VOLUME I - TECHNICAL PROPOSAL

Response to Request for Proposals

I-64 GAP Segment A Widening

From: I-64 MM 204.9

To: I-64 MM 215.6

New Kent County, Virginia

State Project No.: 0064-063-623 P101, R201, C501, B601, B602
Federal Project No.: NHPP-064-3(545)
Contract ID Number: C00122166DB119

June 22, 2023 - Electronic Copy

Submitted By:

SHIRLEY CONTRACTING COMPANY, LLC

In Association With:

Dewberry

4.1
Letter of Submittal

SHIRLEY
CONTRACTING COMPANY, LLC

June 22, 2023

Mr. Suril R. Shah, P.E., DBIA
Alternative Project Delivery Division
Virginia Department of Transportation (VDOT)
1401 East Broad Street
Annex Building, 5th Floor
Richmond, Virginia 23219

RE: I-64 GAP Segment A Widening
State Project No.: 0064-063-623 P101, R201, C501, B601, B602
Federal Project No.: NHPP-064-3(545)
Contract ID Number: C00122166DB119
4.1 Letter of Submittal

Dear Mr. Shah:

Shirley Contracting Company, LLC (Shirley), as the Offeror, and Dewberry Engineers Inc. (Dewberry), as the Lead Designer, are pleased to submit our Team's Technical Proposal for the I-64 GAP Segment A Widening Project (the Project). Our Team will provide the Virginia Department of Transportation (VDOT) and the traveling public with an unequaled level of assurance that the Project is completed successfully and exceeds the priorities established while limiting risk to all stakeholders.

4.1.1 Offerors Information: The full legal name and address of the Offeror is as follows:
Shirley Contracting Company, LLC
8435 Backlick Road
Lorton, Virginia 22079

4.1.2 - 4.1.3 Declarations: Should Shirley be selected, it is our intent to enter into a contract with VDOT for the Project in accordance with the terms of the Request for Proposals (RFP). Further, 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 Price Proposal is actually submitted to VDOT.

4.1.4 Point of Contact: Garry Palleschi, Vice President, Shirley Contracting Company, LLC
8435 Backlick Road, Lorton, VA 22079
(P) 703.550.3579, (F) 703.550.9346
(E) gpalleschi@shirleycontracting.com

4.1.5 Principal Officer: Gregory Smith, Division President, Shirley Contracting Company, LLC
8435 Backlick Road, Lorton, VA 22079
(P) 703.550.8100

4.1.6 Final Completion Date: July 30, 2027

4.1.7 Unique Milestone #1: Early opening of three WB I-64 lanes from Station 5050+00 to western terminus by November 19, 2026.

Unique Milestone #2: Early Final Completion from EB Station 1545+00 and WB Station 5545+00 to I-64 GAP Segment B Widening Project by December 31, 2026.

4.1.8 Proposal Payment Agreement: An executed Proposal Payment Agreement, Attachment 9.3.1, is included in the Appendix.

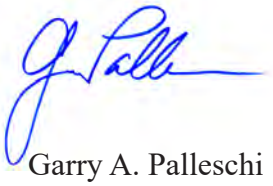
4.1.9 Certification Regarding Debarment Forms: Signed Certification Regarding Debarment Forms from all team members are included as an Attachment in the Appendix.

4.1.10 DBE Participation Goal: Shirley is committed to achieving a 10% DBE participation goal for the entire value of the contract.

4.1.11 Confirmation of Commercial and Professional Registrations: We confirm that all commercial and professional registration requirements set forth in our Statement of Qualifications are complete and accurate and that the Offeror, and business entities on the Offeror's Team, remain in good standing with all applicable regulatory bodies and are eligible to provide the services required on the Project.

On behalf of the entire Shirley/Dewberry Team, we thank VDOT for the opportunity to submit this Technical Proposal and look forward to your favorable review.

Sincerely,



Garry A. Palleschi
Vice President
Shirley Contracting Company, LLC

4.2
Offeror's Qualifications

4.2 Offeror's Qualifications

4.2.1 Confirmation

We confirm that the information contained in our Statement of Qualifications (SOQ) remains true and accurate with the following changes: Kaushik Vyas, PE, DBIA will replace S. Scott Shropshire as QAM. This change was approved by VDOT during the SOQ clarification process. In addition, Deniz Karadeniz, PhD, PE, PG will replace Sushant Upadhyaya, PE as the Geotechnical Engineer. This change was approved by VDOT on May 18, 2023. Per Part 2 Section 2.1.3 Utilities, we are adding the required position of Utility Inspector to our Organizational Chart. Finally, as described in Section 4.4.4, we have designated the QA Records Manager/Office Engineer and QC Office Engineer as Value-Added personnel.

As allowed by Section 4.2 of the RFP, our Team intends to include Robert Johnson as Deputy Design-Build Project Manager (DDBPM) and Carl Kaczmarek, PE as Deputy Design Manager (DDM). Resumes for each of these positions are included as an Attachment in the Appendix.

The Organizational Chart shown as Figure 4.2.1.1 has been updated to reflect these changes. As there is no change to any functional relationship among the participants since the submittal of the SOQ, an updated narrative is not required.

FIGURE 4.2.1.1 ORGANIZATIONAL CHART

VDOT
Virginia Department of Transportation

THIRD PARTY STAKEHOLDERS

- TRAVELING PUBLIC
- MEDIA
- LOCAL BUSINESSES
- COMMUNITY REPRESENTATIVES
- EMS & FIRST RESPONDERS
- LOCAL RESIDENTS
- FHWA
- DEQ
- FAA-NEW KENT COUNTY AIRPORT
- VIRGINIA STATE POLICE
- NEW KENT SAFETY REST AREAS

DESIGN-BUILD PROJECT MANAGER
CHUCK SMITH
SHIRLEY

PUBLIC LIAISON
MARY STARR
SHIRLEY

DEPUTY DESIGN-BUILD PROJECT MANAGER
ROBERT JOHNSON
SHIRLEY

RIGHT-OF-WAY MANAGER
RYAN MARRAH
SHIRLEY

APPRAISALS/OFFERS NEGOTIATIONS
DIVERSIFIED PROPERTY SERVICES, INC.

TITLE REPORTS/ SETTLEMENTS
OLD DOMINION SETTLEMENTS, INC. T/A KEY TITLE

THIRD PARTY PROPERTY OWNERS

UTILITY COORDINATION MANAGER
TODD KIEF
SHIRLEY

UTILITY INSPECTOR
MASON BAXTER
SHIRLEY

THIRD PARTY UTILITIES

SAFETY MANAGER
SEAN KNICK
SHIRLEY

QUALITY CONTROL
QC MANAGER

QC INSPECTORS
TESTING TECHNICIANS
LABORATORY

QUALITY CONTROL
QC OFFICE ENGINEER

CONSTRUCTION MANAGER
HANK DAVIS
SHIRLEY

PROJECT MANAGER
PAUL BERMAN
SHIRLEY

SUPERINTENDENT
ANDY WATTS
SHIRLEY

TRAFFIC CONTROL / INCIDENT MANAGER
JOHN ROSARIO
SHIRLEY

SELF PERFORM CREWS
AGGREGATES
BRIDGES
DEMOLITION
DRAINAGE
EARTHWORK/GRADING
E&S
MOT
RETAINING/NOISE WALLS
SWM

POTENTIAL SUBCONTRACTORS
(TBD AFTER AWARD)
ASPHALT PAVING
CONCRETE FLATWORK
CLEARING
GUARDRAIL
ITS
PAVEMENT MARKINGS
SIGNING

ENVIRONMENTAL COMPLIANCE MANAGER
DAVE OVERTON
SHIRLEY

DEDICATED CIVIL SUBCONTRACTOR
BRANCH CIVIL
BRANCH CIVIL, LLC

DESIGN MANAGER
STEVE KUNTZ, PE, DBIA
DEWBERRY

DEPUTY DESIGN MANAGER LEAD ROADWAY ENGINEER
CARL KACZMAREK, PE
DEWBERRY

LEAD STRUCTURAL ENGINEER
JIM DAVIDSON, PE, DBIA
DEWBERRY

GEOTECHNICAL
DENIZ KARADENIZ, PHD, PE, PG
TERRACON CONSULTANTS, INC.

ENVIRONMENTAL PERMITTING MANAGER
BETH PATRIZZI
DEWBERRY

NOISE ANALYSIS
TERRACON CONSULTANTS, INC.

LEAD TRAFFIC ENGINEER
JERRY MRYKALO, PE, PTOE
DEWBERRY

LEAD HYDRAULIC ENGINEER
JIM FILSON, PE
DEWBERRY

LEAD SURVEYOR
MIKE HOOVER, LS
DEWBERRY

AERIAL MAPPING
QUANTUM SPATIAL, INC.

UTILITY DESIGNATION TEST PITTING
SAM, INC.

QUALITY ASSURANCE MANAGER
KAUSHIK VYAS, PE, DBIA
QUINN CONSULTING SERVICES, INC.

LEAD QA INSPECTOR ROADWAY
TODD HAMLETT
QUINN CONSULTING SERVICES, INC.

LEAD QA INSPECTOR STRUCTURE/BRIDGE
JOSH HOSTINSKY
QUINN CONSULTING SERVICES, INC.

QA RECORDS MANAGER/ OFFICE ENGINEER
MARK MCMILLER
QUINN CONSULTING SERVICES, INC.

QUALITY ASSURANCE TESTING TECHNICIANS/LAB
MCCALLUM TESTING, LLC

DESIGN QUALITY ASSURANCE
MATT THOMAS, PE
DEWBERRY

LEGEND

- Construction
- Design
- Quality Assurance
- Quality Control
- Right-of-Way
- 3rd Parties
- Public Relations
- Key Personnel
- Value-Added Personnel/Firm
- Disadvantaged Business Enterprise
- Traffic Task Force
- Communication
- Direct Reporting
- Changes from SOQ

4.3
Design Concept

4.3 Design Concept

Introduction

The I-64 GAP Segment A Widening Project, between mile markers 204.9 and 215.6, represents the next major step to completing a 6-lane section between I-295 and Newport News, and will provide capacity improvements, safety enhancements, and operational benefits for nearly 11 miles of interstate. Our Team is well prepared for the challenges and complexities that this Project presents, having successfully completed two of the four previous segments of I-64 widening. Many of the same issues encountered on the earlier Segments will be faced by our Team on Segment A, and our previous experience and strategies for identifiying and mitigating risk will benefit the Project, the public, VDOT, and all other stakeholders.

Beginning with the design, our approach to developing our Design Concept was centered around the following primary objectives:

- Ensuring safety for motorists, workers and maintenance personnel during and following construction;
- Minimizing construction costs;
- Reducing long-term maintenance for VDOT;
- Mitigating impacts to construction due to Time-of-Year Restrictions (TOYR);
- Avoiding/minimizing impacts to design and construction of the future I-64 GAP Segment B Project;
- Maximizing the amount of forested median to remain; and,
- Limiting risk to all stakeholders.

In addition, we have ensured that our Technical Proposal:

- Meets or exceeds all requirements listed in the Design Criteria Table;
- Results in limits of construction to include all stormwater management facilities that are within the existing/proposed right-of-way limits shown in the RFP Conceptual Plans with the exception of permanent and temporary easements; and,
- Does not include design elements that require Design Exceptions and/or Design Waivers unless they are identified or included in the RFP or Addendum.

Our Team's Design Concept incorporates numerous enhancements, summarized in Table 1, that improve the safety, operation, and aesthetics of the corridor. Our overall design is outlined in the following Sections and shown on our Volume II Design Concept.

Table 1 - Design Enhancements and Project Benefits

Design Element / Location	Enhancement	Project Benefits
Horizontal Alignments, EB and WB west of Route 33 (New Kent Highway)	Adjust alignments to more closely reflect existing conditions	▪ More closely matches existing roadway alignment and typical section; ▪ Eliminates "sliver" widenings; ▪ Addresses adjustments expected during final design; ▪ Reduces cost; and, ▪ Improves schedule.
Horizontal Alignment, WB I-64 Station 5047+50 to Station 5085+74	Shift alignment to more closely reflect existing crown location and roadway alignment	▪ Provides required 36' travel lane width; ▪ Eliminates outside shoulder widening; ▪ Addresses adjustments expected during final design; ▪ Avoids crown shift; ▪ Reduces cost; and, ▪ Improves schedule.

Design Element / Location	Enhancement	Project Benefits
Compliant Ramp Terminal Gore Layouts	Implement standard gore layouts to be compliant with VDOT Road Design Manual Appendix C	▪ Avoids Design Exceptions and Design Waivers; ▪ Provides recovery areas for motorists at ramp terminals; and, ▪ Improves interchange ramp safety and operations.
Noise Barriers	Adjust alignments to be located outside of the clear zone	▪ Avoids guardrail and barrier installation adjacent to I-64; ▪ Maintains drainage patterns along and beneath noise barriers; ▪ Incorporates standard post and panel layout dimensions to simplify shop drawing development; and, ▪ Minimizes long-term maintenance costs for VDOT.
Stormwater Management (SWM)	Eliminate all SWM facilities from the median	▪ Reduces median tree clearing impacts; ▪ Minimizes long-term maintenance costs for VDOT; ▪ Avoids purchase of nutrient credits, or enables them to be shifted to other projects if already purchased; ▪ Improves safety by eliminating median access for maintenance; ▪ Reduces cost; and, ▪ Improves schedule.
Median Tree Clearing	Increase forested areas to remain by more than 20 acres	▪ Maintains rural aesthetics; ▪ Minimizes impacts to environment; ▪ Minimizes long-term maintenance costs for VDOT; ▪ Reduces rubber-necking concerns during incidents; ▪ Reduces cost; and, ▪ Improves schedule.
Western Project Limit	Early opening of three (3) lanes WB as outlined in Unique Milestone #1	▪ Expedites opening of the WB third lane west of Station 5050+00 approaching I-295; ▪ Improves operations at Exit 205 Interchange; ▪ Increases capacity on WB I-64; and, ▪ Expedites safety improvements.
Eastern Project Limit	Early Final Completion of EB/WB Widening as outlined in Unique Milestone #2	▪ Expedites completion from EB Station 1545+00 and WB Station 5545+00 to the I-64 GAP Segment B Widening Project; and, ▪ Avoids/minimizes impacts with future I-64 Gap Segment B Widening Project.
Shoulders During Temporary Traffic Control	Maintenance of minimum 7-foot wide shoulder throughout construction	▪ Enhances safety during construction; ▪ Facilitates incident management; and, ▪ Reduces construction joints by eliminating the need for emergency pulloffs.
Temporary ITS Devices	Additional Queue Warning Systems, PCMS signs, and speed display trailers	▪ Reduces potential for rear-end collisions during construction; and, ▪ Enhances public safety and outreach.

4.3.1 Conceptual Roadway Plans

(a) General Geometry

Our Team's Design Concept is compliant with VDOT's Rural Interstate (GS-INT) design criteria for a 70mph design speed. General geometric information is depicted in our Volume II Design Concept including horizontal curve data, design speed, superelevation rates, and the number and widths of travel lanes and shoulders. All design elements are in compliance with RFP Attachment 2.2.

The improvements will provide a typical section consisting of three (3) 12-foot wide travel lanes in each

direction. 10-foot wide paved shoulders will be provided adjacent to the median except where guardrail or concrete barriers are required, in which case the paved shoulder width is increased to 12-feet. The existing outside shoulders will be milled and repaved to maintain the existing widths, except where guardrail or barrier is required. In those locations, the paved shoulder width will be increased to 12-feet.

Interchange ramp gores are improved to be compliant with *VDOT Road Design Manual*, Appendix C requirements. These improvements include providing the full recovery areas adjacent to I-64 and the ramp lanes, as well as the full gore nose width. While RFP Attachment 2.2 identifies minimum design speeds of 35mph for the EB exit ramp and WB entrance ramp from SB Route 33, our Design Concept provides geometry which will exceed those minimum values. Specifically, the horizontal curve for the EB exit ramp accommodates a design speed of 50mph while the WB entrance ramp accommodates a design speed of 45mph. The loop ramp entrance from NB Route 33 to WB I-64 is designed to provide the 25mph required design speed, and all other ramp geometry matches existing conditions. Table 2 identifies the minimum ramp travel lane and shoulder widths at all locations.

Table 2 - Minimum Ramp Travel Lanes and Shoulder Widths

Ramp	Left Paved Shoulder Width (ft)		Travel Lane Width (ft)		Right Paved Shoulder Width (ft)	
	Required	Provided	Required	Provided	Required	Provided
EB I-64 Exit to Rte 33	4	4	16	16	10	10
SB Rte 33 Entrance to WB I-64	4	4	16	16	8	8
NB Rte 33 Entrance to WB I-64	4	4	16	17	6	6
NB Rte 33 Entrance to EB I-64	4	4	16	16	6	6
WB I-64 Exit to Rte 33	4	4	16	16	8	8
EB & WB Ramp Terminals at Rte 609 Interchange	Match Existing		16	16	Match Existing	
EB & WB Ramp Terminals at New Kent Rest Area	Match Existing		Match Existing (16-feet min.)		Match Existing	
EB & WB Ramp Terminals at Rte 155 Interchange	Match Existing		Match Existing		Match Existing	

(b) Horizontal Alignments

As the primary purpose of this Project is to widen I-64 to provide a third lane in each direction while minimizing outside shoulder widening, except in locations where guardrail or barrier is warranted, our Team's primary focus with respect to the horizontal alignments was to match existing conditions as closely as possible. While the majority of the RFP Conceptual Plans closely match existing conditions, there are three (3) general areas where our Design Concept is optimized to achieve this objective:

- EB I-64 from the beginning of the baseline to Route 33;
- WB I-64 from Route 33 to the

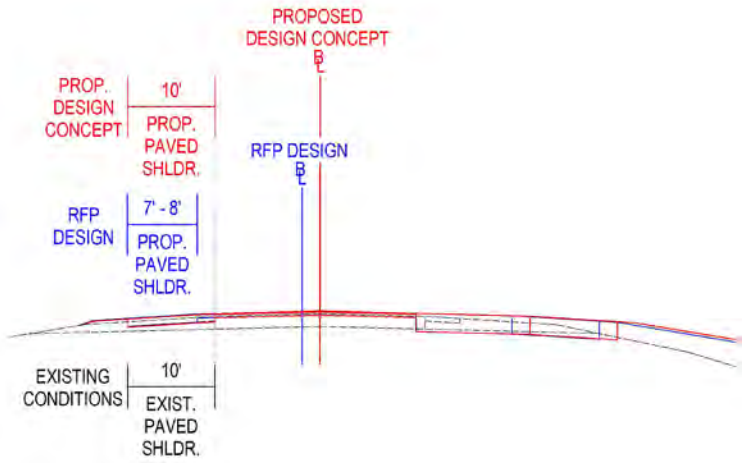


Figure 4.3.1.1 - Horizontal Alignment Enhancement.

beginning of the baseline; and,
- WB I-64 from approximately Station 5047+50 to Station 5085+74

Horizontal alignment adjustments at each of these locations reposition the proposed baseline either on the roadway crown or on a lane-line through superelevated sections, as shown in Figure 4.3.1.1. These enhancements eliminate any additional outside shoulder widening and avoid situations where the existing roadway crown would be located at an offset from a lane line. These adjustments are consistent with the required Design Criteria and further our efforts to develop a Design Concept which can be easily progressed through final design.

Similar to our approach for the I-64 baselines, we developed horizontal alignments for each interchange and the New Kent Rest Area ramps to closely match existing conditions. This reduces or avoids widening and reconstruction of areas beyond the physical gores.

As discussed during our Team's Proprietary Meeting, we recognize that VDOT took additional efforts during development of the RFP Conceptual Plans to collect extensive surveying and mapping data which is more detailed than has been collected for past solicitations. Upon review with our surveying personnel and mapping subconsultants, we are confident that the surveying and mapping data provided can be used for final design; however, we recognize that collection of supplemental survey information is the responsibility of our Team and no risk to VDOT. Accordingly, our Team will verify all provided survey information, and supplemental data collection will be completed as necessary. Because of the improved accuracy of information provided with the RFP Information Package, we are confident that our Conceptual Design can be directly translated into our final design layout upon Contract Award. Therefore, we approached development of our Design Concept in a way that every line drawn and detail prepared at this stage will be usable in final design, improving the design schedule and enabling construction efforts to begin as soon as possible.

(c) Maximum Grades

Maximum proposed grades are consistent with the RFP Conceptual Plans and are based on milling and overlay of the existing interstate utilizing a spline grade to define the proposed longitudinal grades. In both directions of I-64, the maximum grade is approximately 3.0% (descending grade in the EB direction and climbing grade in the WB direction) located east of the Route 33 interchange and west of the emergency crossover at approximately EB I-64 Station 1060+00. As compared with existing conditions, only slight modifications to the existing grades are required where wedge overlays will be utilized to transition pavement at the Project tie-ins and where vertical clearances must be maintained under overpass bridges.

In addition to I-64, improvements at each of the interchange ramp gores require minor adjustments of ramp profiles and are consistent with existing conditions.

(d) Typical Sections

Typical sections for EB and WB I-64 and the ramp connections are provided in our Volume II Design Concept and are consistent with VDOT requirements and the RFP Design Criteria. Typical sections proposed include the following:

- ***I-64 EB and WB:*** Three (3) 12-foot wide travel lanes are provided in each direction along with 10-foot paved shoulders on both the median and outside shoulders. Adjacent to the outside shoulders, graded slopes are maintained to avoid installation of guardrail, and all existing cable rail will be removed. Where guardrail is required, paved shoulder widths are increased to 12-feet. At the west end of the Project, proposed noise barriers are located outside of the clearzone to minimize installation of

additional guardrail. In the median, traversable and recoverable grading is provided in cut sections and in shallow fill sections to avoid installation of guardrail while also not introducing additional tree clearing areas. In deeper fill areas where 2:1 and non-recoverable slopes are necessary within the clearzone, guardrail is provided.

- ***Interchange Ramps:*** Each interchange ramp consists of a short area of mill & overlay and widening to implement the gore modifications and recovery area. Ramp travel lane widths are generally 16-feet wide, although transitions between the physical gore and the existing ramps result in this width being wider at the physical gore and in some cases narrower to match existing conditions. In no cases are the ramp widths narrower than required by the Design Criteria. Left paved shoulder widths vary from 4-feet minimum to as much as 6-feet where guardrail is present or to match existing conditions, and right shoulder widths vary from 8-feet to 10-feet based on limits of guardrail installation and to match existing conditions.
- ***Outside Shoulder Strengthening:*** The existing outside shoulders are milled to a depth of 7-inches and replaced with 7-inches of new asphalt. This operation will be detailed on Advance Temporary Traffic Control Plans to facilitate early strengthening, shifting of traffic to the outside shoulders, and placement of temporary barrier along the median.
- ***Underdrains:*** Standard UD-4 edge drains will be installed along the outside and median shoulders for the entire Project length. As discussed in our Proprietary Meeting and as shown in Figure 4.3.1.2, our Design Concept adjusts the location to the outside edge of shoulder. This enhancement improves long-term performance as it locates the underdrain within existing aggregate subbase areas and provides drainage, as compared to the UD-7 retrofit underdrains which would have been located at the high point of the existing subbase aggregate. All underdrains will be outfalled using outlet pipe and standard EW-12s.

