0	Install SOE Abutment B	23-Dec-20	07-Jan-21	0	
CN2530-0	Install Select Backfill Abutment B	06-Jul-21	08-Jul-21	0	
CN2590-0	Install Sleeper Slab Abutment B	09-Jul-21	13-Jul-21	0	
CN1730-0	Install Approach Slab Abutment B	14-Jul-21	16-Jul-21	0	
Superstructure		19-Apr-21	27-Jul-21	0	
CN1310-0	Erect Girders Span A	19-Apr-21	23-Apr-21	0	
CN1340-0	Erect Girders Span B	26-Apr-21	30-Apr-21	0	
CN1930-0	Install Deck Forms Span A	03-May-21	07-May-21	0	
CN1960-0	Install Deck Forms Span B	10-May-21	14-May-21	0	
CN2380-0	Install Overhangs Span A	17-May-21	21-May-21	0	
CN2410-0	Install Overhangs Span B	24-May-21	28-May-21	0	
CN2440-0	Install Rebar Span A	01-Jun-21	07-Jun-21	0	
CN2470-0	Install Rebar Span B	08-Jun-21	14-Jun-21	0	
CN2980-0	Pours Deck	15-Jun-21	28-Jun-21	0	
CN1240-0	Cure Deck	29-Jun-21	05-Jul-21	0	
CN2150-0	Install East Parapet	19-Jul-21	21-Jul-21	0	
CN2860-0	Install West Parapet	22-Jul-21	23-Jul-21	0	
CN1670-0	Groove Deck	26-Jul-21	27-Jul-21	0	
Bridge B606 Proposed I-95 SB CD Lanes over Route 17 - Option 1		09-Dec-20	27-Jul-21	0	
Abutment A - Option 1		09-Dec-20	16-Jul-21	0	
CN2620-1	Install SOE Abutment A	09-Dec-20	22-Dec-20	0	
CN2500-1	Install Select Backfill Abutment A	06-Jul-21	08-Jul-21	0	
CN2560-1	Install Sleeper Slab Abutment A	09-Jul-21	13-Jul-21	0	
CN1700-1	Install Approach Slab Abutment A	14-Jul-21	16-Jul-21	0	
Pier - Option 1		09-Jan-21	16-Apr-21	0	
CN2680-1	Install SOE Pier	08-Jan-21	21-Jan-21	0	
CN1370-1	Excavate Footing Pier	22-Jan-21	04-Feb-21	0	
CN2240-1	Install Foundation Pier	05-Feb-21	18-Feb-21	0	
CN1610-1	Form, Pour, Cure & Strip Footing Pier	19-Feb-21	04-Mar-21	0	
CN1520-1	Form, Pour, Cure & Strip Column Pier	05-Mar-21	18-Mar-21	0	
CN1080-1	Backfill Footing & Remove SOE Pier	19-Mar-21	25-Mar-21	0	
CN1640-1	Form, Pour, Cure & Strip Pier Cap Pier	26-Mar-21	09-Apr-21	0	
CN3070-1	Prep Bearing Seats & Install Bearing Assemblies Pier	12-Apr-21	16-Apr-21	0	
Abutment B - Option 1		23-Dec-20	16-Jul-21	0	
CN2650-1	Install SOE Abutment B	23-Dec-20	07-Jan-21	0	
CN2530-1	Install Select Backfill Abutment B	06-Jul-21	08-Jul-21	0	
CN2590-1	Install Sleeper Slab Abutment B	09-Jul-21	13-Jul-21	0	
CN1730-1	Install Approach Slab Abutment B	14-Jul-21	16-Jul-21	0	
Superstructure - Option 1		19-Apr-21	27-Jul-21	0	
CN1310-1	Erect Girders Span A	19-Apr-21	23-Apr-21	0	
CN1340-1	Erect Girders Span B	26-Apr-21	30-Apr-21	0	
CN1930-1	Install Deck Forms Span A	03-May-21	07-May-21	0	
CN1960-1	Install Deck Forms Span B	10-May-21	14-May-21	0	
CN2380-1	Install Overhangs Span A	17-May-21	21-May-21	0	
CN2410-1	Install Overhangs Span B	24-May-21	28-May-21	0	
CN2440-1	Install Rebar Span A	01-Jun-21	07-Jun-21	0	
CN2470-1	Install Rebar Span B	08-Jun-21	14-Jun-21	0	
CN2980-1	Pours Deck	15-Jun-21	28-Jun-21	0	
CN1240-1	Cure Deck	29-Jun-21	05-Jul-21	0	
CN2150-1	Install East Parapet	19-Jul-21	21-Jul-21	0	
CN2860-1	Install West Parapet	22-Jul-21	23-Jul-21	0	
CN1670-1	Groove Deck	26-Jul-21	27-Jul-21	0	
Phase N5		04-Aug-21	08-Sep-21	0	
Proposed GP Lane Construction in Existing Median		04-Aug-21	24-Aug-21	0	
Rappahannock River Bridge B604 to Station 3655		04-Aug-21	24-Aug-21	0	
CN1140	Close Temp Opening in Median Barrier South of Rt 17 After Final Traffic Switch	04-Aug-21	24-Aug-21	0	
Improvements to Existing SB GP Lanes and Route 17 Ramps		25-Aug-21	08-Sep-21	0	
CN1010-0	Final Mill & Overlay on Proposed CD Lanes North of Station 3595 Including SB Shoulder	25-Aug-21	31-Aug-21	0	

SHEET 4 OF 5

TASK filter: Longest Path.

© Oracle Corporation

4.7 | PROPOSAL SCHEDULE

Schedule Management

The schedule is the most important tool in the construction management process and is an efficient method to communicate the intended sequence and progress of the project to the construction team as well as the project stakeholders. The schedule is an extremely useful and productive planning tool. The Wagman Team takes pride in our detailed advance planning for safe and efficient execution of the work. Our Construction Managers, Superintendents, Safety Professionals, and Craft Supervisors use this critical tool as the first step in developing Activity Hazard Analyses and Activity Work Plans. In addition to early planning, the schedule is used to monitor the project's progress and help identify potential deficiencies and problem areas before they develop into a critical impact.

The project management team will continually review and monitor the schedule and use the information gathered to develop mitigation strategies for any activities that are identified as potential impacts. This proactive approach will ensure that the project continues to move forward and that any potential delays are addressed immediately. A variety of different tools will be utilized to assist with this process, including but not limited to the following:

- Weekly schedule meetings between the engineering and construction team members during the design phase
- Weekly construction scheduling meetings throughout the duration of the construction process with the construction team (including management)
- Monthly progress meetings to include all project stakeholders, project team members, and subcontractors
- Three-week look ahead schedules
- RFI logs
- Submittal logs
- Work plans
- Subcontract/purchase order logs
- Shop drawing tracking logs
- Weekly manpower and equipment reviews.

All of the above referenced tools will be utilized simultaneously to provide a current and realistic picture of the progress and status at any given time. Information will be presented at meetings to all who are involved for the opportunity to discuss and address any concerns in front of all that are affected. This keeps the line of communication open and allows resolutions and recovery strategies to be developed at an early stage, therefore preventing further conflict.

The project schedule will also be critically important to the management of our QC/QA inspection, testing, and documentation efforts. By resource loading our construction activities with crews classified by construction discipline, and reviewing the associated resource histograms on a weekly basis, our team will be able to identify all current and future QA/QC hold points, and to quantify QA/QC coverage and testing resources needed to provide robust quality control in a timely and efficient manner.

The Wagman Team has developed and refined numerous best practices related to QA/QC in our delivery of VDOT DB projects in multiple districts. These practices have recently been enhanced to satisfy the expectations communicated to our overall industry by VDOT Senior Management. This excellent performance was recently validated by the VDOT OIA initial QCIP audit of our Route 7 DB Project where the Design Builder (Wagman) obtained a score of 92.06. The following practices will be implemented on this project:

- All key and value added staff will remain committed to the project and not delegate their duties.
- The CPM schedule will include separate activities for constructability and QA/QC reviews by the Wagman Team as well as VDOT and agency reviews. The RCE will ensure these reviews occur and that the design submittals will be stamped after review and prior to formal submission.
- Written work plans are developed for construction activities with noted witness and hold points for safety, QA, and QC inspections. These written plans will be reviewed and incorporated into the formal Preparatory Meetings
- Proactive QA/QC inspections with vigilant written documentation (inspection logs, Deficiencies, and NCRs) of any issues with potential to affect quality or safety for tracking and follow through until formal resolution by the RCE and/or Designer/Engineer of Record as required.

4.7 | PROPOSAL SCHEDULE

- The QAM will hold formal QA/QC meetings at the project field office at least weekly to review: look ahead schedules, staffing assignments, preparatory meetings, QA/QC logs, inspection reports, and the quantity ledger book.
- Additional Wagman Team Members (SWM/ESC Design Lead, RCE, Safety Manager, Sr. QA Inspector, and Sr. QC Inspector) will assist the ESC Manager by rotating their participation in the Construction Runoff Control Inspections (CRCI).
- CRCI will occur twice a week at a minimum and after every measurable storm event.
- Contractor QA/QC Plan will be updated and maintained with all proper official documentation.

Subcontractor and Material Supplier Scheduling

Subcontractors and material suppliers are a critical part of the project schedule. The Wagman Team will closely evaluate each subcontractor and supplier based on quality, performance, and reputation. Beginning with the initial subcontract paperwork, each subcontractor will be intimately involved with every aspect of the project schedule, and their input will be vital. Suppliers will go through a similar process. This includes progress meetings, weekly look-ahead schedules, material submittals, and recovery strategies if needed. Accountability is the key to effective subcontractor and supplier management, and it will be perfectly clear that subcontractors and suppliers will be held accountable for all aspects of their work from quality to schedule.

Schedule Recovery

Unexpected issues and unforeseen conditions are a possibility during the construction process. The Wagman Team includes many experienced and well-respected members in the DB field with the ability to recognize and react to any issues. We will aggressively manage the project and, if needed, mitigate any issues that affect the construction schedule. If necessary, a schedule recovery strategy will be developed, immediately implemented, and closely monitored until the schedule is recovered. Should schedule recovery be required, Wagman has two Field Services Centers (FSC) in close proximity to this Project. We have an equipment fleet valued at over \$30 million and over 500 construction professionals. Therefore, Wagman's resources can be quickly mobilized to recover the schedule.

The Wagman Team in partnership with VDOT will aggressively manage the project and, mitigate any issues that affect the construction schedule.

4.7.3 Proposal Schedule in electronic format (CD-ROM)

The Wagman Team has provided a copy of the Proposal Schedule and narrative in PDF format as well as a back-up copy of the Proposal Schedule's source document in XER format on a CD-ROM.





Appendix

Munch, Meredith

From: David W. Lyle <dwlyle@wagman.com>
Sent: Wednesday, October 18, 2017 4:10 PM
To: Munch, Meredith; Jeanie P. Jones; Hayzlett, Rodney; Carter Washington; Curtis, Brian; Phaup, Trip; awbednarik@wagman.com; Glen K. Mays; Greg M. Andricos
Subject: FW: I-95 Southbound CD Lanes - Rappahannock River - Wagman Organizational Chart - Requested Change

All,
For your records. VDOT has approved the requested modification to the org chart due to Joe Sckinto no longer being employed by JMT.

Please see the email below. Let me know if you have any questions.

Regards,

David W. Lyle | Wagman Heavy Civil

From: Shah, Suril (VDOT) [mailto:Suril.Shah@vdot.virginia.gov]
Sent: Wednesday, October 18, 2017 2:04 PM
To: David W. Lyle <dwlyle@wagman.com>
Subject: RE: I-95 Southbound CD Lanes - Rappahannock River - Wagman Organizational Chart - Requested Change

David - VDOT takes no exception with the change in ROW individual. In accordance with RFP Part 1 Section 4.2.2, please include a revised org chart and narrative (if necessary) in your Technical Proposal clearly identifying the changes.

Thanks,
Suril
Suril R. Shah, P.E.
Senior Project Delivery Engineer
VDOT - Alternative Project Delivery Division
1401 E. Broad Street, Richmond VA 23219
Suril.Shah@VDOT.virginia.gov
Phone: (804) 225-3799

From: David W. Lyle [mailto:dwlyle@wagman.com]
Sent: Wednesday, October 18, 2017 1:52 PM
To: Shah, Suril (VDOT)
Cc: Hayzlett, Rodney; 'bcurtis@jmt.com'; Anthony Bednarik; Munch, Meredith; Jeanie P. Jones
Subject: I-95 Southbound CD Lanes - Rappahannock River - Wagman Organizational Chart - Requested Change
Importance: High

Suril,
Please see the attached letter requesting a substitution in the Wagman Team's Organizational Chart. This request is for a person named in the organizational chart but has not been named as a Key Person or Value Added person.

If we need to provide additional information or if you have any questions about this requested substitution, please advise.

Regards,

David W. Lyle, DBIA

Vice President, Design-Build/Major Pursuits
Wagman Heavy Civil

Wagman

General Construction | Heavy Civil | Geotechnical

26000 Simpson Road | North Dinwiddie, VA 23803-8943

T 804.631.0003 | M 804.731.3707 | F 804.733.6281

www.wagman.com

CELEBRATING **115** YEARS

ATTACHMENT 3.6**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION**

RFP NO. C00101595DB94
 PROJECT NO.: 0095-111-259, P101, R201, C501; 0095-089-741

ACKNOWLEDGEMENT OF RFP, REVISION AND/OR ADDENDA

Acknowledgement shall be made of receipt of the Request for Proposals (RFP) and/or any and all revisions and/or addenda pertaining to the above designated project which are issued by the Department prior to the Letter of Submittal submission date shown herein. Failure to include this acknowledgement in the Letter of Submittal may result in the rejection of your proposal.

By signing this Attachment 3.6, the Offeror acknowledges receipt of the RFP and/or following revisions and/or addenda to the RFP for the above designated project which were issued under cover letter(s) of the date(s) shown hereon:

- | | |
|--------------------|---|
| 1. Cover letter of | <u>RFP – July 18, 2017</u>
(Date) |
| 2. Cover letter of | <u>RFP Addendum #1 – August 25, 2017</u>
(Date) |
| 3. Cover letter of | <u>RFP Addendum #2 – September 1, 2017</u>
(Date) |
| 4. Cover letter of | <u>RFP Addendum #3 – September 28, 2017</u>
(Date) |
| 5. Cover letter of | <u>RFP Addendum #4 – October 23, 2017</u>
(Date) |
| 6. Cover letter of | <u>RFP Addendum #5 – October 26, 2017</u>
(Date) |
| 7. Cover letter of | <u>RFP Addendum #6 – November 3, 2017</u>
(Date) |


 SIGNATURE

November 8, 2017
 DATE

David W. Lyle
 PRINTED NAME

Vice President
 TITLE

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this “Agreement”) is made and entered into as of this 14th day of November, 2017, by and between the Virginia Department of Transportation (“VDOT”), and Wagman Heavy Civil, Inc. (“Offeror”).

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”) pursuant to VDOT’s November 1, 2016 Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the **I-95 Southbound CD Lanes – Rappahannock River Crossing Project, Project No. 0095-111-259, P101, R201, C501** (“Project”), under a design-build contract with VDOT (“Design-Build Contract”); and

WHEREAS, as part of the procurement process for the Project, Offeror has already provided and/or furnished to VDOT, and may continue to provide and/or furnish to VDOT, certain intellectual property, materials, information and ideas, including, but not limited to, such matters that are: (a) conveyed verbally and in writing during proprietary meetings or interviews; and (b) contained in, related to or associated with Offeror’s proposal, including, but not limited to, written correspondence, designs, drawings, plans, exhibits, photographs, reports, printed material, tapes, electronic disks, or other graphic and visual aids (collectively “Offeror’s Intellectual Property”); and

WHEREAS, VDOT is willing to provide a payment to Offeror, subject to the express conditions stated in this Agreement, to obtain certain rights in Offeror’s Intellectual Property, provided that Offeror submits a proposal that VDOT determines to be responsive to the RFP (“Offeror’s Proposal”), and either (a) Offeror is not awarded the Design-Build Contract; or (b) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror; and

WHEREAS, Offeror wishes to receive the payment offered by VDOT, in exchange for granting VDOT the rights set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth in this Agreement and other good and valuable consideration, the receipt and adequacy of which are acknowledged by the parties, the parties agree as follows:

1. **VDOT's Rights in Offeror's Intellectual Property.** Offeror hereby conveys to VDOT all rights, title and interest, free and clear of all liens, claims and encumbrances, in Offeror's Intellectual Property, which includes, without restriction or limitation, the right of VDOT, and anyone contracting with VDOT, to incorporate any ideas or information from Offeror's Intellectual Property into: (a) the Design-Build Contract and the Project; (b) any other contract awarded in reference to the Project; or (c) any subsequent procurement by VDOT. In receiving all rights, title and interest in Offeror's Intellectual Property, VDOT is deemed to own all intellectual property rights, copyrights, patents, trade secrets, trademarks, and service marks in Offeror's Intellectual Property, and Offeror agrees that it shall, at the request of VDOT, execute all papers and perform all other acts that may be necessary to ensure that VDOT's rights, title and interest in Offeror's Intellectual Property are protected. The rights conferred herein to VDOT include, without limitation, VDOT's ability to use Offeror's Intellectual Property without the obligation to notify or seek permission from Offeror.

2. **Exclusions from Offeror's Intellectual Property.** Notwithstanding Section 1 above, it is understood and agreed that Offeror's Intellectual Property is not intended to include, and Offeror does not convey any rights to, the Escrow Proposal Documents submitted by Offeror in accordance with the RFP.

3. **Proposal Payment.** VDOT agrees to pay Offeror the lump sum amount of **Seventy Five Thousand and 00/100 Dollars (\$75,000.00)** ("Proposal Payment"), which payment constitutes payment in full to Offeror for the conveyance of Offeror's Intellectual Property to VDOT in accordance with this Agreement. Payment of the Proposal Payment is conditioned upon: (a) Offeror's Proposal being, in the sole discretion of VDOT, responsive to the RFP; (b) Offeror complying with all other terms and conditions of this Agreement; and (c) either (i) Offeror is not awarded the Design-Build Contract, or (ii) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror.

4. **Payment Due Date.** Subject to the conditions set forth in this Agreement, VDOT will make payment of the Proposal Payment to the Offeror within forty-five (45) days after the later of: (a) notice from VDOT that it has awarded the Design-Build Contract to another Offeror; or (b) notice from VDOT that the procurement for the Project has been cancelled and that there will be no Contract Award.

5. **Effective Date of this Agreement.** The rights and obligations of VDOT and Offeror under this Agreement, including VDOT's ownership rights in Offeror's Intellectual Property, vests upon the date that Offeror's Proposal is submitted to VDOT. Notwithstanding the above, if Offeror's Proposal is determined by VDOT, in its sole discretion, to be nonresponsive to the RFP, then Offeror is deemed to have waived its right to obtain the Proposal Payment, and VDOT shall have no obligations under this Agreement.

6. **Indemnity.** Subject to the limitation contained below, Offeror shall, at its own expense, indemnify, protect and hold harmless VDOT and its agents, directors, officers, employees, representatives and contractors from all claims, costs, expenses, liabilities, demands, or suits at law or equity (“Claims”) of, by or in favor of or awarded to any third party arising in whole or in part from: (a) the negligence or wilful misconduct of Offeror or any of its agents, officers, employees, representatives or subcontractors; or (b) breach of any of Offeror’s obligations under this Agreement, including its representation and warranty under Section 8 hereof. This indemnity shall not apply with respect to any Claims caused by or resulting from the sole negligence or wilful misconduct of VDOT, or its agents, directors, officers, employees, representatives or contractors.

7. **Assignment.** Offeror shall not assign this Agreement, without VDOT’s prior written consent, which consent may be given or withheld in VDOT’s sole discretion. Any assignment of this Agreement without such consent shall be null and void.

8. **Authority to Enter into this Agreement.** By executing this Agreement, Offeror specifically represents and warrants that it has the authority to convey to VDOT all rights, title, and interest in Offeror’s Intellectual Property, including, but not limited to, those any rights that might have been vested in team members, subcontractors, consultants or anyone else who may have contributed to the development of Offeror’s Intellectual Property, free and clear of all liens, claims and encumbrances.

9. **Miscellaneous.**

a. Offeror and VDOT agree that Offeror, its team members, and their respective employees are not agents of VDOT as a result of this Agreement.

b. Any capitalized term used herein but not otherwise defined shall have the meanings set forth in the RFP.

c. This Agreement, together with the RFP, embodies the entire agreement of the parties with respect to the subject matter hereof. 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, representations, or agreements, either verbal or written, between the parties hereto.

d. 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 Commonwealth of Virginia, 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.

e. This Agreement shall be governed by and construed in accordance with the laws

of the Commonwealth of Virginia.

IN WITNESS WHEREOF, this Agreement has been executed and delivered as of the day and year first above written.

VIRGINIA DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

[Insert Offeror's Name]

By: WAGMAN HEAVY CIVIL, INC.

Name: David W. Lyle *David W. Lyle*

Title: Vice President, Design Build and Major Pursuits

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; and have not been convicted of any violations of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property;

c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1) b) of this certification; and

d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

David W. Lyle November 8, 2017 Vice President
Signature Date Title

Wagman Heavy Civil, Inc.
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

	November 13, 2017	Senior Vice President
Signature	Date	Title

Johnson, Mirmiran and Thompson, Inc.
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

<u>David H. Galloway</u>	<u>11/1/17</u>	<u>Vice President</u>
Signature	Date	Title

Faulconer Construction Company Incorporated
Name of Firm

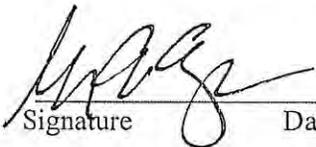
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

	<u>11/06/17</u>	<u>President & CEO</u>
Signature	Date	Title

Harris Miller Miller & Hanson Inc.
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

 November 14, 2017 President
Signature Date Title

Quinn Consulting Services, Inc.
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

<u>Edward G. Drakos</u>	<u>October 31, 2017</u>	<u>Senior Vice President</u>
Signature	Date	Title

Schnabel Engineering, LLC
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

	10/31/2017	President
Signature	Date	Title

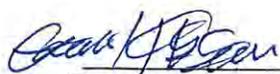
CES CONSULTING LLC
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.



Signature

10/31/2017

Date

President

Title

Hassan Water Resources, PLC

Name of Firm



A DESIGN-BUILD TEAM

State Project No.: 0095-111-259, P101, R201, C501; 0095-089-741
Federal Project No.: IM-5111(235)
Contract ID Number: C00101595DB94

November 14, 2017



A DESIGN-BUILD PROJECT

I-95 Southbound CD Lanes – Rappahannock River Crossing

From: Truslow Road

To: 1.29 Miles South of Exit 130

Stafford County/City of Fredericksburg, Virginia

State Project No.: 0095-111-259, P101, R201, C501; 0095-089-741
Federal Project No.: IM-5111(235)
Contract ID Number: C00101595DB94

Volume II Conceptual Plans



November 14, 2017



4.3.1 Conceptual Roadway Plans

CONCEPTUAL ROADWAY PLANS

THE WAGMAN TEAM'S TECHNICAL PROPOSAL MEETS OR EXCEEDS ALL REQUIREMENTS LISTED IN THE DESIGN CRITERIA TABLE (SHOWN ON THIS SHEET). THE LIMITS OF CONSTRUCTION INCLUDING ALL STORMWATER MANAGEMENT FACILITIES ARE WITHIN THE EXISTING/PROPOSED RIGHT-OF-WAY LIMITS SHOWN IN THE RFP CONCEPTUAL PLANS WITH THE EXCEPTION OF PROPOSED TEMPORARY EASEMENTS. THE PROPOSED DESIGN CONCEPT DOES NOT INCLUDE DESIGN ELEMENTS THAT REQUIRE DESIGN EXCEPTIONS AND/OR DESIGN WAIVERS EXCEPT FOR THOSE IDENTIFIED OR INCLUDED IN THE RFP OR ADDENDUMS. THE PROPOSED DESIGN ELEMENTS ARE NOT IN CONFLICT WITH THE PROPOSED FREDUX DESIGN SHOWN ON THE PUBLIC HEARING DISPLAYS

THE CONCEPTUAL ROAD PLANS MEET ALL THE REQUIREMENTS ESTABLISHED IN THE RFP. AS REQUESTED IN SECTION 4.3.1, THE CONCEPTUAL ROAD PLANS IDENTIFY:

- A. GENERAL GEOMETRY INCLUDING HORIZONTAL CURVE DATA AND ASSOCIATED DESIGN SPEEDS, THE NUMBER AND WIDTH OF LANES AND SHOULDERS (SEE PLAN SHEETS 3 - 15 AND TYPICAL SECTIONS)
- B. HORIZONTAL ALIGNMENTS (SEE PLAN SHEETS 3 - 15)
- C. MAXIMUM GRADES FOR ALL SEGMENTS AND CONNECTORS (SEE TABLE THIS SHEET)
- D. TYPICAL SECTIONS OF THE ROADWAY SEGMENTS TO INCLUDE RAMPS, RETAINING WALLS, BRIDGE STRUCTURES AND PAVEMENT SECTIONS (SEE PLAN SHEETS 3 -15)
- E. CONCEPTUAL HYDRAULIC AND STORMWATER MANAGEMENT DESIGN (SEE PLAN SHEETS 3-15)
- F. PROPOSED RIGHT OF WAY LIMITS (SEE PLAN SHEETS 3 - 15)
- G. PROPOSED UTILITY IMPACTS (SEE PLAN SHEETS 3 - 15 AND TABLE 4.4.2.2 IN VOLUME I)
- H. SOUNDWALL LOCATIONS (SEE PLAN SHEET 7)
- I. LIGHTING (SEE PLAN SHEETS 12)
- J. GUARDRAIL/BARRIER (SEE PLAN SHEETS 3 - 15 AND TABLE THIS SHEET)
- K. LOCATIONS OF MILL AND OVERLAY/BUILDUP OF EXISTING PAVEMENT/NEW PAVEMENT (SEE PLAN SHEETS 3 - 15)
- L. KEY PROJECT FEATURES, (AND OVERHEAD SIGN STRUCTURES ITS, SIGNAL (SEE PLAN SHEETS 3 -15)

THE CONCEPTUAL BRIDGE PLANS MEET ALL THE REQUIREMENTS ESTABLISHED IN THE RFP. AS REQUESTED IN SECTION 4.3.2, THE CONCEPTUAL BRIDGE PLANS IDENTIFY:

- A. STRUCTURAL CONCEPT FOR THE BRIDGE STRUCTURES
- B. RETAINING WALLS
- C. HORIZONTAL AND VERTICAL CLEARANCES
- D. THE NUMBER AND WIDTHS OF LANES AND SHOULDERS
- E. MAJOR DRAINAGE STRUCTURES PROPOSED
- F. RENDERINGS OF AN ELEVATION VIEW, TRANSVERSE SECTION, AND ABUTMENT CONFIGURATIONS FOR EACH PROPOSED STRUCTURE TYPE

DESIGN CONCEPT

MAXIMUM GRADES

ALIGNMENT	MAXIMUM UPGRADE	MAXIMUM DOWNGRADE	ALLOWABLE GRADE **
I-95 SB GP LANES	3.12%	3.00%	4.00%
I-95 SB CD LANES (SOUTH)	1.78% APPROX.	1.50% APPROX.	4.00%
I-95 SB CD LANES (NORTH)	3.39%	3.57%	4.00%
I-95 NB LANES	1.75%	2.55%	4.00%
ROUTE 3 - RAMP A	1.69%	3.03%	5.00%
ROUTE 3 - RAMP B	0.45%	1.20%	6.00%
ROUTE 3 - LOOP A	4.57%	1.00% APPROX.	6.00%
ROUTE 3 - LOOP B	1.36%	1.44%	6.00%
ROUTE 17 - RAMP A	4.09%	2.01% APPROX.	6.00%
ROUTE 17 - RAMP B	2.70%	N/A	6.00%
ROUTE 17 - LOOP A	N/A	4.71%	6.00%
ROUTE 17 - LOOP B	2.79%	N/A	6.00%
ROUTE 17	1.05% APPROX.	1.50% APPROX.	7.00%