Figure 4.3.1.2 - Underdrain will be located at the outside edge of the existing and proposed shoulder to maximize drainage of the subbase layer.

Our Design Concept is based on utilizing the "Asphalt Alternate" pavement section as it results in a lower initial construction cost and improved schedule. As required, the existing pavement which is being retained will be milled 2-inches and built-up with 5-inches of new asphalt. While the majority of the improvements are based on milling and overlay of the existing pavement, full depth reconstruction in the vicinity of Exit 205 will be completed to remove the existing concrete pavement in the following areas:

- EB I-64 Station 1027+05 to Station 1029+21
- WB I-64 Station 5027+09 to Station 5042+44

Within these areas, temporary traffic control plans, described in Section 4.5, will be developed to facilitate full-depth pavement removal and reconstruction while maintaining two thru-lanes in each direction at all times.

(e) Conceptual Hydraulic and Stormwater Management Design

Our Team's overall hydraulic design approach is centered around maintaining existing drainage patterns and conveying runoff as efficiently as possible through roadside ditches. We also are focused on the benefits of maintaining wooded/forested areas in the median, where trees can be safely retained while also maintaining a clear road-side condition. Collectively, based on our slope grading and stormwater management enhancements described below, ***an additional 20 acres of median forested areas beyond those identified in the RFP are able to be retained by our Team***. This additional forested area helps retain the rural characteristics of the corridor and also has operational benefits by blocking visibility of opposing

traffic. The following sections describe our approach from both a roadway hydraulic perspective as well as for stormwater management.

Hydraulic Design

Median widening will require grading of new ditches to maintain flow to existing culverts and outfall locations. Roadside ditches will be designed in accordance with VDOT Drainage Manual requirements for interstate facilities to ensure velocities are controlled, freeboard requirements are met, and long-term maintenance is considered in their layouts and locations. Closed system storm sewers are only proposed where outfalls require flow to be piped beneath median crossovers or from the median to the outside where existing facilities require replacement in accordance with RFP Part 2, Section 2.7.2. Details of our Team's proposed hydraulic design include:

- 6 pipe crossings of WB I-64, to be installed using trenchless installation methods;
- 8 pipe crossings of EB I-64, to be installed using trenchless installation methods;
- 15 pipe culvert extensions in the median; and,
- 1 box culvert extension outside of WB I-64 west of Exit 205.

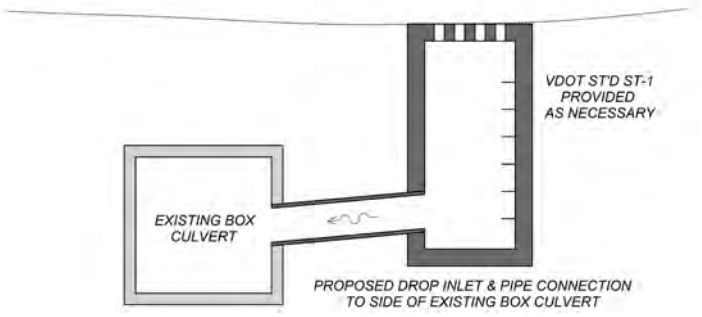


Figure 4.3.1.3 - Proposed Storm Pipe Connection to an Existing Box Culvert

Where storm pipes are required to be connected to box culverts, connections will be made through the side wall of the box to avoid compromising the top slab reinforcement and the need to provide steps inside of the box culvert, as shown in Figure 4.3.1.3. By doing so, safety slabs and steps can be provided within the total height of the structure to improve safety for maintenance access.

Based on our past experience along the I-64 corridor, we recognize that existing outlet protection may not meet current criteria for outlet control. In addition to checking each outfall for adequacy in accordance with MS-19 requirements, we will place additional riprap at existing pipe and box culvert outfalls along the outsides of I-64 where flow is expected to be increased, as shown in Figure 4.3.1.4. This eliminates any maintenance concerns for both existing and proposed conditions.

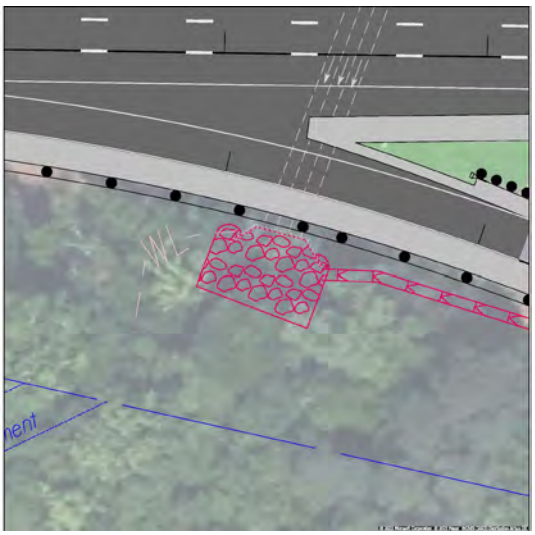


Figure 4.3.1.4 - Outlet protection has been accounted for at existing outfalls to address existing erosion challenges and attenuate outfall velocities.

While the majority of the drainage improvements are in the median, work along the outside has also been a focus of our Team. Specifically, our drainage designs account for the installation of noise barriers between the Route 33 Interchange and Route 665. Where existing ditches will cross proposed noise barriers, drop inlets connected to storm sewer pipes, as shown in Figure 4.3.1.5, avoid installation of hazards within the clearzone and also avoids introducing any openings beneath the noise barriers. Survey information provided with the RFP identified damaged ditch linings in several locations, each of which will be repaired or replaced to avoid further degradation of slopes and ditches behind the noise barriers.

Stormwater Management Design

Stormwater management design will be based on Virginia Department of Environmental Quality (DEQ) II-C criteria. Our Team's unique stormwater approach utilizes the right-of-way corridor as the Project area. As a result,

and in accordance with performance-based calculations, the total percent impervious cover is less than the average land cover and therefore there is no Phosphorus removal requirement for the Project. ***This concept eliminates the need for VDOT to purchase up to 10 pounds of nutrient credits for this Project, and the previously purchased credits can be used towards other VDOT projects, reducing VDOT costs***.

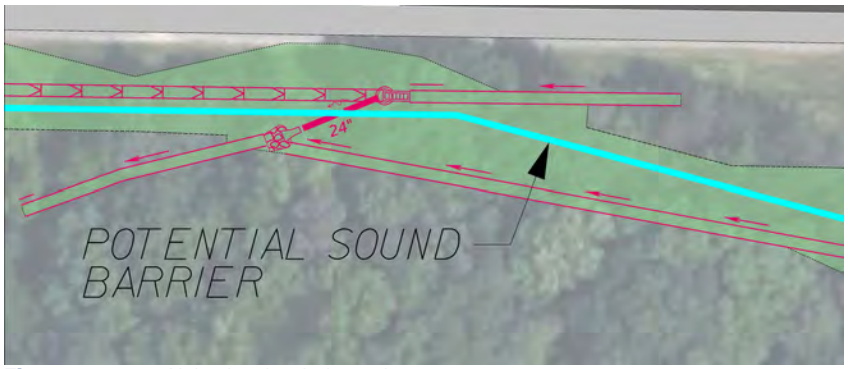


Figure 4.3.1.5 - Noise barrier drainage improvements

Additional benefits of our stormwater management approach include.

- ***Improved Access:*** The only SWM facility required by our Design Concept is located inside the loop ramp from NB Route 33 to WB I-64. Maintenance access is provided from the loop ramp.
- ***Safety:*** Elimination of all median SWM facilities eliminates maintenance access where larger speed differentials would be created between high-speed left lane motorists and decelerating maintenance equipment. Only requiring one (1) SWM facility compared to the five (5) identified in the RFP also improves safety by minimizing the number of access points along this segment of interstate.
- ***Maintenance:*** Reduction of the number of SWM facilities from five (5) to one (1) reduces long-term maintenance costs for VDOT and the number of facilities which are required to be inspected on a regular basis.

The proposed widening contributes flow to approximately 50 outfall locations where concentrated flow leaves the right-of-way. Our stormwater management approach addresses MS-19 water quantity requirements by directing drainage towards adequate outfall channels. Documentation of each outfall, including photos of existing conditions, will be provided with the drainage computations to confirm outfall adequacy. By adjusting the location of the only required SWM facility to the outside of WB I-64, median forested areas are retained to the maximum extent possible by our Team. By retaining over 20 additional acres of existing forested median, as compared to the RFP Conceptual Design, more screening between EB and WB I-64 will reduce rubber-necking delays when incidents do occur, will help with sun glare, and will maintain the existing forested corridor aesthetics desired by VDOT and the public.

(f) Proposed Right-of-Way Limits

Consistent with the RFP Conceptual Plans, our Design Concept remains completely within existing right-of-way, and no acquisition of right-of-way or easements are proposed.

(g) Proposed Utility Impacts

Proposed utility impacts are included in Section 4.4.2 and identified on our Volume II Design Concept.

(h) Noise Barrier Locations

Consistent with the RFP Conceptual Plans, our Design Concept reflects the following three (3) noise barriers, all located at the western end of the proposed improvements between the Exit 205 Interchange and the Route 665 (N. Hen Peck Road) overpass:

- Noise Barrier A – 3,651.5 linear feet
- Noise Barrier A1 – 710.5 linear feet
- Noise Barrier B – 1,825.0 linear feet

From our experience designing over 5 miles of noise barriers along the I-64 corridor, it is important to

develop accurate noise barrier layouts early during preliminary design so that minor adjustments are less likely to be required during final design or the shop drawing phase. Accordingly, our Design Concept incorporates the following adjustments to the noise barrier alignments:

- The front face of all noise panels will be no closer than 35-feet from the edge of travel lane, avoiding the need for guardrail or barrier protection;
- Bend points are not located over culverts or other subsurface features; and
- Panel lengths of 24-feet, or increments thereof, are reflected on the overall layout for consistency with future shop drawings.

These modifications provide a safe, clear roadside condition where less guardrail is required, the amount of grading is reduced, and existing open-channel drainage patterns are maintained. Final noise barrier limits will be identified based on the final design noise analysis, and should minor modifications be necessary based on final analysis, adjustments can easily be incorporated without losing sight of these benefits. Following successful modeling and layout, construction will be contingent on receipt of an adequate number of "yes" votes during the public voting process, which our Team will also efficiently manage and complete.

(i) Guardrail/Barrier

To reduce cost and minimize VDOT's long-term maintenance, our Team focused extensively on reducing or eliminating guardrail. It is evident that a clear roadside configuration was of utmost importance during design and construction of the existing roadway. With this in mind, our Team has attempted to replicate this condition in the proposed configuration, enabling a low amount of guardrail to be required following completion of the improvements. Along the outside shoulders, noise barriers are adjusted to be located at least 35-feet from the edge of travel lane, placing them outside the clearzone and eliminating the need for guardrail or barrier protection. In the median, grading has been optimized and culvert extensions implemented to the maximum extent feasible without adding extensive costs. ***These efforts have minimized guardrail and barrier installations which lower initial construction costs, improve public safety, and reduce long-term maintenance for VDOT.***

As required by the RFP, all existing guardrail will be removed, and where warranted, new MASH compliant guardrail will be installed. Similar to the final design approach we have taken during development of our Conceptual Design, we completed Length of Need (LON) calculations for all guardrail installations, ensuring proper limits have been accounted for. Guardrail and barrier installations are shown based on the following:

- ***Outside Shoulder Barriers:*** Minimal lengths of barriers are necessary and depicted on our Design Concept. BPPS barriers are included beneath Route 33 (New Kent Highway), and conventional BPB-4 barrier in combination with a retaining wall will be constructed along WB I-64 to avoid impacts to the marsh area associated with the Chickahominy River.
- ***Outside Shoulder Guardrail:*** As discussed at our Team's Proprietary Meeting, the existing cable rail along the outsides of I-64 is located at or beyond the clearzone. By adjusting the noise barrier alignments as described in (h) above, guardrail is not required in front of them. Guardrail will be provided at new overhead sign structures, to protect culvert headwalls which are within the clearzone, and approaching BPPS installations beneath overpass bridges. Where BPPS is not required beneath the existing bridges, guardrail will be extended along the outside shoulders where piers or abutment slopes are just within the clearzone as shown in Figure 4.3.1.6. These bridge guardrail installation areas are located at Route 665 (N. Hen Peck Road), Route 640 (Old Roxbury Road), Route 612 (Airport Road), Route 609 (Emmaus Church Road), and Route 618 (Olivet Church Road).

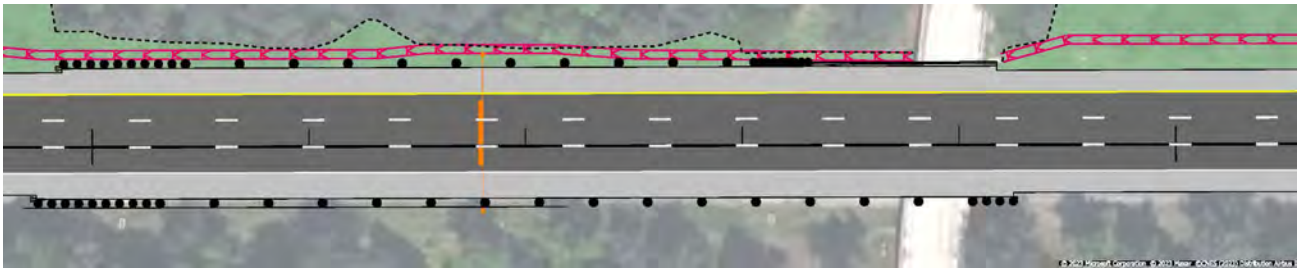


Figure 4.3.1.6 - Proposed guardrail has been added along the outside shoulders were existing bridge piers are within the clearzone but beyond the 30' offset which would require BPPS installation.

- ***Median Shoulder Barriers:*** Median shoulder barrier installations consist solely of BPPS installation for protection of existing bridge piers at the Route 33 (New Kent Highway), Route 665 (N. Hen Peck Road), Route 612 (Airport Road), Route 609 (Emmaus Church Road), and Route 618 (Olivet Church Road) overpasses.
- ***Median Shoulder Guardrail:*** Median shoulder guardrail is accounted for at all locations where culvert extensions, drainage improvements, and slope grading cannot be completed in a manner which maintains a hazard free clearzone, as well as where run-on protection of BPPS installations are required.

(j) Locations of Mill and Overlay/Buildup of Existing Pavement

While the majority of the existing travel lane pavement will be built-up by a total of 3-inches by milling 2-inches and replacing with 5-inches, pavement transitions will be required at several locations. These include beneath underpasses to maintain minimum vertical clearances or to match the proposed grade on the bridges over Route 155 (Courthouse Road) where the bridge deck finished surface will be raised. At each of these locations, VDOT Standard ACOT-1 will be used to transition the pavement build-up, and transition lengths of at least 150-feet will be used to remain compliant with the 50 ft/inch ratio required for a 70mph design speed. Specific to the transitions at each underpass, our Team has completed an analysis of each to determine the amount of build-up allowable to either maintain the existing vertical clearance, if less than 16'-6", or to avoid reducing the clearance to less than 16'-6". Table 3 outlines the anticipated pavement overlays at overpass bridges.

Table 3 - Anticipated Pavement Overlay at Overpass Bridges

Location	Existing Minimum Vertical Clearance	Overlay Proposed	Proposed Minimum Vertical Clearance
EB I-64 under Route 33	16'-5"	None	16'-5"
WB I-64 under Route 33	17'-10"	3"	17'-7"
EB I-64 under Route 665	16'-7"	1"	16'-6"
WB I-64 under Route 665	16'-8"	2"	16'-6"
EB I-64 under Route 640	16'-3"	None	16'-3"
WB I-64 under Route 640	16'-6"	None	16'-6"
EB I-64 under Route 612	16'-8"	2"	16'-6"
WB I-64 under Route 612	16'-9"	3"	16'-6"
EB I-64 under Route 609	16'-2"	None	16'-2"
WB I-64 under Route 609	16'-3"	None	16'-3"
EB I-64 under Route 618	17'-3"	3"	17'-0"
WB I-64 under Route 618	17'-6"	3"	17'-3"

Additionally, more detailed surveys will be completed during Final Design to verify the exact existing vertical clearances at each overpass.

Pavement overlay transitions will begin or end at the Project limits so that the full 3-inch build-up of pavement is provided for the full length of pavement widening. Based on the 70mph design speed, each transition will be completed over a length of 150', maintaining the 50 ft/in transition rate required. At the east end, the future "Segment B" project will then provide a variable depth overlay of that same 150', resulting in the full 3" build-up through the entire transition length, as shown in Figure 4.3.1.7.

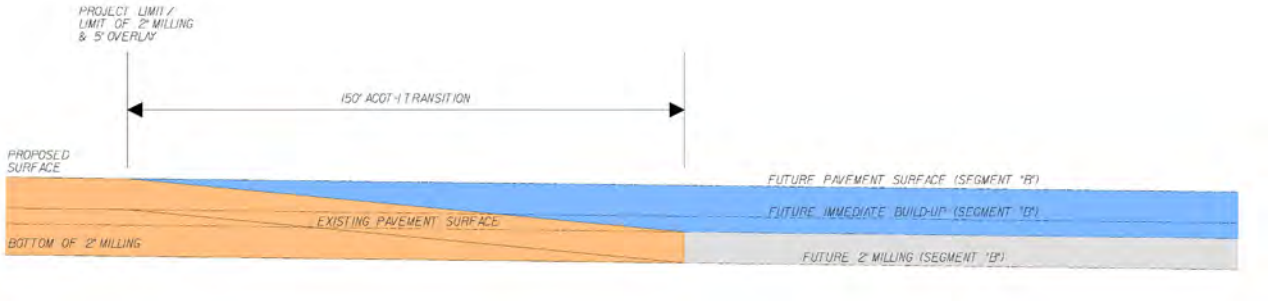


Figure 4.3.1.7 - Pavement transition at the future Segment B Project.

In addition to the build-up of existing travel lanes, the outside shoulders will also be milled and replaced to provide an ultimate outside shoulder pavement thickness of 10-inches. Finally, at the west end of the Project, the EB lanes will be milled and overlayed to eliminate the existing lane drop markings approaching the Route 33 (Exit 205) exit ramp.

(k) ITS Infrastructure

Devices associated with the permanent Intelligent Transportation System (ITS) are shown in our Volume II – Design Concept, including proposed DMS signs and CCTV cameras, existing and/or relocated continuous count stations, over-height vehicle detection system, Welcome Center status DMS, and travel time display sign. Five (5) new DMS signs will be installed, each on a full truss span sign structure and centered over the travel lanes for maximum visibility. DMS locations have also been validated to ensure optimal visibility considering both horizontal and vertical alignments. A total of eight (8) pan-tilt-zoom CCTV cameras will be included, six (6) of which are new and two (2) that are existing that will be converted to the proposed fiber optic communications network. CCTV locations have been chosen to maximize line of sight and visibility of interchange ramps and will include a camera lowering system for ease of maintenance. Uninterruptible Power Supply (UPS) will be included with each proposed device to provide continued operation in the event of a commercial power interruption. Proposed device locations have been coordinated with the roadway shoulder design to ensure areas for CCTV servicing are incorporated into the design.

A fiber optic communications system will be installed throughout the Project limits along the WB lanes consisting of four (4) two-inch conduits, a 96 fiber backbone and 24 fiber distribution (drop) cables to devices. The routing of our communications backbone is coordinated with the other Project elements to facilitate constructability, achieve resilience and ease of long-term maintenance, and ensure compatibility with the existing ITS system at the western terminus and the future ITS system (by others) at the eastern terminus. The system will be bored under Route 155 (North Courthouse Road) to avoid open-cut impacts to the roadway and the need for an underbridge conduit system.

Locations for additional miscellaneous elements such as conduit routing, equipment control cabinets, junction boxes, and electrical service points will be finalized during Final Design. All existing devices including DMS, CCTV, and Overheight Vehicle Detection (OHVD) will be continuously maintained throughout construction.

4.3.2 Conceptual Structural Plans

Our Team's Design Concept for the structural elements focused on key challenges presented by the scope of work that could impact the structural design. Table 4 highlights these challenges and our strategies to address.

Table 4 - Structural Challenges and Solutions

Challenge	Solution
Increased substructure forces due to joint closures and bearing re-configuration	▪ Analyzed the proposed widened bridge configuration with closed joints using a finite element program (LARSA 4D) ▪ Completed Final Design level analysis ▪ Confirmed existing substructures and foundations accommodate required bridge improvements
Drainage Spread	▪ Performed spread calculations for the temporary and final conditions ▪ Confirmed spread is within allowable limits as required by the RFP
Maintain vertical clearance over Route 155	▪ Calcuated vertical clearance to determine the available superstructure depth ▪ Utilize 37-inch deep prestressed concrete bulb tee beams (PCBT-37) to maintain the required 16'-6" clearance

I-64 EB/WB Bridge Widenings over Route 155

Bridge concept plans for the I-64 EB/WB bridge widenings over Route 155 are provided in our Volume II Design Concept. The proposed configuration for each bridge is shown in Table 5.

Table 5 - Proposed Bridge Configurations

Roadway Section	Total Out-To-Out Width	Span Arrangement and Total Length	Abutment Type	Widening Pier Type
12' Left Shoulder 3 – 12' Travel Lanes 11' Right Shoulder	62'-8"	1 Span at 38'-6 1/2" 1 Span at 65'-5" 1 Span at 38'-6 1/2" Total Length 147'-9"	Conventional cantilever abutments with deck slab extension (existing abutments to be modified to accept deck slab extension and buried approach slab)	Hammer head pier

Superstructure

The widened bridge decks will be cast-in-place concrete using low permeability concrete and Corrosion Resistant Reinforcing Steel (CRRS). Our design will locate the construction joints for the widening over an existing beam line and locate the overlay construction joint outside of the wheel path to improve rideability. The main load carrying elements will be VDOT PCBT-37 prestressed concrete bulb tee beams. This shape was chosen because it can adequately span the longer center span, while also being shallow enough to fit within the available superstructure depth to maintain the vertical clearance over Route 155. After careful analysis, our Team determined that matching the existing AASHTO Type III beams over the middle span would reduce the vertical clearance at the I-64 EB bridge below 16'-6" and violate the RFP requirement. The new PCBT-37 Beams will be designed to provide compatible deflections when compared to the existing bridge AASHTO beams, and has a similar moment of inertia. All new bearings, under both the new and existing beams, will be laminated elastomeric bearings designed to current AASHTO LRFD and VDOT specifications. The new bearings will be designed with the ultimate bridge configuration

in mind, including the proposed joint elimination work and the associated changes to the bearing fixity layout.