** ALLOWABLE GRADES FROM AASHTO GEOMETRIC DESIGN OF HIGHWAYS AND STREETS

DESIGN CRITERIA TABLE

No.	Design Criteria	Southbound I-95 Mainline Lanes	Northbound I-95 Mainline Lanes	I-95 Collector/Distributor Lanes	Route 17	Route 3 Ramp A	Route 3 Ramp B	Route 3 Loop Ramps	Route 17 Ramp A	Route 17 Ramp B	Route 17 Loop Ramps	
1	Classification	Rural Principal Arterial (Interstate)	Rural Principal Arterial (Interstate)	Rural Principal Arterial (Interstate)	Urban Principal Arterial	Interchange Ramp	Interchange Ramp	Interchange Ramp	Interchange Ramp	Interchange Ramp	Interchange Ramp	
2	Geometric Design Standard	GS-1	GS-1	GS-1	GS-5	GS-R	GS-R	GS-R	GS-R	GS-R	GS-R	
3	Terrain	Rolling	Rolling	Rolling	Rolling	Rolling	Rolling	Rolling	Rolling	Rolling	Rolling	
4	Average Daily Traffic (ADT)	Current (2013)	N/A	78,600	64,700	-	-	-	-	-	-	
		Opening Year (2020)	28,100	80,600	64,500	75,900	-	-	-	-	-	
		Design (2040)	34,800	110,800	85,800	108,300	-	-	-	-	-	
5	Speed	Posted	65	65	65	45	-	-	-	-	-	
		Design	75	75	65	45	50	50	30	35	50	30
6	Design Vehicle	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	
7	Minimum Curve Radius	2215	2215	1488	713	760	760	215	316	760	215	
8	Superelevation	Standard	TC-5.11R	TC-5.11R	TC-5.11R	TC-5.11U	TC-5.11R	TC-5.11R	TC-5.11R	TC-5.11R	TC-5.11R	
		Max Rate	8.0%	8.0%	8.0%	4.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
9	Maximum Grade	4.0%	4.0%	4.0%	7.0%	4.0%	4.0%	7.0%	6.0%	4.0%	7.0%	
10	Minimum Stopping Sight Distance	820	820	645	360	425	425	200	250	425	200	
11	Vertical Design Criteria	"K" Crest	312	312	193	61	84	84	19	29	84	19
		"K" Sag	206	206	157	79	96	96	37	49	96	37
12	Lanes	Number	3	3	3/2	6	1	1	1	2	1	1
		Width	12	12	12	12	16	16	18	12	16	18
13	Paved Shoulder Width	Left	4	4	10 (Exist) - 3 Lanes 4 - 2 Lanes	8	4	4	4	4	4	
		Right	10	10	10 (Exist)	8	8	8	8	8	8	
14	Max Slopes	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	
15	Vertical Clearance	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	

GUARDRAIL AND BARRIER LOCATIONS

ROADWAY	STATION TO STATION		OFFSET	TYPE	
	FROM	TO			
I-95 SB CD LANES (SOUTH TIE-IN)	250+01.60	253+30.96	LT	GR-MGS	
	266+60.19	272+63.06	LT	GR-MGS	
	288+63.38	291+67.29	LT	GR-MGS	
I-95 SB CD LANES (NORTH TIE-IN)	280+60.00	294+99.00	LT	GR-MGS	
	294+99.00	296+50.00	LT	GR-MGS	
	296+50.00	300+25.00	LT	MB-7F	
	300+25.00	313+49.00	LT	GR-MGS	
	302+60.18	313+50.00	LT	MB-7D	
	313+50.00	315+00.00	LT	MB-7F	
	315+00.00	322+61.00	LT	GR-MGS	
	323+34.85	345+00.00	LT	MB-7D	
	324+90.36	329+51.59	LT	GR-MGS	
	335+05.00	339+00.00	LT	GR-MGS	
	341+36.62	352+18.00	LT	GR-MGS	
	352+18.00	369+90.34	LT	GR-MGS	
	352+55.31	361+96.71	RT	MB-7F	
	I-95 SB GP LANES	3367+30.00	3409+20.00	LT	GR-MGS
		3369+65.00	3393+54.00	RT	GR-MGS
3409+20.00		3423+50.00	RT	GR-MGS	
3434+32.00		3436+43.00	LT	MB-7F	
3434+32.00		3436+99.93	RT	GR-MGS	
3436+43.00		3440+00.00	LT	GR-MGS	
3471+49.70		3472.65.68	RT	MB-7F	
3472+65.68		3475+52.72	RT	GR-MGS	
3471+49.77		3472+67.85	LT	MB-7F	
3472+67.85		3475+53.21	LT	GR-MGS	
3499+32.32		3504+24.29	RT	GR-MGS	
3514+51.00		3543+00.00	RT	GR-MGS	
3554+63.00		3564+53.00	RT	GR-MGS	
3485+05.00		3502+50.00	LT	MB-7F	
3502+50.00		3512+00.00	LT	MB-7E	
3512+00.00		3529+25.00	LT	MB-8A	
3529+25.00		3534+50.00	LT	MB-7E	
3534+50.00		3541+00.00	LT	MB-7F	
3541+00.00		3543+00.00	LT	MSE WALL	
3554+63.00		3556+27.00	LT	MSE WALL	
3556+27.00		3575+00.00	LT	MB-7E	
3575+00.00		3585+00.00	LT	MB-7E	
3582+00.00		3585+00.00	LT	MB-8A	
3585+00.00		3606+01.92	LT	MB-7D	
3605+90.06		3608+53.00	LT	MB-7F	
3608+53.00		3632+00.00	LT	MB-7D	
3583+00.00		3589+00.00	RT	GR-MGS	
3607+94.14		3632+00.00	RT	GR-MGS	
3632+00.00		3643+33.61	RT	GR-MGS	
3632+00.00		3632+38.00	LT	MB-7D	
3632+38.00		3641+81.00	LT	MB-7F	
3660+46.00		3687+50.00	LT	GR-MGS	
3666+10.00		3687+50.00	RT	GR-MGS	
I-95 NB LANES		4612+26.00	4616+02.23	RT	GR-MGS
		4612+26.00	4616+02.23	LT	GR-MGS
ROUTE 3 RAMP A		17+24.27	19+89.00	LT	GR-MGS
ROUTE 17 RAMP A		27+99.00	33+00.00	LT	GR-MGS
		28+00.00	32+50.00	RT	GR-MGS
		42+48.98	47+75.02	LT	GR-MGS
ROUTE 17 LOOP A		11+44.47	14+50.75	RT	GR-MGS
	13+52.02	14+67.94	LT	GR-MGS	
ROUTE 17 LOOP B	14+74.71	18+92.79	RT	GR-MGS	
	14+73.89	15+57.11	LT	GR-MGS	



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STATE PROJECT
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0095-089-74I, PE-101, C-501, B-651, B-652

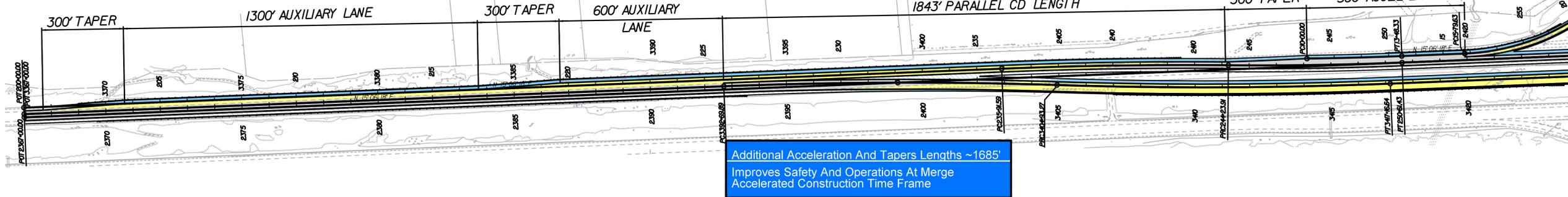
VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 SOUTHBOUND CD LANES - RAPPANNOCK RIVER CROSSING DESIGN BUILD PROJECT

CONCEPTUAL ROADWAY PLANS

MAJOR PROJECT ENHANCEMENTS PROPOSED IN THE WAGMAN'S TEAM DESIGN CONCEPT

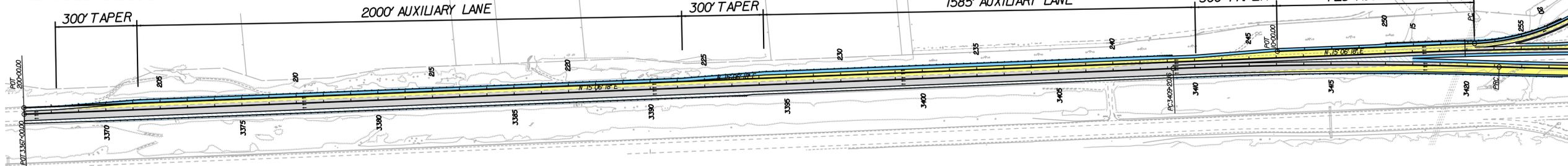
ENHANCED DESIGN FOR I-95 SB GP LANES MERGE WITH I-95 SB CD LANES

RFP DESIGN



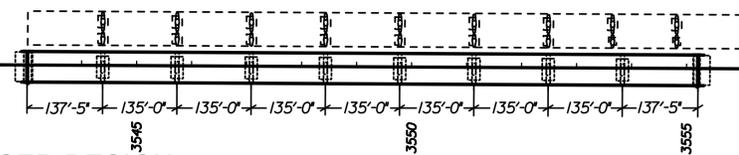
Additional Acceleration And Tapers Lengths ~1685'
Improves Safety And Operations At Merge
Accelerated Construction Time Frame

REVISED DESIGN

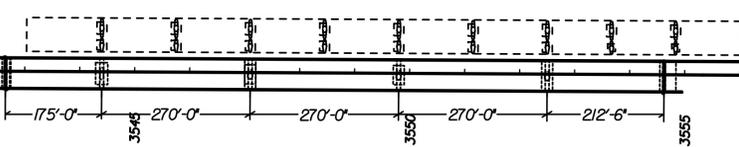


INCREASED SPAN LENGTHS FOR RAPPAHANNOCK RIVER BRIDGE

RFP DESIGN

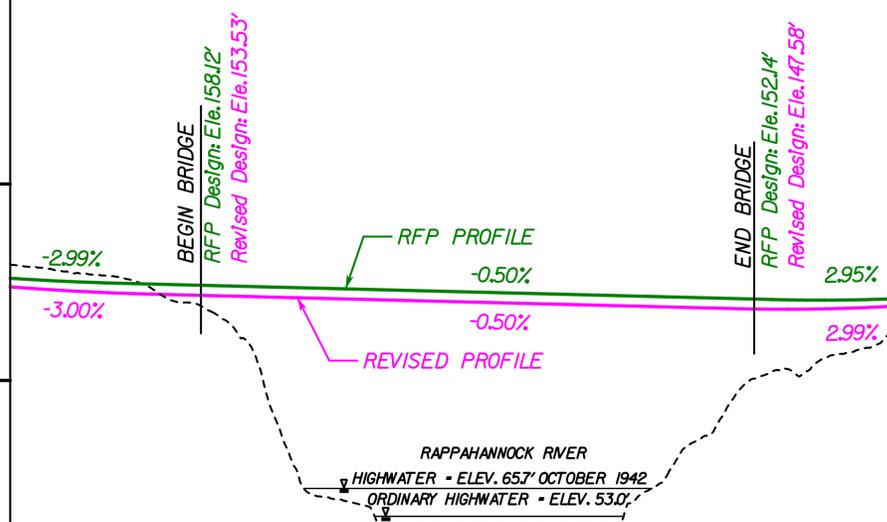


REVISED DESIGN



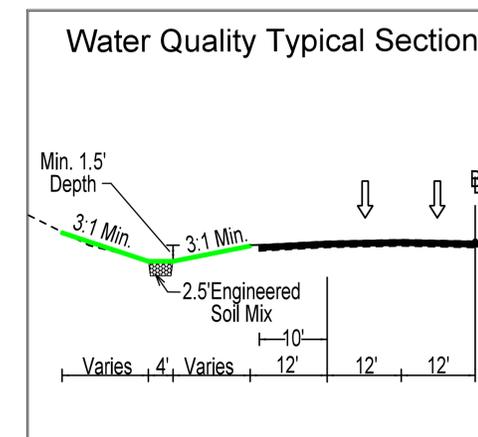
Elimination of Piers In The River
Reduces Number of Piers And Bearings To Maintain/ Inspect
Reduces Permanent Impacts To River And Environment
Avoids Impacting Cultural Resources
Avoids Encroaching In North Channel of Rappahannock River

I-95 SB GP LANES PROFILE LOWERED AT RAPPAHANNOCK RIVER



Lowered Profile Grade At Rappahannock River
Shorter Piers - Reduces Long Term Maintenance
Reduced MSE Wall's Length, Optimized Earthwork Balance
Deck Elevations Within 6' of Existing Deck

USE OF WATER QUALITY SWALES TO REDUCE NUMBER OF BIORETENTION FILTERS



Incorporated Use of Water Quality Grass Swales
Elimination of Seven (7) Bioretention Filters
Reduces Long-Term Maintenance And Inspection Costs
Eliminates Bioretention filters #2, 4, 10, 11, 15, 16 and 20

DESIGN BUILDER



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STATE PROJECT

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B-604, B-606
0095-089-7-4I, PE-101, C-501, B-651, B-652

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I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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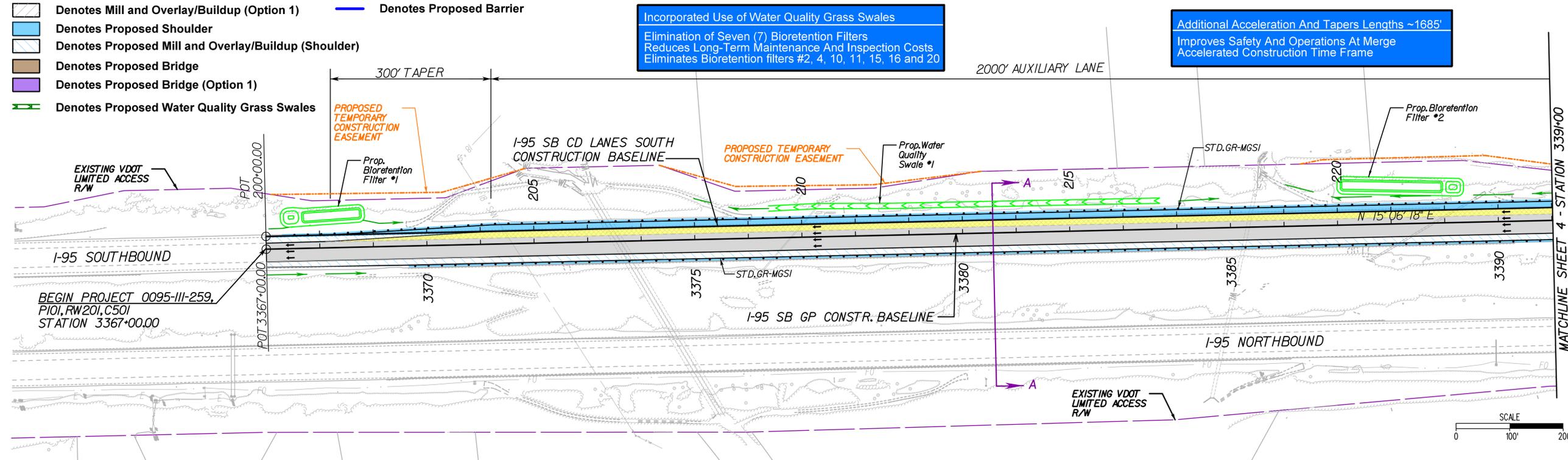
CONCEPTUAL ROADWAY PLANS

LEGEND

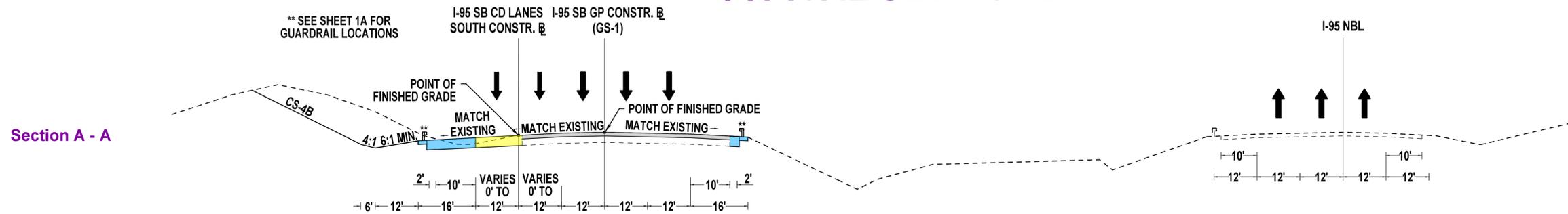
- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)
- Denotes Mill and Overlay/Buildup
- Denotes Mill and Overlay/Buildup (Option 1)
- Denotes Proposed Shoulder
- Denotes Proposed Mill and Overlay/Buildup (Shoulder)
- Denotes Proposed Bridge
- Denotes Proposed Bridge (Option 1)
- Denotes Proposed Water Quality Grass Swales

- Denotes Proposed Noise Barrier Wall
- Denotes Proposed Temporary Construction Easement
- Denotes Proposed Right of Way and/or Limited Access
- Denotes Existing Right of Way and/or Existing Limited Access
- Denotes Proposed Guardrail
- Denotes Proposed Barrier

- Denotes Proposed Light Pole
- Denotes Proposed Pole Mounted Camera
- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Signal
- Denotes Utility Impact (with Note)



TYPICAL SECTIONS



LEGEND - PAVEMENT DESIGN: ALTERNATIVE 1: STANDARD FLEXIBLE PAVEMENT

- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)

MAINLINE DESIGN: I-95 SB and NB GP Lanes, Route 17 and Route 17 Loop Ramps, I-95 SB CD Lanes, Rte. 3 Interchange Ramps

Surface: 2 inches Asphalt Concrete Type, SM-12.5E
Intermediate: 3 inches Asphalt Concrete Type, IM-19.0D
Base: 6 inches Asphalt Concrete Type, BM-25.0A
Drainage: 2 inches Open Graded Drainage Layer (OGDL)
Subbase: 8 inches Aggregate Base Material, Type I, 21A

- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)

MAINLINE DESIGN: Route 17 Ramp A

Surface: 2 inches Asphalt Concrete Type, SM-12.5E
Intermediate: 3 inches Asphalt Concrete Type, IM-19.0D
Base: 7.5 inches Asphalt Concrete Type, BM-25.0A
Drainage: 2 inches Open Graded Drainage Layer (OGDL)
Subbase: 8 inches Aggregate Base Material, Type I, 21A

- Denotes Mill and Overlay/Buildup

MILLING AND OVERLAY/BUILDUP:
All Locations Except Route 17

Milling: 2 inches depth of milling required
Overlay: 2 inches Asphalt Concrete Type, SM-12.5E

MILLING AND OVERLAY/BUILDUP:
Route 17

Milling: 1.5 inches depth of milling required
Overlay: 1.5 inches Asphalt Concrete Type, SM-12.5E

- Denotes Proposed Shoulder

SHOULDER DESIGN:
Right Shoulder on I-95 SB GP and I-95 SB CD Lanes

Surface: 2 inches Asphalt Concrete Type, SM-12.5E
Intermediate: 3 inches Asphalt Concrete Type, IM-19.0D
Subbase: 6 inches Aggregate Base Material, Type I, 21A
(Extended 1' Beyond Edge of Shoulder)

Mainline Pavement Design Shall be Extended 2'
Beyond the Outside Edge of the Shoulder.

SHOULDER DESIGN FOR ALL OTHER
LOCATIONS: Extend Mainline Pavement Design
Through Shoulder Area.

Underdrains will be provided and
meet RFP requirements



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0095-089-741, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION

I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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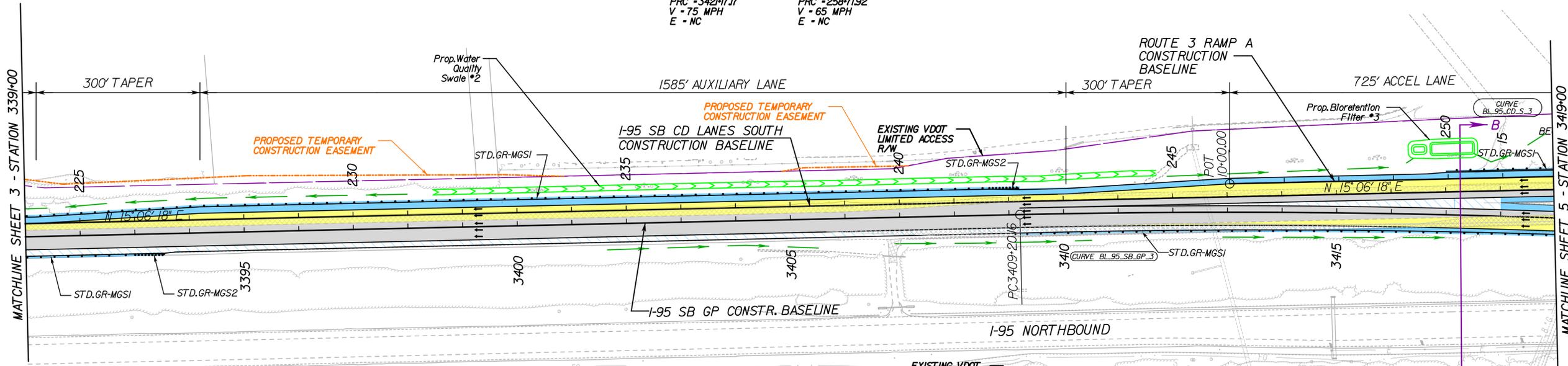
CONCEPTUAL ROADWAY PLANS

Incorporated Use of Water Quality Grass Swales
Elimination of Seven (7) Bioretention Filters
Reduces Long-Term Maintenance and Inspection Costs
Eliminates Bioretention filters #2, 4, 10, 11, 15, 16 and 20

Curve BL_95_SB_GP_3
PI = 3415+18.91
DELTA = 4° 02' 03.64" (RT)
D = 0' 20' 13"
T = 598.75'
L = 1197.01'
R = 17,000.00'
PC = 3409+20.16
PRC = 342+17.17
V = 75 MPH
E = NC

Curve BL_95_CD_S_3
PI = 254+90.43
DELTA = 2° 34' 19.07" (RT)
D = 0' 20' 13"
T = 381.62'
L = 763.22'
R = 17,000.00'
PC = 251+08.80
PRC = 258+71.92
V = 65 MPH
E = NC

Additional Acceleration And Tapers Lengths ~1685'
Improves Safety And Operations At Merge
Accelerated Construction Time Frame

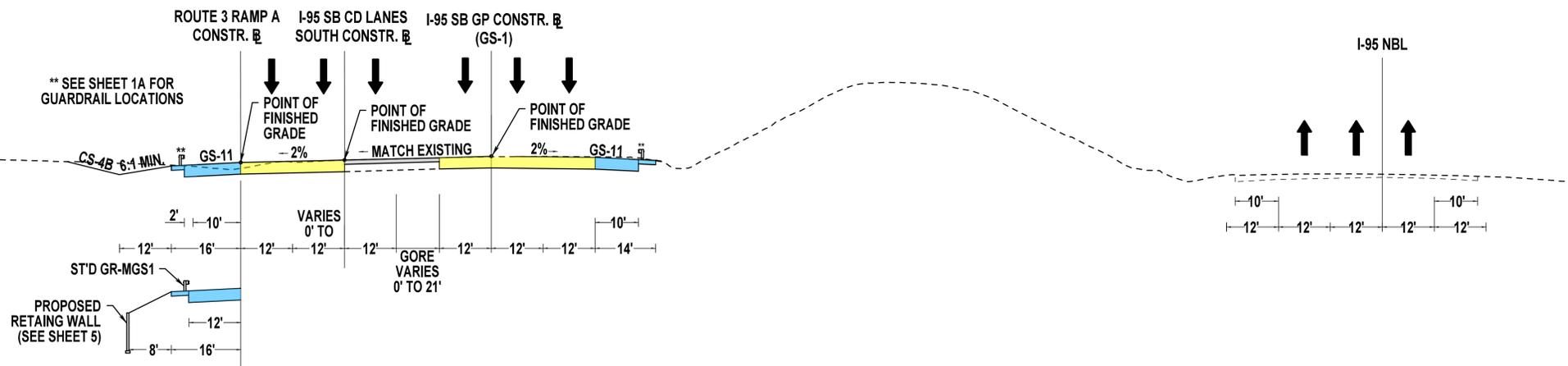


LEGEND

- | | | |
|---|--|--|
| Denotes Demolition of Pavement | Denotes Proposed Mill and Overlay/Buildup (Shoulder) | Denotes Proposed Temporary Construction Easement |
| Denotes Full Depth Pavement | Denotes Proposed Bridge | Denotes Proposed Right of Way and/or Limited Access |
| Denotes Full Depth Pavement (Option 1) | Denotes Proposed Bridge (Option 1) | Denotes Existing Right of Way and/or Existing Limited Access |
| Denotes Mill and Overlay/Buildup | Denotes Proposed Water Quality Grass Swales | Denotes Proposed Guardrail |
| Denotes Mill and Overlay/Buildup (Option 1) | Denotes Proposed Noise Barrier Wall | Denotes Proposed Barrier |
| Denotes Proposed Shoulder | Denotes Proposed Light Pole | Denotes Proposed Pole Mounted Camera |
| | | Denotes Proposed Overhead Span or Cantilever Sign Structure |
| | | Denotes Proposed Signal |
| | | Denotes Utility Impact (with Note) |

TYPICAL SECTIONS

Section B - B



NOTE: SEE SHEET 3 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS



DESIGN BUILDER
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STATE PROJECT
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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 SOUTHBOUND CD LANES - RAPPANNOCK RIVER CROSSING DESIGN BUILD PROJECT

SHEET NO.
4

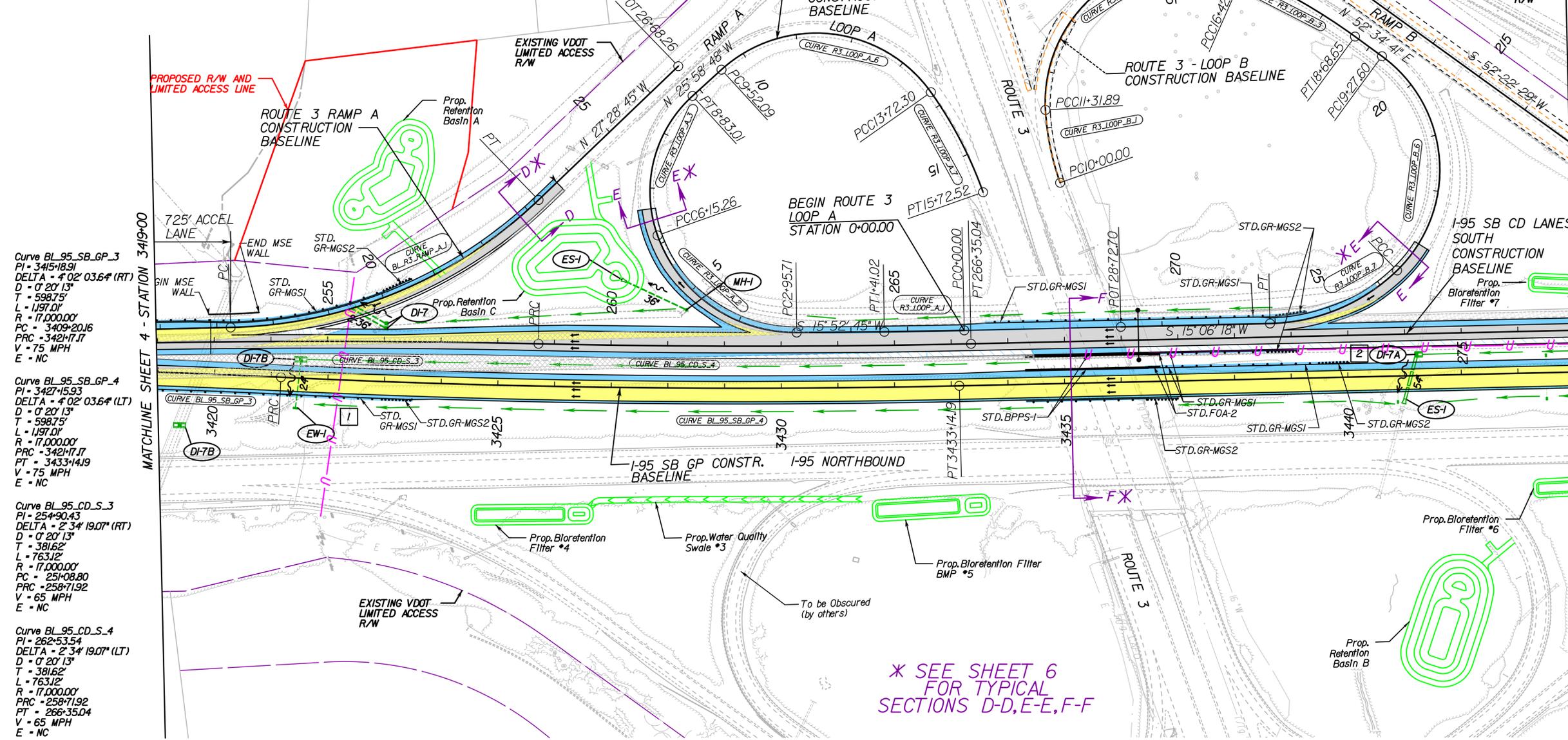
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CONCEPTUAL ROADWAY PLANS

LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)
- Denotes Mill and Overlay/Buildup
- Denotes Mill and Overlay/Buildup (Option 1)
- Denotes Proposed Shoulder
- Denotes Proposed Bridge
- Denotes Proposed Bridge (Option 1)
- Denotes Utility Impact (with Note)
- Denotes Proposed Water Quality Grass Swales
- Denotes Proposed Mill and Overlay/Buildup (Shoulder)
- Denotes Proposed Noise Barrier Wall
- Denotes Proposed Temporary Construction Easement
- Denotes Proposed Right of Way and/or Limited Access
- Denotes Existing Right of Way and/or Existing Limited Access
- Denotes Proposed Guardrail
- Denotes Proposed Barrier
- Denotes Proposed Light Pole
- Denotes Proposed Pole Mounted Camera
- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Signal

ROUTE 3 - RAMP B IMPROVEMENTS COMPLETED UNDER VDOT PROJECT * 0095-III-278 (UPC 107715) SAFETY IMPROVEMENTS AT ROUTE 3/I-95 INTERCHANGE