Substructure

The bridge widening will be supported by newly constructed piers and widened abutments that will aesthetically complement the existing structure. Piers for the proposed widening will be hammerhead type piers, as shown in Figure 4.3.2.1, constructed using cast-in-place concrete. The piers will be founded on deep foundations, and steel H -piles are being considered by the Team. Based on the information provided with the RFP, we anticipate that soil corrosivity will stay within a range that makes steel piles feasible; however, during final design this will be investigated fully to determine if a change to concrete piles or drilled shafts is warranted.

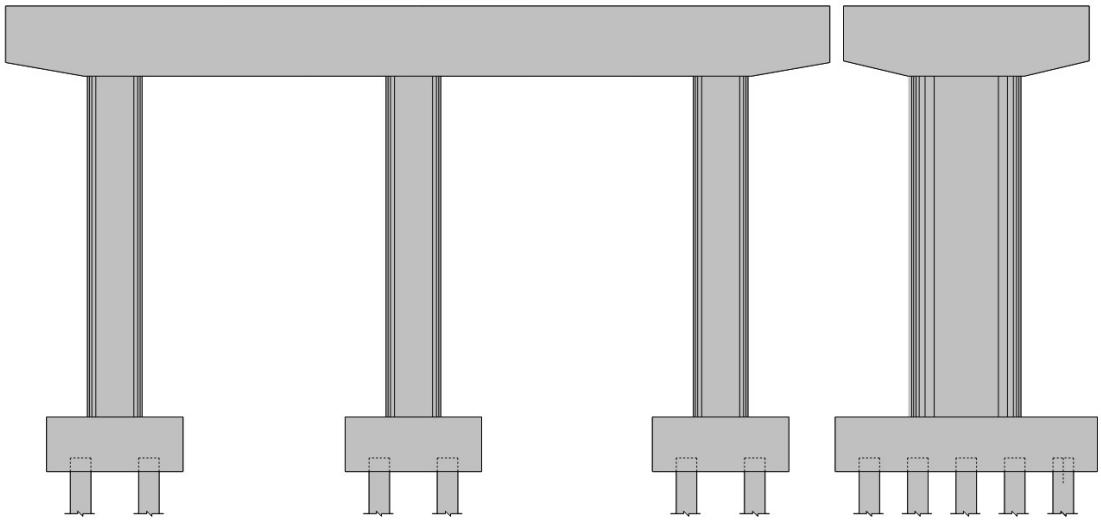


Figure 4.3.2.1 - Proposed hammerhead piers will aesthetically complement existing piers.

The existing abutments will be widened to accommodate the proposed beams. Conventional abutments will be detailed with a shortened backwall to allow for a deck slab extension. This will make the bridge jointless at the ends and reduce long-term maintenance costs for VDOT by slowing deterioration at the beam ends and bearings. New abutments will be detailed with a seat for the buried approach slab. Foundations for the new abutments will be spread footings to match the existing configuration, and during final design, potential settlement challenges will be investigated to ensure that all requirements are met.

Improvements to Existing Bridges

During bridge widening construction, the existing bridges will undergo improvements to extend their lifespan. Milling and hydrodemolition of the bridge decks will be followed by a Latex Modified Concrete overlay to replace the worn top surface. Modifications also include closing the expansion joints in the bridge deck and providing a continuous concrete deck slab over the beams and substructure. This work is consistent with VDOT's effort to construct jointless bridges and reduce the susceptibility of bridge elements below the deck being exposed to chloride-laden water. To eliminate expansion joints over the piers, a flexible link slab detail will be used following guidelines in Chapter 32 of Part 2 of the *Manual for the Structure and Bridge Division*. Similarly at the abutments, deck slabs will be rebuilt and extended based on Deck Extension details in Chapter 32.

General repair work is planned for the existing superstructure and substructure elements at the existing bridges after an in-depth inspection. To do this, traffic control will be set up on Route 155 below the bridges and a bucket truck will be used for access to the bridge elements. Concrete elements will be sounded to check for surface repair needs and crack sizes will be measured. Special attention will be paid to the ends of beams and to beam seats on substructure units. Shortly after the inspection is completed,

a report will be submitted to VDOT detailing the findings and listing the anticipated quantities for repair compared to what was anticipated in the RFP. The report, once accepted by VDOT, will become the basis for the bridge repair plans that our structural engineers will develop.

Another improvement to the existing bridges are the replacement of all bearing assemblies with laminated elastomeric bearings. Our preliminary bearing design found that the proposed replacement bearing pad would need a height of approximately 2.25" to satisfy current requirements, which is taller than the 0.75" thick pad currently in place. This will result in the bridge profile being raised by the difference in bearing height. However, since the approach roadway profile is to be raised by 3", this is not anticipated to be a concern. As shown in Figure 4.3.2.2, our engineers will take measurements to verify as-built information including bearing heights.

Figure 4.3.2.2 - Team will take measurements of existing bridge components to help design efforts.

The bridge construction scope is anticipated to be completed in two phases of work. Temporary traffic barrier will be located to allow space for the temporary shoring needed to construct the abutment widenings and buried approach slabs. The overlay construction joint near the center of the bridge has been located so that it is outside of a wheel path. While developing a sequence of construction, our Team also analyzed spread at each temporary stage and the final condition. Approximately 6'-4" of spread is expected on the bridge during the temporary stage using the rainfall intensity of 4.0 inches per hour specified in the RFP, as shown in Figure 4.3.2.3. This is acceptable using the RFP criteria which allows for half of the travel lane to be covered by the spread during the temporary phase. To improve this condition, our Team plans to maximize the shoulder along the gutter line as much as possible to reduce spread impacts to the travel lane during the temporary condition. Spread at the final condition was also investigated by our Team and it was found to be acceptable as it would not exceed the width of the shoulder. The final condition spread check accounts for increasing the rainfall intensity by 20% in accordance with Chapter 33 of Part 2 of the *Manual for the Structure and Bridge Division*.

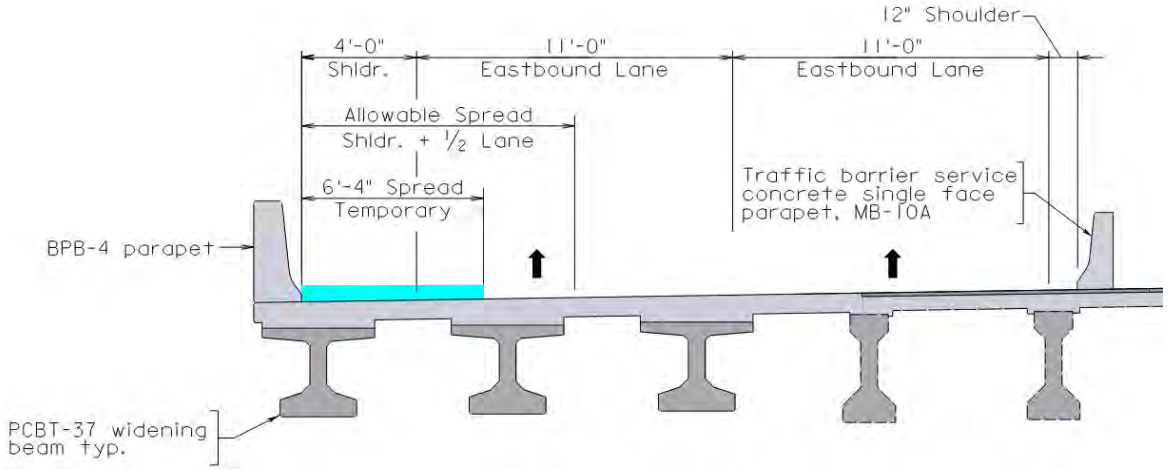


Figure 4.3.2.3 - Temporary spread condition was found to be acceptable per RFP requirements.

Joint Elimination Analysis

Recognizing that the elimination of joints on an existing bridge could require strengthening of existing substructure elements, we have performed a thorough analysis of the structure in the proposed widened

condition. Because we will be using a flexible link slab to close joints over the piers, the design Team evaluated the existing piers using the structural engineering software LARSA 4D, a finite element model depicted in Figure 4.3.2.4. The model provides insight into how longitudinal forces such as braking force and temperature loads would be shared between the new and existing piers. Using the capabilities of LARSA 4D, we are able to take advantage of the stiffness of the proposed new hammerhead pier in sharing the increase in longitudinal loads. Our analysis ultimately showed that the existing pier elements are capable of withstanding the increase in forces due to the joint elimination. The existing pile foundation at this fixed pier was also shown to be adequate for the new configuration. With this analysis complete, our Team will be approaching final design with the confidence that no strengthening of existing pier elements or foundations will be needed.

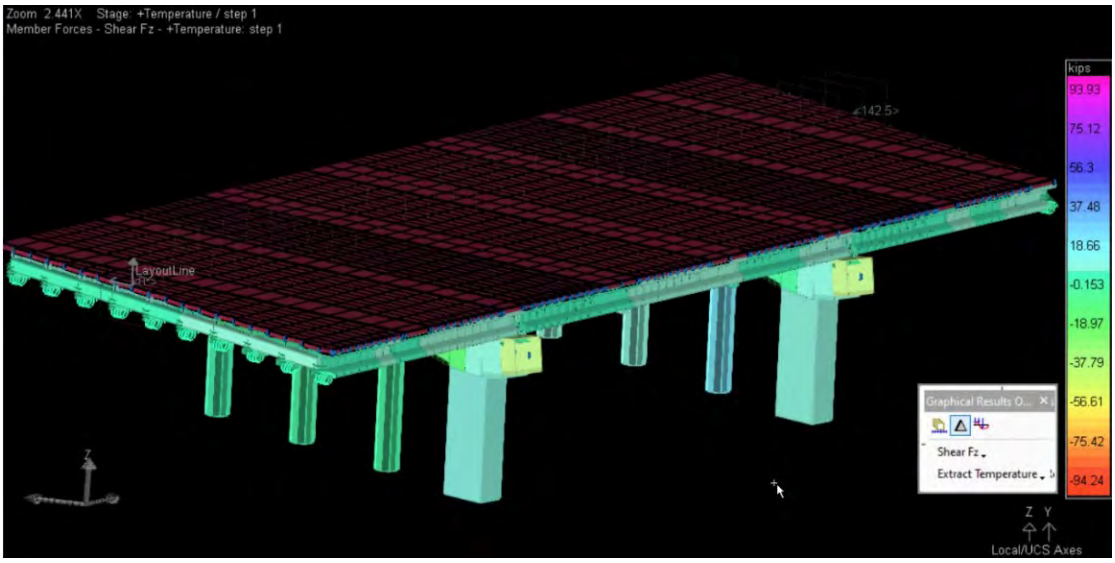


Figure 4.3.2.4 - LARSA 4D finite element model of proposed bridge piers.

Overpass Bridges

BPPS pier protection will be added at the following seven overpass bridge locations identified in the RFP:

- Route 33 over I-64 EB/WB (along both inside and outside shoulders)
- Route 665 over I-64 EB/WB (along inside shoulders)
- Route 612 over I-64 WB (along inside shoulder)
- Route 612 over I-64 EB (along inside shoulder)
- Route 106 over I-64 EB/WB (along inside shoulders)
- Route 618 over I-64 WB (along inside shoulder)
- Route 618 over I-64 EB (along inside shoulder)

Figure 4.3.2.5 - In-depth inspection will be completed by the Team to identify repairs on the Route 33 overpass bridge.

The pier protection barrier will follow the appropriate VDOT Standard drawing details and the layout guidance in Chapter 15 of Part 2 of the *Manual for Structure and Bridge Division*. Pier protection barrier within the splash zone will be constructed using CRRS as prescribed by the VDOT IIM-S&B-81.

In addition to the BPPS barrier to protect existing bridge piers, the RFP also states that bridge repairs are

to be made to the piers of the Route 33 bridge over I-64. An in-depth inspection of the bridge elements, as shown in Figure 4.3.2.5, will be performed in order to identify repair items such as cracks, spalls, and other concrete defects. Proposed repair plans will be submitted to VDOT for approval prior to starting the repair work. All repair work will follow Section 412 of the *VDOT Road and Bridge Specifications*.

Box Culvert Repairs

In-depth inspections will be performed for the existing box culverts in order to identify and map locations of defects to be repaired. The inspection, as shown in Figure 4.3.2.6, will be completed for each culvert with the anticipated repair quantity shown and compared to the repair quantity given in RFP Table 2.7.2. Photos and types of defects will also be provided in the report. Once approval is given by VDOT, a detailed repair plan will be developed showing locations and typical repair details.

Figure 4.3.2.6 - Box culvert inspection.

Overhead Sign Analysis

Three existing overhead cantilever signs along I-64 EB are assumed to remain after completion of the Project. Including:

- Station 961+00 - Cantilever Sign
- Station 982+00 - Cantilever Sign
- Station 1010+00 - Cantilever Sign

A report will be submitted by the Team which will include an analysis to verify that these signs meet current design standards and the newly proposed sign configuration. A preliminary review of each sign structure indicates that these signs can be reused given that each were built within the last five years. The proposed new sign configuration has also been analyzed and it appears that the loads on each structure will not increase over the existing.

Retaining Walls

As shown in our Volume II Design Concept, a retaining wall located along I-64 WB will be constructed between Stations 4994+00 and 5003+00 and will have an average exposed height of approximately 8-feet. The Team has evaluated wall type options and anticipate utilizing either a gravity wall, or MSE wall with a barrier mounted on top for traffic protection. The barrier will be standard BPB-4 bridge parapet which will utilize Low Permeability Concrete and CRRS. The new wall will be designed in accordance with VDOT and AASHTO LRFD Specifications and requirements and a 100-year design life.

Major Drainage Structures

Our Team has closely examined the earthwork limits and are able to reduce the number of box culvert extensions to one (1). We have reviewed the drainage inspection information provided with the RFP documents and believe each is in good condition to facilitate extension and rehabilitation. None of the extensions will require special design, since standard VDOT details will be used.

4.4
Project Approach

4.4 Project Approach

4.4.1 Environmental Management

Our Team takes a comprehensive, proactive approach toward environmental management during the design and construction of our design-build transportation projects. Environmental management is one of the most critical aspects of a successful project and is regarded as an interdisciplinary approach which requires close coordination between the environmental team; design engineers; and construction, right-of-way, utilities, and safety personnel to ensure the full scope and current conditions are addressed throughout each phase. As demonstrated on previous VDOT projects, our Team will exceed expectations to address environmental challenges, satisfy public concerns, and ensure the Project remains on schedule. We will utilize this same approach and experience to provide outstanding environmental stewardship at all times.

Approach to Environmental Risk Management During Design

Environmental challenges on highly constrained transportation projects require in-depth, upfront planning with the entire Project Team to reduce and address risk. Our Team initiates risk management and avoidance efforts during the procurement phase to ensure all elements, inclusive of utility relocations, account for environmental commitments and constraints. To integrate environmental concerns into the overall plan and minimize the risk of unforeseen impacts and schedule delays, our Team develops a constraints mapping file, in MicroStation format, which can be referenced into design files as shown in Figure 4.4.1.1. This file assists our Team in designing around environmental constraints, as each engineer is able to visualize locations and limits of constraints and resources which need to be avoided.

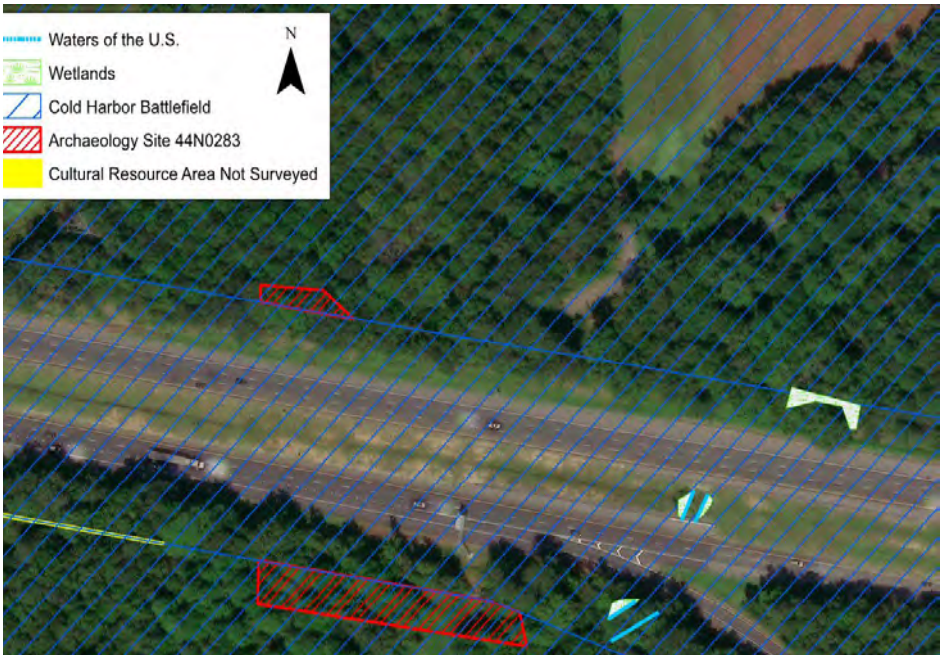


Figure 4.4.1.1 - Environmental constraints mapping demarcating cultural resource avoidance areas and jurisdictional features.

Specific resources that may be of concern and which will require coordination, minimization and/or avoidance on this Project include:

- Section 4(f) resources including the Cold Harbor Battlefield, Savage Station Battlefield, and Seven Pines Battlefield;
- Section 106 Cultural resources including site 44KN0283, all areas not surveyed within the existing right-of-way, Cold Harbor Battlefield (042-5017), Savage Station Battlefield (043-0308), and Seven Pines Battlefield (043-5081);
- Section 7 Threatened & Endangered Species including the Northern Long-Eared Bat, Tricolored Bat, and Little Brown Bat; and
- Natural resources including Rumley Marsh.

Table 6 further describes affected resources and our avoidance and minimization strategies to address.

Table 6 - Strategies to Avoid/Minimize Environmental Impacts and Risk

Resource	Avoidance and Minimization Strategy
Wetlands & Streams	▪ Based on the newly revised Waters of the U.S. (WOUS) rule, a State Surface Waters Determination (SSWD) will be obtained from DEQ and submitted concurrently with the NWP 23 and VMRC permit. ▪ Conduct coordination with USCG for a Permit Determination Exception Letter.
Tree Save Areas	▪ Avoid encroachment into Forested Areas to Remain as demarcated on RFP Conceptual Plans. ▪ Optimize grading to create approximately 20 acres of additional tree save areas above those shown in the RFP.
Threatened & Endangered Species	**Endangered Bat Species** ▪ Preliminary results of the acoustic survey conducted by VDOT indicated the presence of the Northern Long-Eared Bat (NLEB) and Tricolored Bat. Our Project Schedule incorporates a Time-of-Year Restriction (TOYR) from April 1st to November 14th to avoid impacts. ▪ The Tricolored Bat has recently been proposed as endangered at the Federal level by U.S. Fish and Wildlife Service (USFWS), which may result in a change in TOYR. Early coordination with the USFWS and Department of Wildlife Resources (DWR) will be conducted to assess the potential for additional TOYR. **Nesting Birds** ▪ Follow the nesting bird TOYR for structure numbers 12669 and 126671 from March 15th to August 15th. **Species Inspections** ▪ Conduct bridge inspections for bats and nesting migratory birds on structure numbers 12669 and 126671 if construction on the bridges has not commenced by December 15, 2024.
Cultural Resources	▪ Avoid encroachment into sites 44KN0283, 042-5017, 043-0308, 043-5081, and areas not surveyed within right-of-way as demarcated in the Cultural Resources Mapping file in the RFP and included in our constraints mapping file.

Environmental Management Plan (EMP)

To achieve and maintain compliance with environmental commitments, permit regulations, and the NEPA document, our Team will prepare and compile a comprehensive Environmental Management Plan (EMP). Development and use of the EMP will reduce risks and address compliance by tracking environmental constraints, previous environmental commitments, permit conditions, and stakeholder communications. The EMP will also detail key milestones and timelines for the submittal of reports, permits, and monitoring documentation. Our Team will work directly with VDOT to provide documentation semi-annually, utilizing the EMP as a tracking mechanism to ensure the commitments of the NEPA document and associated State and Federal permits are being met. The appendices of the EMP will also be a living document, which will be continuously updated to correspond with design revisions to maintain compliance. Prior to the commencement of construction activities, the EMP will be reviewed with the construction and QA/QC teams and provided during pre-construction training.

Environmental Permitting

Weekly coordination meetings with design and construction personnel will facilitate technical input and recommendations so that all environmental considerations are recognized and understood by each discipline. Anticipated permit requirements, constraints, and environmental commitments are prioritized to promote avoidance and minimization efforts while addressing constructability. This active communication eliminates rework during later stages of design and minimizes the potential for future permit modifications. Obtaining timely permits is critical to maintaining schedules for final design, utility relocations, right-of-

way and easement acquisitions, and construction.

Once a draft permit application and impact limits have been vetted by our Team, a Pre-Application Meeting will be held with the U.S. Army Corps of Engineers (USACE), the Virginia Department of Environmental Quality (DEQ), Virginia Marine Resource Commission (VMRC), and other appropriate regulatory and third party agencies. This approach expedites the permitting process by providing an opportunity for each agency to provide comments prior to formal permit application submission. The Preconstruction Notification (PCN) will be submitted when comments are addressed, plans are approximately 60% complete, and utility relocation limits have been identified to ensure all potential impacts have been accounted for.

The Proposal Schedule shown in Section 4.5.3 realistically accounts for the time to obtain the required permits and approvals. There is one documented VMRC regulated stream within the Project area requiring a Subaqueous Bottom Permit for construction, which will be transferred to VMRC upon completion. Based on the expected impacts, the Project will qualify for a USACE Nationwide Permit (NWP) 6 and VMRC permit for Early Works, and a USACE NWP 23, DEQ Section 401 Certification, and a VMRC permit for construction. We do not anticipate Individual Permits will be required for construction.

The USACE NWP 23 will be obtained to authorize work within stream and wetlands. The Virginia Stormwater Management Program (VSMP) falls under the Virginia Pollution Discharge Elimination System (VPDES) and requirements will be addressed through the development and approval of drainage, stormwater management, and ESC designs. A VSMP Registration Statement and LD-445 forms will be submitted to obtain a Construction General Permit (CGP) for land disturbance.

Schedule Integration

Obtaining environmental permits and approvals in a timely manner is a schedule priority. In addition to our efforts to minimize and mitigate risk of delays, we have integrated key permits, approvals, hold points, and predecessor activities into the Proposal Schedule including the following key items:

- ***Water Quality Permits and Certifications (USACE, VMRC, DEQ)*** – The PCN will be submitted concurrent with the 60% Roadway Plans and after agency comments from the Pre-Application Meeting are addressed. The approved permits are identified as a Hold Point and are required prior to beginning construction in jurisdictional areas.
- ***VSMP Construction General Permit (CGP)*** – The VSMP permit application, including LD-445 forms, are submitted once Erosion and Sediment Control (ESC) plans are approved. The approved VSMP permit is identified as a Hold Point on our Project Schedule and is required for land disturbance.

The timeframes necessary to obtain the required permits and approvals are summarized in Table 7.

Table 7 - Anticipated Permits and Approval Timelines

Agency	Permit Type/Approval	Anticipated Timeframe
Early Works Permits/Approvals – Geotechnical Investigations		
VDOT	Environmental Management Plan (EMP)	2 Months
U.S. Coast Guard (USCG)	Permit Determination Exception Letter	2 Months
USACE (Section 404, 408)	Nationwide Permit 6 (Survey Activities)	2 - 3 Months
VMRC	Subaqueous Bottom Permit (Survey Activities – Borings)	4 Months
Project-wide Construction Permits/Approvals		
USACE (Section 404, 408)	Nationwide Permit 23 (Categorical Exclusion)	2 - 3 Months

Agency	Permit Type/Approval	Anticipated Timeframe
DEQ (Section 401)	Section 401 Certification	2 - 3 Months
USFWS	Section 7 Threatened & Endangered Species Concurrence	2 Months
VMRC	Subaqueous Bottom Permit	4 - 6 Months
VDOT & VDEQ	VSMP Construction General Permit (LD-445)	3 Months

Approach to Environmental Risk Management During Construction

Environmental risk management is an interdisciplinary approach that continues throughout construction and culminates at project completion. This process begins by providing in-house pre-construction training of all personnel. This training details compliance and permitting challenges, implements processes for over-the-shoulder review of authorized impact limits and recognized environmental resources, and defines chain-of-command reporting protocols for issues identified during construction activities. We recognize the importance of environmental reviews and compliance during construction to ensure adherence to all permit and NEPA conditions and avoid unintended impacts. Our approach is outlined in detail in our EMP, developed with involvement from regulatory agencies, and uses previous experience and lessons learned to ensure environmental compliance is consistently maintained.

Utilizing the Environmental Management Plan

Our Environmental Compliance Manager (ECM), a Value-Added position on our Organizational Chart, is responsible for monitoring and overseeing construction activities that involve land disturbance. The ECM ensures environmental compliance with the plans and the commitments detailed in the EMP, and verifies that the Team implements the necessary procedures outlined therein. The EMP will detail the following environmental management efforts that will be used during construction:

Conducting Pre-Construction Environmental Sensitivity Training & Coordination

Prior to the start of any construction activities:

- Environmental sensitivity training will be held to educate all parties on the allowable limits of work, constraints, and commitments;
- Sensitive environmental resources and compliance requirements identified in the NEPA document and permits will be highlighted;
- Non-permitted boundaries of wetland, WOUS, and sensitive environmental resources within 50-feet of constructions limits will be clearly demarcated and protected by silt fence and orange safety fence to avoid impacts as shown in Figure 4.4.1.2; and,
- Permit impact plates detailing impact limits and fencing locations will be shared with construction personnel to ensure avoidance of non-permitted areas.

Figure 4.4.1.2 - Installation of silt and safety fence to ensure avoidance of impacts to non-permitted areas, protected properties, and commitment areas.

Installation, Maintenance and Inspection of Erosion and Sediment Controls

Our Team will prioritize the installation, maintenance, and inspection of ESC measures daily. Upon mobilizing, receipt of the CGP, and issuance of the Release for Construction (RFC) Plans, installation of ESC measures will take place before any land disturbing activities commence. While our Team will dedicate crews to the installation and maintenance of ESC measures, all trade crews participate in the review of these critical activities daily, emphasizing our commitment to our environmental compliance responsibilities.

Compliance Inspections

ESC inspectors will perform detailed field inspections twice per week to identify potential deficiencies and to highlight areas where additional controls may be necessary or recommended. Tree save areas and sensitive cultural resource areas will also be monitored to ensure they are not impacted. These inspections are documented on the Form C-107 and will be issued to field and key personnel the same day as the inspection. This will ensure that each grade crew will have copies of the inspection report in hand on the morning following the inspection. When inspectors see critical items during the inspection that require immediate attention, field supervisors are contacted and requested to direct resources to the issue. A chain of command for reporting any non-compliance issues will be provided to all personnel as part of the EMP to ensure accurate and timely reporting of potential issues. In addition to the C-107 inspections, inspectors will review construction activities continuously and will check outfall locations and non-impact areas after rain events to ensure that the ESC measures are functioning properly and non-permitted incidents are avoided.

We fully expect the Project to benefit from inspections performed by VDOT Environmental Compliance Inspection (ECI) and National Pollutant Discharge Elimination System (NPDES) personnel. Our Team's ECM, or their designee, will accompany the ECI and NPDES inspectors on all visits. The ESC inspectors and construction personnel will attend a debrief following the inspection to ensure that all action items and concerns are recorded and known on the day of the inspection. The action items will be added to the most recent C-107 inspection form, if not already identified from that process, to ensure items are addressed promptly while the reports from the ECI and NPDES visits are finalized. The same process will be followed for monthly inspections performed by DEQ's Tidewater Regional Office.

4.4.2 Utilities

Approach To Utility Coordination, Adjustments, and Relocations

Our Team views the utility scope as a critical, indispensable part of any successful project. Utility conflicts can affect every discipline, including design, permitting, right-of-way, construction, and schedule. To address this critical risk, we have dedicated in-house resources to focus solely on managing this scope. Led by our Utility Coordination Manager, and supported by our Utility Inspector, our Team has extensive design-build experience, including managing the utility scope on 25 design-build projects for VDOT. These projects have required coordination with many of the same utility companies present on this Project including Dominion Energy, Verizon, Cox, New Kent Water, and Virginia Natural Gas. The focus, experience and close working relationships developed with these utility owners have benefited and directly affected our Design Concept by enabling solutions that minimize risk and maintain schedule certainty.

Figure 4.4.2.1 - Approach to Utility Coordination

Our Team also understands the critical nature of any impacts to the Department-owned ITS and electrical facilities and the associated impacts to the traveling public. Therefore we will perform

field verification of VDOT's assets prior to construction, and track these assets throughout the life of the Project. This will include a coordination and notification process for work related to existing ITS devices.

During the preparation of our Technical Proposal, early coordination began by meeting each utility owner on multiple occasions to understand their facilities, review the design, address conflicts and risks, and develop the cost and schedule for resolving. Upon receipt of Notice of Award, these efforts will continue in earnest during the final development of the design, right-of-way, permitting, scheduling, and construction sequence of work. Close coordination and early involvement with our Team will enable utility companies to develop their Plan and Estimate (P&E), coordinate their crew availability, maximize their production, recognize areas of concern, and integrate solutions into our design and schedule. Figure 4.4.2.1 outlines the general steps and activities we will perform to continue coordination with each utility owner once the Project is underway. Our approach to successful management of the utility scope of work will encompass the following goals:

- Accurate and early identification of all existing utilities;
- Integration with design to implement a thorough test-pit program to determine conflicts;
- Early coordination with utility owners to develop conflict resolution strategies;
- Precise identification of necessary easements, if any;
- Thorough integration with the Project Schedule and sequence of work; and,
- Constant monitoring and tracking of the relocation progress.

Our priority throughout design and construction will be to avoid utility impacts altogether. If conflicts cannot be avoided by design, we will work diligently with each utility owner to minimize relocations through a combination of design and protection measures. We will relocate utilities to eliminate conflicts only as a last resort.

Utility Conflicts and Solutions

Table 8 is a summary of the known utilities, their potential conflicts (if any), and our relocation and/or mitigation strategies for resolving them. The Plan ID corresponds to our Volume II - Design Concept.

Table 8 - Utility Conflicts and Mitigation Strategies

Utility ID #	Utility/Owner Description	Approximate Location	Potential Conflict	Relocation Plan/ Mitigation Strategy
POWER				
D-1	Dominion Energy O/H	• I-64 EB Station 1010+00 • I-64 WB Station 5010+00	Potential substandard overhead clearance; however, no conflict anticipated.	Verify adequate overhead clearance during design. Install safety measures to protect during construction.
D-2	Dominion Energy O/H	• I-64 WB Station 5112+00 • I-64 EB Station 1112+50	Potential substandard overhead clearance; however, no conflict anticipated.	Verify adequate overhead clearance during design. Install safety measures to protect during construction.
D-3	Dominion Energy O/H	• I-64 WB Station 5166+50 • I-64 EB Station 1167+00	Potential substandard overhead clearance; however, no conflict anticipated.	Verify adequate overhead clearance during design. Install safety measures to protect during construction.
D-4	Dominion Energy O/H	• I-64 WB Station 5213+20 • I-64 EB Station 1213+15	Potential substandard overhead clearance; however, no conflict anticipated.	Verify adequate overhead clearance during design. Install safety measures to protect during construction.

Utility ID #	Utility/Owner Description	Approximate Location	Potential Conflict	Relocation Plan/ Mitigation Strategy
D-5	Dominion Energy O/H	• I-64 WB Station 5417+10 • I-64 EB Station 1417+10	Potential substandard overhead clearance; however, no conflict anticipated.	Verify adequate overhead clearance during design. Install safety measures to protect during construction.
D-6	Dominion Energy U/G Service to Rest Area	• I-64 WB Station 5456+50 • I-64 EB Station 1459+00	Conflict with road widening cut/fill limits.	Verify conflict by test-pitting during design. Relocate in-kind, if necessary.
D-7	Dominion Energy U/G	• I-64 WB Station 5345+80 • I-64 EB Station 1545+60	Potential conflict with road widening cut/ fill limits; however, Dominion confirmed no conflict expected.	Verify no conflict by test pitting.
COMMUNICATIONS				
V-1	Verizon U/G	• I-64 WB Station 5050+75 • I-64 EB Station 1010+75	Potential conflict with road widening cut/fill limits.	Verify conflict by test-pitting during design. Relocate in-kind, if necessary.
V-2	Verizon U/G	• I-64 WB Station 5458+50 • I-64 EB Station 1459+00	Potential conflict with road widening cut/fill limits.	Verify conflict by test-pitting during design. Relocate in-kind, if necessary.
V-3	Verizon U/G	• I-64 WB Station 5464+50 • I-64 EB Station 1465+50 • Rest Area	Potential conflict with road widening cut/fill limits.	Verify conflict by test-pitting during design. Relocate in-kind, if necessary.
V-4	Verizon U/G	Along Route 155 • I-64 WB Station 5517+00 • I-64 EB Station 1516+50	Potential conflict with proposed piers for bridge widening.	Verify conflict by test-pitting during design. Install temporary support-of-excavation measures to avoid or relocate in-kind if necessary.
C-1	COX O/H	Along Route 155 • I-64 WB Station 5517+00 • I-64 EB Station 1516+50	Potential conflict with proposed piers for bridge widening.	Verify conflict by test-pitting during design. Install temporary support-of-excavation measures to avoid. Due to planned Cox Betterment, line will likely be removed/abandoned prior to construction.
L-1	Lumos U/G	• I-64 WB Station 5035+00 • I-64 EB Station 1035+00	Potential conflict with road widening cut/fill limits; however, Lumos confimed no conflict anticipated.	Verify no conflict by test pitting.
WATER				
W-1	New Kent Water - 12”	• I-64 WB Station 5050+80 • I-64 EB Station 1050+80	Potential conflict with road widening cut/fill limits, storm sewer and/ or ditches; however, no conflict anticipated.	Verify no conflict by test-pitting and modify design if feasible. Perform offset relocation if conflict unavoidable.
W-2	New Kent Water - 12”	• I-64 WB Station 5347+00 • I-64 EB Station 1347+00	Potential conflict with road widening cut/fill limits, storm sewer and/ or ditches; however, no conflict anticipated.	Verify no conflict by test-pitting and modify design if feasible. Perform offset relocation if conflict unavoidable.

Utility ID #	Utility/Owner Description	Approximate Location	Potential Conflict	Relocation Plan/ Mitigation Strategy
W-3	New Kent Water - 12”	• I-64 WB Station 5451+00 • I-64 EB Station 1451+00 • Rest Area	Potential conflict with road widening cut/fill limits, storm sewer and/ or ditches; however, no conflict anticipated.	Verify no conflict by test-pitting and modify design if feasible. Perform offset relocation if conflict unavoidable.
SANITARY SEWER				
S-1	New Kent County - 12” Force Main	• I-64 WB Station 5050+72 • I-64 EB Station 1050+72	Potential conflict with road widening cut/fill limits, storm sewer and/ or ditches; however, no conflict anticipated.	Verify no conflict by test-pitting and modify design if feasible. Perform offset relocation if conflict unavoidable.
GAS				
G-1	Virginia Natural Gas – 16”	• I-64 WB Station 5010+00 • I-64 EB Station 1010+00	Potential conflict with ramp cut/fill limits, storm sewer and/or ditches (WB).	Verify conflict by test-pitting and modify design if feasible. Perform offset relocation if conflict unavoidable.
G-2	Virginia Natural Gas – 8”	• I-64 WB Station 5346+80 • I-64 EB Station 1346+80	Potential conflict with road widening cut/fill limits, storm sewer and/ or ditches.	Verify conflict by test-pitting and modify design if feasible. Perform offset relocation if conflict unavoidable.

Schedule Integration and Mitigation of Delays

During the preparation of this Technical Proposal, our Team coordinated with the relevant utility companies to develop design avoidance measures, relocation designs, and relocation schedules for each impacted utility. This information, coupled with historical data captured from our past design-build experience, is integrated into our overall construction sequence and is reflected in our Proposal Schedule included in Section 4.5.3. Currently, based on our Design Concept, expected impacts, and our sequence of work, ***there are no utility relocations on the Critical Path***. To ensure the safety and maintenance of existing utilities that are not in conflict during construction, protection measures will be implemented such as shown in Figure 4.4.2.2.

Figure 4.4.2.2 - Overhead utility protection measures including low-clearance flagging, warning signs, and spotter.

To manage the risk of utility conflicts impacting the Project Schedule after Award, our Team’s approach fully integrates this discipline into the design, right-of-way, permitting, construction, and scheduling activities. During design, our Utility Coordination Manager ensures that all utilities are identified accurately on the Plans, assists the Engineer and utility subconsultant in development of a test-pitting program, and reviews the data to confirm conflicts. If found, the Team reviews options to avoid a relocation through modifications to the design element, such as storm sewer, or construction means and methods, such as temporary support of excavation. All options and potential conflicts are then coordinated with the individual utility owner to prepare their Plan and Estimate (P&E). The relocation plans are also coordinated with the permitting and right-of-way processes

to ensure impacts are addressed completely. All of this information is then integrated into the overall Project Schedule and sequence of work.

During construction, our Utility Coordination Manager and Utility Inspector constantly monitor the progress of utility relocations to identify schedule concerns quickly. This is accomplished by maintaining a Project Utilities Tracking spreadsheet for each utility company identifying critical relocation milestone dates that must be met to avoid impacts to following construction activities and the overall Project Schedule. They will be in continuous communication to ensure the Utility Inspector is maintaining the appropriate daily records to capture the nature, progress, and projected costs associated with the utility relocation activities, as well as ensuring that relocations follow the approved P&E. The Utility Inspector will also ensure that any changes from the P&E are approved by the Utility Coordination Manager. As they monitor the progress of relocations and adjustments, schedule slippages will become apparent. If encountered, our Utility Coordination Manager will consult with the utility company to determine the nature of the delay and review options for the utility to correct. Simultaneously, utility schedule issues are reviewed with the Construction Manager to identify opportunities for resequencing of work, extending work hours, supplementing field resources, or any combination thereof. Additional scrutiny will be placed on the utility company's performance and progress until our Team is satisfied that the schedule has recovered. All gathered information will be maintained in daily records by the Utility Inspector and used to ensure accurate Project As-Builts for the completed utility relocation scope.

Encountering unexpected utilities is a risk that can cause many challenges, including added cost and potential delays to the schedule. The following are additional strategies that our Team has utilized on past projects that successfully limited these risks:

Early Coordination: Our Team has already begun early coordination with each utility owner. We have reviewed the entire Project scope with them as we prepared this Technical Proposal and confirmed that all existing utilities within the corridor have been accounted for. These discussions included obtaining As-Built drawings, GIS mapping, and test pit information to ensure the utility designations are complete and accurate. This coordination and review of the existing facilities will limit the risk of discovering an unidentified utility during construction.

Redesign of Project Features: Should an unknown underground utility be identified later in the design process or construction phase, we will immediately perform an As-Built survey of its location and overlay it with the design to determine the extent of the conflict. We will then review options with affected disciplines to redesign elements that minimize or avoid the conflict. If a redesign is feasible, the design team will issue a formal Plan Revision to the Team.

Adjust In-Place: If an unidentified utility is discovered during construction, our Team has successfully raised, lowered, or performed a lift and lay operation to eliminate the conflict. Adjusting the utility in place eliminates conflicts without the need for a complete relocation and limits schedule impacts.

Shifting Resources: In a case where an unidentified utility is discovered during construction that cannot be designed around or adjusted in place, we will immediately shift those affected construction resources to other available work. The area will be protected and secured until a relocation plan can be developed, after which specialized resources will be mobilized to complete the relocation. Throughout the process, feedback will be provided to the Project Management Team so that the Project Schedule is updated with the impact and adjusted accordingly.

Assisting in the Construction of the Relocation: Another method to handle unidentified utility conflicts is assisting the utility companies with the utility relocation. We have assisted in constructing duct banks, performing directional drilling, and drilling for overhead utility poles to expedite relocations. Assisting

with the relocation allows our Team to control the schedule for a portion of the relocation, thereby reducing the risk of delays.

Scheduling Strategies: Should unknown utility challenges develop, the Utility Coordination Manager will review the issue with the Construction Manager to identify opportunities for re-sequencing the work, providing additional lane closures, extending work hours, supplementing resources, or any combination thereof. Extra scrutiny will be placed on the utility's performance and progress until we are satisfied that the overall schedule will not be impacted.

4.4.3 Geotechnical

Our Team has extensive knowledge and expertise related to the geologic conditions and geotechnical challenges which may be faced on this Project. Previous successful widening of I-64 through Segments I and III further to the east included many of the same elements which will be experienced on this I-64 Gap Segment A Widening Project. The entire corridor is completely within the Coastal Plain Physiographic Province of Virginia and underlain by a series of unconsolidated sedimentary units consisting of gravels, sands, silts, and clays deposited under fluvio-deltaic, estuarine, and near-shore marine conditions dating from the Quaternary through Tertiary geologic periods. The surficial deposits of the Bacon's Castle Formation are considered a critical risk due to their unconsolidated and highly compressible nature. Road and bridge construction over soft/loose and compressible soils like these presents challenges, not only in the terrain that has to be crossed but also in the mitigation of the adverse engineering properties of soft soils such as high-water content, high compressibility, and low shear strength. However, the underlying sediments of the Chesapeake Group, and most notably of the Yorktown Formation, are typically pre-consolidated and provide good support for deep foundations.

Identification of geotechnical risks and their mitigation involves the following critical steps:

1. Prepare a comprehensive program of subsurface investigation and ground characterization;
2. Discuss design details and construction techniques with all team members so proper solutions are identified; and
3. Maintain geotechnical team involvement in construction to ensure any unanticipated subsurface conditions are properly addressed.

During the development of our Design Concept, we have reviewed all information provided with the RFP documents, geotechnical information available from previous adjacent project improvements, and properties in close proximity to the Project. With this information, we are able to identify potential areas of concern which need to be accounted for in our Technical and Price Proposals, and which will require additional investigation immediately upon Award. Supplemental investigations will begin with site visits to confirm anticipated risks, verification of challenging areas and constraints, and finalizatin of our exploration and testing program to ensure risks are addressed through design. Once prepared, the geotechnical investigation program will be executed in a sequence which provides information for critical areas and elements first, such as bridge foundations and major drainage facilities, followed by information which does not have the potential to impact the Project scope or schedule. Our approach proved key to mitigating risk on our I-64 Corridor Improvements - Segment I Project, as demonstrated in Figure 4.4.3.1.

Our supplemental geotechnical investigations will be developed in accordance with the VDOT *Materials Manual of Instruction* (MOI) minimum requirements to facilitate development of design level Geotechnical Engineering Reports (GER). For scheduling and sequencing work consistent with plan development, separate GER's are anticipated for roadway and drainage improvements, structural (bridge) improvements, and noise barriers.

Since the primary scope of work consists of embankment and excavation to support the proposed median widening, the majority of the borings completed will be focused on identification of unsuitable soils, CBR

values, and layers of soft and/or highly-plastic soils. Sampling and testing of in-situ soils will be focused on obtaining field and laboratory data to provide accurate estimates of settlement and stability of embankment widenings and approach embankments. Additional borings will be completed for the widening of the bridges over Route 155, the stormwater management facility, noise barriers, and new culverts and culvert extensions. In addition to the Standard Penetration Testing (SPT), we will perform in-situ CPT, DMT, and VST to better characterize the soil design parameters. Our extensive soil laboratory testing program will include consolidation, triaxial testing, and direct shear testing to validate the compressibility and the shear strength characteristics with those estimated from the in-situ tests in order to have better confidence of the soil physical properties and their engineering behavior.

Figure 4.4.3.1 - Identification of geotechnical risks on our Team's previous I-64 Corridor Improvements – Segment I Project resulted in implementation of lightweight embankment at several locations and extensive monitoring and protection plans to avoid impacts to existing structures during construction.

Details of potential geotechnical risks, their anticipated impacts, and our Team's proposed mitigation strategies are included in Table 9.