Curve BL_95_SB_GP_3
 PI = 3415.18.91
 DELTA = 4° 02' 03.64" (RT)
 D = 0' 20' 13"
 T = 598.75'
 L = 1197.01'
 R = 17,000.00'
 PC = 3409.20.16
 PRC = 3421.17.17
 V = 75 MPH
 E = NC

Curve BL_95_SB_GP_4
 PI = 3427.15.93
 DELTA = 4° 02' 03.64" (LT)
 D = 0' 20' 13"
 T = 598.75'
 L = 1197.01'
 R = 17,000.00'
 PC = 3421.17.17
 PRC = 3433.14.19
 V = 75 MPH
 E = NC

Curve BL_95_CD_S_3
 PI = 25490.43
 DELTA = 2° 34' 19.07" (RT)
 D = 0' 20' 13"
 T = 381.62'
 L = 763.12'
 R = 17,000.00'
 PC = 25108.80
 PRC = 25871.92
 V = 65 MPH
 E = NC

Curve BL_95_CD_S_4
 PI = 26253.54
 DELTA = 2° 34' 19.07" (LT)
 D = 0' 20' 13"
 T = 381.62'
 L = 763.12'
 R = 17,000.00'
 PC = 25871.92
 PRC = 26635.04
 V = 65 MPH
 E = NC

Curve BL_R3_RAMP_A_J
 PI = 2039.95
 DELTA = 42° 35' 02.77" (LT)
 D = 7° 04' 25"
 T = 315.68'
 L = 602.02'
 R = 810.00'
 PC = 1724.27
 PT = 2326.29
 V = 50 MPH
 E = NC

Curve BL_R3_LOOP_A_1
 PI = 070.51
 DELTA = 0° 28' 33.47" (RT)
 D = 0' 20' 15"
 T = 70.51'
 L = 141.02'
 R = 16976.00'
 PC = 000.00
 PT = 141.02
 V = 30 MPH
 E = NC

Curve BL_R3_LOOP_A_2
 PI = 479.40
 DELTA = 70° 41' 22.38" (RT)
 D = 22° 07' 19"
 T = 183.69'
 L = 319.55'
 R = 259.00'
 PC = 295.71
 PCC = 615.26
 V = 30 MPH
 E = 7.9%

Curve BL_R3_LOOP_A_3
 PI = 768.17
 DELTA = 67° 14' 08.73" (RT)
 D = 25° 06' 42"
 T = 152.92'
 L = 267.75'
 R = 230.00'
 PCC = 615.26
 PT = 883.01
 V = 30 MPH
 E = 8.0%

Curve BL_R3_LOOP_B_6
 PI = 2222.27
 DELTA = 99° 34' 42.33" (RT)
 D = 23° 00' 01"
 T = 294.67'
 L = 432.95'
 R = 249.11'
 PC = 1927.60
 PCC = 2360.55
 V = 30 MPH
 E = 8.0%

Curve BL_R3_LOOP_B_7
 PI = 2491.15
 DELTA = 42° 56' 54.67" (RT)
 D = 17° 15' 28"
 T = 130.61'
 L = 248.86'
 R = 332.00'
 PCC = 2360.55
 PT = 2609.41
 V = 30 MPH
 E = 7.3%

* SEE SHEET 6 FOR TYPICAL SECTIONS D-D, E-E, F-F

- 1 Dominion Energy - 3 Phase OH Power
- Cox Communications - Communication on Dominion Poles Raise Facility to Increase Clearance as Required
- 2 VDOT ITS - Fiber Optic Relocate as Required

MATCHLINE SHEET 6 - STATION 3444+00

DESIGN BUILDER
WAGMAN
 General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMPT

STATE PROJECT
 0095-III-259, PE-101, RW-201, C-501, B-604, B-606
 0095-089-741, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION
 I-95 SOUTHBOUND CD LANES - RAPPANNOCK RIVER CROSSING DESIGN BUILD PROJECT

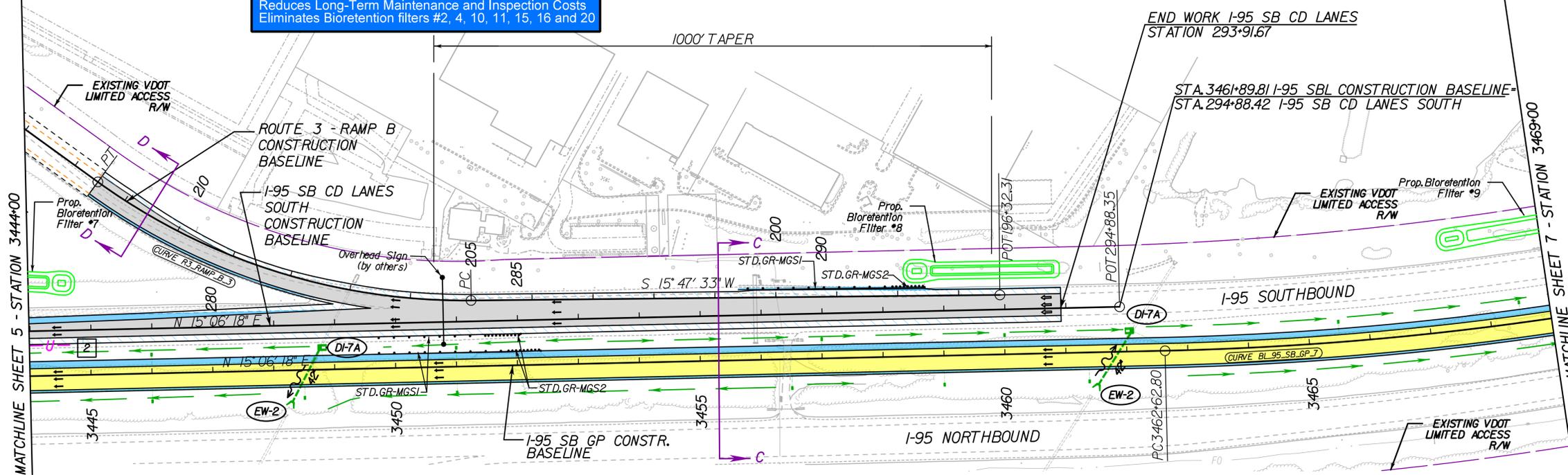
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CONCEPTUAL ROADWAY PLANS

Incorporated Use of Water Quality Grass Swales
Elimination of Seven (7) Bioretention Filters
Reduces Long-Term Maintenance and Inspection Costs
Eliminates Bioretention filters #2, 4, 10, 11, 15, 16 and 20

2 VDOT ITS System - Fiber Optic Relocate as Required



Curve BL_R3_RAMP_B_3
PI = 208+38.66
DELTA = 36° 34' 55.71" (RT)
D = 5° 35' 43"
T = 338.48'
L = 653.80'
R = 1024.00'
PC = 205+00.18
PT = 211+53.98
V = 50 MPH
E = 7.5%

Curve BL_95_SB_GP_7
PI = 347+59.66
DELTA = 25° 01' 13.00" (LT)
D = 1° 06' 22"
T = 1196.86'
L = 2,352.44'
R = 5,180.00'
PC = 3462+62.80
PT = 3486+15.24
V = 50 MPH
E = 4.5%

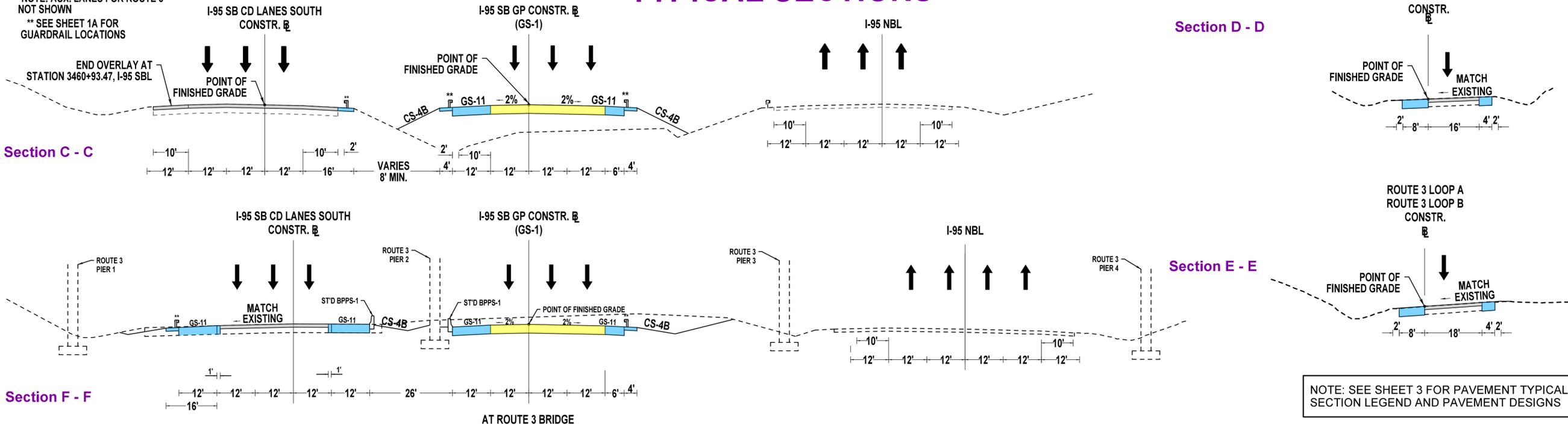
LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)
- Denotes Mill and Overlay/Buildup
- Denotes Mill and Overlay/Buildup (Option 1)
- Denotes Proposed Shoulder
- Denotes Proposed Mill and Overlay/Buildup (Shoulder)
- Denotes Proposed Bridge
- Denotes Proposed Bridge (Option 1)
- Denotes Proposed Water Quality Grass Swales
- Denotes Proposed Noise Barrier Wall
- Denotes Proposed Temporary Construction Easement
- Denotes Proposed Right of Way and/or Limited Access
- Denotes Existing Right of Way and/or Existing Limited Access
- Denotes Proposed Guardrail
- Denotes Proposed Barrier
- Denotes Proposed Light Pole
- Denotes Proposed Pole Mounted Camera
- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Signal
- Denotes Utility Impact (with Note)



TYPICAL SECTIONS

*NOTE: AUX. LANES FOR ROUTE 3 NOT SHOWN
** SEE SHEET 1A FOR GUARDRAIL LOCATIONS



NOTE: SEE SHEET 3 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

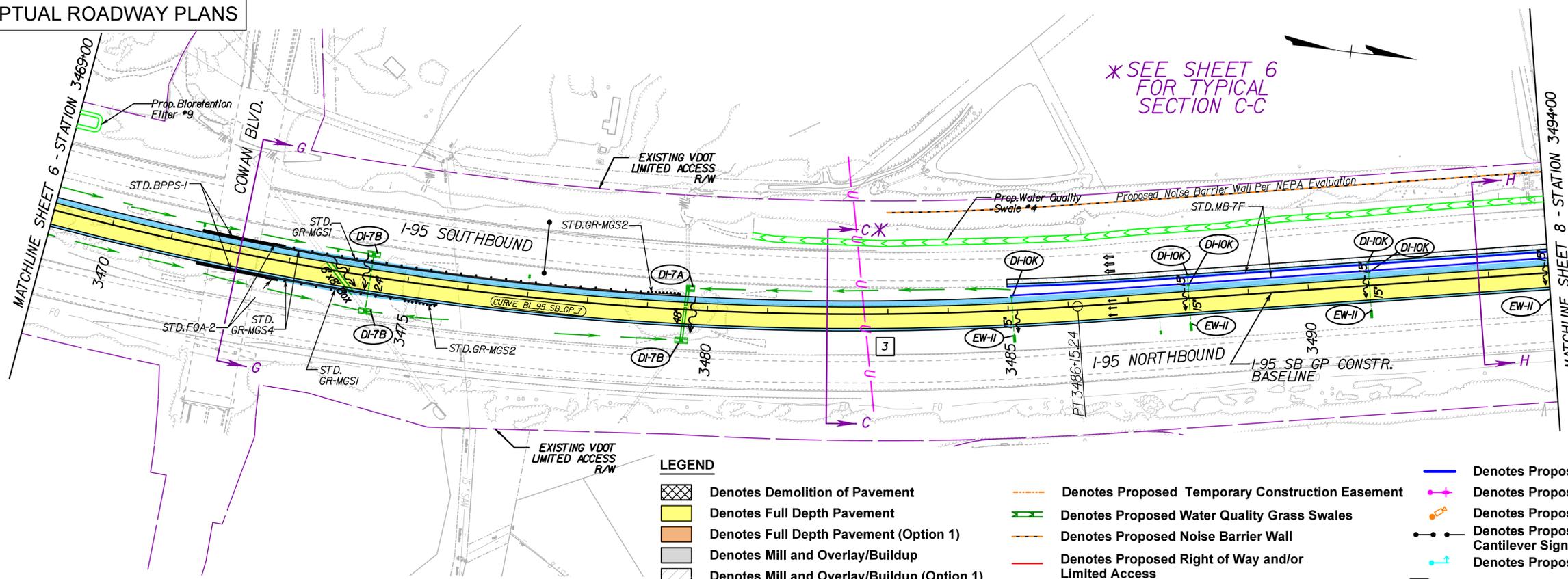


DESIGN BUILDER
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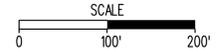
SHEET NO.
6
PAGE NO.
58

CONCEPTUAL ROADWAY PLANS



Curve BL_95_SB_GP_7
PI = 3474+59.66
DELTA = 26° 01' 13.00" (LT)
D = 1' 06" 22"
T = 1/96.86'
L = 2,352.44'
R = 5,180.00'
PC = 3462+62.80
PT = 3486+15.24
V = 75 MPH
E = 4.5%

* SEE SHEET 6 FOR TYPICAL SECTION C-C



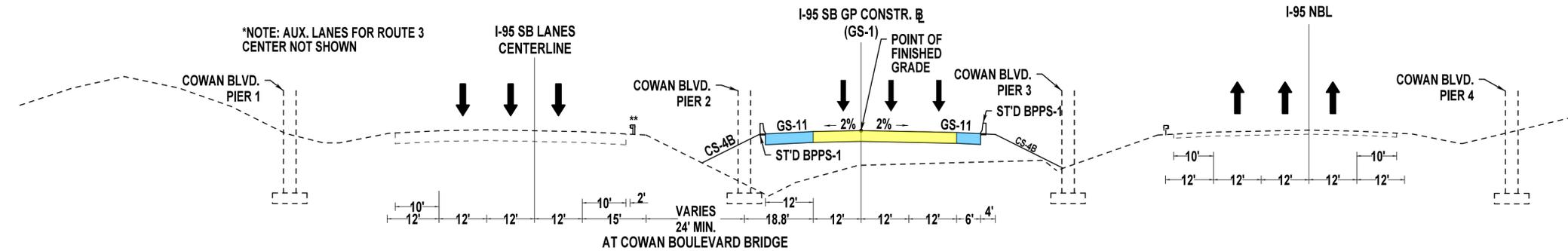
3 Verizon GTE South - 12 Pair Copper Telephone Raise Facility to Increase Clearance as Required

LEGEND

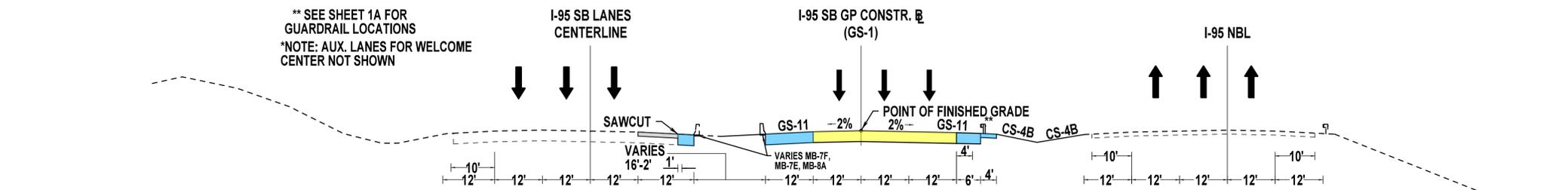
- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)
- Denotes Mill and Overlay/Buildup
- Denotes Mill and Overlay/Buildup (Option 1)
- Denotes Proposed Shoulder
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- Denotes Proposed Barrier
- Denotes Proposed Light Pole
- Denotes Proposed Pole Mounted Camera
- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Signal
- Denotes Utility Impact (with Note)

TYPICAL SECTIONS

Section G - G



Section H - H



NOTE: SEE SHEET 3 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS



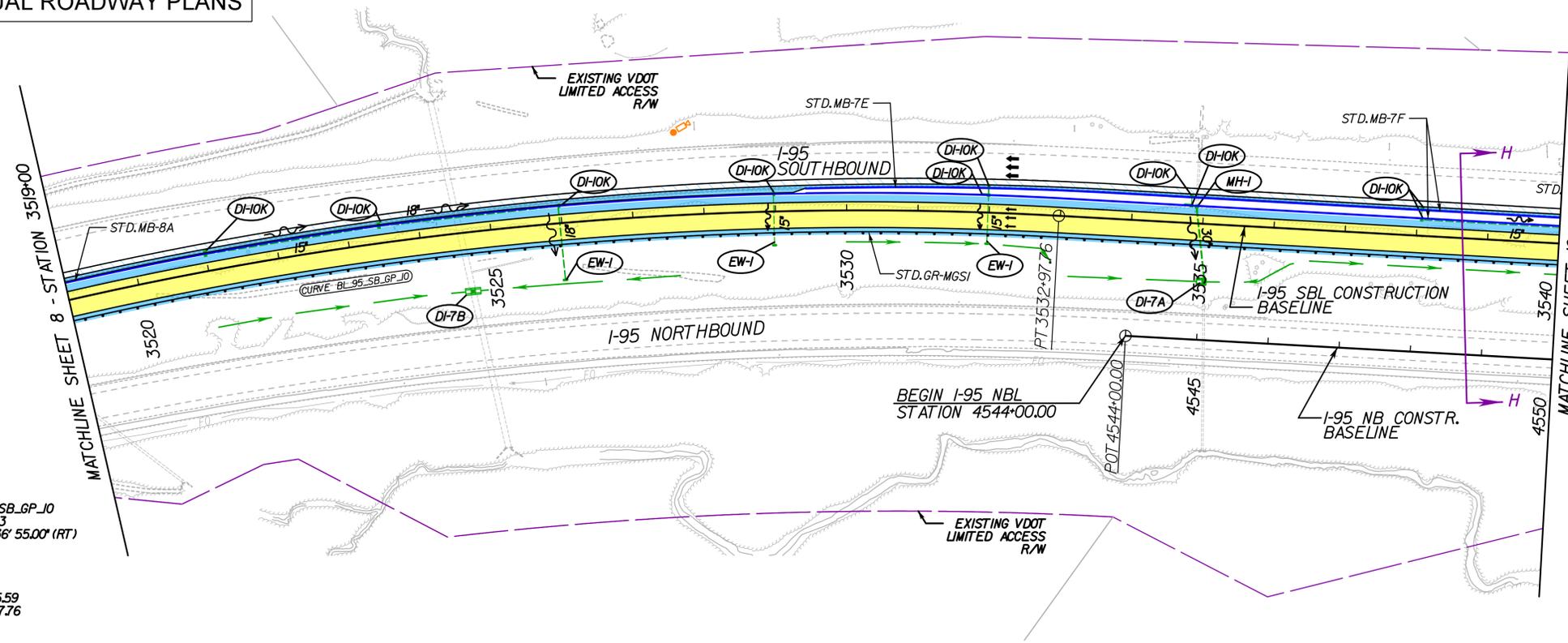
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7

PAGE NO.
59

CONCEPTUAL ROADWAY PLANS



Curve BL_95_SB_GP_10
 PI = 3520+83.13
 DELTA = 28° 36' 55.00" (RT)
 D = 1' 09" 10"
 T = 1267.54'
 L = 2482.17'
 R = 4970.00'
 PC = 3508+15.59
 PT = 3532+97.76
 V = 75 MPH
 E = 4.7%



LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)
- Denotes Mill and Overlay/Buildup
- Denotes Mill and Overlay/Buildup (Option 1)
- Denotes Proposed Shoulder
- Denotes Proposed Bridge
- Denotes Proposed Bridge (Option 1)
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- Denotes Proposed Noise Barrier Wall
- Denotes Proposed Mill and Overlay/Buildup (Shoulder)
- Denotes Proposed Temporary Construction Easement
- Denotes Proposed Right of Way and/or Limited Access
- Denotes Existing Right of Way and/or Existing Limited Access
- Denotes Proposed Guardrail
- Denotes Proposed Barrier
- Denotes Proposed Light Pole
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- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Signal
- Denotes Utility Impact (with Note)



DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMPT

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0095-089-74I, PE-101, C-501, B-651, B-652

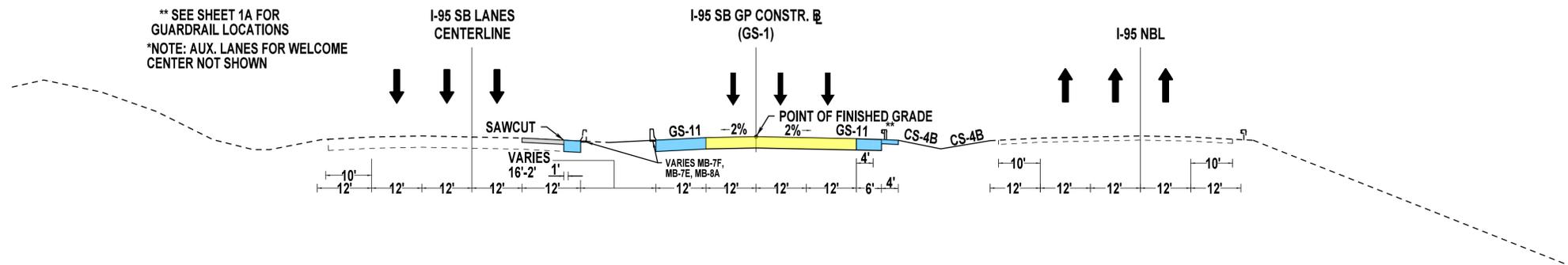
VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 SOUTHBOUND CD LANES -
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SHEET NO.
9

PAGE NO.
61

TYPICAL SECTIONS

Section H - H



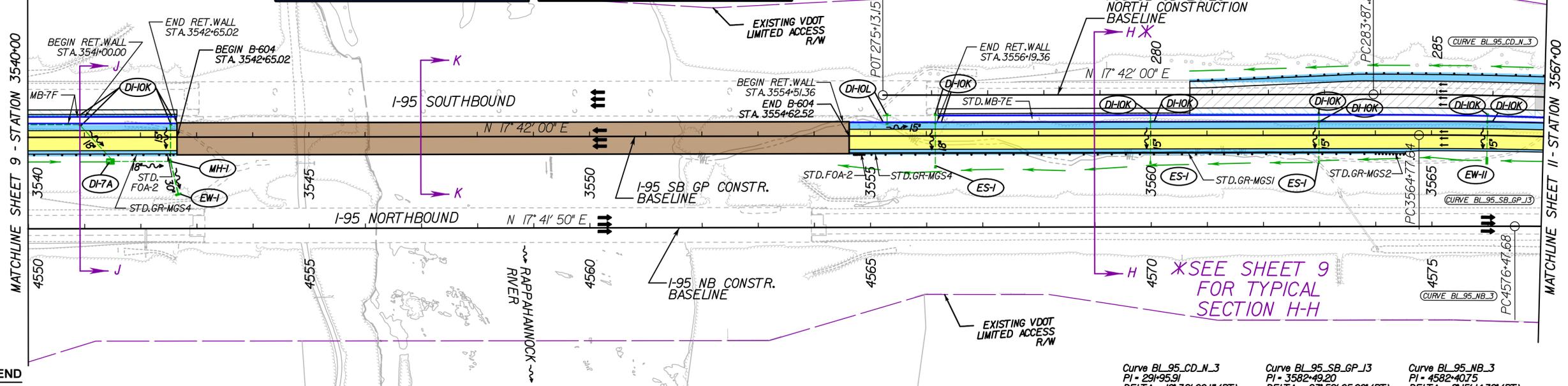
** SEE SHEET 1A FOR
GUARDRAIL LOCATIONS
*NOTE: AUX. LANES FOR WELCOME
CENTER NOT SHOWN

NOTE: SEE SHEET 3 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

CONCEPTUAL ROADWAY PLANS

Elimination of Piers In The River
Reduces Number of Piers And Bearings To Maintain/ Inspect
Reduces Permanent Impacts To River And Environment
Avoids Impacting Cultural Resources
Avoids Encroaching In North Channel of Rappahannock River

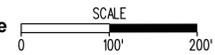
Lowered Profile Grade At Rappahannock River
Shorter Piers - Reduces Long Term Maintenance
Reduced MSE Wall's Length - Optimized Earthwork Balance
Deck Elevations Within 6' of Existing Deck



LEGEND

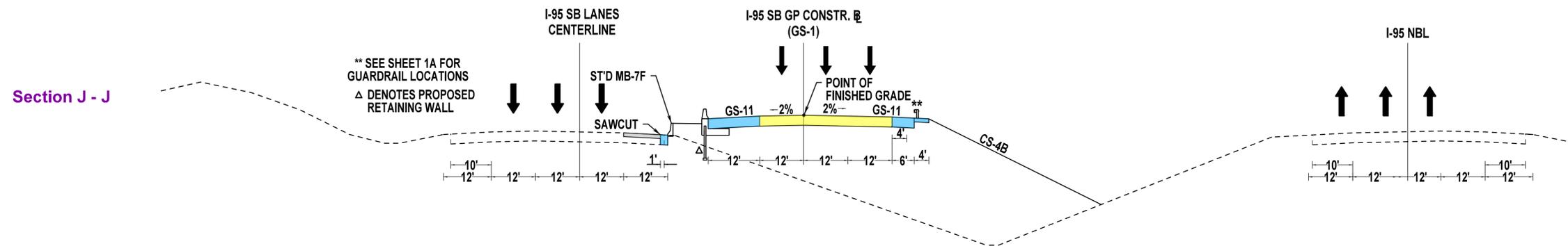
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|--|---|--|
| Denotes Demolition of Pavement | Denotes Proposed Bridge | Denotes Proposed Temporary Construction Easement |
| Denotes Full Depth Pavement | Denotes Proposed Bridge (Option 1) | Denotes Proposed Right of Way and/or Limited Access |
| Denotes Full Depth Pavement (Option 1) | Denotes Proposed Water Quality Grass Swales | Denotes Existing Right of Way and/or Existing Limited Access |
| Denotes Mill and Overlay/Buildup | Denotes Proposed Guardrail | Denotes Proposed Barrier |
| Denotes Mill and Overlay/Buildup (Option 1) | Denotes Proposed Noise Barrier Wall | Denotes Proposed Light Pole |
| Denotes Proposed Shoulder | Denotes Proposed Pole Mounted Camera | Denotes Proposed Overhead Span or Cantilever Sign Structure |
| Denotes Proposed Mill and Overlay/Buildup (Shoulder) | Denotes Utility Impact (with Note) | Denotes Proposed Signal |

<p>Curve BL_95_CD_N_3 PI = 291+95.91 DELTA = 10° 32' 00.11" (RT) D = 0' 39' 11" T = 808.65' L = 1612.73' R = 8772.40' PC = 283+87.26 PCC = 300+00.00 V = 65 MPH E = 2.2%</p>	<p>Curve BL_95_SB_GP_J3 PI = 3582+49.20 DELTA = 23° 59' 05.00" (RT) D = 0' 41' 13" T = 1771.56' L = 3491.23' R = 8340.00' PC = 3564+77.64 PT = 3599+68.87 V = 75 MPH E = 2.9%</p>	<p>Curve BL_95_NB_3 PI = 4582+40.75 DELTA = 8° 15' 14.39" (RT) D = 0' 41' 49" T = 593.07' L = 1184.08' R = 8219.40' PC = 4576+47.68 PCC = 4588+31.77 V = 75 MPH E = 2.9%</p>
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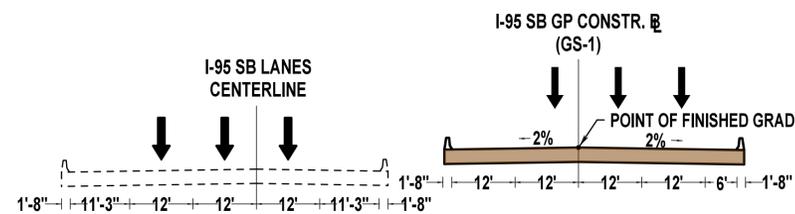


TYPICAL SECTIONS

Section J - J



Section K - K



NOTE: SEE SHEET 3 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS



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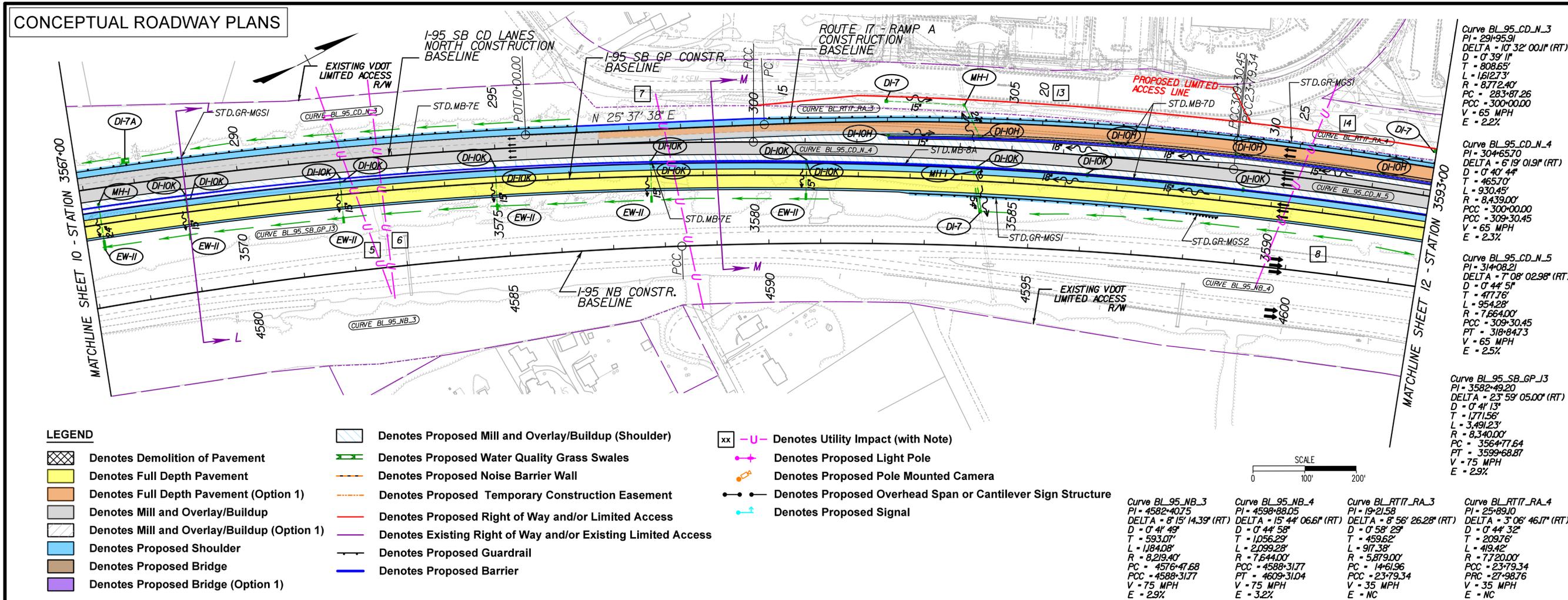
VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.