Table 9 - Geotechnical Risks and Mitigation Strategies

Risk	Potential impact	Mitigation Strategy
Working within the vicinity of and maintaining existing structures	▪ Differential settlements and angular distortion causing localized distress on bridge elements ▪ Settlement of existing foundations ▪ Irregularities in the final pavement surface ▪ Vibrations from foundation construction which could introduce localized liquefaction of the saturated sands and cyclic softening of the clays	▪ Perform pre-construction surveys to document existing conditions; ▪ Complete additional CPT and DMT field investigations; ▪ Monitor settlements during construction and implement settlement reduction strategies including pre-loading of compressible soils, lightweight fills, or ground improvement technologies; ▪ Identify a zone of influence for existing structures for implementation of vibration and settlement monitoring; ▪ Install instrumentation equipment (inclinometers, settlement plates, settlement points, and/or strain gauges), structural monitoring points and vibration monitoring. Threshold-level and action-level vibration and deformation limits will be identified in our Geotechnical Instrumentation and Monitoring Plan based on conditions of the existing structures; and, ▪ Incorporate deep foundation elements for the bridge widenings and utilize pre-boring of piles to limit impacts to the adjacent foundation elements.

Risk	Potential impact	Mitigation Strategy
Maintaining existing slopes and constructing new embankments	▪ Compressible and/or weak soils could result in settlement of roadway embankments ▪ Global stability challenges associated with reduced factors of safety especially in areas of tall slopes and high groundwater	▪ Complete additional field investigations to properly characterize the fully-softened and peak shear strength properties of clays, silts, and loose soils; ▪ Incorporate in-situ CPT, DMT, VST testing to determine the undrained and drained characteristics of the underlying soils; ▪ Install temporary groundwater monitoring wells; ▪ Prepare shear strength vs. elevation plots; ▪ Perform a comprehensive statistical analysis to estimate the distribution of variance of the shear strength values from the laboratory tests and evaluate the reliability of design shear strength values; ▪ Refine subsurface profiles, soil properties, groundwater, and slope geometry by eliminating assumptions and develop reliable data; and, ▪ Reinforce slopes through the use of slope stabilization measures.
Unsuitable soils at pavement subgrade	▪ Estimated that 20-30% of the subgrade soils are classified as unsuitable (low CBR or highly plastic) and 50-60% are either wet (high moisture content) or soft/loose ▪ Will require extensive amounts of undercut and removal or treatment ▪ May require removal and importing of additional material ▪ May impact the schedule	▪ Perform additional CBR and proctor tests to verify previous test results and provide definitive requirements on subgrade treatments and limits of unsuitable soils; ▪ Undercut up to 3 feet below subgrade or until the unsuitable material is no longer present (whichever is less) and backfill with suitable material; ▪ Utilize chemical stabilization (soil-cement) of the existing subgrade (a laboratory testing program will be completed during design to determine the optimum type and amount of soil admixture and the minimum curing time); ▪ Utilize geosynthetics (geogrids and/or geotextiles) to mechanically stabilize and reinforce pavement subbase or base; and, ▪ Account for risk in Project Schedule.
Pipe/Culvert extensions	▪ Differential settlement ▪ Improper pipe flow in flat pipes or sags/sumps in new pipe segments ▪ Separated pipe joints ▪ Cracking of new culverts	▪ Evaluate each pipe/culvert location to identify potential settlement amounts and areas of concern; ▪ Incorporate in-situ CPT and DMT testing to determine the compressibility characteristics of the underlying soils; ▪ Utilize GeoFoam or lightweight fill within the zone of influence of the pipe/culvert to reduce settlement; and, ▪ Backfill culverts with GeoFoam to support a concrete protection slab above the culvert to reduce loading on top of the new culvert.

4.4.4 Quality Assurance/Quality Control (QA/QC)

Our Team's approach to QA/QC during design and construction is established to conform to VDOT's *Minimum Requirements for Quality Assurance and Quality Control on Design Build and Public-Private Transportation Act Projects, revised July 2018*, (*QA/QC Guide*), as well as the resource requirements and level of effort mandated by the Team's Project Schedule presented in Section 4.5.3. Our approach encompasses procedures, detailed in our Project-specific QA/QC Plan, for design and construction Quality Assurance (QA), Quality Control (QC), materials testing, inspections, documentation, and auditing – all with the objective of:

- Minimizing VDOT's need for additional QA/QC oversight;
- Ensuring that contractual requirements are satisfied;
- Ensuring that design QA requirements are completed for all design submittals prior to submission to VDOT;

- Minimizing VDOT's design review efforts by ensuring that all design submittals are well structured and easily audited;
- Allocating the appropriate amount of resources and time to the Quality Assurance Manager (QAM) to meet the QA/QC requirements; and,
- Providing confidence to VDOT that construction will be carried out in accordance with the RFP requirements with minimal VDOT intervention.

The QA and QC Teams follow the approved QA/QC Plan that outlines the organization, roles and responsibilities, procedures, and is structured to ensure the independence of QA and QC functions. Schedule and coordination of QA/QC activities are addressed including Witness and Hold Points for inspection of work at critical stages.

4.4.4.1 Staffing Plan - Construction Quality Assurance (QA)
4.4.4.2 QAM Approach

In Section 4.5 of this Technical Proposal, our Team presents the Sequence of Construction and Proposal Schedule outlining our overall plan to accomplish the work. After carefully reviewing the resource requirements necessary to meet this schedule, our QA staffing resources are planned to align with the design effort, construction activities, and crew resources expected during each Stage of work. Our QA Staffing Plan is detailed in Exhibit 4.4.4.1.

Using a Crew Loaded Analysis of the Schedule, Exhibit 4.4.4.1 depicts the minimum number of anticipated self-perform and major subcontractor crews per month. A key indicator of the activity level of a large heavy-highway project is the staffing level of the self-perform grading and bridge crews. To determine the correct staffing for the QA effort, our Team is using an industry standard rule of thumb for the ratio of QA inspectors to grading crews which is approximately 2 to 3 crews per 1 roadway inspector. On the bridge side, the ratio is approximately 1 to 2 crews per 1 bridge inspector. The RFP requirements for the Project ensure that 1 Lead QA Inspector - Roadway and 1 Lead QA Inspector – Structure/Bridge are onsite full-time during construction operations. Therefore, in order to determine the quantity of additional inspectors necessary, the above ratio has been applied to the anticipated number of crews as shown in Exhibit 4.4.4.1. Using this proven logic, it is anticipated that at the peak production of the Schedule, QA staffing will require 7 to 8 people, full-time, including the QAM, QA inspectors, and Support Personnel.

Night work is always a factor when staffing for QA personnel as it requires additional resources, including VDOT's, beyond those necessary for normal daytime working hours. To minimize these requirements, our Team's Sequence of Construction schedules most activities to occur behind temporary barrier service without the need for night-time lane closures. For safety and operational reasons, and to meet RFP requirements regarding allowable lane closures, we anticipate that night-time activities will be limited to activities such as:

- Setting Temporary Barrier Service
- Major Traffic Shifts
- Outside Shoulder Strengthening
- Overhead Sign Installation
- Final Mill and Overlay of Mainline I-64

As with any Project, there may be times when activities lull due to weather or other unanticipated issues; likewise, activities can also increase in volume based on availability of additional crews or subcontractors as well as time-of-year work windows for grading, paving, and other weather sensitive activities. Our Team assures VDOT that the proper level of QA resources will be allocated at all times for the amount of work occurring. The QA staffing Plan as presented is the minimal level of effort and details the level of commitment from our Team to meet and exceed the requirements of the RFP. Our Team's anticipated QA Staffing level will assure that construction will be carried out in accordance with the RFP requirements

with minimal VDOT resource requirements.

Quality Assurance

A key element to effectively manage our QA approach includes the implementation of an adaptive, compassionate, and flexible leadership style. Each entity, active or passive, associated with the Project has their respective expectations. VDOT and other third-party stakeholders, especially the traveling public, expect timely project completion, but also demand a quality product. With all of the dynamic aspects associated with quality in the construction process, supervision, leadership and establishing expectations of the entire QA/QC Program are critical to the Project's overall success. Three key attributes to this success include the following:

Communication: Beginning at Notice of Award, the QAM communicates closely with the DBPM, Design Manager and Construction Manager (CM) to craft a thorough and compliant QA/QC Plan that is then communicated to all Team members. Moreover, the QA/QC Plan clearly communicates the Team's commitment and approach to construction quality to VDOT. Prior to construction commencement, a meeting will be held with all personnel associated with QC and QA, the DBPM and CM. The purpose of the meeting is to review the QA/QC Plan, establish the expectations, and review the fundamentals of the inspection program. During construction, QA/QC meetings will be held at a minimum of once per week to discuss look-ahead items, progress status, and deficient or non-conforming work. Continuing throughout the life of the Project, design and construction meetings will be held regularly with quality always as a topic of discussion.

Empowerment: A key aspect of a successful QA/QC Program is empowerment and delegation of authority. While ultimately responsible for certifying the completed work, it is not practical for the QAM to oversee every aspect of the work every day. In fact, as outlined in the *QA/QC Guide*, the testing requirements for QA are 10% of the work. Because the testing expectation for QC is 100%, it is essential for the QAM to empower, and establish guidelines to do so, QA inspection staff and QC with the ability to stop or suspend work for a quality or safety concern. In such cases, the QC Inspector will immediately notify the Quality Control Manager (QCM) and partnered QA Inspector, who will notify the QAM. Depending on the severity of the issue, the CM, DBPM, and/or VDOT may be notified. The goal of the Program is to ensure that issues are resolved at the lowest level so that productive work can resume as quickly as practical. For situations involving the design or RFC plans, the Engineer of Record will also be consulted.

Oversight: Oversight plays an indispensable role in providing feedback to the performance of construction operations and inspections. The QAM, using layman's terms, serves as the "quality-face" for the entire Team and VDOT. Moreover, the QAM certifies to VDOT that all work completed is in accordance with the approved plans, specifications, and contract documents. During construction operations, whether day or night work, QA staff will coordinate and monitor the execution of the QC Program, perform QA(IA) and/or QA(VST) testing as appropriate, and advise IA staff regarding the scheduled activities. Additionally, at the conclusion of the operation(s), QA and QC staff will discuss the operation(s) and resolve any discrepancies or notify the appropriate authority.

Quality Control

The Quality Control Team, led by our QCM and reporting to the CM, is responsible for daily QC inspections and material testing for all construction operations. In addition, the QCM and QC Team are responsible for all QC sampling, testing and analysis of materials and will verify quality at frequencies meeting or exceeding the *VDOT Construction Manual*, the *Materials Manual of Instructions*, and the *QA/QC Guide*. The QCM participates in the preparation of the QA/QC Plan, including the checklists that will be utilized by QC inspectors during the inspection process. All QC Inspection Staff will hold the applicable certifications required by the *QA/QC Guide* for the work they are inspecting. The inspectors

will be experienced in VDOT practices and methodology and will be responsible for monitoring all work activities.

All QC staff actively inspecting and/or testing components of the Project complete IDR's. The IDR's are electronic diaries and include, as an attachment, copies of all QC materials tests completed for the day's activities. Signed hard copies of the IDR's are submitted to the QCM daily for review and approval and saved to a shared drive for access and immediate review by the QAM. The QCM prepares and submits an electronic Quality Control Monthly Report which summarizes all work completed during the period, inspections, tests, materials placed, action taken for failing materials, and NCR's. The QC Team will coordinate daily with the construction staff to ensure adequate staffing, including testing technicians, are assigned for the scheduled activities. The contractor will provide both three-week look-ahead schedules and an Expected Daily Activities (EDA) report to the QC Team to facilitate scheduling and coordination of testing and inspections.

QA/QC During Design

Our approach to design QA/QC includes implementing multiple formal and informal processes with QC personnel throughout design development and prior to every formal submission, regardless of the content of the submittal. Additionally, following completion of design QC efforts, a formal QA review is completed to verify the process was completed correctly and documented, the results are acceptable from both a design intent and contract requirement, and plans are ready and suitable for submission to VDOT for formal review or approval. This process ensures that appropriate quality standards are included in the plans and other design documents, suitable materials are selected, and ultimately that work can be constructed in a safe manner. Our design QA/QC process is well-structured, easily audited and is continually maintained to minimize VDOT's resource requirements. Our design QA/QC approach is based on the following:

Implementation and Management: The Design Manager (DM) implements and manages the overall Design QA/QC program (a subset of our QA/QC Plan) which identifies design quality assurance and quality control requirements. The Design QA/QC program establishes the following:

- Procedures for preparing and checking all drawings, specifications, and other design submittals including procedures to correct errors and deficiencies prior to submission;
- Processes to ensure design submittals are signed, sealed, and dated by the responsible Professional Engineer licensed by the Commonwealth of Virginia;
- Actions to confirm that the level, frequency, and methods for review of design, including independent review, follow VDOT's functional requirements;
- Procedures for ensuring that designs developed by different disciplines are coordinated and avoid conflicts, omission, or misalignments;
- Procedures for identifying elements of design that require special construction QA/QC attention or emphasis;
- Identification by firm, discipline, name, qualification, duty, responsibility, and authority for all personnel and/or entities responsible for Design QA/QC, including subconsultants; and,
- Establishment of Design QA/QC functions, including scheduled activities for design QA/QC, identifying the drawings, specifications, and other design submittals that will be submitted to VDOT.

The DM verifies conformance with the QA/QC Plan using informal observations and by conducting audits of the checking and review processes established within the QA/QC Plan. Every formal submission to VDOT will be accompanied by a Design QA Certification signed by both the Design QA Manager and Design Manager, confirming that all submittal elements were formally reviewed in accordance with the QA/QC Plan and are compliant with contract requirements and design standards.

QA/QC Process: Design QC includes review of drawings, engineering computations, and other design related documents for technical accuracy, conformance to Contract requirements, as well as form, content, and spelling. Design QA evaluates whether the designers assessed problems appropriately, applied correct analyses, and assigned qualified personnel to tasks when conducting design related activities. Design QC functions are provided by design discipline leads checking completed work and are carried out to a level commensurate with the complexity of the design element. This effort is managed by the DM who ensures formal and documented reviews occur at predetermined times for submitted design documents as identified within the QA/QC Plan. The Design QA Manager then performs Design QA reviews as set forth in the QA/QC Plan. He verifies that required quality control functions were performed properly, and in conjunction with the DM, directs the correction of nonconforming design practices. He ensures that design standards, methods, and requirements are met, professional engineering judgment was applied correctly, and appropriate degree of care was utilized.

Interdisciplinary Reviews: Coordination between disciplines is critical to confirm all design elements are properly accounted for, understood (with respect to intent, function, and construction methods) and are accounted for in the Schedule. During design, weekly meetings are held where design details are discussed and coordinated with the multiple design discipline leaders including roadway, structural, hydraulics, geotechnical, and traffic engineers. Environmental permitting, utility relocation, right-of-way, and construction personnel are involved to ensure design progresses in a manner which considers environmental commitments, utility conflicts, property impacts, construction means and methods, and schedule. Potential conflicts or challenges are recognized and discussed at these meetings, and the entire Team can efficiently identify alternate solutions. Coordination between disciplines continues beyond the design phase, ensuring that unforeseen situations which may arise are addressed efficiently and collectively.

Construction Team Involvement and Constructability Reviews: From our combined experience delivering multiple design-build projects for VDOT, we have found that regular, informal, over-the-shoulder type reviews from construction personnel work best to produce quality designs. These types of reviews are conducted at weekly progress meetings where plans are presented to the construction personnel who are building the Project. Immediate feedback regarding the design is provided and appropriate adjustments are discussed so that unnecessarily difficult, unsafe, or out of sequence construction is avoided. Explanations regarding design requirements are conveyed to construction personnel, ultimately resulting in a greater overall understanding of Project requirements. In addition to informal constructability reviews, the DBPM coordinates formal reviews of the design by construction personnel prior to each plan submission. Comments regarding the constructability of the design are provided to the DM for incorporation and/or further discussion prior to completing each design phase.

Through our formal QA/QC process, involving all design disciplines in coordination with construction, right-of-way, utility, and environmental disciplines, we are able to ensure quality design submittals are prepared and submitted to VDOT each and every time, minimizing the amount of oversight required and the time required to obtain plan approvals. Throughout the design phase, VDOT will be advised of the status of design progress so that formal reviews can be scheduled, either internally or via external consultants, to minimize the involvement required. All QA and QC documentation is retained by Dewberry for the entire Project duration, and as previously noted, formal QA Certifications are provided with each formal submission. Should an audit be requested, all QC documentation is retained on our internal ProjectWise database, along with all other project documentation, and can be easily and quickly reviewed.

QA/QC During Construction

Specifics of our approach to QA and QC, and the roles, responsibilities and projected time commitment during design and construction are outlined as follows:

Quality Assurance Manager (QAM)

Kaushik Vyas, P.E., DBIA, Quinn Consulting Services, Inc.

Time Commitment:

Design Phase: Estimated at 8-10 hours per week at the Project office and remotely

Construction Phase:

- Full-time on site (40-50 hours per week) from start of Construction until Final Completion

Reporting directly to the DBPM, the QA Team is led by the QAM, Kaushik Vyas, P.E., DBIA with Quinn Consulting Services, Inc., (Quinn), and is a Key Personnel. Quinn is completely independent of the Designer and Contractor and is responsible for QA of all construction operations.

In his role as QAM, Kaushik not only reports to the DBPM, but has the autonomy to report directly to VDOT. In addition, he is tasked with the authority to unilaterally halt or suspend any work that is not in compliance with the Contract documents. Kaushik will review and approve monthly Applications for Payment and will report to VDOT if payments should be withheld for non-conformance or work that lacks the proper materials documentation. Further in this role as QAM, Kaushik and his designated QA Team are responsible for overseeing the performance of the required QC inspections and materials testing performed by Shirley's QC Team, including but not limited to, nuclear densities on soils and aggregates; concrete testing, and asphalt bulk specific gravities, as well as the other inspections and tests as prescribed in Appendix 2, Table A-2 of the *QA/QC Guide*.

The QAM will conduct Preparatory Inspection Meetings (PIM) in accordance with Section 5.7 of the *QA/QC Guide* prior to the start of any new type of work. This meeting will be scheduled within two weeks of the start of the pertinent activities and will be attended by the QAM, Construction Manager, Field Superintendents, safety personnel, subcontractors, and QA/QC personnel involved in the work. At these meetings, the QAM will facilitate a dialog between Project stakeholders where items such as the applicable contract drawings, specifications, special provisions, materials submittals, testing requirements, environmental concerns, public communications, and safety concerns are discussed. The contractor's Schedule and Sequence of Work will be reviewed, and Witness and Hold Points confirmed based on the requirements in Sections 5.18 and 5.19 of the *QA/QC Guide*. The meeting will provide information enabling the adaptation of QA and QC processes to the contractor's work plan and identifying specific documentation and verification requirements including the names and qualifications of the responsible QA and QC staff. Material quantities and frequency of testing will be reviewed to ensure compliance with the minimum standards, and the Inspection Checklist used for monitoring the specific work type will be distributed. Following the PIM, the QAM will prepare and distribute meeting minutes to all parties.

The QAM will also manage and oversee the Non-Compliance Report (NCR) process. Kaushik will work closely with both Shirley and VDOT personnel to promptly identify, prepare, and distribute NCR's and document agreeable resolutions to each. In addition, the QAM will work with the QC team to monitor and track deficiencies and their resolution. The QAM and the QA team, when notified by Shirley that the work is complete, will coordinate acceptance inspections and develop a final punchlist with the Department and document completion of each punchlist item. Deficiencies, NCR's, and punchlist items will be tracked in the PlanGrid software system and recorded data will be reviewed by the Quality Team at each weekly Progress Meeting.

The QAM and the QA Team will be responsible for oversight of the C-25 materials approval process and enter data provided by Shirley into the Materials Notebook. On a monthly basis, the QAM will audit the Material Notebook prior to approving the monthly Application for Payment for accuracy and completeness, (i.e. QA/QC IDR's materials testing reports), while attaching a list of any open NCR's for VDOT reference. Our Team is committed to providing quarterly VDOT reviews/audits of all materials documentation to ensure an expeditious and efficient Project closeout process.

Lead QA Inspectors

Lead QA Inspector - Structure/Bridge: Josh Hostinsky, Quinn Consulting Services, Inc.

Time Commitment:
Construction Phase:

- Full-time on site (40-50 hours/week) during structure/bridge construction activities

Lead QA Inspector - Roadway: Todd Hamlett, Quinn Consulting Services, Inc.

Time Commitment:
Construction Phase:

- Full-time onsite (40-50 hours/week) during roadway construction activities

Our Team includes two Lead QA inspectors – one for Structure/Bridge and the second for Roadway - onsite full-time during their respective construction activities reporting directly to the QAM. This approach promotes a focused inspection process that allows the Lead Inspectors to spend more of their time physically monitoring and observing construction as it is being performed, and ensures that inspections, testing and corrections of deficiencies or non-conforming work are being performed in accordance with the contract requirements. Our Lead Inspectors have extensive experience working in the Richmond District and are very familiar with VDOT and the District expectations for construction quality inspection. Each possess the Dual Inspector Certification in Erosion & Sediment Control and Stormwater Management, and are responsible for certifying the Project's compliance with the SWPPP and the VPDES Construction Permit on the Construction Runoff Control Inspection Form (C-107 Part 1).

Working in coordination with the QAM, construction Team and QC personnel, the Lead QA Inspectors will manage the detailed, day-to-day operations related to the QA functions, including the following:

- Review the 3-week Look-Ahead Schedules to assure inspection coverage;
- Assign certified inspectors at appropriate coverage ratios to scheduled construction activities;
- Coordinate daily with the Contractor and the Department's Independent Assurance (OIA) personnel;
- Discuss sequence of construction with Superintendent and/or Foremen to ensure adherence to the approved plans and specifications;
- Monitor QC Program during field operations;
- Document and address concerns, issues, deficiencies, and non-conforming work; and
- Periodically verify that minimum test requirements are met relative to the scheduled construction activities.

QA Records Manager/Office Engineer

Mark McMiller, Quinn Consulting Services, Inc.

Time Commitment:
Construction Phase:

- Construction Phase: Estimated at 20-40 hours onsite per week

Our QA Records Manager/Office Engineer, a Value-Added position on our Team, reports to the QAM and will be assigned and responsible for maintaining the Materials Book, which includes the Source of Materials, quantity entries, materials testing results, Buy America Certifications, and materials invoice and ticket compilations. In addition, Mark will assist with checking QA and QC IDR's and laboratory testing reports, and is available to assist with field inspections when needed due to high volume workdays or when night/weekend inspections are required. By dedicating a Records Manager/Office Engineer, the QA Inspection Team is able to spend more time in the field monitoring construction and QC activities.

QA Inspectors/Testing Technicians (Roadway and Structures/Bridge)

Quinn Consulting Services, Inc. and McCallum Testing, LLC

Time Commitment:

Construction Phase:

- At peak, estimated 1- 2 each at 100%

QA Inspectors and Testing Technicians will be utilized when the Lead QA - Structure/Bridge and Lead QA - Roadway Inspectors need support covering the volume of ongoing activities at any given time. These Inspectors and Testing Technicians hold applicable certifications for the materials they are inspecting and testing.

All QA Inspectors will complete IDR's, QA Independent Assurance (QA IA) and QA VST reports for all QA inspections. The QAM will compare QA IA and QA VST results to the QC, Owner Independent Assurance (OIA) and Owner VST (OVST) results for consistency and accuracy.

QA Laboratory

McCallum Testing, LLC

Time Commitment:

- As needed.

Quinn will utilize McCallum Testing, LLC, an accredited laboratory meeting the requirements of the *QA/QC Guide*, for the QA Laboratory. All laboratory results will be compared to the QC Laboratory results and any testing comparison discrepancies will be addressed and documented by the QAM and the Quality Team.

Construction Manager (CM)

Hank Davis, Shirley Contracting Company, LLC

Time Commitment:

Design Phase: Estimated at 10-20 hours per week in the Project office

Construction Phase:

- Full-time on site (40-50 hours per week) from start of Construction to Final Completion

As a Key Personnel, Hank has overall responsibility for construction, safety and the QC Program. During the Design Phase he will focus his efforts on constructability review of the plans, planning means and methods of construction, and coordinating with the Design Team to ensure those means and methods are accommodated by the final design details. During Construction, he directs and manages day-to-day construction activities, monitors and updates the Schedule, coordinates with the utility discipline, and oversees the QC Program. He ensures construction is in accordance with the Project requirements and will be on the Project site full-time for the duration of construction operations.

Quality Control Manager (QCM)

(TBD during the Price Proposal phase)

Time Commitment:

Construction Phase:

- Full-time on site (40-50 hours per week) from start of Construction to Final Completion

Reporting to the CM, the QCM is responsible for construction quality control and oversees quality control testing and inspection activities. The QCM assigns inspectors and testing technicians for each work package and monitors reporting documentation to ensure that the work is completed per Contract requirements. The QCM will assign two full-time QC inspectors – one for roadway and one for structures/

bridges. Additional inspectors and testing technicians will be utilized when required by the schedule to ensure sufficient coverage is provided at all times during construction.

QC Inspectors/Testing Technicians

(TBD during the Price Proposal phase)

Time Commitment:

Construction Phase:

- 4-5 Roadway Inspectors full-time onsite (40-50 hours per week) at peak of construction
- 1 full-time onsite (40-50 hours per week) Senior Structure/Bridge Inspector during bridge construction
- 1 support Structure/Bridge Inspector during peak periods onsite (20-40 hours per week)
- Testing agency support - 2 to 3 during peak periods.

QC Inspectors and Testing Technicians will be utilized at ratios to support covering the volume of ongoing construction activities at any given time. These Inspectors and Testing Technicians hold applicable certifications for the materials they are inspecting and testing.

QC Office Engineer

(TBD during the Price Proposal phase)

Time Commitment:

Construction Phase:

- Construction Phase: Onsite 20-40 hours per week

Our QC Office Engineer, included on our Team as a Value-Added position, reports to the QCM and will be assigned and responsible for daily coordination with the CM to schedule the appropriate QC inspection and testing for the upcoming work. Our Team utilizes an Expected Daily Activity (EDA) Form to communicate to QA, QC and VDOT the upcoming work for the next day. Details such as scheduled MOT setups, concrete pour times, aggregate base production rates, and subcontractor activities are provided. The QC Office Engineer will also collect and review all Inspector Daily Reports (IDR's) and organize the reports for concise and timely submission to the QAM. The use of the QC Office Engineer ensures that the Inspectors are in the field, reviewing and verifying the work in place.

4.4.4.3 QA/QC Organizational Chart

Our Teams Organizational Chart for our QA/QC Program is shown in Exhibit 4.4.4.2 and indicates all intended QA and QC personnel to be utilized. Solid lines between participants represent direct reporting relationships. Dashed lines represent lines of communication.

Value-Added Personnel

Included in our QA/QC Program are the following Value-Added personnel:

Value-Added Personnel: QA Records Manager/Office Engineer

Mark McMiller, Quinn Consulting Services, Inc.

Time Commitment:

Construction Phase:

- Estimated at 20-40 hours onsite per week

Our QA Records Manager/Office Engineer, a Value-Added position on our Team, reports to the QAM and will be assigned and responsible for maintaining the Materials Book, which includes the Source of Materials, quantity entries, materials testing results, Buy America Certifications, and materials invoice and ticket compilations. In addition, Mark will assist with checking QA and QC IDR's and laboratory testing reports, and is available to assist with field inspections when needed due to high volume workdays

or when night/weekend inspections are required. By dedicating a Records Manager/Office Engineer, the QA Inspection Team is able to spend more time in the field monitoring construction and QC activities.

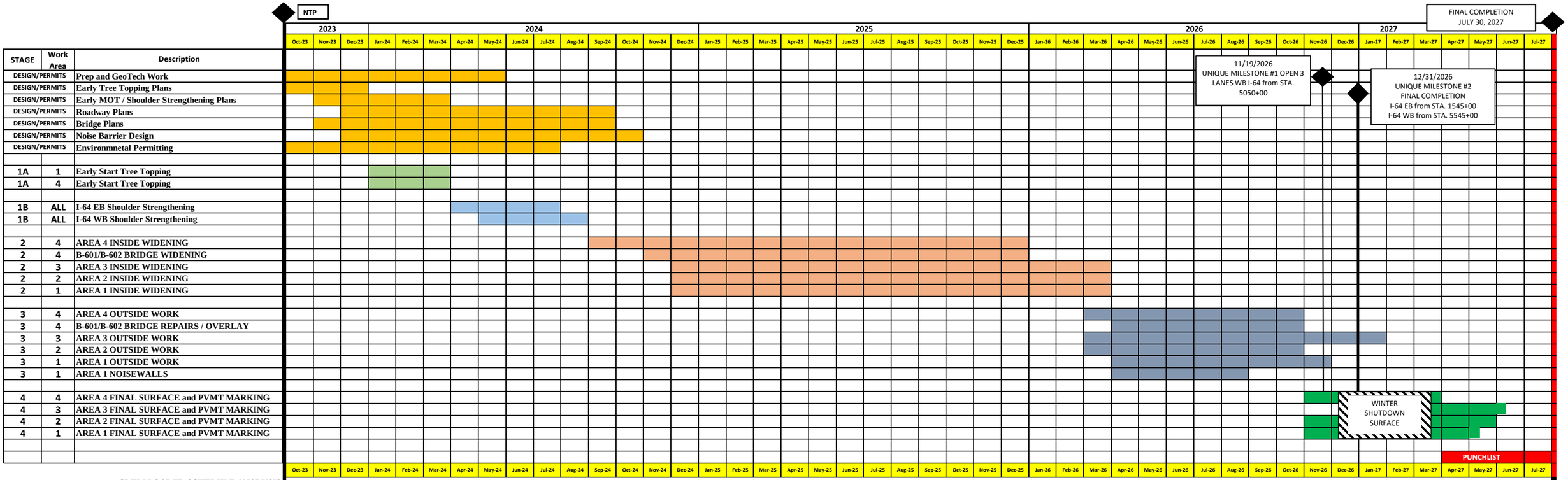
Value-Added Personnel: QC Office Engineer
(TBD during the Price Proposal phase)
Time Commitment: ***Construction Phase:*** ■ Onsite 20-40 hours per week

Our QC Office Engineer, included on our Team as a Value-Added position, reports to the QCM and will be assigned and responsible for daily coordination with the CM to schedule the appropriate QC inspection and testing for the upcoming work. Our Team utilizes an Expected Daily Activity (EDA) Form to communicate to QA, QC and VDOT the upcoming work for the next day. Details such as scheduled MOT setups, concrete pour times, aggregate base production rates, and subcontractor activities are provided. The QC Office Engineer will also collect and review all Inspector Daily Reports (IDR's) and organize the reports for concise and timely submission to the QAM. The use of the QC Office Engineer ensures that the Inspectors are in the field, reviewing and verifying the work in place.

Management of QA Inspectors by Lead QA Inspector

Through communication, empowerment and oversight by the QAM, the QA inspection team will review and scrutinize work activities alongside their QC counterparts. QA Inspectors will report to the respective Lead QA Inspector (Structure/Bridge or Roadway), who in-turn report to the QAM. The Records Manager/Office Engineer, also a certified QA Inspector, may report to a Lead QA Inspector when working in the field. The QAM will coordinate with the CM and the QCM, and coordinate with the Lead QA Inspectors, to ensure all upcoming construction activities receive adequate and thorough inspection coverage. Furthermore, the Lead QA Inspectors will detail the inspection coverage with QC Staff and assign additional QA Inspectors as appropriate to maintain a minimum ratio of at least 1-QA Inspector to every 4-work crews. Additional details can be found in Section 4.4.4.2.

Exhibit 4.4.4.1 - QA /QC STAFFING PLAN



STAGE	Work Area	Description
DESIGN/PERMITS		Prep and GeoTech Work
DESIGN/PERMITS		Early Tree Topping Plans
DESIGN/PERMITS		Early MOT / Shoulder Strengthening Plans
DESIGN/PERMITS		Roadway Plans
DESIGN/PERMITS		Bridge Plans
DESIGN/PERMITS		Noise Barrier Design
DESIGN/PERMITS		Environmnetal Permitting
1A	1	Early Start Tree Topping
1A	4	Early Start Tree Topping
1B	ALL	I-64 EB Shoulder Strengthening
1B	ALL	I-64 WB Shoulder Strengthening
2	4	AREA 4 INSIDE WIDENING
2	4	B-601/B-602 BRIDGE WIDENING
2	3	AREA 3 INSIDE WIDENING
2	2	AREA 2 INSIDE WIDENING
2	1	AREA 1 INSIDE WIDENING
3	4	AREA 4 OUTSIDE WORK
3	4	B-601/B-602 BRIDGE REPAIRS / OVERLAY
3	3	AREA 3 OUTSIDE WORK
3	2	AREA 2 OUTSIDE WORK
3	1	AREA 1 OUTSIDE WORK
3	1	AREA 1 NOISEWALLS
4	4	AREA 4 FINAL SURFACE and PVMT MARKING
4	3	AREA 3 FINAL SURFACE and PVMT MARKING
4	2	AREA 2 FINAL SURFACE and PVMT MARKING
4	1	AREA 1 FINAL SURFACE and PVMT MARKING

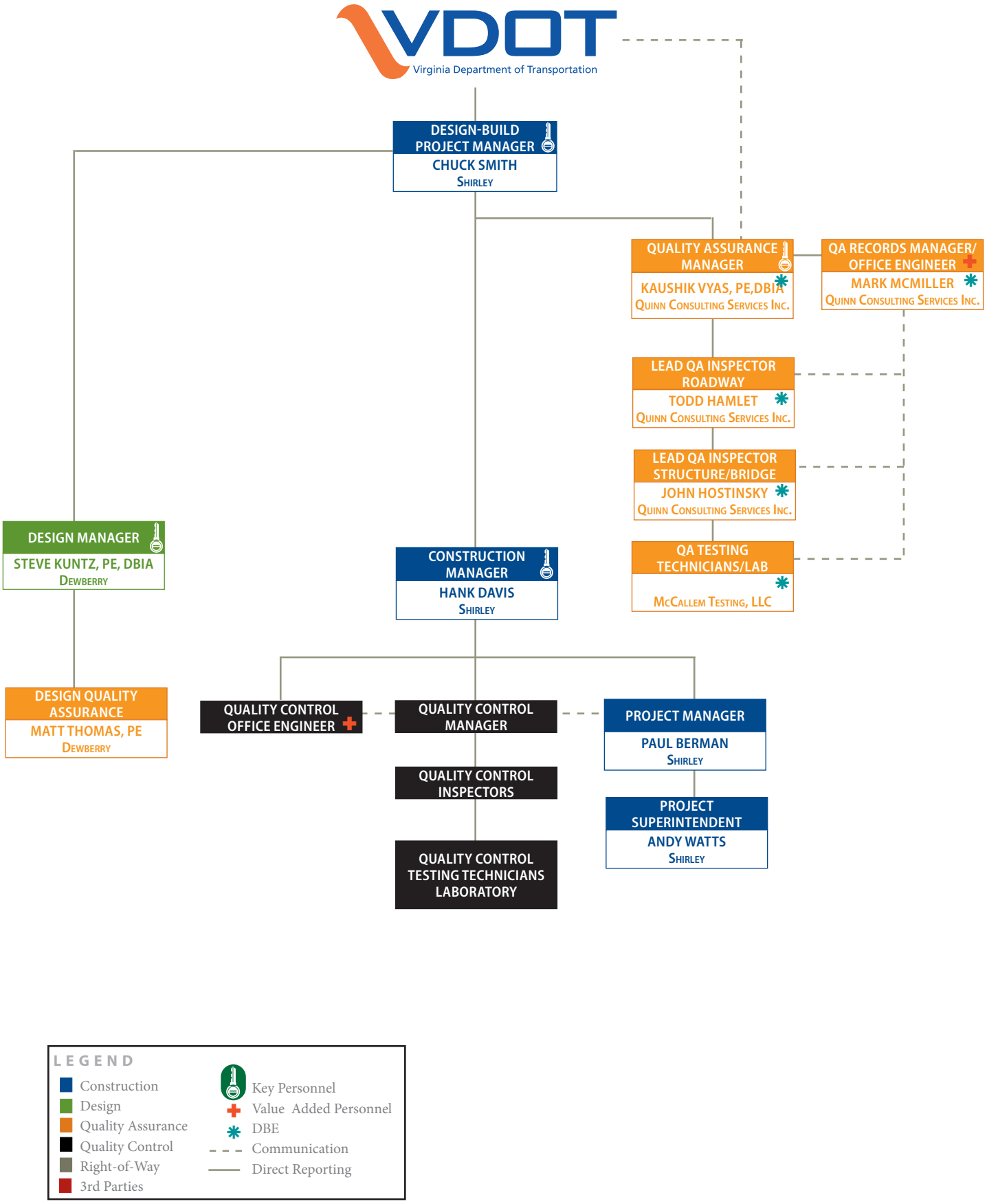
CREW LOADED SCHEDULE ANALYSIS

ROADWAY CREWS	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27
MIN # OF CREWS																																														
MOT / EROSION CONTROL				1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1
GRADE - LARGE													2	2	2	2	2	3	3	4	4	4	4	4	4	4	3	2	2	3	3	3	3	3	3	2	2							
GRADE - SUPPORT / BACKFILL													1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1
FINE GRADE / AGGREGATE BASE																				2	2	2	2	2	2	2	1				2	2	2	2	2	2	2	1	1				1	1	1	1
STORM / UTILITY												1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1					1	1	1	
MAJOR SUBCONTRACTORS				1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	5	5	5	5	5	4	4	3	3	4	5	5	5	5	4	4	3	3	3	3	3	3	3	2	2
ANTICIPATED ROADWAY CREWS	**0**	**0**	**0**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**6**	**6**	**7**	**7**	**7**	**10**	**11**	**15**	**16**	**16**	**16**	**16**	**16**	**15**	**13**	**10**	**11**	**13**	**16**	**16**	**16**	**16**	**15**	**14**	**12**	**9**	**7**	**6**	**6**	**7**	**7**	**7**	**6**	**5**
BRIDGE / STRUCTURES																																													
MIN # OF CREWS																																													
BRIDGE - LARGE														1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1										
BRIDGE - SUPPORT														1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5							
BOX CULVERTS / NOISE BARRIER																1	1	1	1	1	1							2	2	2	2	2	2	2	2	1	1	0.5	0.5						
ANTICIPATED STRUCTURAL CREWS														**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**4**	**3**	**3**	**3**	**3**	**3**	**2**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**3**	**1.5**	**1.5**	**0.5**	**0.5**	**0**	**0**	**0**	**0**	**0**	**0**

ANTICIPATED QA STAFFING	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27
# OF PEOPLE																																													
QUALITY ASSURANCE MGR (QAM)	0.25	0.25	0.25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
LEAD QA INSPECTOR ROADWAY							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
QA INSPECTOR ROADWAY												1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
LEAD QA INSPECTOR BRIDGE													1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
QA INSPECTOR BRIDGE														1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
ADDED QA TESTING TECHNICIAN									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1	1	1	1	1	1	1	1							
OFFICE ENGINEER				0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TOTAL ANTICIPATED QA STAFFING	**0.25**	**0.25**	**0.25**	**1.5**	**1.5**	**1.5**	**2.5**	**3**	**4**	**4**	**4**	**5**	**6**	**7**	**7**	**7**	**7**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**6**	**6**	**6**	**7**	**8**	**8**	**8**	**8**	**8**	**8**	**7**	**5**	**5**	**4.5**	**4.5**	**3.5**	**3.5**	**3.5**	**3.5**	**3.5**
TESTING AGENCY	AS REQUIRED																																												
OTHER INSPECTIONS	AS REQUIRED																																												

ANTICIPATED QC STAFFING	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27
# OF PEOPLE																																													
QUALITY CONTROL MGR (QCM)				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ROADWAY INSPECTORS				1	1	1	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	2	2	2
SENIOR QC INSPECTOR BRIDGE													1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
QC INSPECTOR BRIDGE													1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
OFFICE ENGINEER				0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5
TESTING AGENCY														2	2	2	2	3	3	3	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	2	2	2	1	1	1	1	1
TOTAL ANTICIPATED QC STAFFING	**0**	**0**	**0**	**2.5**	**2.5**	**2.5**	**3.5**	**4**	**4**	**4**	**4**	**5**	**7**	**9**	**9**	**9**	**9**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**10**	**10**	**10**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**10**	**9**	**8.5**	**7.5**	**5.5**	**6.5**	**5.5**	**5.5**	**4.5**

Exhibit 4.4.4.2 QA/QC Organizational Chart



4.5
Construction of the Project

4.5 Construction of the Project

4.5.1 Sequence of Construction

Throughout development of our Technical Proposal, our Team focused on means and methods to finish critical stages of work safely, quickly and efficiently. Key elements of our Team's collaborative process included optimizing the sequence of work which allows our Team to achieve the goals of:

- Ensuring the safety of the traveling public and workers;
- Providing efficient mobility and full connectivity for the traveling public;
- Implementing proven construction means and methods for maximum productions;
- Minimizing impacts to the future I-64 GAP Segment B Widening project; and,
- Proactive stakeholder coordination.

Our Team's Proposal Schedule, presented in Section 4.5.3, was developed with input from all Project disciplines including design, permitting, utilities, right-of-way, QA/QC, and construction, and includes numerous enhancements as shown in Table 10.

Table 10 - Sequence of Construction Enhancements and Benefits

Enhancements	Benefits
Expediting tree topping in critical Areas	▪ Removes potential bat habitats; and, ▪ Avoids impacts of Time-of-Year Restrictions (TOYR).
Use of Early MOT (TTC) Plan	▪ Allows shoulder strengthening to occur concurrent with final design; and, ▪ Minimizes schedule risk.
Maintain a minimum 7-foot useable shoulder	▪ Improves safety and mobility; ▪ Reduces construction joints and improves quality; and, ▪ Avoids need for emergency pull-offs.
Committing to a Traffic Control/Incident Manager as a Value-Added position	▪ Liaison to quickly detect and clear incidents from the roadway; ▪ Ensures compliance of traffic control measures; and, ▪ Establishes a POC with First Responders and VDOT
Unique Milestone #1: Early opening of three WB I-64 lanes from Station 5050+00 to western terminus	▪ Provides traveling public with over 1-mile of three-lane section of WB I-64 approaching I-295 prior to the 2026 Thanksgiving holiday; ▪ Reduces congestion; and, ▪ Improves operations at Exit 205 Interchange.
Unique Milestone #2: Early Final Completion from EB Station 1545+00 and WB Station 5545+00 to I-64 GAP Segment B Widening Project limits	▪ Avoids/minimizes impacts to the future I-64 GAP Segment B Widening Project. ▪ Final Completion 7 months early allows Segment B's use of 1/2-mile of Segment A's limits for MOT, tapers, and tie-ins without conflict.

Project Work Areas

In order to efficiently execute our construction plan, the Project length has been broken into four major Roadway Work Areas, as shown in the Figure 4.5.1.1, and are divided by break points that allow for effective construction sequencing. The Work Areas were developed by reviewing the median construction operations and specifically the critical tree clearing that is subject to the TOYR's. Area 1 has the narrowest median width and limited tree save areas and aligns with Unique Milestone #1. Area 4 is adjacent to the I-64 GAP Segment B Widening Project and aligns with Unique Milestone #2. The remainder of the Project length is defined as Areas 2 and 3. This segmentation is also developed in conjunction with our Temporary Traffic Control (TTC) Plans and is of sufficient scope and size to allow individual construction

management teams to oversee the operations. This allows maximum utilization of time, resources, and oversight of construction activities from a safety and quality perspective.

Figure 4.5.1.1 - Project Work Areas (I-64 EB Stationing shown)

Construction Sequence

The construction sequence was developed to provide a cohesive approach that focuses the entire Project Team on minimizing impacts to the traveling public while maximizing the opportunity to complete on time or early.

We propose four Stages of roadway construction corresponding to our Team's Transportation Management Plan (TMP) detailed in Section 4.5.2. Each Stage corresponds to a major traffic control sequence as construction activities progress. General work activities within each Stage are described in Table 11.

Table 11 - Construction Stages

Stage	Activity
Stage 1A	▪ Place temporary barrier service along median in Areas 1 and 4; and, ▪ Perform median tree topping (without land disturbance) in Areas 1 and 4.
Stage 1B	▪ Perform outside shoulder strengthening.
Stage 2	▪ Place temporary pavement markings and shift traffic partially onto the outside shoulder; ▪ Place temporary barrier service adjacent to the median; ▪ Activate temporary signal at Route 33/I-64 ramps and start concrete pavement replacment on I-64 in Area 1; ▪ Construct the median widening including box culvert extensions; ▪ Construct widenings of Bridges B-601 and B-602 over N Courthouse Road; and, ▪ Perform mill and overlay of existing left lane.
Stage 3	▪ Shift traffic onto the median widening and set temporary barrier service; ▪ Install underdrain on outside shoulders; ▪ Perform mill and overlay of outside lane and shoulder; ▪ Complete concrete pavement replacement on I-64 in Area 1; ▪ Construct ITS infrastructure and overhead signs; ▪ Install noise barriers; and, ▪ Install outside shoulder barriers (BPPS) and guardrail.
Stage 4	▪ Remove temporary barrier service; ▪ Perform final surface paving and pavement markings; ▪ Open road to final configuration; ▪ Perform inspections and punch lists; ▪ Achieve Unique Milestone #1 ▪ Achieve Unique Milestone #2, and, ▪ Achieve Project Final Completion.