10

PAGE NO.

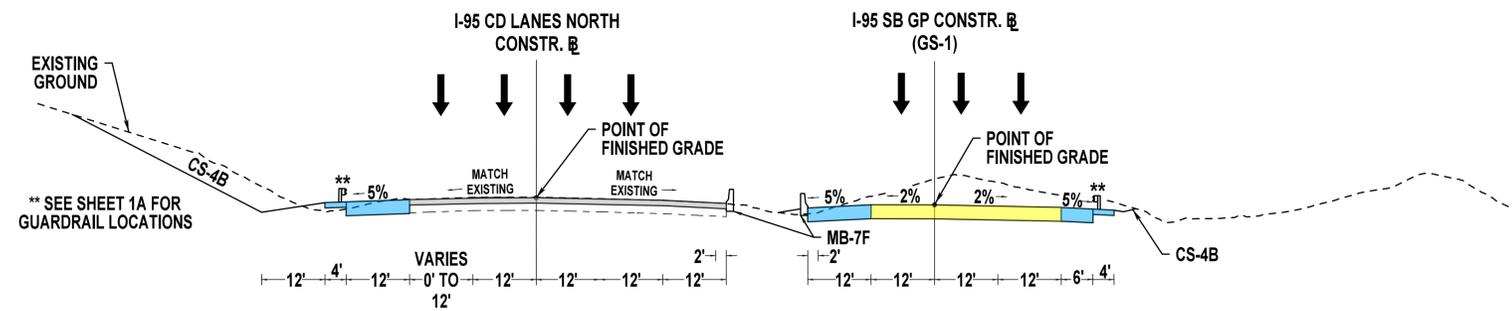
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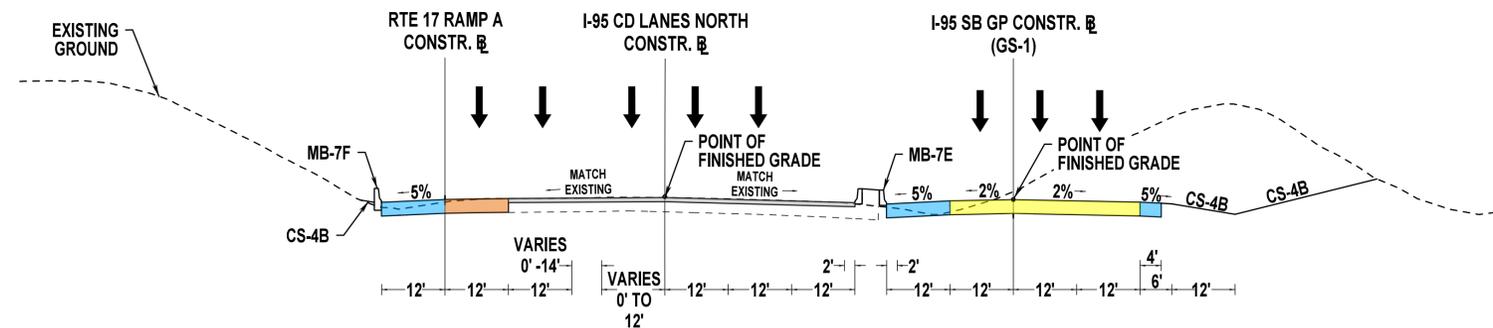
LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)
- Denotes Mill and Overlay/Buildup
- Denotes Mill and Overlay/Buildup (Option 1)
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- Denotes Proposed Guardrail
- Denotes Proposed Barrier
- Denotes Utility Impact (with Note)
- Denotes Proposed Light Pole
- Denotes Proposed Pole Mounted Camera
- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Signal

Section L - L



Section M - M



- 5** Summit IG - Fiber Optic Relocate as Required
- 6** VDOT Power - Power/Comm Service Relocate as Required
- 7** Dominion Energy - 3 Phase OH Power Verizon Virginia - Fiber Optic on Dominion Poles Raise Facility to Increase Clearance as Required
- 8** Dominion Energy - 3 Phase OH Power Cox Communication - Fiber Optic on Dominion Poles Raise Facility to Increase Clearance as Required
- 13** Cox Communication - Fiber Optic/Coax Adjust Hand Holes
- 14** Comcast/Cox Communication - Fiber Optic/Coax Adjust Hand Holes

NOTE: SEE SHEET 3 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

DESIGN BUILDER
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General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMWT

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DESIGN BUILD PROJECT

SHEET NO.
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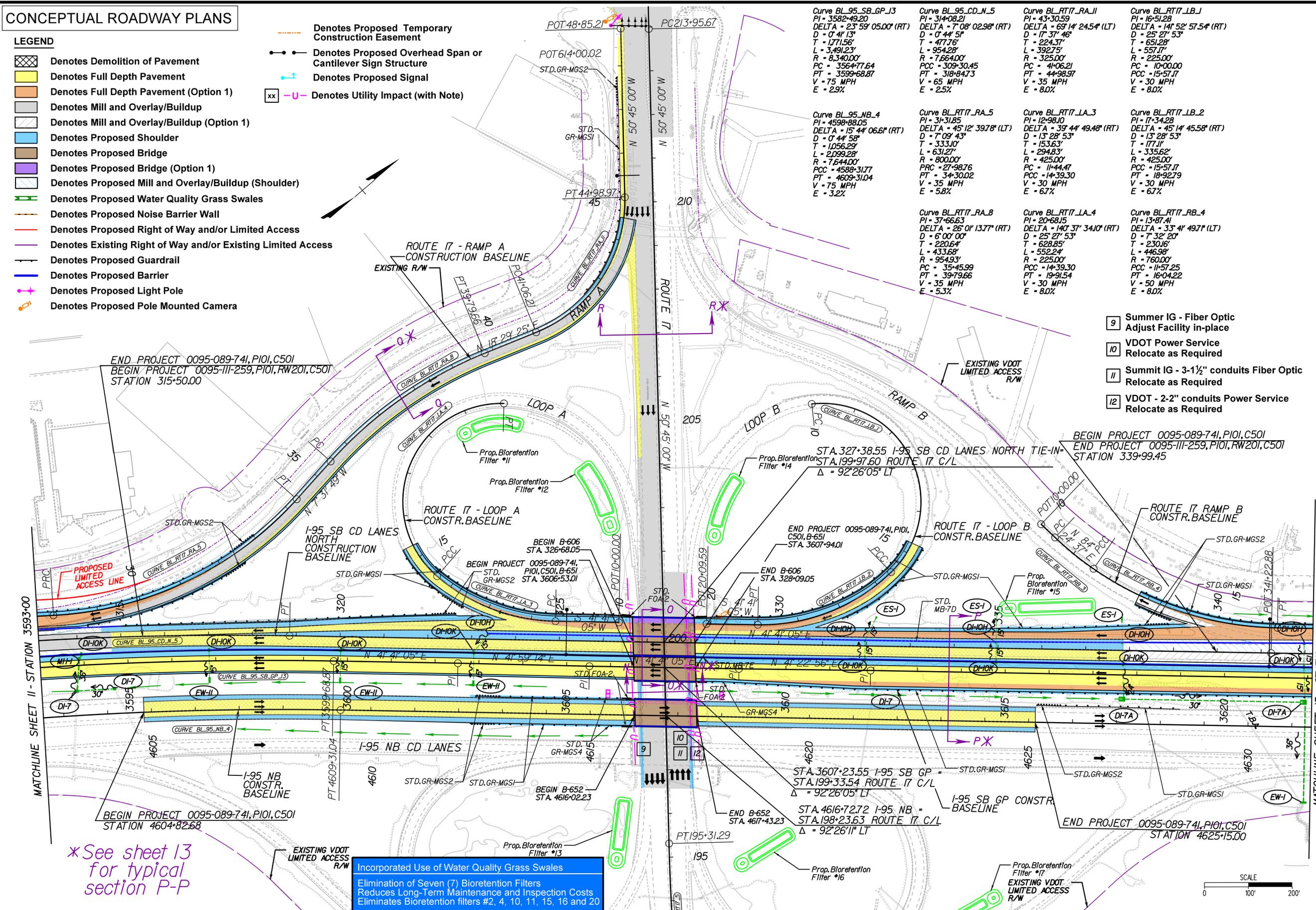
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63

CONCEPTUAL ROADWAY PLANS

LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)
- Denotes Mill and Overlay/Buildup
- Denotes Mill and Overlay/Buildup (Option 1)
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- Denotes Proposed Bridge
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- Denotes Proposed Light Pole
- Denotes Proposed Pole Mounted Camera

- Denotes Proposed Temporary Construction Easement
- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Signal
- Denotes Utility Impact (with Note)



- 9 Summer IG - Fiber Optic Adjust Facility in-place
- 10 VDOT Power Service Relocate as Required
- 11 Summit IG - 3-1/2" conduits Fiber Optic Relocate as Required
- 12 VDOT - 2-2" conduits Power Service Relocate as Required

*See sheet 13 for typical section P-P

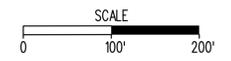
Incorporated Use of Water Quality Grass Swales
Elimination of Seven (7) Bioretention Filters
Reduces Long-Term Maintenance and Inspection Costs
Eliminates Bioretention filters #2, 4, 10, 11, 15, 16 and 20

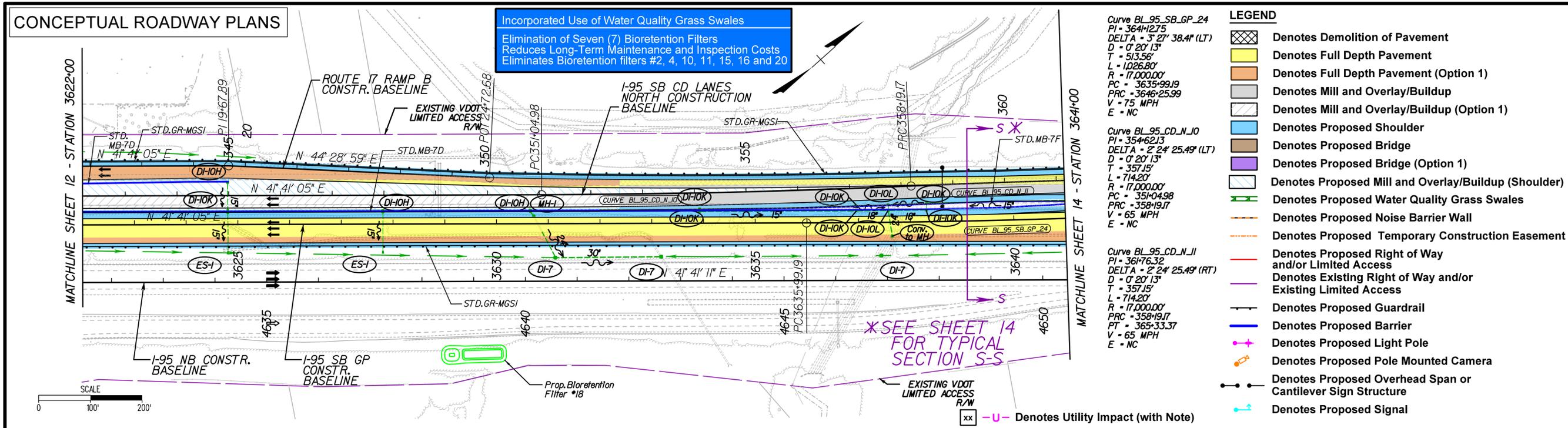


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I-95 SOUTHBOUND CD LANES - RAPPANNOCK RIVER CROSSING DESIGN BUILD PROJECT

SHEET NO. 12
PAGE NO.





DESIGN BUILDER

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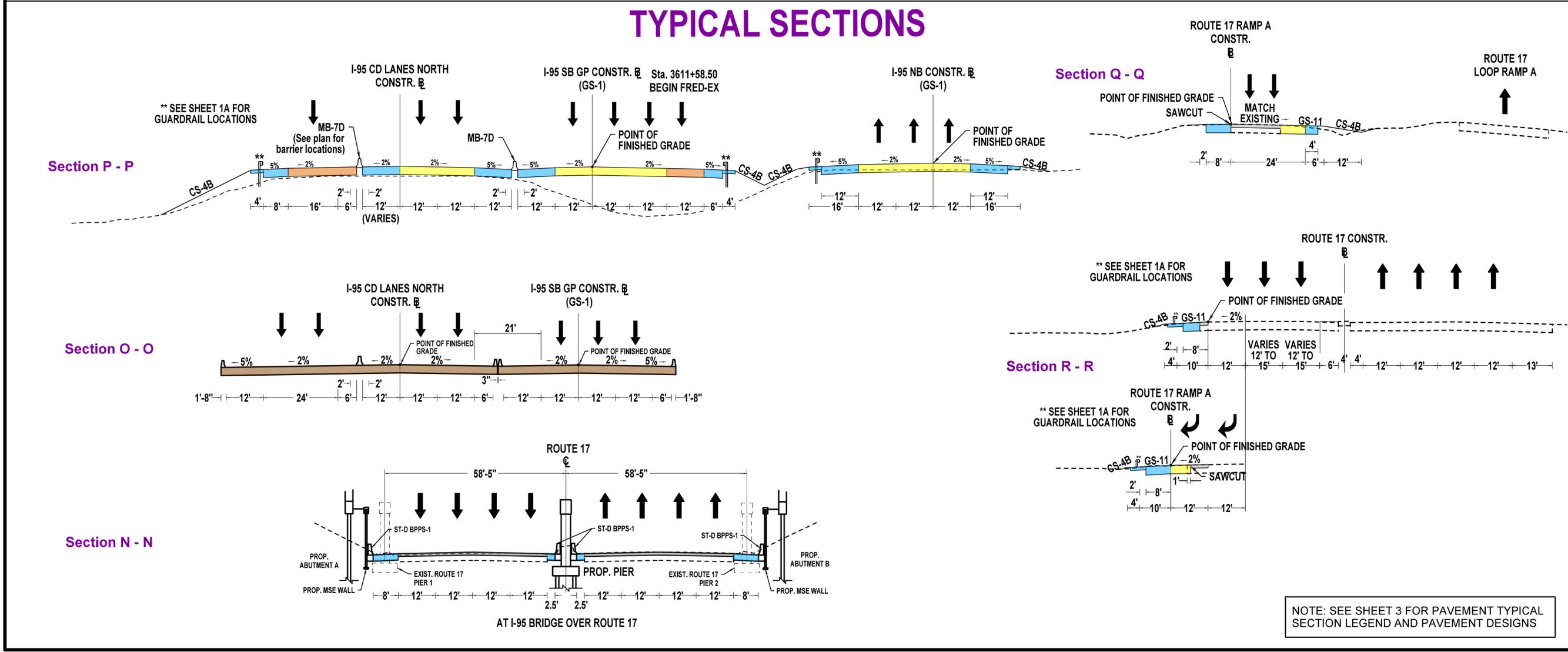
0095-III-259, PE-101, RW-201, C-501, B-604, B-606
0095-089-741, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION

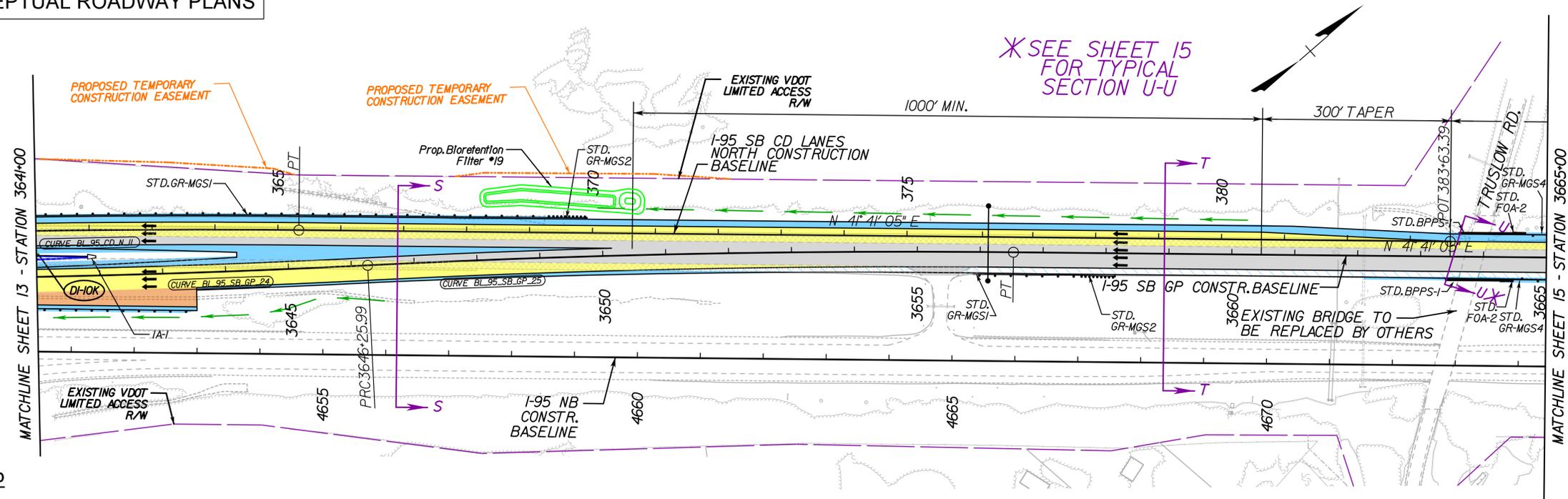
I-95 SOUTHBOUND CD LANES - RAPPANNOCK RIVER CROSSING DESIGN BUILD PROJECT

SHEET NO. 13

PAGE NO. 65



CONCEPTUAL ROADWAY PLANS



*SEE SHEET 15 FOR TYPICAL SECTION U-U

Curve BL_95_SB_GP_24
PI = 364+12.75
DELTA = 3° 27' 38.4" (LT)
D = 0' 20' 13"
T = 513.56'
L = 1026.80'
R = 17,000.00'
PC = 3635+99.19
PRC = 3646+25.99
V = 75 MPH
E = NC

Curve BL_95_SB_GP_25
PI = 365+39.55
DELTA = 3° 27' 38.4" (RT)
D = 0' 20' 13"
T = 513.56'
L = 1026.80'
R = 17,000.00'
PC = 3646+25.99
PT = 3656+52.79
V = 75 MPH
E = NC

Curve BL_95_CD_N_IJ
PI = 36176.32
DELTA = 2° 24' 25.49" (RT)
D = 0' 20' 13"
T = 357.15'
L = 714.20'
R = 17,000.00'
PC = 358+19.17
PT = 365+33.37
V = 65 MPH
E = NC

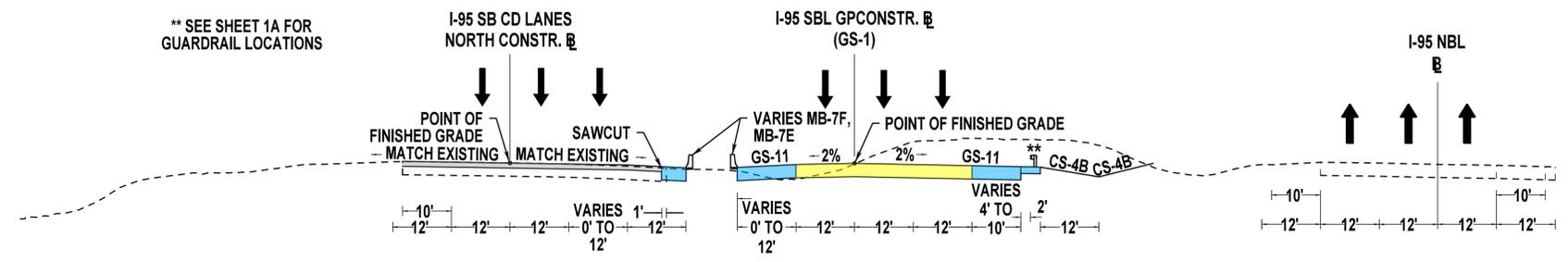
LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)
- Denotes Mill and Overlay/Buildup
- Denotes Mill and Overlay/Buildup (Option 1)
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- Denotes Proposed Signal
- Denotes Utility Impact (with Note)

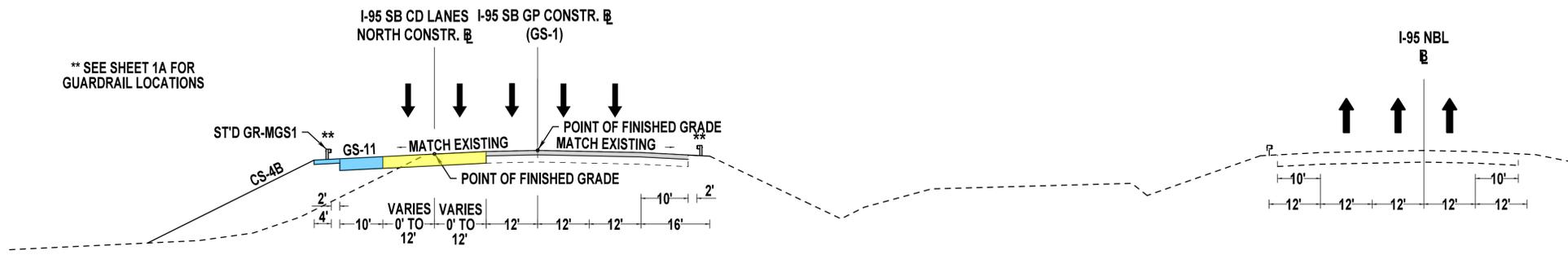


TYPICAL SECTIONS

Section S - S



Section T - T



NOTE: SEE SHEET 3 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS



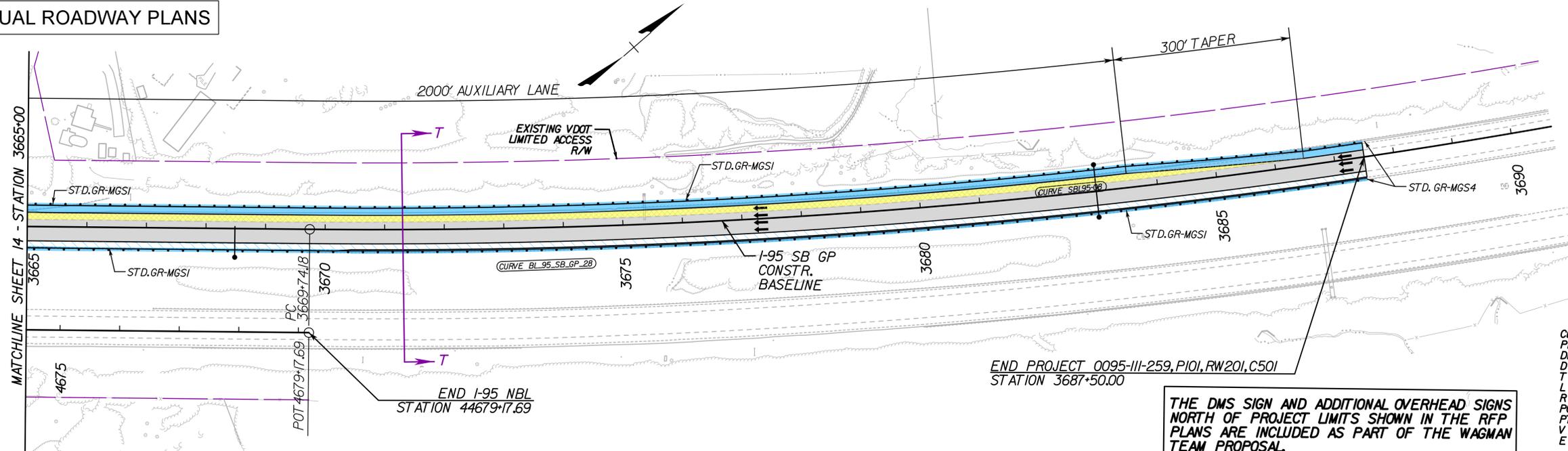
DESIGN BUILDER
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B-604, B-606
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SHEET NO.
14

PAGE NO.
66

CONCEPTUAL ROADWAY PLANS

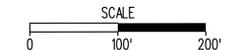


Curve BL_95_SB_GP_28
PI = 3689+63.43
DELTA = 19° 59' 37.59" (LT)
D = 0' 30' 28"
T = 1989.25'
L = 3938.04'
R = 11285.16'
PC = 3669+74.18
PT = 3709+12.22
V = 75 MPH
E = 2.2%

THE DMS SIGN AND ADDITIONAL OVERHEAD SIGNS NORTH OF PROJECT LIMITS SHOWN IN THE RFP PLANS ARE INCLUDED AS PART OF THE WAGMAN TEAM PROPOSAL.

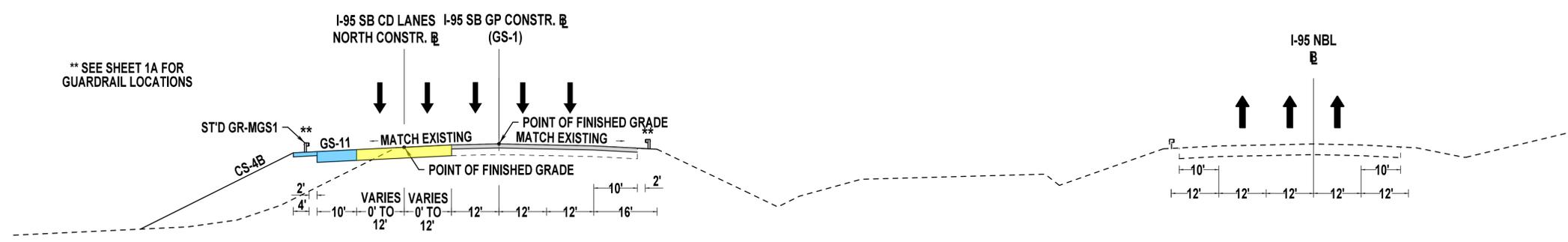
LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Pavement (Option 1)
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- Denotes Proposed Signal
- Denotes Utility Impact (with Note)

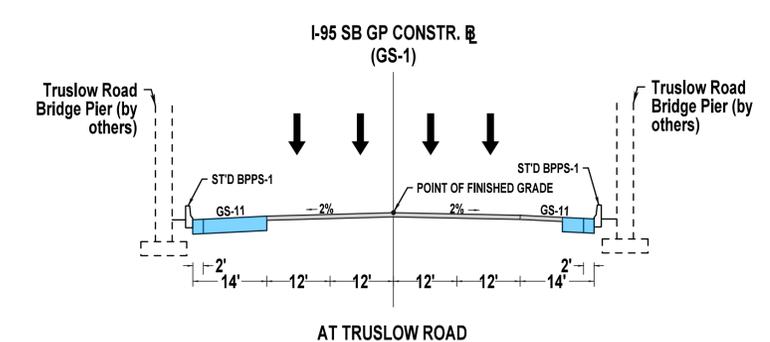


TYPICAL SECTIONS

Section T - T



Section U - U



NOTE: SEE SHEET 3 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS



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B-604, B-606
0095-089-7-41, PE-101, C-501, B-651, B-652

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I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
15

PAGE NO.
67

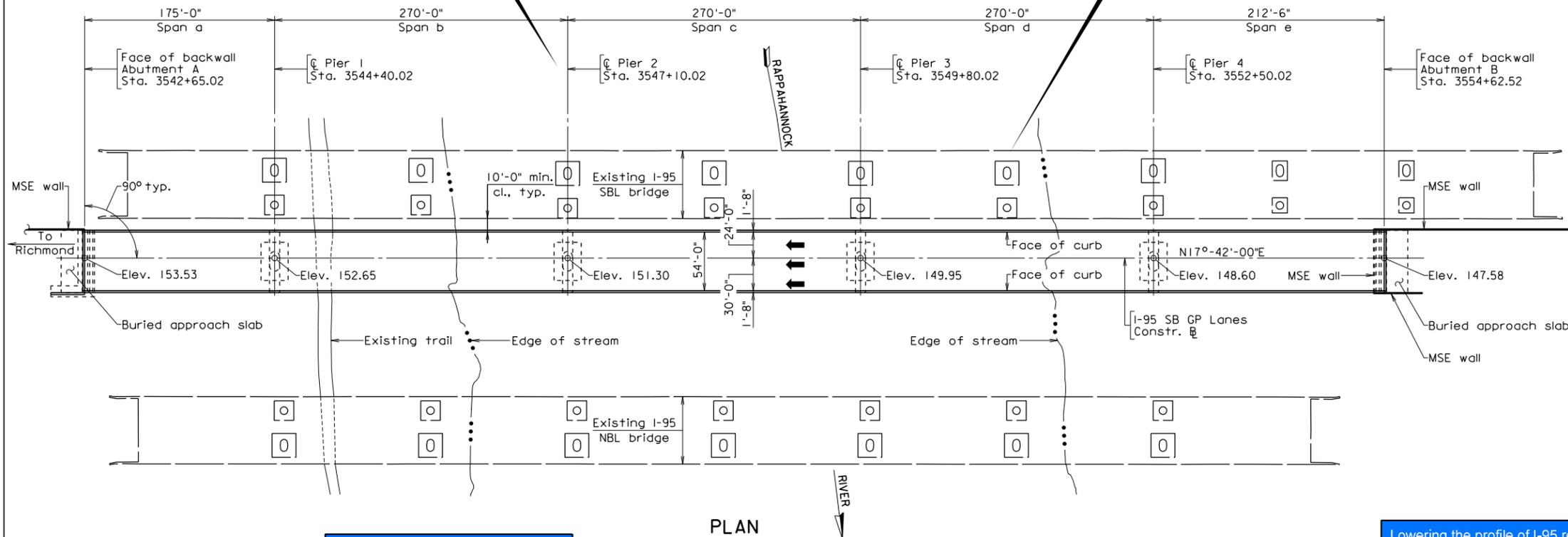


4.3.2 Conceptual Structural Plans



Locating piers in line with existing piers improves hydraulics and minimizes changes in scour behavior

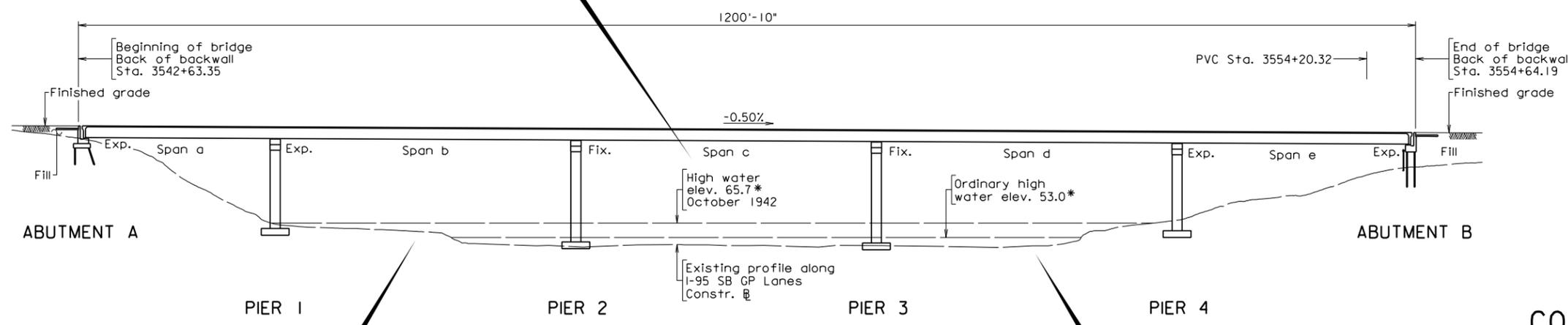
Eliminating piers reduces the number of bearings and piers to inspect and maintain



PLAN

Eliminating piers reduces permanent impacts to the river and environment

Lowering the profile of I-95 results in shorter piers, less roadway embankment and deck elevations within 6' of existing deck



DEVELOPED SECTION ALONG I-95 SB GP LANES CONSTR. B

Eliminating piers avoids impacting cultural resources

Eliminating piers avoids encroaching in the north channel of the Rappahannock River

*Elevations taken from 1980 mainline bridge plans (156-04A) dated March 1980 and are assumed to be based on the NGVD27 vertical datum.

DESIGN EXCEPTION(S):

None.

GENERAL NOTES:

- Width: 54'-0" face-to-face of curbs.
- Span layout: 175'-0" - 270'-0" - 270'-0" - 270'-0" - 212'-6" continuous steel plate girder spans.
- Capacity: HL-93 loading.
- Drainage area: 1,595 sq. mi.
- Specifications:
 - Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.
 - Design: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014; and VDOT Modifications.
 - Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.
- These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.
- All structural steel, including bearings, shall be ASTM A709 Grade 50W and shall be unpainted.
- Bridge No. of existing bridge in SB GP Lanes is 2900, and existing bridge in NB GP Lane is 2901. Plan No. are 156-04 and 156-04A.



COMMONWEALTH OF VIRGINIA
 DEPARTMENT OF TRANSPORTATION
 PROPOSED BRIDGE ON
 I-95 SBL OVER RAPPAHANNOCK RIVER
 STAFFORD CO. - 1.2 MI. S. OF RTE. 17
 PROJ. 0095-111-259, B604

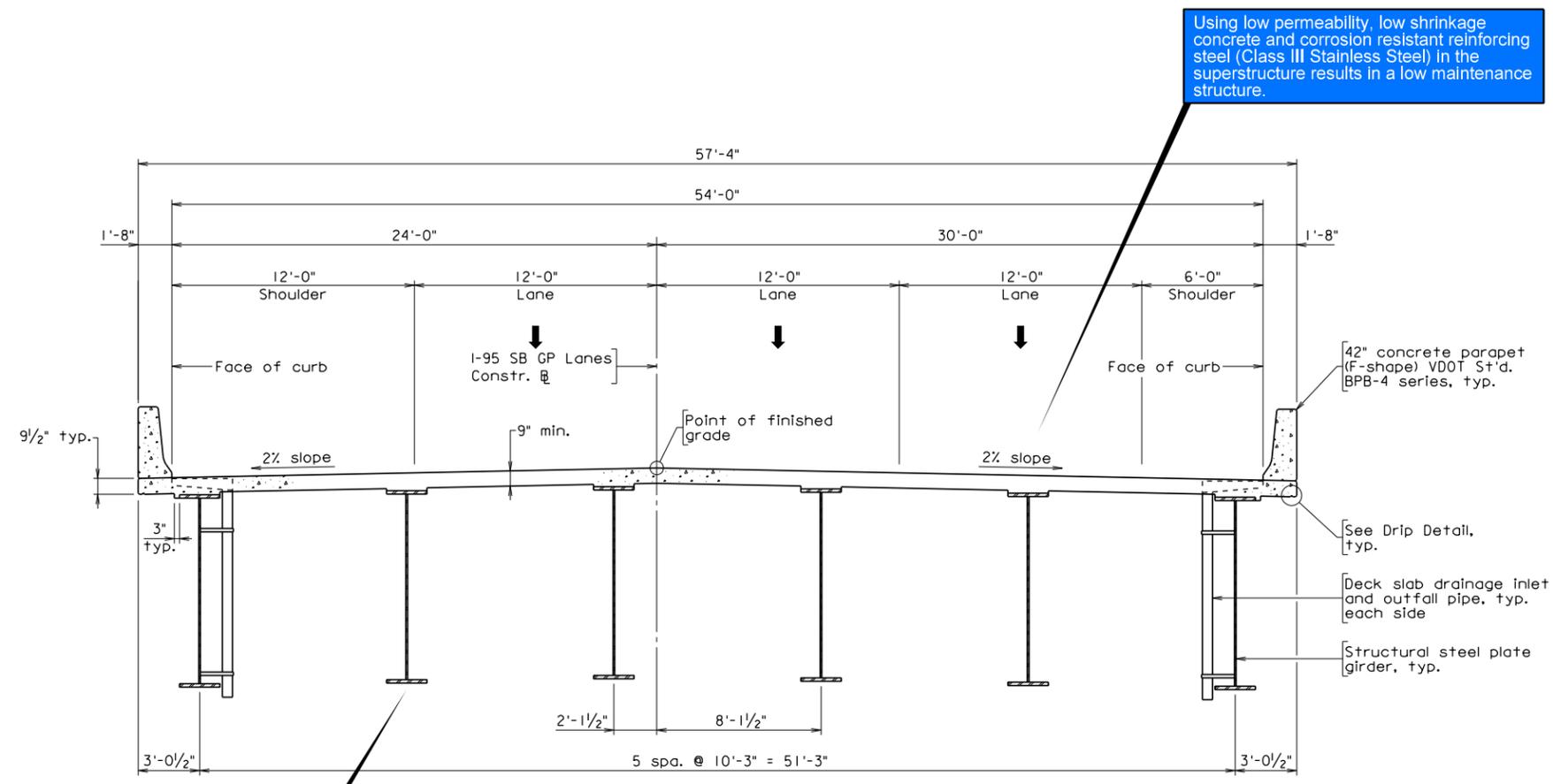
CONCEPTUAL STRUCTURAL PLANS

Scale: 1" = 60'



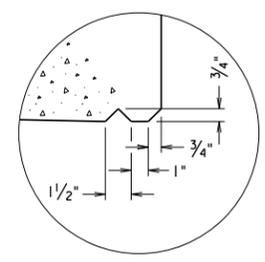
STATE PROJECT
 0095-111-259, PE-101, RW-201, C-501,
 B-604, B-606
 0095-089-741, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION
 I-95 SOUTHBOUND CD LANES -
 RAPPAHANNOCK RIVER CROSSING
 DESIGN BUILD PROJECT



Using continuous structural steel plate girders with weathering steel eliminates the need for paint and results in a low maintenance structure.

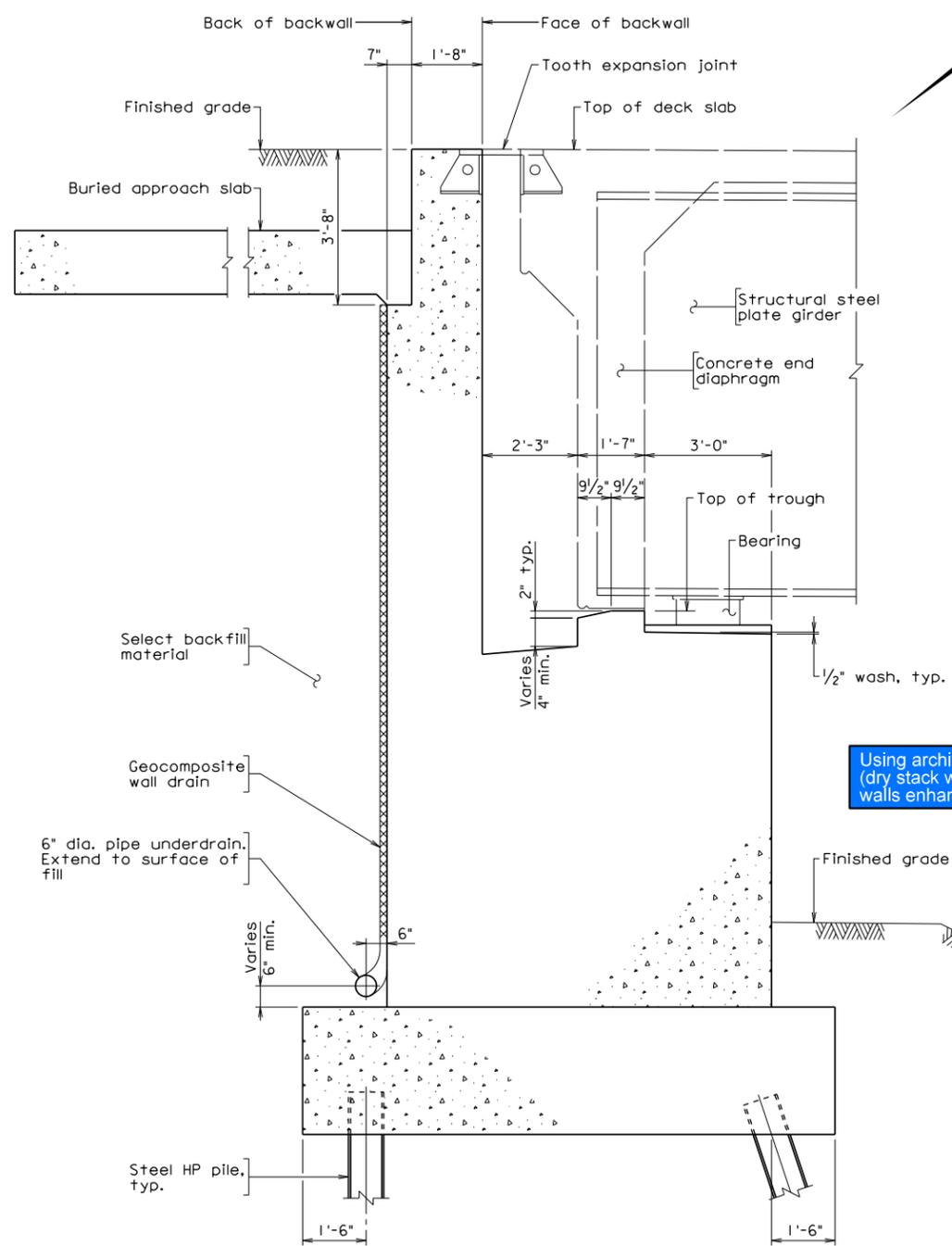
TRANSVERSE SECTION



DRIP DETAIL
Not to scale

CONCEPTUAL STRUCTURAL PLANS

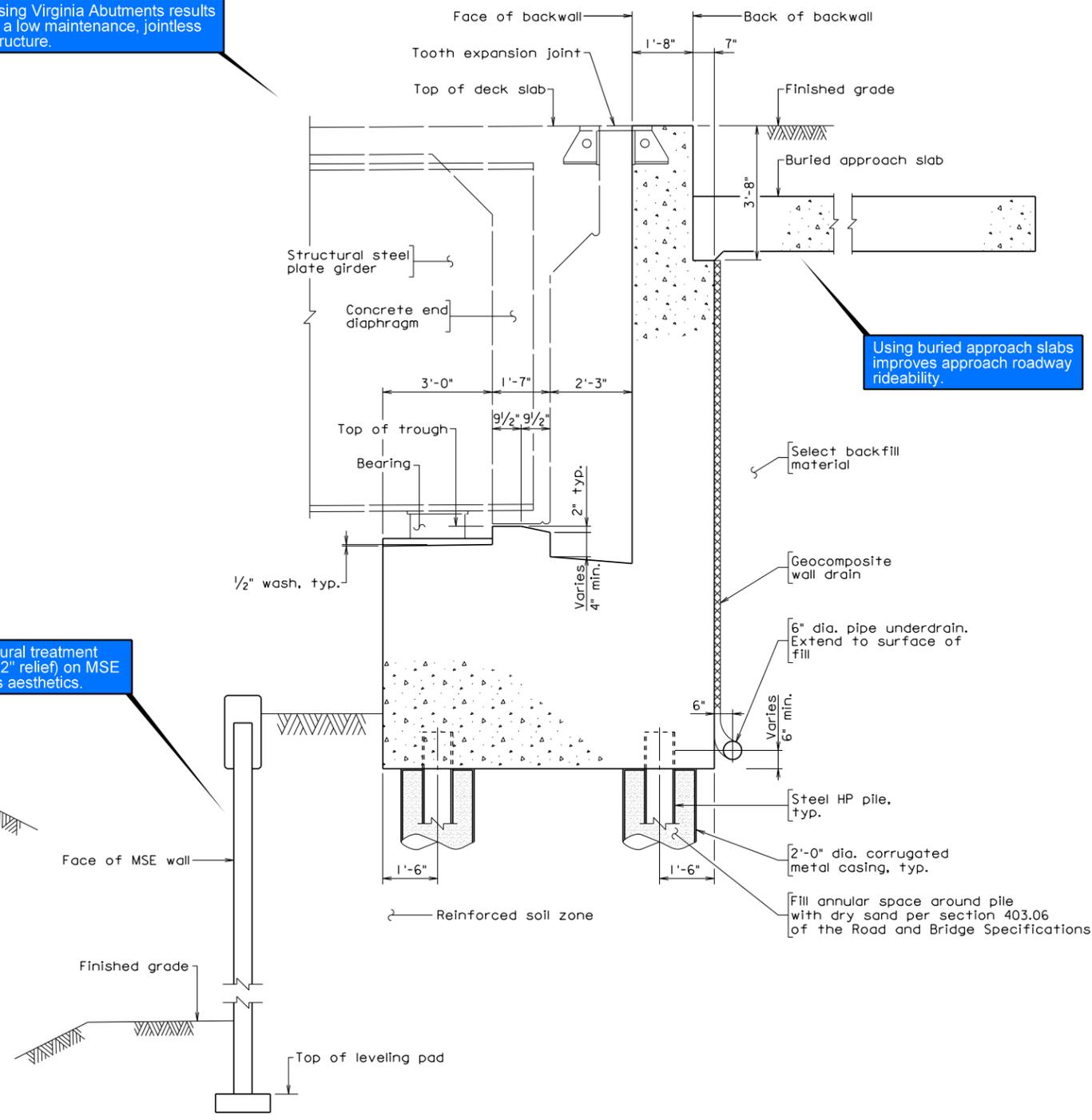
Scale: 1/4" = 1'-0" unless otherwise noted



SECTION THROUGH ABUTMENT A

Using Virginia Abutments results in a low maintenance, jointless structure.

Using architectural treatment (dry stack with 2" relief) on MSE walls enhances aesthetics.

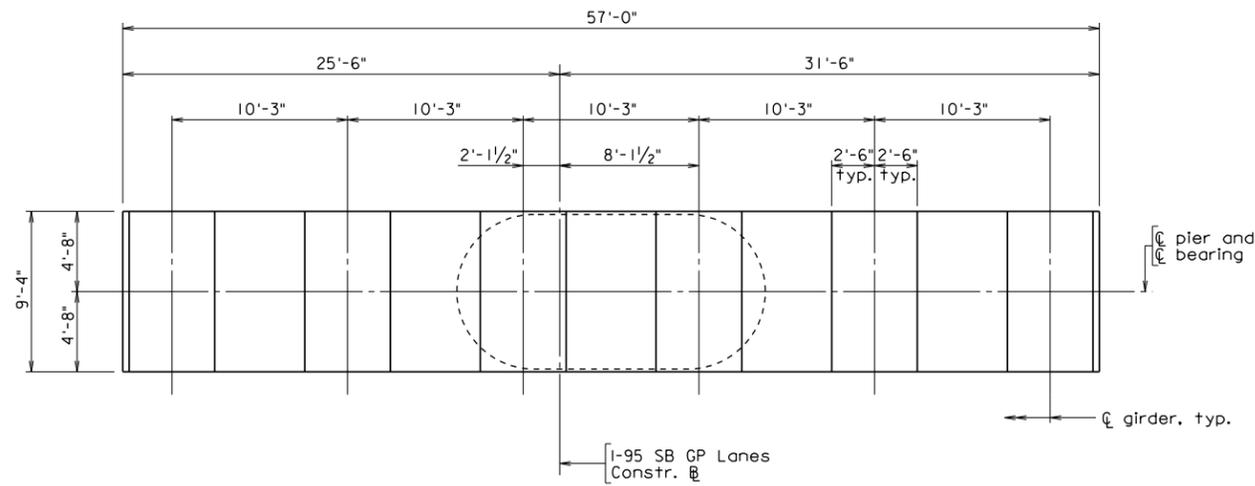


SECTION THROUGH ABUTMENT B

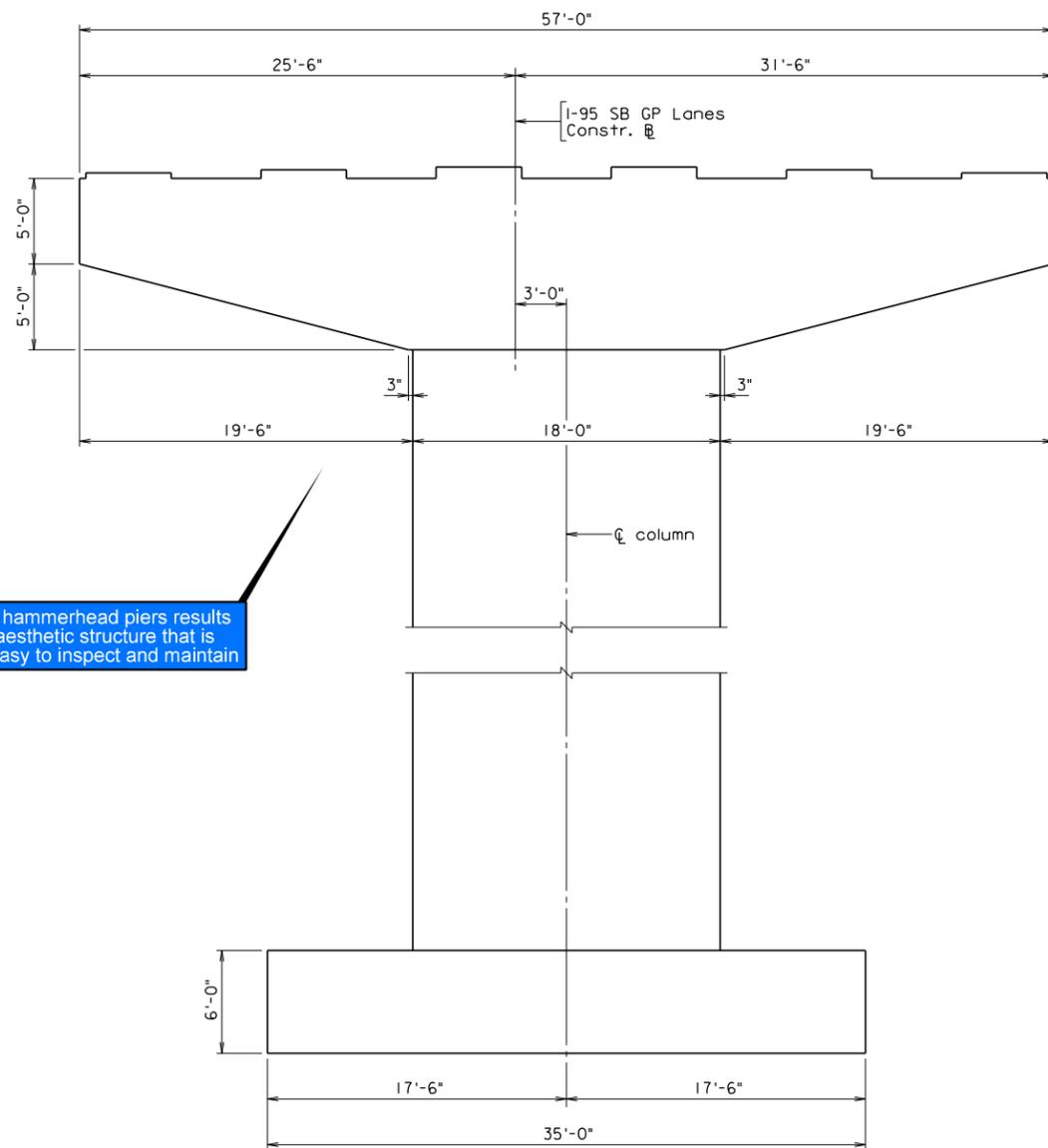
Using buried approach slabs improves approach roadway rideability.

CONCEPTUAL STRUCTURAL PLANS

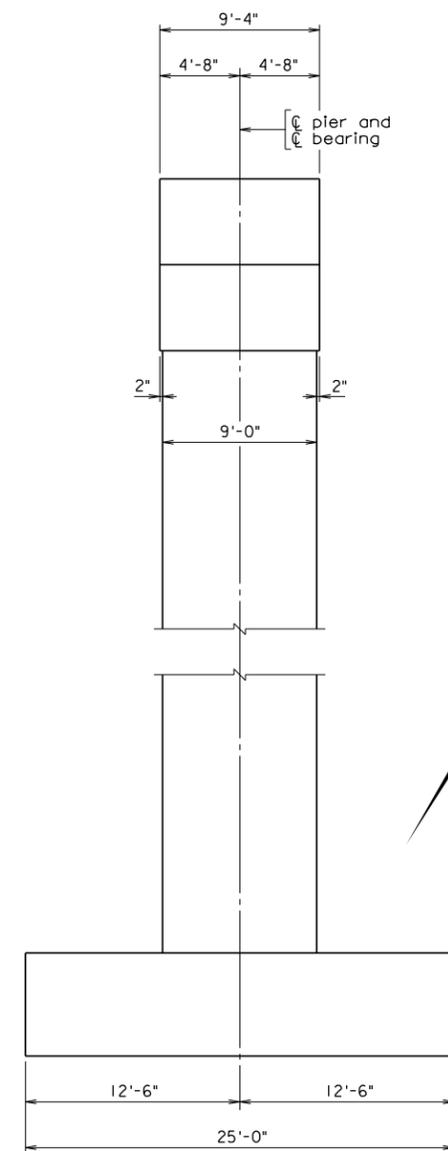
Scale: 1/2" = 1'-0"



PLAN OF CAP



ELEVATION



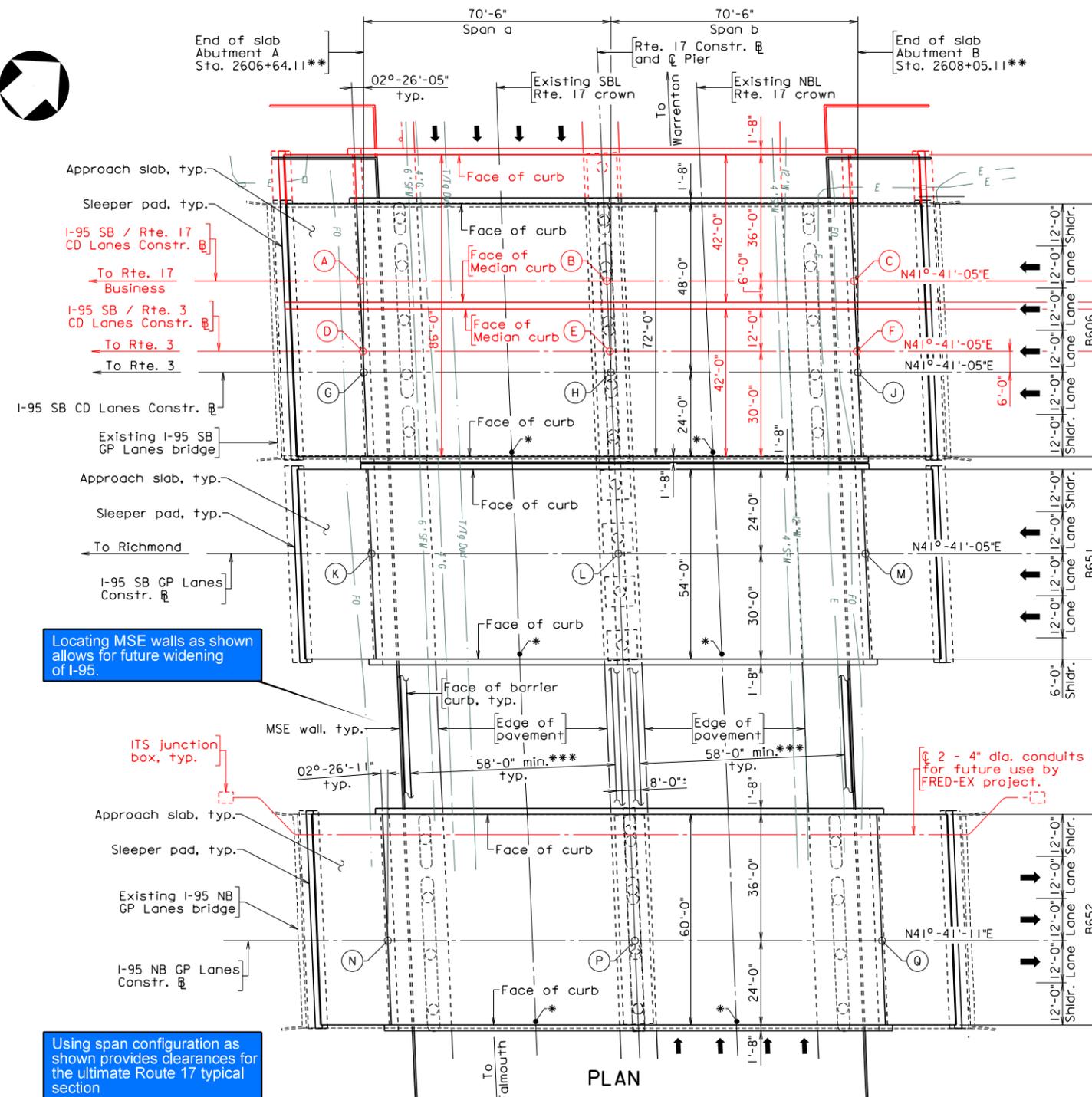
END VIEW

Using hammerhead piers results in an aesthetic structure that is also easy to inspect and maintain

Locating piers in line with existing piers and setting bottom of footing elevations similar to existing footing elevations minimizes risk related to unexpected geologic conditions.