Exhibits 4.5.1, 4.5.2, 4.5.3 and 4.5.4, included at the end of Section 4.5, depict our Temporary Traffic Control (TTC) plan for the major stages of construction. A detailed description of each Stage and the benefits of our Team's proposed sequence are as follows:

Stage 1A: Early Tree Topping In Areas 1 and 4

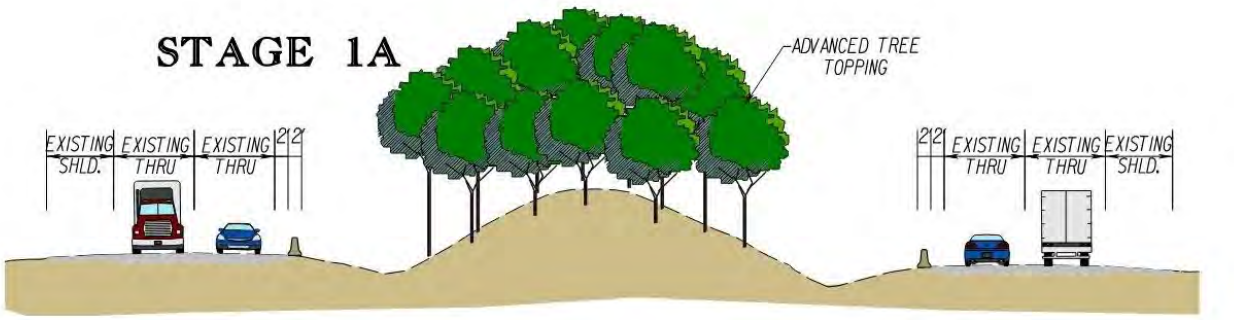


Figure 4.5.1.2 - Stage 1A - Early Tree Topping in Areas 1 and 4

Through analysis of the Project Schedule, it is apparent that it is critical to start construction as early as possible. With confirmed Time-of-Year Restrictions (TOYR) in place from April 1st through November 14th for tree clearing operations, our Early Tree Topping Package will allow expeditious tree topping/ felling in Areas 1 and 4 of the Project concurrent with Final Design. The work will be performed with minimal to no land disturbance.

To safely access the work and provide protection for motorists in Areas 1 and 4, temporary barrier service will be set 2-feet from the existing inside edge line along the median of both EB and WB I-64 as shown in Figure 4.5.1.2. Trees will be topped or felled without grubbing, so that any potential bat habitat is removed. This work is planned to begin in the 2023-2024 winter season and continue until the TOYR on April 1, 2024 is in place. Execution of this Early Work Package will allow earth disturbance and grubbing of these critical areas to begin as soon as plans are approved and all environmental permits are in-hand well before the end of the TOYR. Traffic remains in its current location throughout Stage 1A.

Stage 1B: Outside Shoulder Strengthening

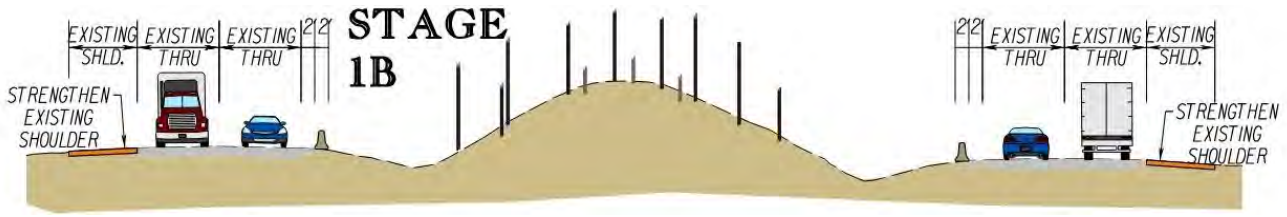


Figure 4.5.1.3 - Stage 1B - Strengthen Outside Shoulders

Stage 1B in our Temporary Traffic Control (TTC) Sequence performs the strengthening of the existing outside shoulders of I-64 as shown in Figure 4.5.1.3. This early strengthening allows the shoulders to be used for safe refuge for motorists in lieu of the continuous installation and relocation of emergency pull-offs. Since the required strengthening work is contained within existing VDOT right-of-way and requires no drainage adjustments, upon approval of the early TTC Plan Set, we will begin this work in Spring 2024

as the Stage 1A work finishes.

The existing shoulder will have seven inches milled out and replaced with seven inches of asphalt (3-inch BM-25.0D, 2-inch IM-19.0D, and 2-inch SM-12.5D). The shoulder strengthening operation will be performed at night with lane closures, and operations will be planned so that no drop-offs greater than 2-inches are remaining at the end of the shift.

As shown in our Design Concept, our TTC Plan will maintain a continuous 7-foot wide shoulder, without the need for emergency pulloffs during Stage 2. Traffic remains in its current configuration throughout Stage 1B.

Stage 2: Median Widening

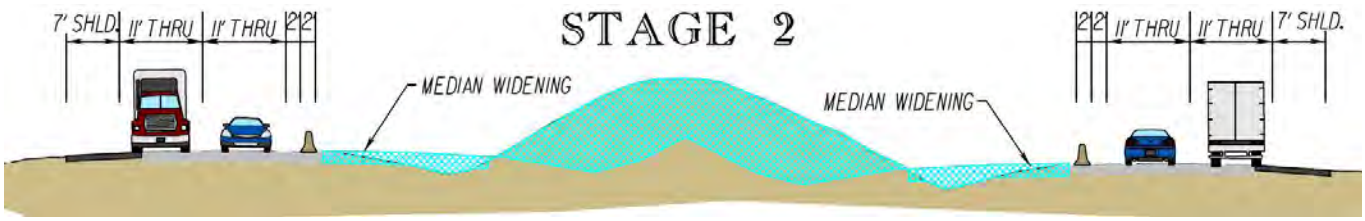


Figure 4.5.1.4 - Stage 2 - Inside Widening

Following the outside shoulder strengthening, Stage 2 work begins with placement of temporary pavement markings and shifting traffic onto a portion of the strengthened shoulders. Temporary barrier service will be placed along the entire length of the EB and WB lanes to safely separate traffic from the Stage 2 median work as shown in Figure 4.5.1.4. At all times, 11-foot travel lanes will be maintained as well as ***a 7-foot minimum right shoulder.***

Once traffic is shifted and temporary barrier service is in place, construction of the majority of the Project elements will begin. Specifically, Stage 2 consists of all of the I-64 median widening, drainage improvements, and bridge widening. EB and WB Work Areas will be constructed concurrently with emphasis on Area 4, to allow for the early completion of the eastern portion of the Project that ties into the I-64 GAP Segment B Widening Project (Unique Milestone #2), and WB Area 1, to allow early opening of the lengthened three-lane section approaching I-295 (Unique Milestone #1).

Roadway and Drainage Construction

Following the issuance of RFC Roadway Plans and the final environmental permits, clearing and grubbing activities will continue, and roadway drainage and excavation activities will commence concurrently for all Work Areas. For this median widening work, all construction run-off can be controlled in Phase 1 erosion and sediment control devices such as check dams, silt logs, sediment traps, and inlet protections. Drainage work in the Stage 2 median widening areas includes construction of the box culvert extensions and all new longitudinal median drainage ditches.

Figure 4.5.1.5 - Cement Treated Crushed Concrete Subbase Layer Option

Roadway excavation and grading starts with stripping of all native topsoil, and continues with cuts and fills to subgrade. In all areas, we have allowed time in our Project Schedule to account for the remediation or removal and replacement of soft or unsuitable soils. Our Team has elected to use the Asphalt Alternative Pavement Section utilizing either cement-treated crushed concrete, as shown in Figure 4.5.1.5, cement-treated RAP, or CTA as the subbase layer. Asphalt crews will place the 2-inch Open Graded Drainage Layer followed by the base asphalt layers. Finally, 3-inches of Intermediate Asphalt (SMA-19.0) will be placed prior to temporary pavement markings and the required guardrail installations.

In Area 1 at the Exit 205 interchange, portions of the existing travel lanes on EB and WB I-64 are concrete pavement and require complete removal and replacement with the new pavement section. As discussed in Section 4.5.2, in order to eliminate a split traffic condition with narrow work zones, our Team will install a temporary signalized intersection on Route 33 and I-64 that allows NB Route 33 traffic headed to I-64 WB to divert from the existing loop ramp and safely join the ramp from SB Route 33 to I-64 WB. This modification allows the existing auxiliary/acceleration lane to be eliminated to create additional space for the concrete demolition and pavement reconstruction as shown in Figure 4.5.1.6. The temporary signalized intersection will be installed on Route 33 and activated in Stage 2 in advance of this work.

Figure 4.5.1.6 - Stage 2 Traffic Condition Under Bridge at Exit 205

The RFP requires a 3-inch build-up of the existing travel lanes in each direction which will require a 2-inch mill and replacement with 3-inches of SMA-19.0 and a final surface overlay of 2-inches of SMA-12.0. In order to match paving layers from the median widening lane and shoulder, at the conclusion of the Stage 2 work, the temporary barrier service will be removed, and the existing inside travel lane will be milled and overlaid with the 3-inches SMA-19.0 as shown in Figure 4.5.1.7. Concurrent with this work, crews will perform any required pavement patching/repairs identified during the Design Phase. All work will be performed under nightly lane closures. Once the mill and overlay work is complete, the lanes will then be ready for the Stage 3 traffic shift.

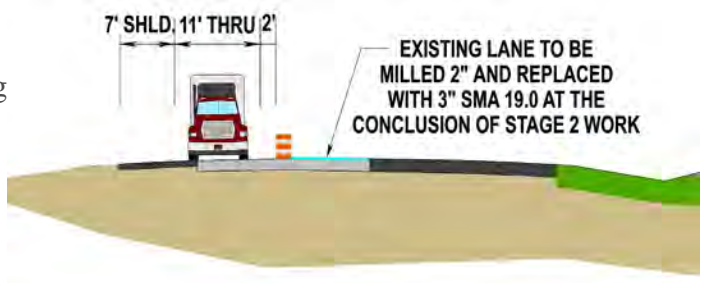


Figure 4.5.1.7 - Pavement Build-up of Existing Travel Lanes

Bridge Construction
(N. Courthouse Road Bridges)

Stage 2 bridge work will focus on the median widened portions of structures B-601 and B-602 over N. Courthouse Road. These pair of bridges will be constructed concurrently to economize the use of specialty crews such as bridge demolition and pile driving. Stage 2 bridge work will require the partial demolition of the existing structure parapets and a portion of the deck to create the joint necessary for the widening tie-in. Temporary

Figure 4.5.1.8 - Beam Erection at Widened Bridges

shoring will be required to support excavation of new piers and abutment elements. The N. Courthouse Road Bridges have a 3-Span arrangement very similar to the I-64/ Lakeshead Drive overpass shown in Figure 4.5.1.8 recently completed on the I-64 Corridor Improvements-Segment III Project.

Stage 3: Outside Work

Figure 4.5.1.9 - Stage 3 - Outside Work

Following completion of Stage 2 work, travel lanes will be shifted to a portion of the newly constructed median widening and inside lane that was milled and overlaid in Stage 2. On the right side, barrier service will be relocated to allow all Stage 3 work to commence behind the temporary barrier service as shown in Figure 4.5.1.9. Similar to Stage 2, our Team will provide a minimum 7-foot-wide safety shoulder for the full length of the Project.

Roadway and Drainage Construction

Upon completion of the traffic shift, all existing guardrail and cable rail will be removed from the outside Project limits. New underdrain will be installed at the edge of the outside shoulders along with new outlet pipes. Existing outside ditchlines will be regraded as necessary to accept the underdrain and new drainage outfalls. In Area 1, at Exit 205 Interchange, the temporary signalized intersection will remain in operation following the traffic shift to Stage 3. The remaining existing concrete pavement will be removed and replaced, with traffic located as shown in Figure 4.5.1.10.

Figure 4.5.1.10 - Stage 3 Traffic Condition at Exit 205

Bridge Work

The existing portions of the bridge deck will be retrofitted to be continuous at pier locations. The existing abutments shall be retrofitted to use VDOT's standard deck extension detail with buried approach slabs. This will require complete replacement of the approach slabs and modification of the abutments. Repair of the existing bridge deck will include Type A milling, hydro-demolition, deck repairs, and construction of a Latex Modified Concrete overlay, as shown in Figure 4.5.1.11.

Figure 4.5.1.11 - Bridge Latex Modified Concrete Overlay

Noise Barriers

During Stage 3, work on the outside of I-64 will include construction of the noise barrier walls located along the EB and WB travel lanes in Area 1, as shown in Figure 4.5.1.12.

ITS / Signage

Early in Stage 3, the new ITS communications backbone conduits and junction boxes will be installed in conjunction with the grading and noise barrier construction. ITS cabinets and associated branch conduit will be installed to the individual devices. ITS and Overhead Sign foundations will be poured, and erection of the new devices and signs will be performed.

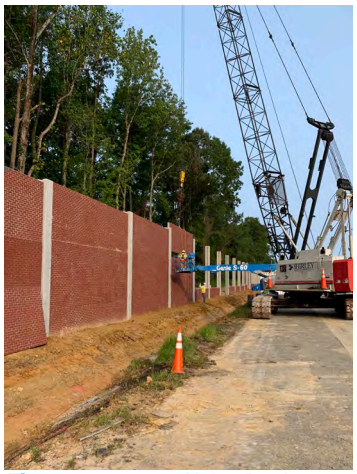


Figure 4.5.1.12 - Noise Barriers

Guardrail and Paving

At the conclusion of the Stage 3 outside work, preparation will begin for the final paving and pavement markings in Stage 4. On the outside shoulders, the temporary SM-12.5D installed in Stage 1B will be milled and replaced with 3-inches of IM-19.0D and 2-inches of SM-12.5D. New guardrail will be installed as required following paving operations. For the existing outside travel lane, the surface will be milled 2-inches. Any required pavement patching will be performed and then the lane will be overlaid with 3-inches of SMA-19.0 and 2-inches of SMA-12.5.

Stage 4: Final Surface Paving and Pavement Markings

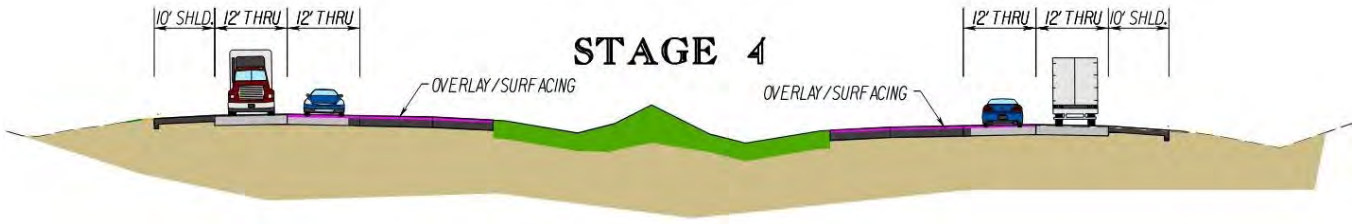


Figure 4.5.1.13 - Stage 4 - Final Surface Paving Operations

Stage 4 work, as shown in Figure 4.5.1.13, will consist of placement of all final surface asphalt material. Two-inches of SMA 12.5 asphalt will be placed on all new travel lanes and 2-inches of SM-12.5A will be placed on all new and reconstructed shoulders. Due to the multiple traffic shifts during construction, placement of surface asphalt at the end of all construction ensures that temporary pavement markings are not used on the finished product, and ensures that all final paving is completed at the same time. This provides for a smooth, "clean" look at the completion of the Project when all of the through lanes are opened to traffic on a permanent basis.

As elements are completed, we will work with VDOT to schedule Final Inspections and perform punchlist. Upon Acceptance, all traffic will be in its final configuration, as shown in Figure 4.5.1.14, and the Project will achieve Final Completion.

Figure 4.5.1.14 - Stage 4 - Final Traffic Configuration

Safety & Operations

It is our Team's primary goal to ensure the safety of the traveling public and the workers on the Project. We fully support VDOT's commitment to safety of the public, safety of its employees, and safety of all Project

stakeholders, and we plan to align our Team's vision of safety with VDOT. We expect each and every individual to be involved, empowered, and accountable for safety. Our efforts will be led by our Safety Manager who will implement a Project Specific Safety Program and work directly with VDOT personnel. He will also have overall responsibility for ensuring the Project is delivered with a goal of zero incidents. Our Team's approach to safety is focused on both construction safety and traffic safety.

Construction Safety - Each Stage of the Project will have distinct safety challenges associated with them. We will work closely with our design partners to finalize a design that incorporates and considers safety elements and fully integrates anticipated construction processes and staging requirements. This safety approach forms the basis of our Sequence of Work and Schedule, including a detailed focus on median tree topping ahead of the TOYR, sequencing of the full-width concrete pavement removal, and safe ingress and egress in the median for construction vehicles.

Traffic Safety - Our Team's TMP, TTC, and Sequence of Work have been developed to provide the safest work zones while maintaining the peak operational capacity of I-64 and surrounding roadways. Following traffic counts at the onset of design, all plans will be adjusted to allow the maximum flow of traffic through the corridor. As detailed in Section 4.5.2, enhanced safety strategies exceeding VDOT requirements will also be utilized to maximize safety, such as minimizing lane shifts and maintenance of a 7-foot wide outside shoulder during all Stages. During construction, the VDOT Work Zone Safety Checklist will serve as the minimum standard to assure conformance with the Project's safety requirements, and checks will be performed daily.

To support this approach, we have dedicated a Traffic Control/Incident Manager to lead all Team members in their responsibilities for incident response. He will serve as the primary point of contact with VDOT construction and maintenance personnel, emergency responders, and the Virginia State Police to quickly coordinate and deploy resources to respond to incidents that require urgent attention to maintain safety and mobility. He will facilitate maintenance and identify corrective action or enhancements in an effort to mitigate future, repeating incidents.

Staging and Storage Areas

To maximize safety, facilitate productivity, minimize cost, and avoid delays to the schedule, several key issues will be addressed by the Operations Team's selection of staging and storage areas:

- Safety of the traveling public;
- Security and public nuisance avoidance;
- Safe ingress and egress for construction vehicles, workers, equipment, and deliveries;
- Proximity to the work areas and operational efficiency;
- Sized for the intended purpose; and,
- Appropriate environmental controls for the location.

Locations within the Project will allow for 'just-in-time' deliveries to the greatest extent practical. Staging of materials behind the temporary barrier service and outside of the deflection zones also serves as convenient areas for items such as storm water pipe, storm structures, bridge formwork, and other consumable materials. Other areas located outside of Project limits will be utilized for longer-term staging and storage, with materials and equipment transported to the work area as needed. These will be negotiated with the landowners upon Award.

Mitigating Potential Delays

As shown throughout this Technical Proposal, our Team has advanced a number of concepts, plans and procedures for ensuring the Project is completed on-time or ahead of schedule without delay. As we

develop our Project schedules, we are constantly focused on issues and concerns that have the potential to create delays and then direct our efforts on mitigating them. At various stages of the Project, we rely on proven methods for creating, monitoring, and maintaining the schedule:

- ***Technical Proposal Stage*** - As the groundwork for the Team's Schedule is developed in this Stage, it is critical for all disciplines to have input. Our Team has met on a weekly basis since release of the RFP to discuss issues, create our concept, solicit feedback, and to make schedule adjustments accordingly. The Schedule presented in Section 4.5.3 is the result of this close collaboration and has buy-in from all Team members.
- ***Design Stage*** - As we proceed through the design process, the integration of the various disciplines rises to a higher level. We continue to hold Team meetings on a weekly basis to provide an over-the-shoulder forum for review, discussion and feedback. During this Stage, our formal Project Schedule is developed and reviewed with VDOT and other stakeholders. Should issues arise or conditions change during design that impact the sequence or completion milestones, the Team reviews schedule options for correction so that these milestones are maintained. Once finalized, it is communicated to each discipline, our construction forces, subcontractors and consultants, and other affected parties and is the basis for the Team's planning efforts moving forward. Throughout this Stage, the approved Schedule is monitored, updated and communicated to VDOT by the DBPM to ensure that it remains compliant.
- ***Construction Stage*** - As the Project transitions to construction, the Construction Manager and DBPM closely monitor and update the Schedule on a regular basis. The CM ensures the schedule is communicated to the entire Team, including utility companies, QA/QC, VDOT, government agencies, and others. In addition, shorter, more detailed schedules are created by the construction teams to better aid planning their work. These two week and six week "look-ahead" schedules allow teams to plan activities on a daily basis and communicate specific tasks and milestones in a direct, concise way. Our Team also utilizes a proprietary "Daily Shift Cost Report" (DSCR) system that tracks the costs for certain critical activities each day and compares them to the budgeted cost. This is an excellent indicator that scheduled production rates are being achieved and provides the construction team with "real-time" data. Throughout the construction schedule, these schedules and data are monitored and compared to the approved baseline schedule so that delays can be anticipated. Then, the Team evaluates options for avoiding delay or recovering the schedule including resequencing the work, adding resources, or redesign of certain features.

4.5.2 Transportation Management Plan

It is vital that our Team maintains safety and mobility on I-64 throughout construction as it is the only interstate route connecting the Richmond area and I-95 corridor to the Hampton Roads region. It is also primary artery for commerce, tourism, and local traffic through New Kent County. Given this, our Team is dedicated to exceeding expectations regarding the minimization of public impacts during construction. All aspects of our Transportation Management Plan (TMP) and Temporary Traffic Control (TTC) plans will be developed with a focus on maximizing safety for the traveling public and construction personnel, while minimizing travel delays and access impacts throughout all stages of construction. To accomplish these goals, highlights of our approach include:

- Analyzing existing safety concerns and developing solutions to mitigate them prior to construction;
- Establishing a multi-discipline Traffic Task Force (TTF);
- Monitoring work zone conditions throughout construction by our Lead Traffic Engineer;
- Reducing the frequency and duration of temporary lane closures to further reduce public impacts;
- Providing a minimum 7-foot shoulder throughout construction (except across bridges and ramp connections as allowed by the RFP);
- Utilizing enhanced safety devices and strategies that exceed minimum requirements;
- Early opening of Area 1 along WB I-64 to expediate delivery of added lane capacity (Unique

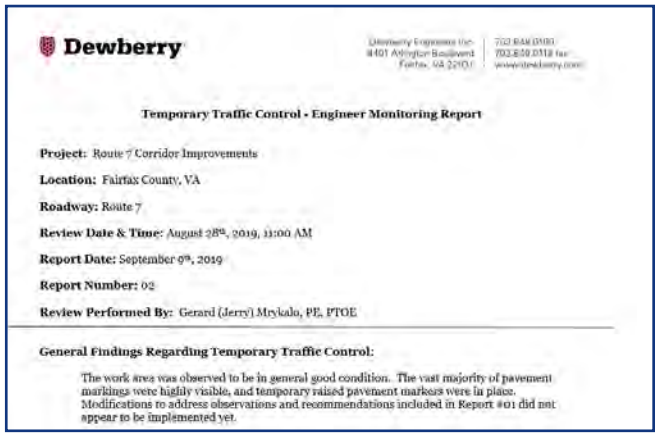
Milestone #1); and,

- Avoiding/minimizing impacts with the I-64 GAP Segment B Widening project (Unique Milestone #2).