CONCEPTUAL STRUCTURAL PLANS

Scale: 3/16" = 1'-0"



EXISTING UTILITIES LEGEND:

- ① Fiber optics line
- ② 6" dia. sanitary force main
- ③ 4" dia. gas line
- ④ Telephone line
- ⑤ 4" dia. sanitary force main
- ⑥ 12" dia. water line
- ⑦ Electric line
- ⑧ Fiber optics line

ELEVATIONS:

- | | |
|----------|----------|
| Ⓐ 247.14 | Ⓚ 247.43 |
| Ⓑ 247.13 | Ⓛ 247.41 |
| Ⓒ 246.96 | Ⓜ 247.24 |
| Ⓓ 247.54 | Ⓝ 248.69 |
| Ⓔ 247.36 | Ⓟ 248.64 |
| Ⓝ 247.43 | Ⓠ 248.44 |
| Ⓡ 247.41 | |
| Ⓣ 247.24 | |

DESIGN EXCEPTION(S):

Use of concrete median barrier BMB-3A where project data requires MASH-adjusted criteria TL-4/5. Approval by State Structure and Bridge Engineer is pending.

None.

GENERAL NOTES:

B606, Option 1:
Width: 42'-0" roadway, 2'-0" median barrier, 42'-0" roadway. Overall width 86'-0" face-to-face of curbs.

Span layout: 70'-6" - 70'-6" prestressed concrete 29" deep bulb-T beam spans continuous for live load.

Capacity: HL-93 loading.

B606:

Width: 72'-0" face-to-face of curbs.

Span layout: 70'-6" - 70'-6" prestressed concrete 29" deep bulb-T beam spans continuous for live load.

Capacity: HL-93 loading.

B651:

Width: 54'-0" face-to-face of curbs.

Span layout: 70'-6" - 70'-6" prestressed concrete 29" deep bulb-T beam spans continuous for live load.

Capacity: HL-93 loading.

B652:

Width: 60'-0" face-to-face of curbs.

Span layout: 70'-6" - 70'-6" prestressed concrete 29" deep bulb-T beam spans continuous for live load.

Capacity: HL-93 loading.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.

Design: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014; and VDOT Modifications.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

Bridge No. of existing bridge in SB GP Lanes is 2000, and existing bridge in NB GP Lanes is 2001. Plan No. are 156-05 and 258-51.

The existing structures are designated as Type B structures in accordance with Sec. 411.

Red text and line work denote elements of design to be implemented if bid Option 1 is exercised.

Point of minimum vertical clearance

* Stations are along I-95 SB CD Lanes Constr. \mathbb{B} .

** Horizontal clearance provided for the ultimate Route 17 typical section. Number of lanes, edges of pavements and bridge pier *** protection systems are shown in their ultimate Route 17 typical section location.

Using fully integral abutments and prestressed concrete bulb-T beams continuous for live load results in a low maintenance, jointless bridge.

Locating MSE walls as shown allows for future widening of I-95.

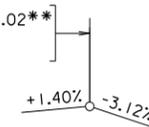
Using span configuration as shown provides clearances for the ultimate Route 17 typical section

Using architectural treatment (dry stack with 2" relief) on MSE walls enhances aesthetics.

TIE STATIONS AND DELTA ANGLES:

- Ⓑ POT 512+13.87 I-95 SB / Rte. 17 CD Lanes Constr. \mathbb{B} = POT 200+11.61 Rte. 17 Constr. \mathbb{B}
 $\Delta = 92^\circ-26'-05"$ LT
- Ⓔ POT 327+38.55 I-95 SB / Rte. 3 CD Lanes Constr. \mathbb{B} = POT 199+91.59 Rte. 17 Constr. \mathbb{B}
 $\Delta = 92^\circ-26'-05"$ LT
- Ⓡ POT 2607+34.61 I-95 SB CD Lanes Constr. \mathbb{B} = POT 199+85.59 Rte. 17 Constr. \mathbb{B}
 $\Delta = 92^\circ-26'-05"$ LT
- Ⓛ POT 3607+23.51 I-95 SB GP Lanes Constr. \mathbb{B} = POT 199+33.97 Rte. 17 Constr. \mathbb{B}
 $\Delta = 92^\circ-26'-05"$ LT
- Ⓟ POT 4616+72.73 I-95 NB GP Lanes Constr. \mathbb{B} = POT 198+23.63 Rte. 17 Constr. \mathbb{B}
 $\Delta = 92^\circ-26'-11"$ LT

C.G. sta. 2609+63.02**
C.G. elev. 254.30
V.C. = 1,420.00'



Note:

Bridge on I-95 SB CD Lanes Constr. \mathbb{B} shown. Other bridges are similar.



**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION**

**PROPOSED BRIDGES ON
I-95 SB CD LANES, SB GP LANES,
AND NB GP LANES OVER RTE. 17
(REPLACES BRIDGES ON I-95 SB GP LANES
AND NB GP LANES OVER RTE. 17)
STAFFORD CO. - 1.1 MI. S. OF RTE. 652
PROJ. 0095-111-259, B606
PROJ. 0095-089-741, B651
PROJ. 0095-089-741, B652**

CONCEPTUAL STRUCTURAL PLANS

Scale: 1" = 20'

DESIGN BUILDER



DESIGNED BY



STATE PROJECT

0095-111-259, PE-101, RW-201, C-501,
B-604, B-606
0095-089-741, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION

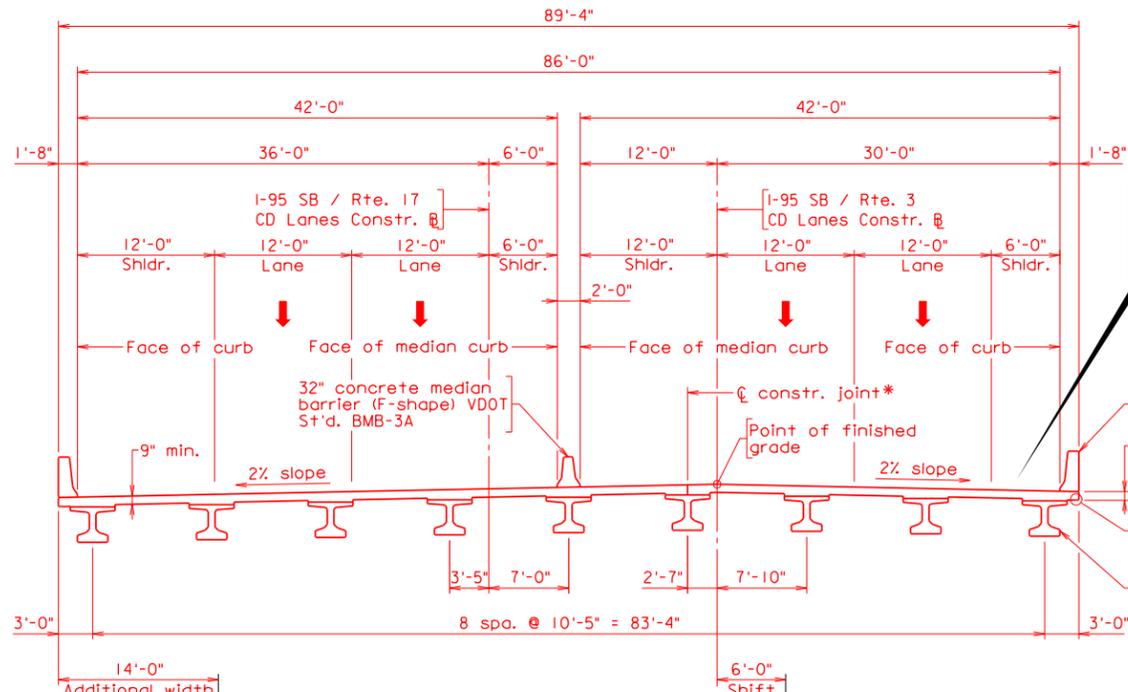
I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.

1 of 2

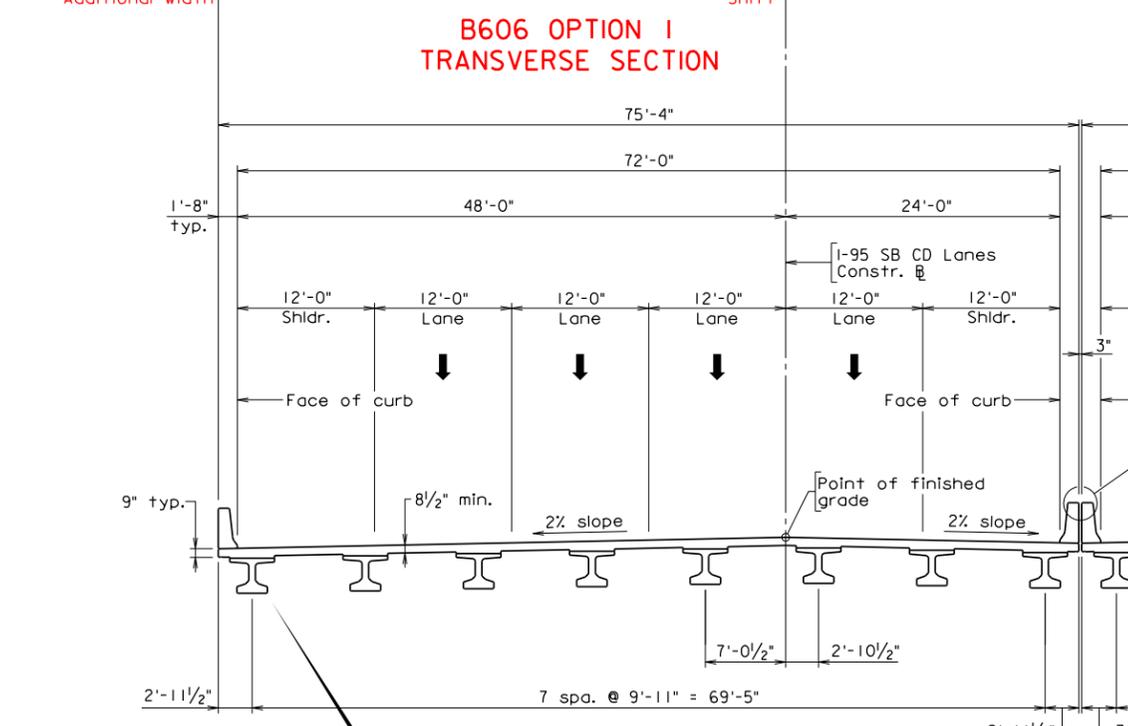
PAGE NO.

72

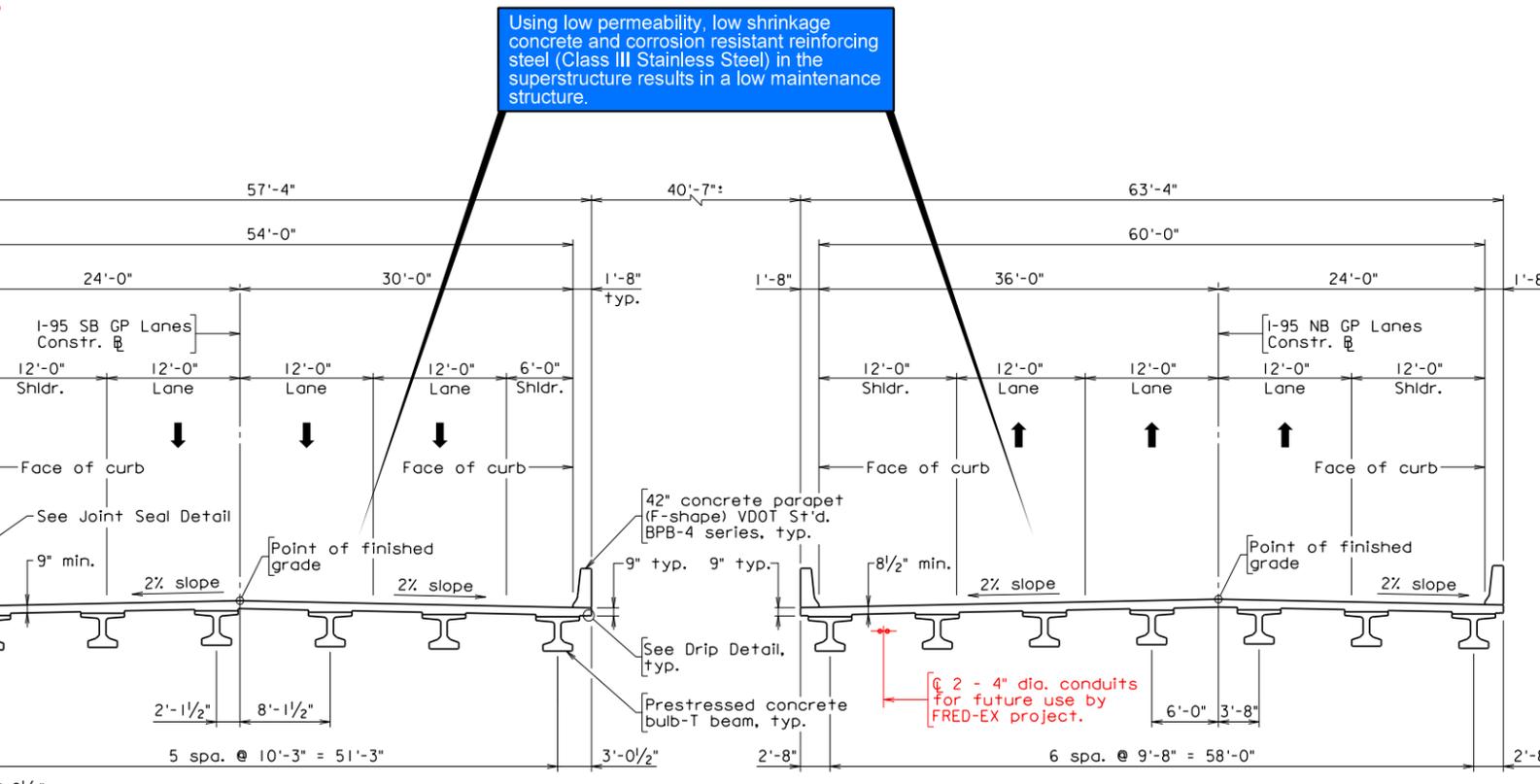


Using low permeability, low shrinkage concrete and corrosion resistant reinforcing steel (Class III Stainless Steel) in the superstructure results in a low maintenance structure.

Notes:
Red text and line work denote elements of design to be implemented if bid Option 1 is exercised.
* Denotes location of construction joint in the deck slab required so that the width of deck slab cast is less than 80'.



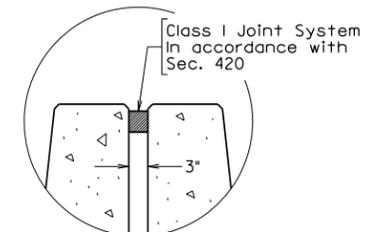
B606 OPTION 1 TRANSVERSE SECTION



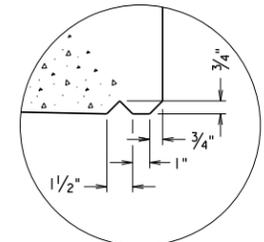
B651 TRANSVERSE SECTION

B652 TRANSVERSE SECTION

Using prestressed concrete bulb-T beams continuous for live load results in a low maintenance structure.



JOINT SEAL DETAIL
Not to scale



DRIP DETAIL
Not to scale

CONCEPTUAL STRUCTURAL PLANS

Scale: 1/8" = 1'-0" unless otherwise noted



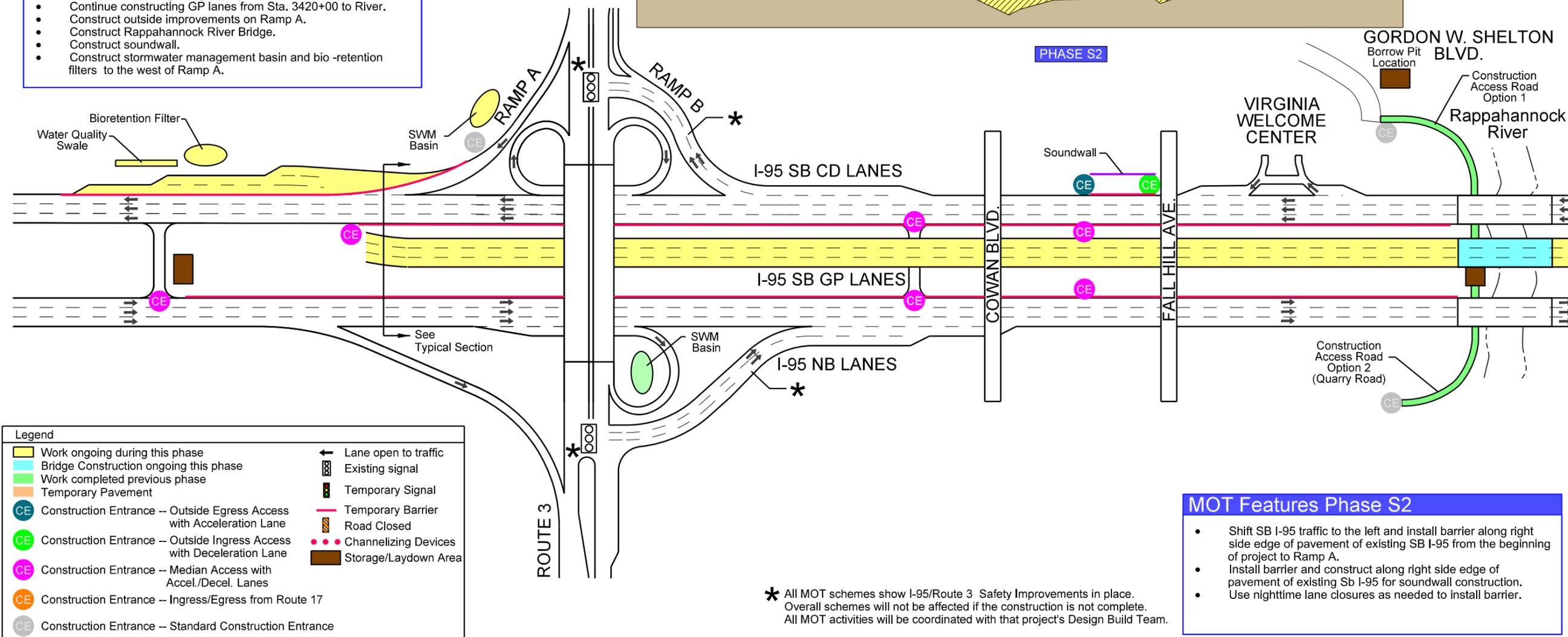
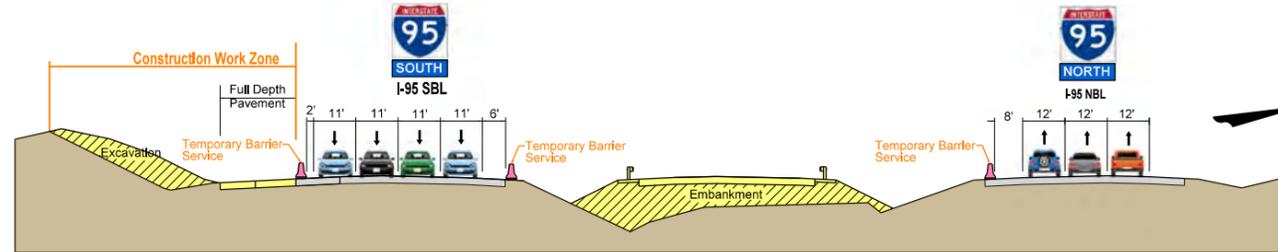
4.5.1 Sequence of Construction and MOT Phasing

**GEOGRAPHICAL AREA 1
SOUTH OF RAPPAHANNOCK RIVER:
SEQUENCE OF CONSTRUCTION AND MOT PHASING**

PHASE S2

Key Construction Activities Phase S2

- Construct left side shoulder improvements along existing SB I-95 in areas where traffic will be shifted.
- Construct outside future SB I-95 CD acceleration lane widening from Route 3 to beginning of project.
- Continue constructing GP lanes from Sta. 3420+00 to River.
- Construct outside improvements on Ramp A.
- Construct Rappahannock River Bridge.
- Construct soundwall.
- Construct stormwater management basin and bio-retention filters to the west of Ramp A.



Legend

Work ongoing during this phase	Lane open to traffic
Bridge Construction ongoing this phase	Existing signal
Work completed previous phase	Temporary Signal
Temporary Pavement	Temporary Barrier
Construction Entrance -- Outside Egress Access with Acceleration Lane	Road Closed
Construction Entrance -- Outside Ingress Access with Deceleration Lane	Channelizing Devices
Construction Entrance -- Median Access with Accel./Decel. Lanes	Storage/Laydown Area
Construction Entrance -- Ingress/Egress from Route 17	
Construction Entrance -- Standard Construction Entrance	

MOT Features Phase S2

- Shift SB I-95 traffic to the left and install barrier along right side edge of pavement of existing SB I-95 from the beginning of project to Ramp A.
- Install barrier and construct along right side edge of pavement of existing SB I-95 for soundwall construction.
- Use nighttime lane closures as needed to install barrier.

* All MOT schemes show I-95/Route 3 Safety Improvements in place. Overall schemes will not be affected if the construction is not complete. All MOT activities will be coordinated with that project's Design Build Team.

Schedule

	2018												2019												2020												2021												2022																							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D												
Schedule Milestones ¹	NTP																																				IM												FC																							
Design/ROW/Permits	Early Packages												RFC Plans																																																											
I-95 South of River													Phase S1												Phase S2												Phase S3												Phase S4																							
Rappahannock River Bridge	Access												Causeway / Bridge Construction																																																											
I-95 North of River													Phase N1												Phase N2												Phase N3												Phase N4												Phase N5											

1. Notice to Proceed (NTP) - 2/21/2018, Interim Milestone (IM) - 9/15/2021, Final Completion (FC) - 5/26/2022

Note: Official project schedule is shown in Section 4.7 and shows all construction activities durations. The schedule and key construction activities shown here is simplified for purposes of highlighting key construction activities occurring during major traffic shifts and the approximate duration of these major traffic shifts. Some activities will continue into the next MOT phase. Any discrepancies with the official project schedule are unintentional and the official project schedule supersedes durations shown here.



STATE PROJECT
0095-III-259, PE-101, RW-201, C-501, B-604, B-606
0095-089-74I, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
3 of 12

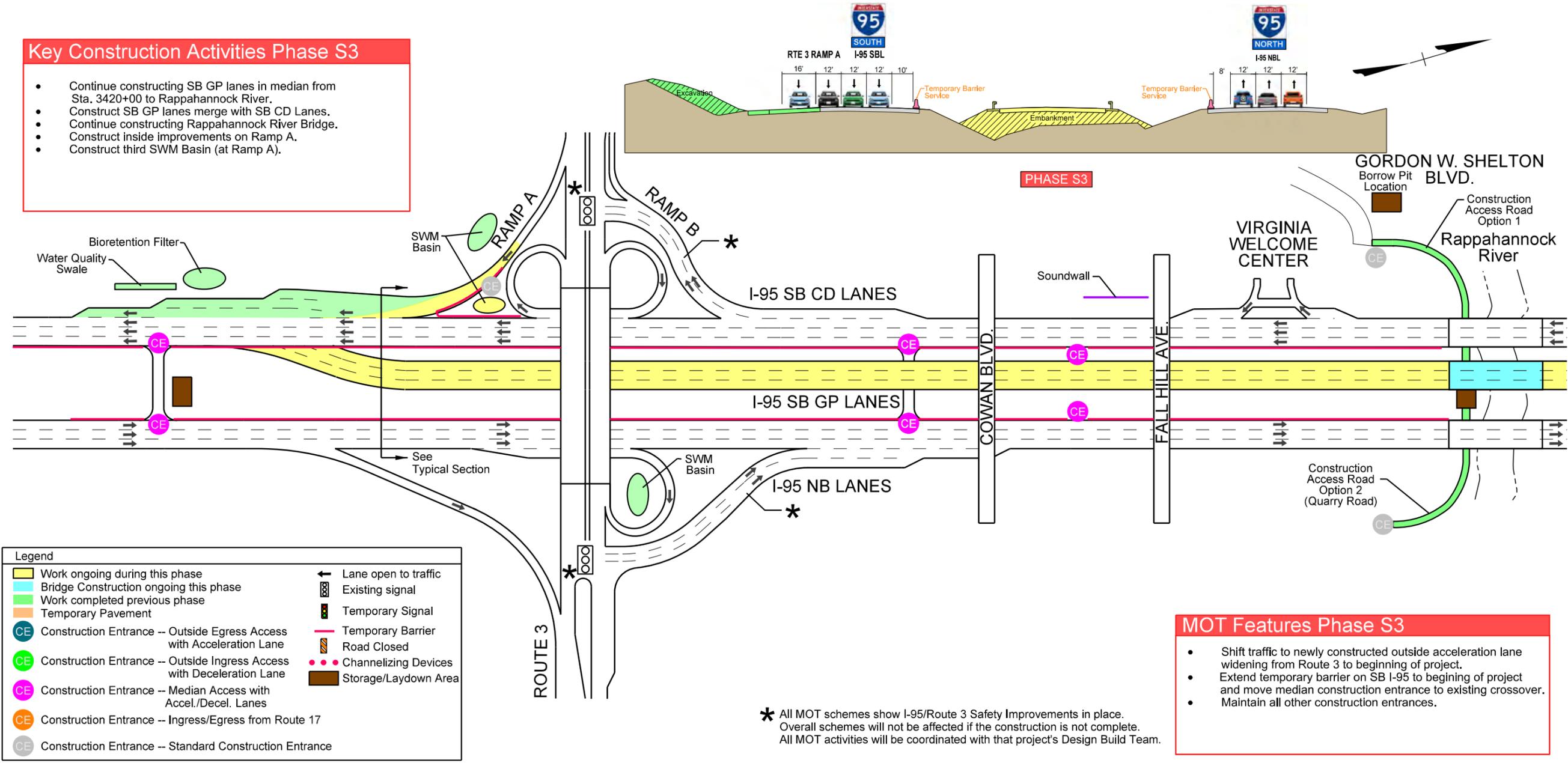
PAGE NO.
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**GEOGRAPHICAL AREA 1
SOUTH OF RAPPAHANNOCK RIVER:
SEQUENCE OF CONSTRUCTION AND MOT PHASING**

PHASE S3

Key Construction Activities Phase S3

- Continue constructing SB GP lanes in median from Sta. 3420+00 to Rappahannock River.
- Construct SB GP lanes merge with SB CD Lanes.
- Continue constructing Rappahannock River Bridge.
- Construct inside improvements on Ramp A.
- Construct third SWM Basin (at Ramp A).



Legend

Work ongoing during this phase	Lane open to traffic
Bridge Construction ongoing this phase	Existing signal
Work completed previous phase	Temporary Signal
Temporary Pavement	Temporary Barrier
Construction Entrance -- Outside Egress Access with Acceleration Lane	Road Closed
Construction Entrance -- Outside Ingress Access with Deceleration Lane	Channelizing Devices
Construction Entrance -- Median Access with Accel./Decel. Lanes	Storage/Laydown Area
Construction Entrance -- Ingress/Egress from Route 17	
Construction Entrance -- Standard Construction Entrance	

MOT Features Phase S3

- Shift traffic to newly constructed outside acceleration lane widening from Route 3 to beginning of project.
- Extend temporary barrier on SB I-95 to beginning of project and move median construction entrance to existing crossover.
- Maintain all other construction entrances.

* All MOT schemes show I-95/Route 3 Safety Improvements in place. Overall schemes will not be affected if the construction is not complete. All MOT activities will be coordinated with that project's Design Build Team.

Schedule

	2018												2019												2020												2021												2022																							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D												
Schedule Milestones ¹	NTP																																																IM												FC											
Design/ROW/Permits	Early Packages												RFC Plans																																																											
I-95 South of River													Phase S1												Phase S2												Phase S3												Phase S4																							
Rappahannock River Bridge	Access												Causeway / Bridge Construction																																																											
I-95 North of River													Phase N1												Phase N2												Phase N3												Phase N4												Phase N5											

1. Notice to Proceed (NTP) - 2/21/2018, Interim Milestone (IM) - 9/15/2021, Final Completion (FC) - 5/26/2022

Note: Official project schedule is shown in Section 4.7 and shows all construction activities durations. The schedule and key construction activities shown here is simplified for purposes of highlighting key construction activities occurring during major traffic shifts and the approximate duration of these major traffic shifts. Some activities will continue into the next MOT phase. Any discrepancies with the official project schedule are unintentional and the official project schedule supersedes durations shown here.

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMWT

STATE PROJECT
0095-III-259, PE-101, RW-201, C-501, B-604, B-606
0095-089-74I, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
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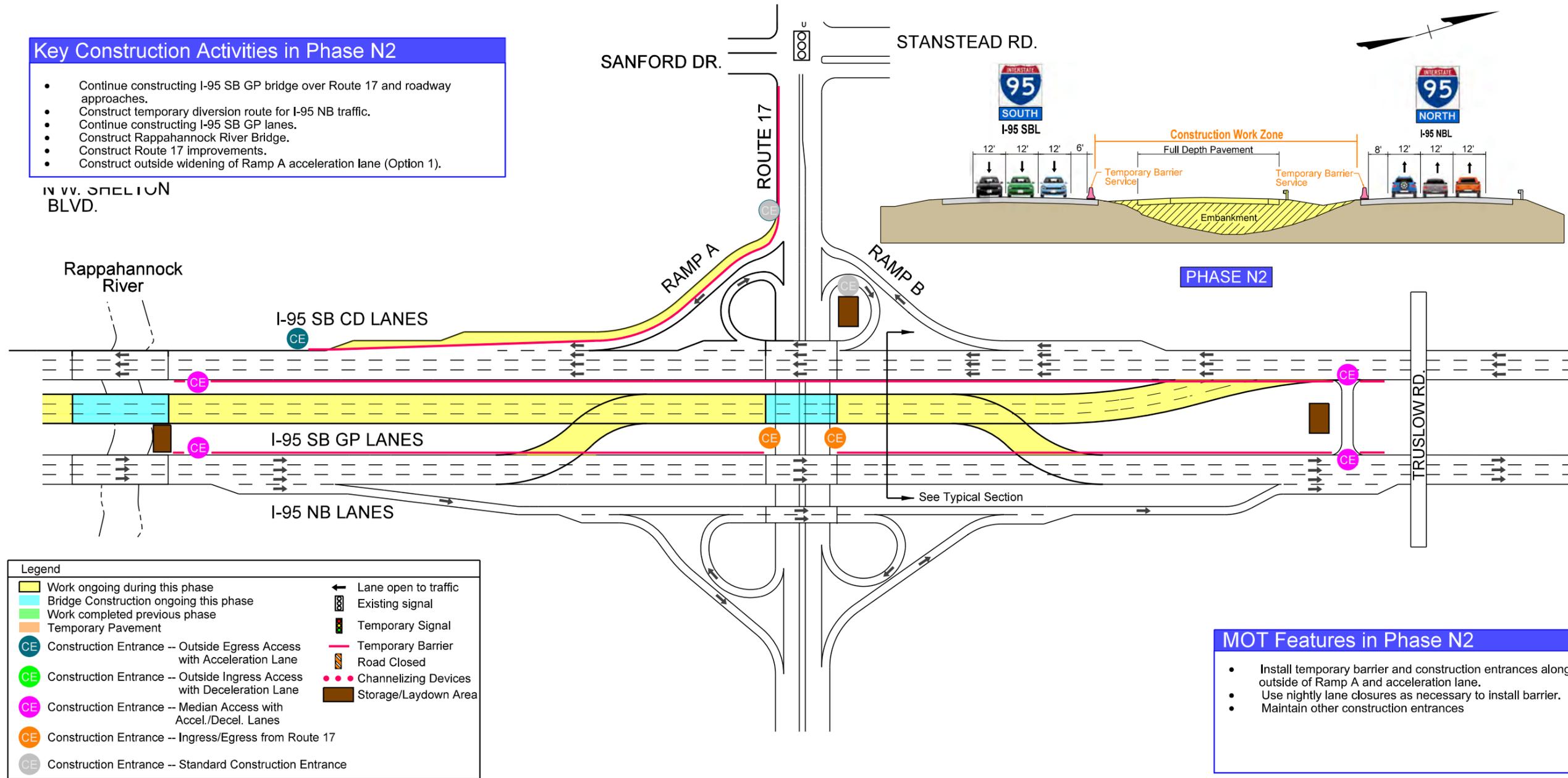
GEOGRAPHICAL AREA 3
NORTH OF RAPPAHANNOCK:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

PHASE N2

Key Construction Activities in Phase N2

- Continue constructing I-95 SB GP bridge over Route 17 and roadway approaches.
- Construct temporary diversion route for I-95 NB traffic.
- Continue constructing I-95 SB GP lanes.
- Construct Rappahannock River Bridge.
- Construct Route 17 improvements.
- Construct outside widening of Ramp A acceleration lane (Option 1).

IN W. SPELTON BLVD.



Legend	
 Work ongoing during this phase	Lane open to traffic
 Bridge Construction ongoing this phase	Existing signal
 Work completed previous phase	Temporary Signal
 Temporary Pavement	Temporary Barrier
CE Construction Entrance -- Outside Egress Access with Acceleration Lane	Road Closed
CE Construction Entrance -- Outside Ingress Access with Deceleration Lane	Channelizing Devices
CE Construction Entrance -- Median Access with Accel./Decel. Lanes	Storage/Laydown Area
CE Construction Entrance -- Ingress/Egress from Route 17	
CE Construction Entrance -- Standard Construction Entrance	

MOT Features in Phase N2

- Install temporary barrier and construction entrances along outside of Ramp A and acceleration lane.
- Use nightly lane closures as necessary to install barrier.
- Maintain other construction entrances

Schedule

	2018												2019												2020												2021												2022											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Schedule Milestones ¹																																																												
Design/ROW/Permits																																																												
I-95 South of River																																																												
Rappahannock River Bridge																																																												
I-95 North of River																																																												

1. Notice to Proceed (NTP) - 2/21/2018, Interim Milestone (IM) - 9/15/2021, Final Completion (FC) - 5/26/2022

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DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMWT

STATE PROJECT
0095-III-259, PE-101, RW-201, C-501,
B-604, B-606
0095-089-741, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
7 of 12

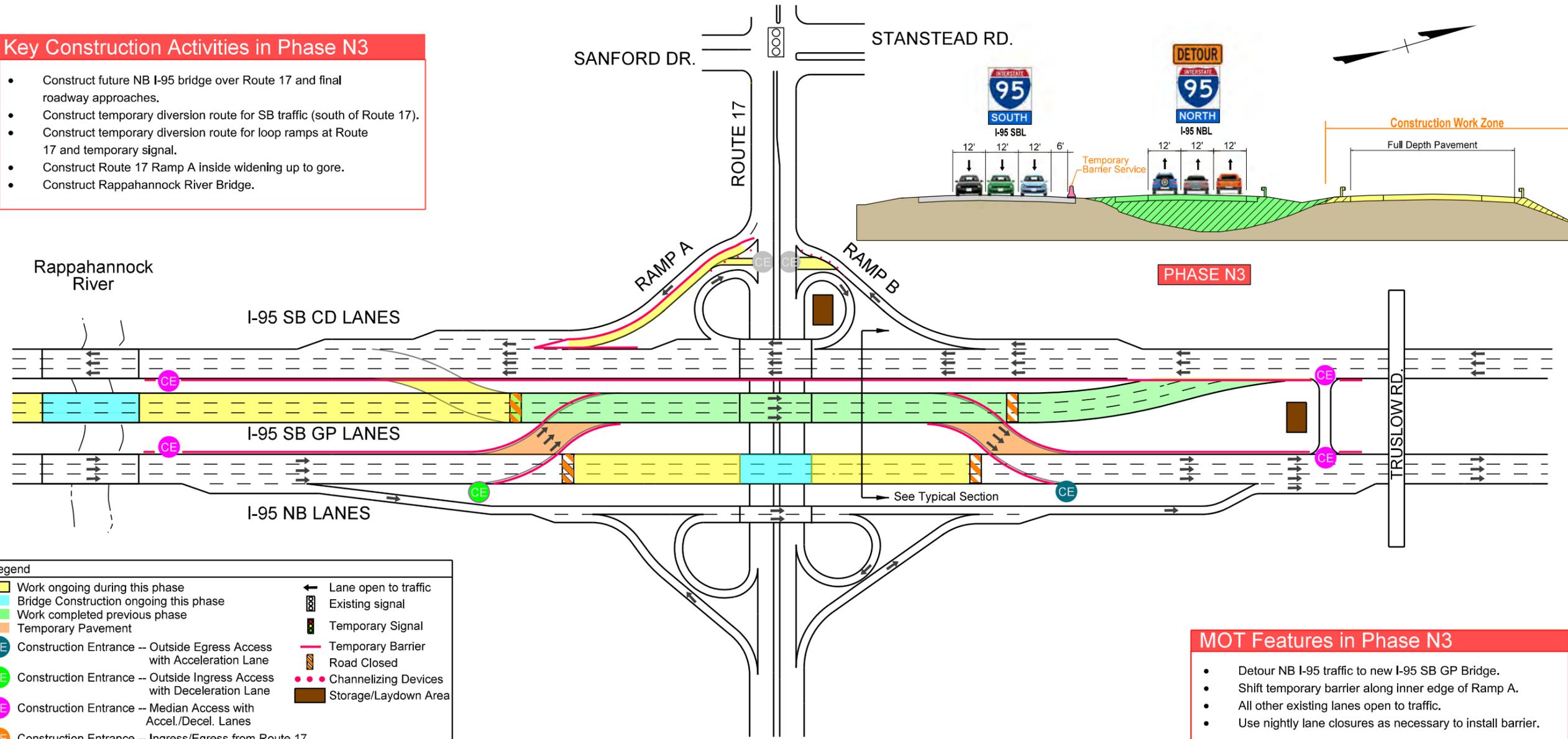
PAGE NO.
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**GEOGRAPHICAL AREA 3
NORTH OF RAPPAHANNOCK:
SEQUENCE OF CONSTRUCTION AND MOT PHASING**

PHASE N3

Key Construction Activities in Phase N3

- Construct future NB I-95 bridge over Route 17 and final roadway approaches.
- Construct temporary diversion route for SB traffic (south of Route 17).
- Construct temporary diversion route for loop ramps at Route 17 and temporary signal.
- Construct Route 17 Ramp A inside widening up to gore.
- Construct Rappahannock River Bridge.



Legend

Work ongoing during this phase	Lane open to traffic
Bridge Construction ongoing this phase	Existing signal
Work completed previous phase	Temporary Signal
Temporary Pavement	Temporary Barrier
Construction Entrance -- Outside Egress Access with Acceleration Lane	Road Closed
Construction Entrance -- Outside Ingress Access with Deceleration Lane	Channelizing Devices
Construction Entrance -- Median Access with Accel./Decel. Lanes	Storage/Laydown Area
Construction Entrance -- Ingress/Egress from Route 17	
Construction Entrance -- Standard Construction Entrance	

MOT Features in Phase N3

- Detour NB I-95 traffic to new I-95 SB GP Bridge.
- Shift temporary barrier along inner edge of Ramp A.
- All other existing lanes open to traffic.
- Use nightly lane closures as necessary to install barrier.

Schedule

	2018												2019												2020												2021												2022																							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D												
Schedule Milestones ¹	NTP																																				IM												FC																							
Design/ROW/Permits	Early Packages												RFC Plans																																																											
I-95 South of River													Phase S1												Phase S2												Phase S3												Phase S4																							
Rappahannock River Bridge	Access												Causeway / Bridge Construction																																																											
I-95 North of River													Phase N1												Phase N2												Phase N3												Phase N4												Phase N5											

1. Notice to Proceed (NTP) - 2/21/2018, Interim Milestone (IM) - 9/15/2021, Final Completion (FC) - 5/26/2022
 Note: Official project schedule is shown in Section 4.7 and shows all construction activities durations. The schedule and key construction activities shown here is simplified for purposes of highlighting key construction activities occurring during major traffic shifts and the approximate duration of these major traffic shifts. Some activities will continue into the next MOT phase. Any discrepancies with the official project schedule are unintentional and the official project schedule supersedes durations shown here.

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMWT

STATE PROJECT
0095-III-259, PE-101, RW-201, C-501, B-604, B-606
0095-089-74I, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
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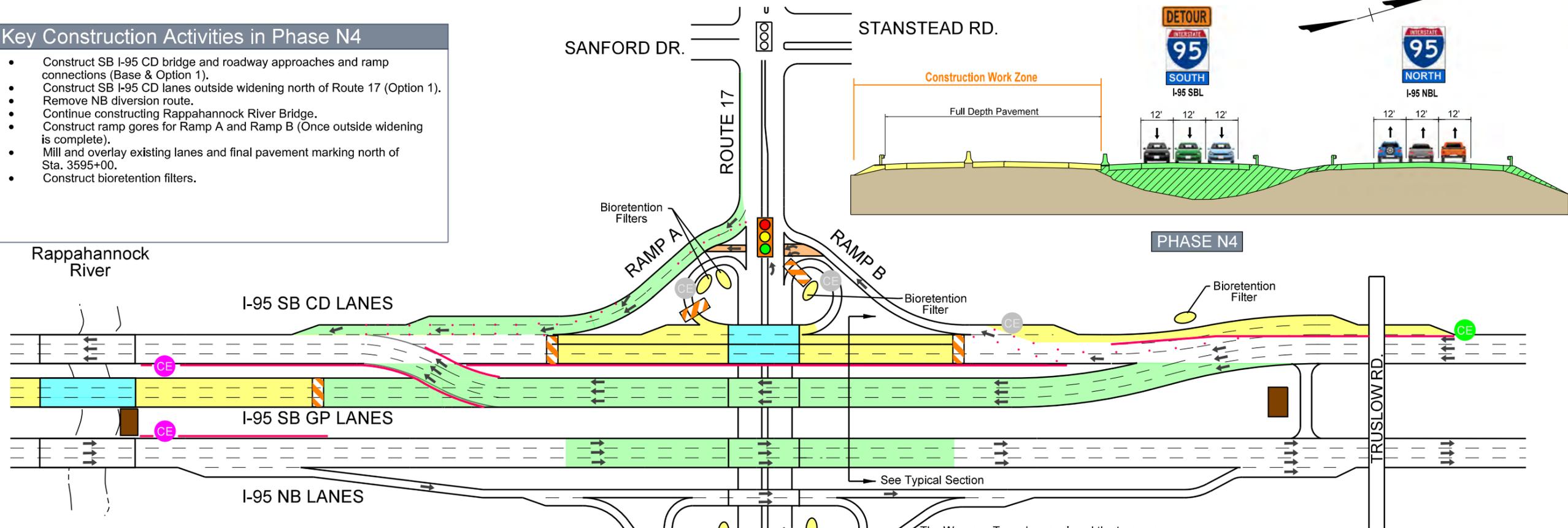
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GEOGRAPHICAL AREA 3
NORTH OF RAPPAHANNOCK:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

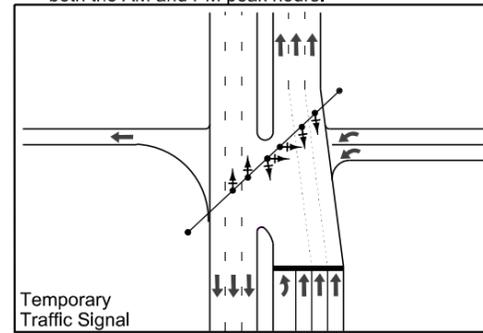
PHASE N4

Key Construction Activities in Phase N4

- Construct SB I-95 CD bridge and roadway approaches and ramp connections (Base & Option 1).
- Construct SB I-95 CD lanes outside widening north of Route 17 (Option 1).
- Remove NB diversion route.
- Continue constructing Rappahannock River Bridge.
- Construct ramp gores for Ramp A and Ramp B (Once outside widening is complete).
- Mill and overlay existing lanes and final pavement marking north of Sta. 3595+00.
- Construct bioretention filters.



The Wagman Team has analyzed the temporary signal operations for year 2020 traffic volumes and found the temporary signal to operate at LOS C in both the AM and PM peak hours.



MOT Features in Phase N4

- Switch NB I-95 traffic back to reconstructed NB Bridge.
- Detour SB I-95 traffic to new I-95 SB GP Bridge.
- Close Route 17 SB loop ramps and detour traffic through temporary signal.
- Shift Ramp B traffic towards the median of SB I-95 and then back to the ramp, use a temporary barrier as necessary to protect work zone.
- Merge Ramp A ramp traffic into a single lane and then merge with detoured SB I-95 traffic after it returns to existing lanes.
- Once outside widening is complete, shift Ramp B traffic to the outside on new pavement.
- Use nightly lane closures as necessary.

Legend

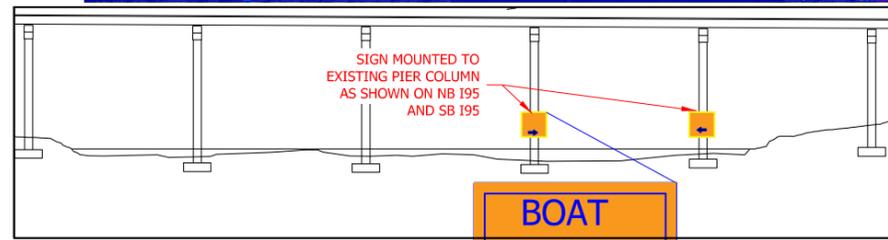
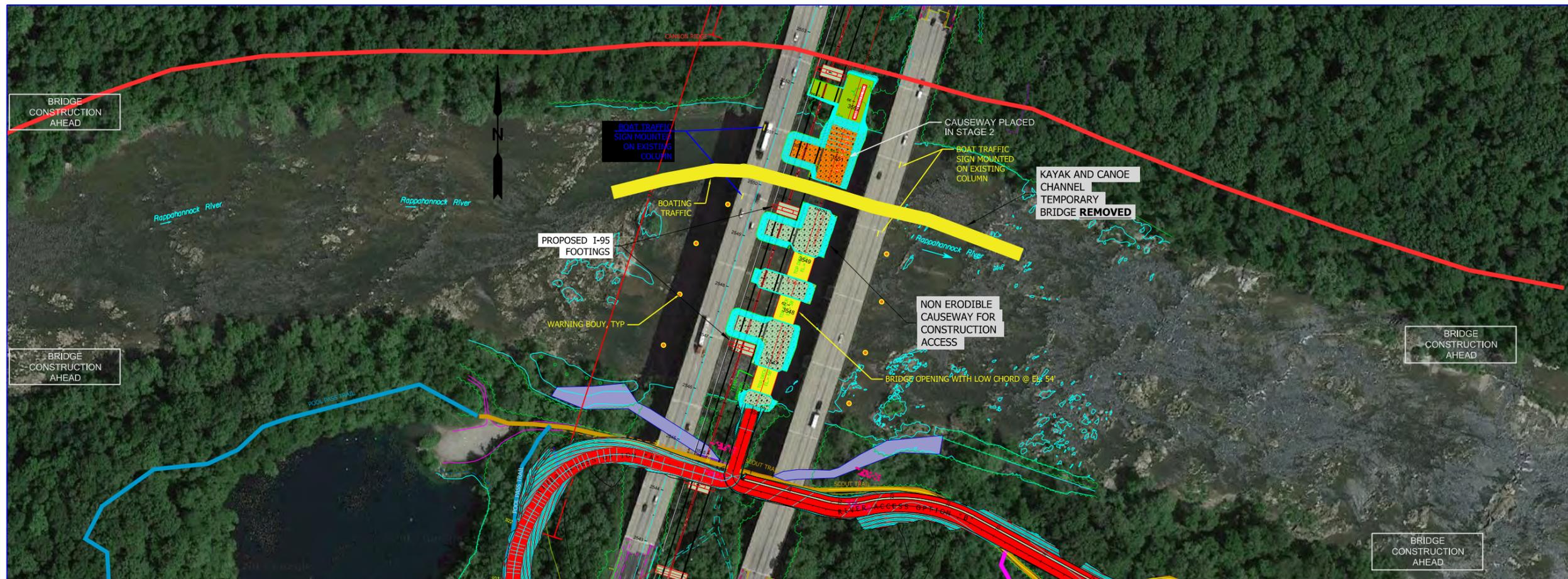
Work ongoing during this phase	Lane open to traffic
Bridge Construction ongoing this phase	Existing signal
Work completed previous phase	Temporary Signal
Temporary Pavement	Temporary Barrier
Construction Entrance -- Outside Egress Access with Acceleration Lane	Road Closed
Construction Entrance -- Outside Ingress Access with Deceleration Lane	Channelizing Devices
Construction Entrance -- Median Access with Accel./Decel. Lanes	Storage/Laydown Area
Construction Entrance -- Ingress/Egress from Route 17	
Construction Entrance -- Standard Construction Entrance	

Schedule

	2018												2019												2020												2021												2022														
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D			
Schedule Milestones ¹																																																															
Design/ROW/Permits																																																															
I-95 South of River																																																															
Rappahannock River Bridge																																																															
I-95 North of River																																																															

1. Notice to Proceed (NTP) - 2/21/2018, Interim Milestone (IM) - 9/15/2021, Final Completion (FC) - 5/26/2022

Note: Official project schedule is shown in Section 4.7 and shows all construction activities durations. The schedule and key construction activities shown here is simplified for purposes of highlighting key construction activities occurring during major traffic shifts and the approximate duration of these major traffic shifts. Some activities will continue into the next MOT phase. Any discrepancies with the official project schedule are unintentional and the official project schedule supersedes durations shown here.



STRUCTURE MOUNTED BOAT TRAFFIC SIGNAGE
NTS



MOUNT SIGN TO TEMPORARY SKID BASE USE SAND BAGS AS REQ'D (DO NOT DRIVE POSTS OR EXCAVATE FOR POST FOUNDATIONS)

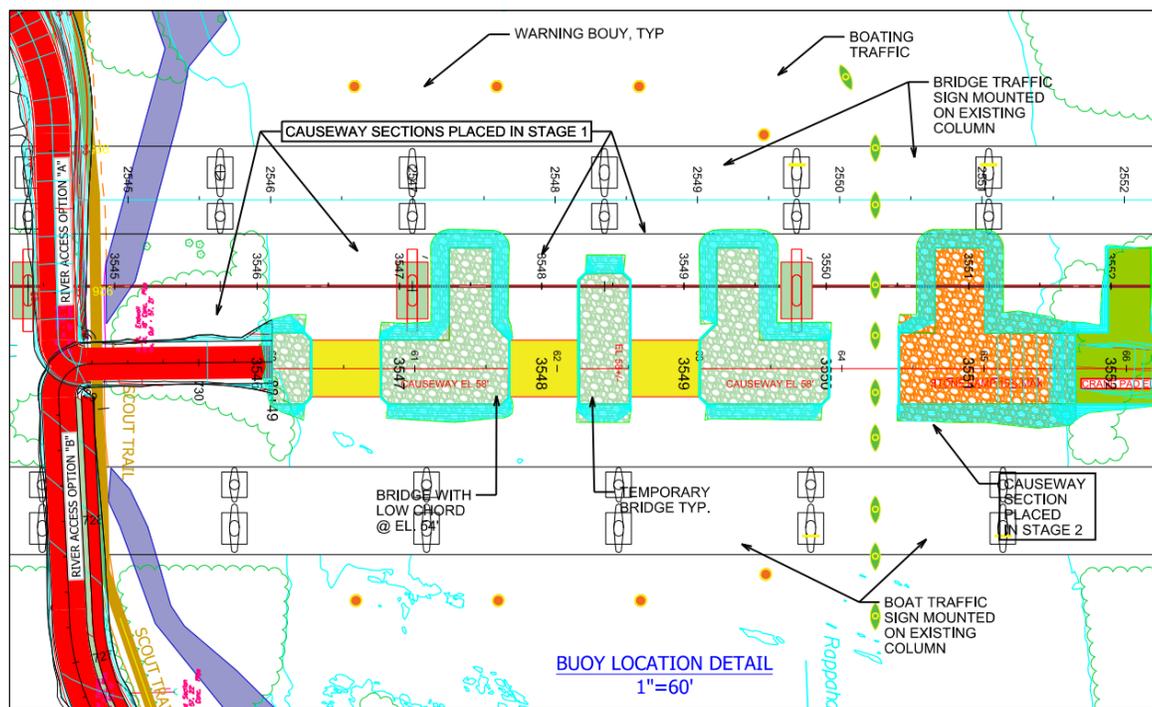
TEMPORARY SIGN AT LAUNCH SITES
NTS



ATTACH BUOY TO CONCRETE FILLED BUCKET OR MUSHROOM STYLE ANCHOR

BUOY DETAIL "BOATS KEEP OUT"
NTS

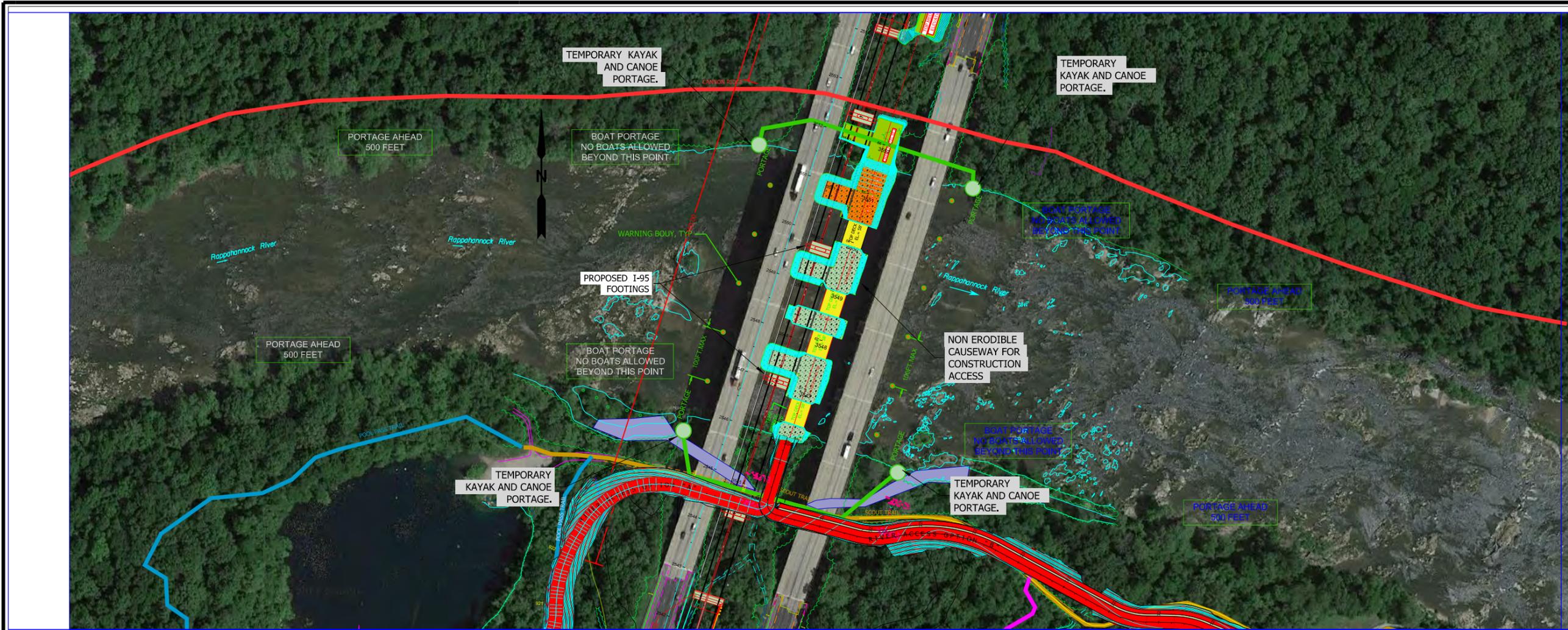
RAPPAHANNOCK RIVER BRIDGE CAUSEWAY CONSTRUCTION



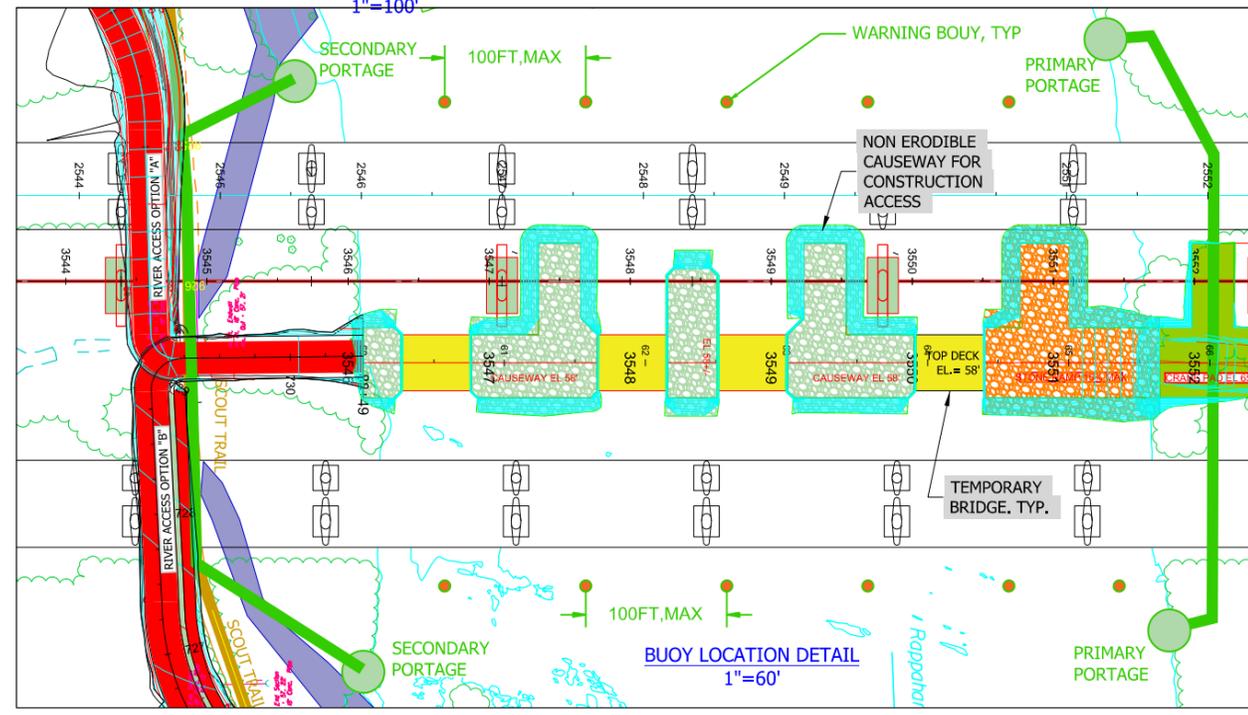
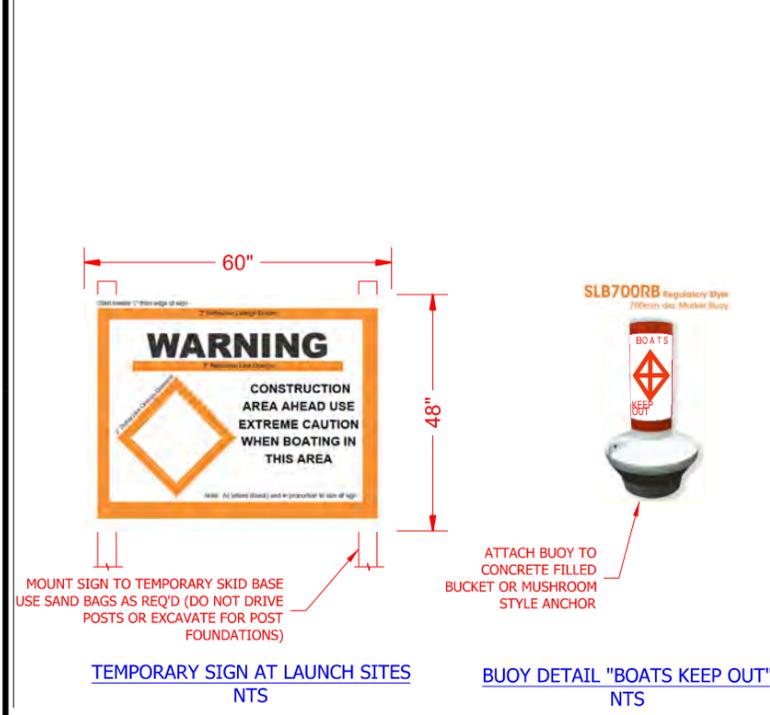
BUOY LOCATION DETAIL
1"=60'

GENERAL NOTES

1. INSPECT BUOYS AND SIGNS DAILY. REPAIR / REPLACE AS NECESSARY.
2. INSTALL BOATER WARNING SIGN AT BOAT LAUNCH IN ADVANCE OF PLACING ANY NAVIGATION AIDS.



PLAN VIEW
1" = 100'



BUOY LOCATION DETAIL
1" = 60'

- GENERAL NOTES**
1. INSPECT BUOYS AND SIGNS DAILY. REPAIR / REPLACE AS NECESSARY.
 2. INSTALL BOATER WARNING SIGN AT BOAT LAUNCH IN ADVANCE OF PLACING ANY NAVIGATION AIDS.
- STAGE 2 CAUSEWAY TEMP CLOSURE**

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT

STATE PROJECT
0095-III-259, PE-101, RW-201, C-501,
B-604, B-606
0095-089-741, PE-101, C-501, B-651, B-652

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 SOUTHBOUND CD LANES -
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
12 of 12

PAGE NO.
85



4.7.1 Proposal Schedule

I-95 Southbound CD Lanes - Rappahannock River Crossing Technical Proposal		Classic Schedule Layout				13-Nov-17 17:53																	
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2018			2019			2020			2021			2022					
						N	D	J	F	A	M	J	J	A	S	O	N	D	J	F	A	M	J
I-95 Southbound CD Lanes - Rappahannock River Crossing Technical Proposal						1149	28-Dec-17	26-May-22	0	26-May-22, 1													
Project Milestones						1611	28-Dec-17	26-May-22	0	26-May-22, F													
G1070	Notice of Intent to Award	0	28-Dec-17		1	◆ Notice of Intent to Award																	
G1000	CTB Approval / Notice of Award	0	09-Jan-18		1	◆ CTB Approval / Notice of Award																	
G1020	Design-Build Contract Execution	0	16-Feb-18		1	◆ Design-Build Contract Execution																	
G1080	Notice to Proceed	0	21-Feb-18		1	◆ Notice to Proceed																	
G1110	Start Construction Work South of Rappahannock River	0	28-Aug-18		140	◆ Start Construction Work South of Rappahannock River																	
G1100	Start Construction Work North of Rappahannock River	0	28-Aug-18		70	◆ Start Construction Work North of Rappahannock River																	
G1090	Start Construction on Rappahannock River Bridge B604 (Access)	0	28-Aug-18		87	◆ Start Construction on Rappahannock River Bridge B604 (Access)																	
G1060	Interim Milestone Punchlist Work	7	09-Sep-21	15-Sep-21	0	■ Interim Milestone Punchlist Work																	
G1050	Interim Milestone - September 15, 2021	0		15-Sep-21*	0	◆ Interim Milestone - September																	
G1040	Final Punchlist	30	27-Apr-22	26-May-22	0	■ Final Punchlist																	
G1030	Final Completion - May 26, 2022	0		26-May-22*	0	◆ Final Comple																	
QA/QC Plan						26	21-Feb-18	18-Mar-18	125	▼ 18-Mar-18, QA/QC Plan													
G1010	QA/QC Plan Submittal	21	21-Feb-18	13-Mar-18	125	■ QA/QC Plan Submittal																	
G1170	QA/QC Plan Presentation	5	14-Mar-18	18-Mar-18	125	■ QA/QC Plan Presentation																	
G1160	QA/QC Plan Approval	0		18-Mar-18	125	◆ QA/QC Plan Approval																	
I-95 Design / Environmental / Right-of-Way / Utilities						407	21-Feb-18	13-Sep-19	682	▼ 13-Sep-19, I-95 Design / Environmental / Right-of-Way / Utilities													
Scope Validation Period						171	22-Feb-18	11-Aug-18	10	▼ 11-Aug-18, Scope Validation Period													
D2630	Scope Validation Investigation and Findings General Notice (120 days)	120	22-Feb-18	21-Jun-18	10	■ Scope Validation Investigation and Findings General Notice (120 days)																	
D2650	Scope Validation Submission of Supporting Documentation	21	22-Jun-18	12-Jul-18	10	■ Scope Validation Submission of Supporting Documentation																	
D2620	Scope Validation Discussions	30	13-Jul-18	11-Aug-18	10	■ Scope Validation Discussions																	
Existing Drainage Culverts						70	01-Mar-18	09-May-18	53	▼ 09-May-18, Existing Drainage Culverts													
D2560	Review Visual/Video Inspection of Existing Culvert	35	01-Mar-18	04-Apr-18	53	■ Review Visual/Video Inspection of Existing Culvert																	
D1240	Assess Structural Condition of Existing Culverts, Prepare & Submit Report	14	05-Apr-18	18-Apr-18	53	■ Assess Structural Condition of Existing Culverts, Prepare & Submit Report																	
D3170	VDOT Review and Approve Existing Drainage Culvert Report	21	19-Apr-18	09-May-18	53	■ VDOT Review and Approve Existing Drainage Culvert Report																	
Design Phase						570	21-Feb-18	13-Sep-19	956	▼ 13-Sep-19, Design Phase													
Design Exceptions & Waivers						56	08-Mar-18	02-May-18	89	▼ 02-May-18, Design Exceptions & Waivers													
D3620-0	Verify Approved DEs and DWs Implementation & Mitigation Measures	7	08-Mar-18	14-Mar-18	89	■ Verify Approved DEs and DWs Implementation & Mitigation Measures																	
D1190-0	Agency Review and Meeting	21	15-Mar-18	04-Apr-18	89	■ Agency Review and Meeting																	
D2980-0	Update & Resubmit Exception(s)/Waiver(s)	7	05-Apr-18	11-Apr-18	89	■ Update & Resubmit Exception(s)/Waiver(s)																	
D1170-0	Agency Review & Approval of Exception(s)/Waiver(s)	21	12-Apr-18	02-May-18	89	■ Agency Review & Approval of Exception(s)/Waiver(s)																	
Design Exceptions & Waivers - Option 1						56	08-Mar-18	02-May-18	89	▼ 02-May-18, Design Exceptions & Waivers - Option 1													
D3620-1	Verify Approved DEs and DWs Implementation & Mitigation Measures	7	08-Mar-18	14-Mar-18	89	■ Verify Approved DEs and DWs Implementation & Mitigation Measures																	
D1190-1	Agency Review and Meeting	21	15-Mar-18	04-Apr-18	89	■ Agency Review and Meeting																	
D2980-1	Update & Resubmit Exception(s)/Waiver(s)	7	05-Apr-18	11-Apr-18	89	■ Update & Resubmit Exception(s)/Waiver(s)																	
D1170-1	Agency Review & Approval of Exception(s)/Waiver(s)	21	12-Apr-18	02-May-18	89	■ Agency Review & Approval of Exception(s)/Waiver(s)																	
Supplemental Mobile Scanning / Field Surveys						558	21-Feb-18	01-Sep-19	968	▼ 01-Sep-19, Supplemental Mobile Scanning / Field Surveys													
Mobile Scanning Surveys						48	21-Feb-18	09-Apr-18	103	▼ 09-Apr-18, Mobile Scanning Surveys													
D3100	VDOT Notification and Survey Mobilization	6	21-Feb-18	26-Feb-18	103	■ VDOT Notification and Survey Mobilization																	
D2960	Surveying for Mobile Ground Controls	14	27-Feb-18	12-Mar-18	103	■ Surveying for Mobile Ground Controls																	
D2070	Mobile Map Compilation	28	13-Mar-18	09-Apr-18	103	■ Mobile Map Compilation																	
Field Surveys						556	23-Feb-18	01-Sep-19	968	▼ 01-Sep-19, Field Surveys													
D2190-0	Prepare & Submit Draft Property Owner Notification Letter & Address Listing	7	23-Feb-18	01-Mar-18	8	■ Prepare & Submit Draft Property Owner Notification Letter & Address Listing																	
D3180-0	VDOT Review and Approve Property Owner Notification Letter	1	02-Mar-18	02-Mar-18	8	■ VDOT Review and Approve Property Owner Notification Letter																	
D2040-0	Mail Property Owner Notification Letters Providing 15 Day Notice	4	03-Mar-18	06-Mar-18	88	■ Mail Property Owner Notification Letters Providing 15 Day Notice																	

■ Actual Work
 ■ Critical Remaining Work
 ▼ Summary
■ Remaining Work
 ◆ Milestone

I-95 Southbound CD Lanes - Rappahannock River Crossing Technical Proposal		Classic Schedule Layout					13-Nov-17 17:53																			
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2018			2019			2020			2021			2022								
						N	D	J	F	A	M	J	J	A	S	O	N	D	J	F	A	M	J	J	A	S
D2160-0	Perform Supplemental Field Surveys	42	21-Mar-18	01-May-18	88																					
D2690-0	Stake Geotechnical Boring Locations	7	21-Mar-18	27-Mar-18	6																					
D2320-0	Prepare Updates Survey Files	28	28-Mar-18	24-Apr-18	88																					
D2670-0	Set ROW Monumentation Prior to Contract Completion	43	21-Jul-19	01-Sep-19	968																					
Field Surveys - Option 1		556	23-Feb-18	01-Sep-19	968	▼ 01-Sep-19, Field Surveys - Option 1																				
D2190-1	Prepare & Submit Draft Property Owner Notification Letter & Address Listing	7	23-Feb-18	01-Mar-18	8																					
D3180-1	VDOT Review and Approve Property Owner Notification Letter	1	02-Mar-18	02-Mar-18	8																					
D2040-1	Mail Property Owner Notification Letters Providing 15 Day Notice	4	03-Mar-18	06-Mar-18	88																					
D2160-1	Perform Supplemental Field Surveys	42	21-Mar-18	01-May-18	88																					
D2690-1	Stake Geotechnical Boring Locations	7	21-Mar-18	27-Mar-18	6																					
D2320-1	Prepare Updates Survey Files	28	28-Mar-18	24-Apr-18	88																					
D2670-1	Set ROW Monumentation Prior to Contract Completion	43	21-Jul-19	01-Sep-19	968																					
Geotechnical Engineering & Subsurface Investigations		455	22-Feb-18	22-May-19	442	▼ 22-May-19, Geotechnical Engineering & Subsurface Investigations																				
D2210	Prepare and Submit Geotechnical Boring Location Plan	6	22-Feb-18	27-Feb-18	6																					
D3270	VDOT Review Geotechnical Boring Location Plan	21	28-Feb-18	20-Mar-18	6																					
D2660	Secure Permits and Clear Utilities as Required	21	28-Feb-18	20-Mar-18	7																					
D2280	Prepare Property Owner Notification Letters for Geotechnical Investigations	1	05-Mar-18	05-Mar-18	8																					
D1870-0	Field Investigations, Boring Logs and Lab Analysis for Scope Validation	92	22-Mar-18	21-Jun-18	6																					
D2640	Scope Validation Letter to Contractor	85	22-Mar-18	14-Jun-18	17																					
D2380	Prepare/Submit Bridge Geotechnical Engineering Report B651	29	18-May-18	15-Jun-18	106																					
D2350	Prepare/Submit Bridge Geotechnical Engineering Report B604 (Except Piers 2 & 3)	28	06-Jun-18	03-Jul-18	6																					
D3250	VDOT Review Bridge Geotechnical Engineering Report B651	90	16-Jun-18	13-Sep-18	106																					
D2360-0	Prepare/Submit Bridge Geotechnical Engineering Report B606	29	04-Jul-18	01-Aug-18	129																					
D3210	VDOT Review Bridge Geotechnical Engineering Report B604 (Except Piers 2 & 3)	90	04-Jul-18	01-Oct-18	6																					
D2390	Prepare/Submit Bridge Geotechnical Engineering Report B652	28	02-Aug-18	29-Aug-18	129																					
D3230-0	VDOT Review Bridge Geotechnical Engineering Report B606	90	02-Aug-18	30-Oct-18	646																					
D3260	VDOT Review Bridge Geotechnical Engineering Report B652	90	30-Aug-18	27-Nov-18	331																					
D2140	Perform Balance of Geotechnical Field Investigations (Noise Walls & SWM)	58	02-Oct-18	28-Nov-18	17																					
D1250-0	Boring Logs, Laboratory Testing & Analysis	72	09-Oct-18	19-Dec-18	17																					
D2400	Prepare/Submit Noise Wall Geotechnical Engineering Report	30	13-Dec-18	11-Jan-19	23																					
D2410	Prepare/Submit Retaining Wall Geotechnical Engineering Report	30	20-Dec-18	18-Jan-19	17																					
D2420-0	Prepare/Submit Roadway & SWM Geotechnical Engineering Report Remainder of Work	30	20-Dec-18	18-Jan-19	17																					
D3280	VDOT Review Noise Walls Geotechnical Engineering Report	90	12-Jan-19	11-Apr-19	23																					
D3290	VDOT Review Retaining Walls Geotechnical Engineering Report	90	19-Jan-19	18-Apr-19	17																					
D3310-0	VDOT Review Roadway Geotechnical Engineering Report Remainder of WP's	90	19-Jan-19	18-Apr-19	17																					
D1270	Boring Logs, Laboratory Testing & Analysis for B604 Piers 3 & 5	13	02-Feb-19	14-Feb-19	6																					
D2340	Prepare/Submit Bridge Geotechnical Engineering Report Addendum B604 for Piers 2 & 3	7	15-Feb-19	21-Feb-19	6																					
D3220	VDOT Review Bridge Geotechnical Engineering Report B604 for Piers 2 & 3	90	22-Feb-19	22-May-19	6																					
Geotechnical Engineering & Subsurface Investigations - Option 1		393	22-Mar-18	18-Apr-19	476	▼ 18-Apr-19, Geotechnical Engineering & Subsurface Investigations - Option 1																				
D1870-1	Field Investigations, Boring Logs and Lab Analysis for Scope Validation	92	22-Mar-18	21-Jun-18	6																					
D2360-1	Prepare/Submit Bridge Geotechnical Engineering Report B606	29	04-Jul-18	01-Aug-18	129																					
D3230-1	VDOT Review Bridge Geotechnical Engineering Report B606	90	02-Aug-18	30-Oct-18	646																					
D1250-1	Boring Logs, Laboratory Testing & Analysis	72	09-Oct-18	19-Dec-18	17																					
D2420-1	Prepare/Submit Roadway & SWM Geotechnical Engineering Report Remainder of Work	30	20-Dec-18	18-Jan-19	17																					
D3310-1	VDOT Review Roadway Geotechnical Engineering Report Remainder of WP's	90	19-Jan-19	18-Apr-19	17																					
Roadway Design		444	21-Feb-18	10-May-19	17	▼ 10-May-19, Roadway Design																				
Develop Right-of-Way Plans		220	22-Feb-18	29-Sep-18	60	▼ 29-Sep-18, Develop Right-of-Way Plans																				

█ Actual Work
 █ Critical Remaining Work
 ▼ Summary
█ Remaining Work
 ◆ Milestone

I-95 Southbound CD Lanes - Rappahannock River Crossing Technical Proposal		Classic Schedule Layout				13-Nov-17 17:53																				
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2018			2019			2020			2021			2022								
						N	D	J	F	A	M	J	J	A	S	O	N	D	J	F	A	M	J	J	A	S
D2730	Submit B604 Stage II Submission Piers at Existing Piers 2 & 3	1	22-May-19	22-May-19	6																					
D3530	VDOT/FHWA Review/Approval B604 Stage II Submission Piers at Existing Piers 2 & 3	21	23-May-19	12-Jun-19	6																					
D1900	Final Revisions, Released for Construction (RFC) B604 Plans Piers at Existing Piers 2 & 3	3	13-Jun-19	15-Jun-19	6																					
D1280	Bridge B604 Construction Unit Cost Report (w/in 90 Days of RFC)	90	16-Jun-19	13-Sep-19	956																					
Retaining Walls		387	19-Apr-18	10-May-19	17																					
D2300	Prepare Retaining Walls Preliminary Submission	14	19-Apr-18	02-May-18	80																					
D2890	Submit Retaining Walls Preliminary Submission	1	30-Jul-18	30-Jul-18	238																					
D3520	VDOT/FHWA Review, Comment & Approve Retaining Walls Preliminary Submission	21	31-Jul-18	20-Aug-18	238																					
D1050	Address Comments and Prepare Retaining Walls Final Plans (Stage II) Submission	15	21-Aug-18	04-Sep-18	238																					
D1600	Design QA/QC Retaining Walls Stage II Submission	4	06-Apr-19	09-Apr-19	25																					
D2900	Submit Retaining Walls Stage II Submission	1	18-Apr-19	18-Apr-19	17																					
D3590	VDOT/FHWA Review/Approval Retaining Walls Stage II Submission	21	19-Apr-19	09-May-19	17																					
D1910	Final Revisions, Released for Construction (RFC) Retaining Walls Plans	1	10-May-19	10-May-19	17																					
Environmental		460	21-Feb-18	26-May-19	1																					
Hazardous Materials		92	21-Feb-18	23-May-18	248																					
D2440	Prepare/Submit Spill Prevention, Control and Countermeasure Plan (SPCC) Contractor	22	21-Feb-18	14-Mar-18	215																					
D1660	Develop & Submit Hazardous Material Phase I ESA	56	08-Mar-18	02-May-18	248																					
D3330	VDOT Review/Approval SPCC	21	15-Mar-18	04-Apr-18	215																					
D2130	Perform Asbestos Inspection On All Structures & Submit Reports	28	22-Mar-18	18-Apr-18	224																					
D3400	VDOT/FHWA Hazardous Material Phase I ESA - Hold Point	21	03-May-18	23-May-18	248																					
Threatened & Endangered Species		222	08-Mar-18	15-Oct-18	109																					
Bat Species & Mussel Inventory		222	08-Mar-18	15-Oct-18	109																					
D2090	Mussel Survey	42	08-Mar-18	18-Apr-18	192																					
D2100	Mussel Survey DGIF Review	30	19-Apr-18	18-May-18	192																					
D2080	Mussel Relocation	15	21-May-18	04-Jun-18	192																					
D2970	T&E Bat Inventory - Bridges	13	30-Sep-18	12-Oct-18	109																					
D2820	Submit Bat Inventory Form to VDOT	1	15-Oct-18	15-Oct-18	109																					
Environmental Permits		459	22-Feb-18	26-May-19	1																					
Environmental Permit Applications		421	22-Feb-18	18-Apr-19	18																					
D2110	Natural Resource Field Studies for Borrow, Staging, Access	28	22-Feb-18	21-Mar-18	14																					
D1680	Develop and Submit Joint Permit Application	28	22-Mar-18	18-Apr-18	14																					
D1670	Develop and Submit EWP VPDES Stormwater General Permit Application & SWPPP	11	02-Jul-18	12-Jul-18	70																					
D2530	Request EWP EQ-200 NEPA Re-eval.& EQ-103 NEPA Certification/Commitments for Cc	1	12-Jul-18	12-Jul-18	95																					
D2520	Request EQ-201 NEPA Re-evaluation for ROW	1	30-Jul-18	30-Jul-18	100																					
D1690	Develop and Submit Remainder WPs VPDES Stormwater General Permit Application & SWPPP	12	30-Mar-19	10-Apr-19	1																					
D2540	Request Remainder WPs EQ-200 NEPA Re-eval.& EQ-103 NEPA Certification/Commitment	1	18-Apr-19	18-Apr-19	18																					
Issuance & Approval of Environmental Permits (All Permitted Construction Activities are Hold Points)		403	19-Apr-18	26-May-19	1																					
D1210	Agency Reviews and Issuance of Section 404 Permit, WPP, SBP - Hold Point	210	19-Apr-18	14-Nov-18	14																					
D1220	Agency Reviews and Issuance of EWP VPDES Stormwater General Permit & SWPPP Segment-Hold Point	25	13-Jul-18	06-Aug-18	70																					
D3160	VDOT Review and Approve EQ-201 NEPA Re-evaluation for ROW - Hold Point	21	31-Jul-18	20-Aug-18	100																					
D3360	VDOT Rvw.&Approve EWP EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Const.-Hold Point	21	07-Aug-18	27-Aug-18	70																					
D3350	VDOT Rvw.&Approve EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Causeway	21	23-Oct-18	12-Nov-18	31																					
D1230	Agency Reviews and Issuance of Remainder WPs VPDES Stormwater General Permit & SWPPP	25	11-Apr-19	05-May-19	1																					
D3370	VDOT Rvw.&Approve Remainder WPs EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitment	21	06-May-19	26-May-19	1																					
Noise Abatement		222	22-Feb-18	01-Oct-18	17																					
D1390	Complete Final Noise Impact Report	201	22-Feb-18	10-Sep-18	17																					
D3320	VDOT Review/Approval Noise Wall Design	21	11-Sep-18	01-Oct-18	17																					
VDHR Plan Review		189	18-May-18	22-Nov-18	6																					

█ Actual Work
 █ Critical Remaining Work
 Summary
█ Remaining Work
 ◆ Milestone

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2018												2019												2020												2021												2022											
						N	D	J	F	A	J	J	A	S	O	N	D	N	D	J	F	A	J	J	A	S	O	N	D	N	D	J	F	M	A	J	J	A	S	O	N	D	N	D	J	F	A	M	J	J	A	S	O	N	D	N	D	J	F	A	M	J	J	A	S
Pier 4						02-Jun-20, Pier 4																																																											
CR1720	Install SOE Pier 4	20	05-Dec-19	03-Jan-20	37	█ Install SOE Pier 4																																																											
CR1160	Excavate Footing Pier 4	15	06-Jan-20	24-Jan-20	37	█ Excavate Footing Pier 4																																																											
CR1340	Form, Pour, Cure & Strip Footing Pier 4	15	27-Jan-20	14-Feb-20	37	█ Form, Pour, Cure & Strip Footing Pier 4																																																											
CR1220	Form, Pour, Cure & Strip Column Lift 1 Pier 4	15	17-Feb-20	06-Mar-20	37	█ Form, Pour, Cure & Strip Column Lift 1 Pier 4																																																											
CR1020	Backfill Footing & Remove SOE Pier 4	10	09-Mar-20	20-Mar-20	37	█ Backfill Footing & Remove SOE Pier 4																																																											
CR1260	Form, Pour, Cure & Strip Column Lift 2 Pier 4	15	23-Mar-20	10-Apr-20	37	█ Form, Pour, Cure & Strip Column Lift 2 Pier 4																																																											
CR1300	Form, Pour, Cure & Strip Column Lift 3 Pier 4	15	14-Apr-20	04-May-20	37	█ Form, Pour, Cure & Strip Column Lift 3 Pier 4																																																											
CR1400	Form, Pour, Cure & Strip Pier Cap Pier 4	15	05-May-20	26-May-20	37	█ Form, Pour, Cure & Strip Pier Cap Pier 4																																																											
CR1790	Prep Bearing Seats & Install Bearing Assemblies Pier 4	5	27-May-20	02-Jun-20	37	█ Prep Bearing Seats & Install Bearing Assemblies Pier 4																																																											
Superstructure						03-Jun-21, Superstructure																																																											
CR1080	Erect Girders Span A	15	15-Nov-19	06-Dec-19	130	█ Erect Girders Span A																																																											
CR1090	Erect Girders Span B	15	06-Mar-20	26-Mar-20	68	█ Erect Girders Span B																																																											
CR1100	Erect Girders Span C	15	22-Apr-20	12-May-20	51	█ Erect Girders Span C																																																											
CR1110	Erect Girders Span D	15	03-Jun-20	23-Jun-20	37	█ Erect Girders Span D																																																											
CR1120	Erect Girders Span E	15	24-Jun-20	15-Jul-20	37	█ Erect Girders Span E																																																											
CR1460	Install Deck Forms Span A	10	16-Jul-20	29-Jul-20	37	█ Install Deck Forms Span A																																																											
CR1470	Install Deck Forms Span B	10	30-Jul-20	12-Aug-20	37	█ Install Deck Forms Span B																																																											
CR1480	Install Deck Forms Span C	10	13-Aug-20	26-Aug-20	37	█ Install Deck Forms Span C																																																											
CR1490	Install Deck Forms Span D	10	27-Aug-20	10-Sep-20	37	█ Install Deck Forms Span D																																																											
CR1500	Install Deck Forms Span E	10	11-Sep-20	24-Sep-20	37	█ Install Deck Forms Span E																																																											
CR1560	Install Overhangs Span A	10	25-Sep-20	08-Oct-20	37	█ Install Overhangs Span A																																																											
CR1570	Install Overhangs Span B	10	09-Oct-20	22-Oct-20	37	█ Install Overhangs Span B																																																											
CR1580	Install Overhangs Span C	10	23-Oct-20	05-Nov-20	37	█ Install Overhangs Span C																																																											
CR1590	Install Overhangs Span D	10	06-Nov-20	19-Nov-20	37	█ Install Overhangs Span D																																																											
CR1600	Install Overhangs Span E	10	20-Nov-20	04-Dec-20	37	█ Install Overhangs Span E																																																											
CR1610	Install Rebar Span A	10	07-Dec-20	18-Dec-20	37	█ Install Rebar Span A																																																											
CR1620	Install Rebar Span B	10	21-Dec-20	05-Jan-21	37	█ Install Rebar Span B																																																											
CR1630	Install Rebar Span C	10	06-Jan-21	19-Jan-21	37	█ Install Rebar Span C																																																											
CR1640	Install Rebar Span D	10	20-Jan-21	02-Feb-21	37	█ Install Rebar Span D																																																											
CR1650	Install Rebar Span E	10	03-Feb-21	16-Feb-21	37	█ Install Rebar Span E																																																											
CR1750	Pour Decks	25	17-Feb-21	23-Mar-21	37	█ Pour Decks																																																											
CR1070	Cure Deck	7	24-Mar-21	30-Mar-21	54	█ Cure Deck																																																											
CR1510	Install East Parapet	5	22-Apr-21	28-Apr-21	37	█ Install East Parapet																																																											
CR1740	Install West Parapet	5	29-Apr-21	05-May-21	37	█ Install West Parapet																																																											
CR1410	Groove Deck	10	06-May-21	19-May-21	47	█ Groove Deck																																																											
CR1860	Strip Overhang Forms	20	06-May-21	03-Jun-21	37	█ Strip Overhang Forms																																																											
Improvements North of Rappahannock River Bridge						15-Sep-21, Improvements North of Rappahannock River Bridge																																																											
Phase N1 (Early Work)						24-Jun-19, Phase N1 (Early Work)																																																											
Proposed GP Lane Construction in Existing Median						24-Jun-19, Proposed GP Lane Construction in Existing Median																																																											
Rappahannock River Bridge B604 to Station 3655						24-Jun-19, Rappahannock River Bridge B604 to Station 3655																																																											
CN2320-0	Install MOT	30	28-Aug-18	09-Oct-18	49	█ Install MOT																																																											
CN2050-0	Install E&S Controls	20	10-Oct-18	06-Nov-18	49	█ Install E&S Controls																																																											
CN1120-0	Clear & Grub (Non-Jurisdictional Areas Only)	40	07-Nov-18	04-Jan-19	49	█ Clear & Grub (Non-Jurisdictional Areas Only)																																																											
CN3230-0	Rough Grading (Non-Jurisdictional Areas Only)	80	01-Mar-19	24-Jun-19	10	█ Rough Grading (Non-Jurisdictional Areas Only)																																																											
Rappahannock River Bridge B604 to Station 3655 - Option 1						24-Jun-19, Rappahannock River Bridge B604 to Station 3655 - Option 1																																																											
CN2320-1	Install MOT	30	28-Aug-18	09-Oct-18	49	█ Install MOT																																																											
CN2050-1	Install E&S Controls	20	10-Oct-18	06-Nov-18	49	█ Install E&S Controls																																																											



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Contract ID Number: C00101595DB94