TMP Philosophy

Based on recent experience along this corridor, our Team understands achievement of our safety and mobility goals can only be accomplished by having a dedicated team that is fully invested in development, delivery, and execution of the TMP program. Therefore, immediately following NTP, ***our Team will establish a multidiscipline Traffic Task Force (TTF)*** that is focused on planning and developing the TMP, and designing and implementing the Project's work zone traffic control program. The TTF will consist of contractors, engineers, and our safety team. Additionally, VDOT and third-party stakeholders will be invited to participate. Establishing and maintaining this Task Force encourages construction collaboration that ultimately ensures safety, mobility, and constructability are optimized, and will act as a liaison between design and construction, VDOT, adjacent projects, and third parties from the onset of TMP development. Coordination will focus on providing seamless transitions between adjacent projects and MOT operations so that the safety, mobility, construction sequencing, and design features are fully integrated.

Starting from the development of this Technical Proposal, our TMP has, and will continue to, place a particularly heavy emphasis on eliminating the need for temporary lane closures to the largest extent possible. Given this corridor already experiences regular congestion, especially during the peak summer season, we thoroughly understand the further impact that lane closures can have on mobility and safety. To meet our high safety and mobility goals, the TMP and TTC plan development will be led by our Lead Traffic Engineer, Jerry Mrykalo, who is a Professional Traffic Operations Engineer (PTOE) and has overseen the development of the TMP for two previous widening projects along the I-64 corridor on the Peninsula. Furthermore, ***our Team commits to additional field reviews by our traffic engineering personnel during construction***. These regular reviews will verify that traffic controls have been implemented correctly and will provide recommendations for further measures. This enhancement is in addition to the Work Zone Safety Inspections completed by our TTF and QA/QC Team. An example of these traffic engineer reviews can be seen in Figure 4.5.2.1.



Dewberry

Temporary Traffic Control - Engineer Monitoring Report

Project: Route 7 Corridor Improvements

Location: Fairfax County, VA

Roadway: Route 7

Review Date & Time: August 28th, 2019, 11:00 AM

Report Date: September 9th, 2019

Report Number: 02

Review Performed By: Gerard (Jerry) Mrykalo, PE, PTOE

General Findings Regarding Temporary Traffic Control:

The work area was observed to be in general good condition. The vast majority of pavement markings were highly visible, and temporary raised pavement markers were in place. Modifications to address observations and recommendations included in Report #01 did not appear to be implemented yet.

Figure 4.5.2.1 Example TTC Engineering Report

Maintaining Traffic Through all Phases of Construction

As detailed in Section 4.5.1, construction will be accomplished in four Stages to maximize public safety, minimize public impacts, and focus on the timely delivery while integrating environmental and seasonal constraints into the TMP. The staging also allows for expediting the opening of three WB lanes in Area 1 and early delivery of the eastern portion of the Project near the I-64 GAP Segment B project in Area 4. For each Stage of construction, we have developed specific temporary traffic control strategies as shown on the 11x17 Exhibits 4.5.1, 4.5.2, 4.5.3, and 4.5.4. Highlights of our strategies inlcude the following:

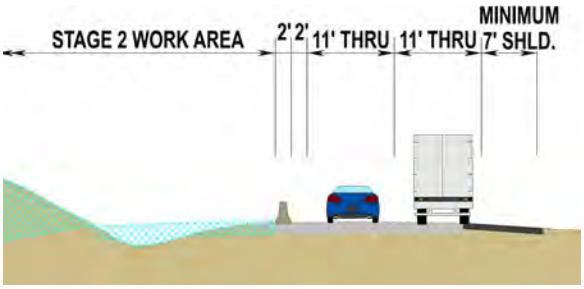


Figure 4.5.2.2 - Continuous useable right shoulder.

Providing a Continuous Useable Shoulder

A key feature of our Team's sequence of construction is our commitment to ***providing a minimum 7-foot shoulder***

during all stages of construction as shown in Figure 4.5.2.2, except across bridges and ramp connections as allowed by the RFP. Providing this full shoulder has tremendous safety and operational benefits as compared to intermittent pull-off areas every 1-mile. The continuous 7-foot shoulder provides an escape route during congested periods to avoid what could otherwise be a rear-end collision, provides a safe area for the public and VDOT Safety Service Patrol personnel during vehicle breakdowns, and provides a dedicated path for emergency vehicles to quickly access downstream incidents. Without this shoulder, response times for first responders could be compromised. This shoulder also allows for the expedited clearing of any incidents that do occur from the travel lane and quick restoration of full capacity. Finally, the 7-foot right shoulder, instead of left shoulder pull-off areas carved into the work zone, avoids the need to continually move pull-offs that overlap with construction activities and creates a superior end-product with less transverse paving joints.

Preparing Outside Shoulder to Accept Traffic

To perform Stage 2 widening activities, traffic will need to be shifted approximately 3-feet onto the outside shoulder previously strengthened in Stage 1B. These Stage 1B activities will be performed during overnight lane closure hours, minimizing the impact on traffic. During each nightly period, productions will be planned so that 7-inches of asphalt can be removed and replaced to within 2-inches of the adjacent travel lane, avoiding edge drop offs at the end of the shift.

Maintenance of Ramp Movements

Continuous maintenance of ramp movements requires careful planning and execution, especially at Exit 205 where the existing concrete pavement is being reconstructed. Of particular concern is the existing loop ramp from NB Route 33 to WB I-64 where the acceleration lane adds a third lane under the existing overpass in the concrete replacement area. Given the width restriction under the structure, maintaining this acceleration lane during reconstruction would require a "split traffic" condition on the interstate, creating a hazardous narrow work zone between two sections of live traffic.

To avoid this safety concern, our Team developed an innovative solution that creates a temporary intersection on Route 33 at I-64. Figure 4.5.2.3 depicts our strategy to temporarily divert NB Route 33 traffic towards the SB on-ramp to access I-64 WB by constructing temporary pavement in the ramp infield area. Preliminary traffic analysis for this temporary reconfiguration has been performed, showing that it will operate most safely and efficiently with signal control. As required by the RFP, a complete and detailed traffic analysis in accordance with the TOSAM will be developed during Final Design. Highlights of this enhancement include:

- Provides a safer work zone for both construction personnel and drivers on I-64;
- Enhances constructability; and,
- Eliminates the short existing acceleration lane until ramp re-opening with a longer lane.

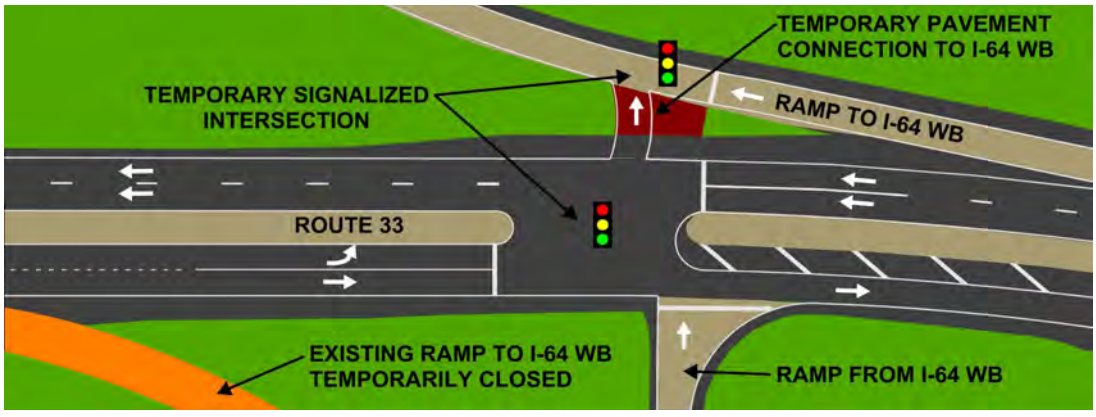


Figure 4.5.2.3 - Temporary Reconfigured Intersection at Route 33 and I-64

Avoiding Impacts to I-64 GAP Segment B Widening Project

Our Team understands the potential conflicts that can arise with concurrent work along the same corridor. In particular, construction of the I-64 GAP Segment B Widening project is expected to overlap with this Project, and the possibility of conflicting traffic control can potentially lead to a public safety risk. ***To mitigate this risk, our Team commits to an early Final Completion from EB Station 1545+00 and WB Station 5545+00 to I-64 GAP Segment B Widening Project limits as part of Unique Milestone #2.*** This early completion allows Segment B's use of 1/2-mile of Segment A's limits for MOT, tapers, and tie-ins without conflict.

Traffic Control Details

In addition to the sequence of construction and TTC typical sections shown in Exhibits 4.5.1, 4.5.2, 4.5.3, and 4.5.4, our Team has developed a temporary traffic control strategy that minimizes impacts to the traveling public. Upon Award, we will begin the design of the Type C, Category V TMP and will develop site-specific TTC plans for each stage of construction. The TTC plans will detail all controls to be implemented such as work areas, temporary barrier service, attenuators, channelizing devices, signs, temporary markings, temporary drainage elements, construction access points, and all other requirements of VDOT's I&IM-241/TE-351, the *Virginia Work Area Protection Manual*, and the *Manual on Uniform Traffic Control Devices (MUTCD)*.

Our Team recognizes common shortfalls with TTC in work zones, and we are committed to avoiding these conditions with carefully designed site-specific TTC plans. For example, we will ensure that barrier ends and impact attenuators are flared as far away from traffic as possible to reduce the likelihood of a high severity crash into an attenuator. Specific traffic control details are as follows:

Lane / Ramp Closures

- No planned long-term lane closures or long-term road closures.
- Proposed ramp diversion and reconfiguration at Route 33 and I-64 is described in the "Maintenance of Ramp Movements" Section.

Pedestrians

- While Section 4.5.2 of the RFP specifies describing measures to accommodate pedestrian traffic, there are no existing pedestrian facilities and no impacts to pedestrian traffic with our approach.

Temporary Detours

- None proposed.

Time-of-Day Restrictions

- Lane and road closure restrictions will follow Part 2, Section 2.10.3 of the RFP. Temporary lane closures are anticipated for activities such as paving, shoulder improvements, placement of traffic barriers, major deliveries, or other times necessary to maintain safety; and,
- Temporary 15-minute maximum full stoppages will only be implemented for activities that mandate stoppages for safety reasons, such as overhead sign structure and bridge work;

Flagging Operations

- Limited to 2-lane cross streets following restrictions in Part 2, Section 2.10.3 of the RFP.

Minimum Lane Widths

- Minimum 11-foot wide lanes will be maintained unless otherwise required by the RFP.

Work Zone Speed Reductions

Our Team recommends reducing the existing speed limit of I-64 and have taken the proactive step of already completing an analysis utilizing VDOT's TE-350 to arrive at this preliminary recommendation. Based on this analysis, we recommend reducing the existing posted speed limit of 70 mph to a lower speed during construction for the following reasons:

- More than 600 crashes have occurred within the Project limits between 2019 and 2023 as highlighted on Figure 4.5.2.4.
- The combination of a high existing speed limit and re-occurring congestion presents increased risk for both the traveling public and construction workers during construction; and,
- A lower speed limit provides drivers with more reaction time to detect and react to slowed traffic.

Figure 4.5.2.4 - Graphic showing crash history within Project limits from 2019 to 2023.

While our Team recommends this reduction, our temporary geometry and lane shifts will meet the full 70mph criteria as required by the RFP. This speed reduction recommendation will be discussed with VDOT post-Award, and the final determination will be made in coordination with the VDOT Richmond District Traffic Engineer. Upon implementation, ***our Team also commits to the utilization of two (2) speed display trailers, shown in Figure 4.5.2.5, to promote speed reduction compliance.***

Figure 4.5.2.5 - Speed Display Trailer

Project Stakeholders, Approach to Public Outreach and Safety Measures

High traffic volumes combined with the peak summer travel season and concurrent projects on I-64 highlight the need for enhanced public communications during construction. For through traffic, notification of work zone traffic conditions, including lane restrictions and new travel patterns, is critical to maximizing safety. For local cross street and ramp traffic, thorough advance communication of access and lane shifts, or changes to access points, is essential for the same reason.

To accomplish this, proactive communication with all stakeholders is key to a successful TMP. As with any large-scale transportation improvement project, some inconvenience is unavoidable, but our Team's goal is to minimize these impacts. Our Team commits to continuing the robust public involvement that VDOT has started during final design and throughout all phases of the Project. Our Public Liaison will develop and manage the Public Information and Communications Plan (PICP), and meet with VDOT Communications personnel to coordinate communication efforts in accordance with Part 3 Section 2.11.1 and 2.11.2 of the RFP.

In addition, specific attention has been given to the unique challenges of the Project, with focus on enhanced mitigation and communication strategies that maximize safety, minimize public impacts, and minimize schedule risk. By carefully studying these elements, our Team has identified challenges and mitigation strategies to address impacts to the following Stakeholders:

Traveling Public - Vehicular Traffic

Early Opening of WB I-64 in Area 1 - While the full benefit of the I-64 corridor capacity improvements will not be realized until Segments A, B, and C are all completed, the opening of the three WB lanes at the western terminus (Area 1) and associated ramp improvements relieve an important bottleneck heading towards the I-295 interchange. Therefore, ***our Team commits to an early opening of three WB I-64 lanes from Station 5050+00 to the western terminus as part of Unique Milestone #1.***

Median Construction Access

Speed differentials between the traveling public and work zone vehicles entering and exiting on I-64 can lead to crashes. To mitigate this risk, our Team plans to utilize temporary access points from low speed cross roadways (such as Airport Road, Route 618, and Route 155) to reduce the amount of construction traffic entering the work zone from I-64. This direct access provides a significant safety benefit while also providing a mobility benefit for public traffic. An example access point is illustrated in Figure 4.5.2.6.

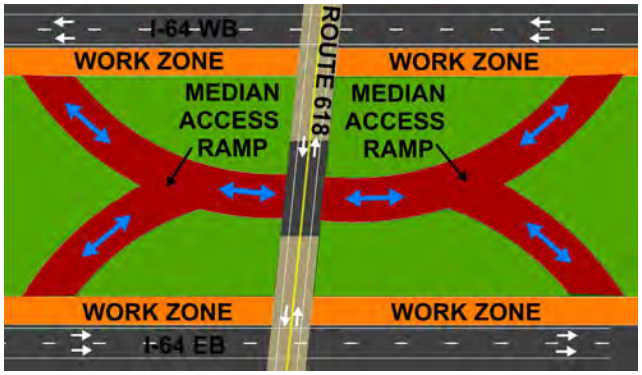


Figure 4.5.2.6 - Median Access Point from Cross Roadways

In the areas where direct access to the median from I-64 is necessary, we will provide full AASHTO acceleration/deceleration lengths for trucks to maximize safety and minimize impacts to the public. Also, enhanced warning signs will be installed in advance of these locations, which will be coordinated with local emergency responders to ensure swift response to any incidents.

Targeted Communications - A proven way to improve safety and minimize community impacts is to ensure the public is well informed of events such as lane closures and new traffic patterns. We will collaborate closely with VDOT's public relations personnel to promote work zone safety for all modes of transportation. Effective methodologies include website and social media postings, pamphlets for distribution at local businesses, and local media stories. ***We will also create kiosks at the EB Welcome Center and WB Rest Area with Project brochures and contact information for public distribution***, as shown in Figure 4.5.2.7. The kiosk will be located at the entry points to maximize visibility.

Figure 4.5.2.7- Kiosk at Welcome Center

Utilization of PCMS devices in the field offer critical and timely communication of construction activities and traffic impacts to roadway users. In addition to the four (4) PCMS required by the RFP, ***our Team commits to deploying 2 (two) additional PCMS, one in each direction of I-64, located at the midpoint of the Project limits.*** PCMS messages will be developed by design engineers, ensuring the messages are succinct and comprehendible.

Site-Specific Enhanced Safety and Mobility Measures

Given the high existing crash rates and high travel speeds, our Team commits to the following crash avoidance and incident management techniques:

- Placement of continuous temporary raised pavement markers with installation of all temporary markings for increased lane visibility especially at night and during wet pavement conditions (only required at lane shifts per the *Work Area Protection Manual*);
- Use of wider than required lane lines for increased delineation of lane shifts; and,
- Use of full "L" length for lane shifts (not ¾ L as allowed) to provide "forgiving geometry" and

reduce potential side-swipe and run-off-road crashes.

Lane Closure Optimization

Understanding that lane closure restriction times listed in Part 2 Section 2.10.3 of the RFP are to be followed, we recognize that the impacts of closing a single lane on I-64 can have a major impact to traffic operations. To ensure temporary lane closures are limited to the hours of least impact, we will collect current traffic volumes and analyze potential MOT operations using software such as Quick Zone and HCS.

This strategy will account for seasonal variations in traffic volumes such as the summer beach traffic season. As shown in Figure 4.5.2.8, we are well versed in this type of analysis, which we recently performed along I-64 as part of the I-64 Capacity Improvements Segment I, Segment III, and HREL Segment 4C projects. Utilizing this type of analysis gives us the ability to schedule short construction duration work during low-volume hours where feasible.

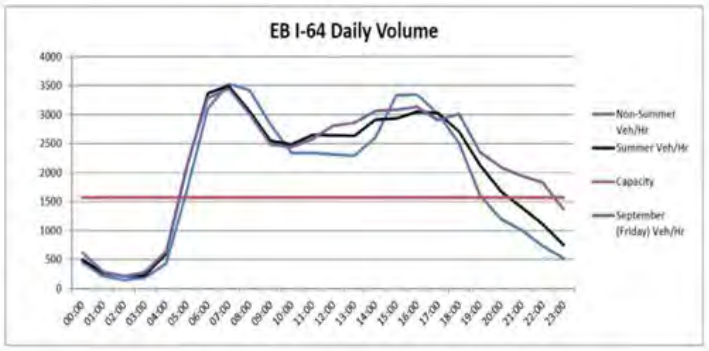


Figure 4.5.2.8- EB Chart of Daily Traffic Volume on I-64

Smart Work Zone

The I-64 Corridor experiences high proportions of rear end crashes due to high speeds and congestion. ***Given the length of the Project, our Team will install two additional queue detection and warning systems***, as shown in Figure 4.5.2.9, located mid-way through the work zone (both EB and WB) and not just at the beginning of the Project limits to alert motorists to this risk.

Figure 4.5.2.9 - Queue Detection and Warning System

Local Residents, Local Businesses, Organizations, Community Associations

Given that I-64 is highly utilized by commuters, local residents, and retail and commercial traffic, mitigation of impacts resulting from construction is critical. To address, our Team commits to the following:

Stakeholder Meetings - Formal and informal meetings with affected businesses, stakeholders, local residents, community associations, and Governments will be held in collaboration with VDOT personnel. These include two (2) "Pardon Our Dust" meetings at locations along the corridor.

Web Postings - Content for VDOT's website and social media feeds will be developed, including Project updates, upcoming traffic impacts, and other notable events.

First Responders

Critical to ensuring the safety of the public and workers is to constantly maintain access for First Responders. Our Team will engage them at the earliest Stages of our TMP development to establish open lines of commmunication and develop incident response strategies. Additionally, our Team commits to the following:

- Create a median emergency crossover sequencing plan to ensure they are constantly maintained;
- Develop and continually update First Responder maps with mile markers, and locations of construction access points, median crossovers, and shoulder closures;
- Establish and maintain direct lines of 24/7 communication;

- Assistance with minimizing incident duration, clearing obstructions and debris from roadway, and incidence management efforts; and,
- Establish TTC for emergency responders and scene assistance.

Incident Management and Detection

With an already congested corridor, we understand the critical importance of quickly detecting and clearing incidents from the travel lanes. As shown in our Organizational Chart, we are committing a Valued-Added Traffic Control/ Incident Manager to accomplish this. Our Team will develop a comprehensive Incident Management Plan (IMP) focusing on proactive measures to rapidly detect, respond to, and clear incidents and coordinate with VDOT, EMS, and stakeholders. We envision the IMP leveraging existing VDOT assets, such as CCTV cameras and Safety Service Patrol, and supplemented by Project specific features such as wrecker service. ***Our Team will also install mile markers mounted on temporary barrier service every 1/10th mile during construction to assist the public in the quick identification of the exact location of an incident***, as shown on Figure 4.5.2.10. These temporary mile markers will allow drivers to have continuous visibility of at least one mile marker, facilitating timely and accurate emergency response.

Figure 4.5.2.10 - 1/10 mile markers placed on temporary barrier service.

Hurricane Evacuation Contraflow

Although provisions for evacuation contraflow area is not required by the RFP, our Team commits to the following elements for the safety and efficiency of evacuation traffic:

- Suspension of all lane and shoulder closures during evacuation and post-storm return;
- The placement of object markers as shown in Figure. 4.5.2.11 on the run-off ends of temporary barrier service to delineate the otherwise unmarked hazard immediately adjacent to the travel lane. This will avoid potential high-severity crashes; and,
- Utilization of the Team's PCMS devices for applicable evacuation related messages in coordination with the Virginia Department of Emergency Management and VDOT.

Figure 4.5.2.11- Object Marker placed on the run-off ends of temporary barrier service.

Local Schools and School Bus Transportation

Our Team understands the importance of implementing control measures during construction that aid in maintaining access for school buses and to promote safety for students. The following strategies will be employed throughout construction:

- Notifications of work will be sent to school transportation contacts in advance of traffic switches, and,
- Lane closures during school bus operating hours will be avoided when possible.

Local Jurisdictions and Governing Entities (New Kent County and VDOT)

It is always important to communicate Project issues and traffic changes with the local Government on a large scale project such as this. Our Team, in coordination with VDOT, will present progress updates to New Kent County Officials, present at public meetings, and address comments received.

EXHIBIT 4.5.1

UNIQUE PROJECT CHALLENGES & SOLUTIONS

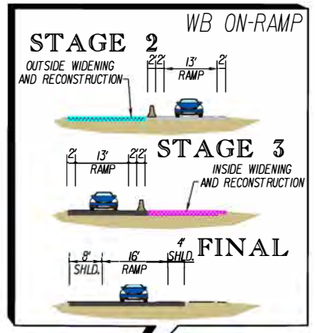
EARLY OPENING OF THREE WB LANES FROM STATION 5050+00 TO WESTERN TERMINUS TO EXPEDITE CONGESTION RELIEF

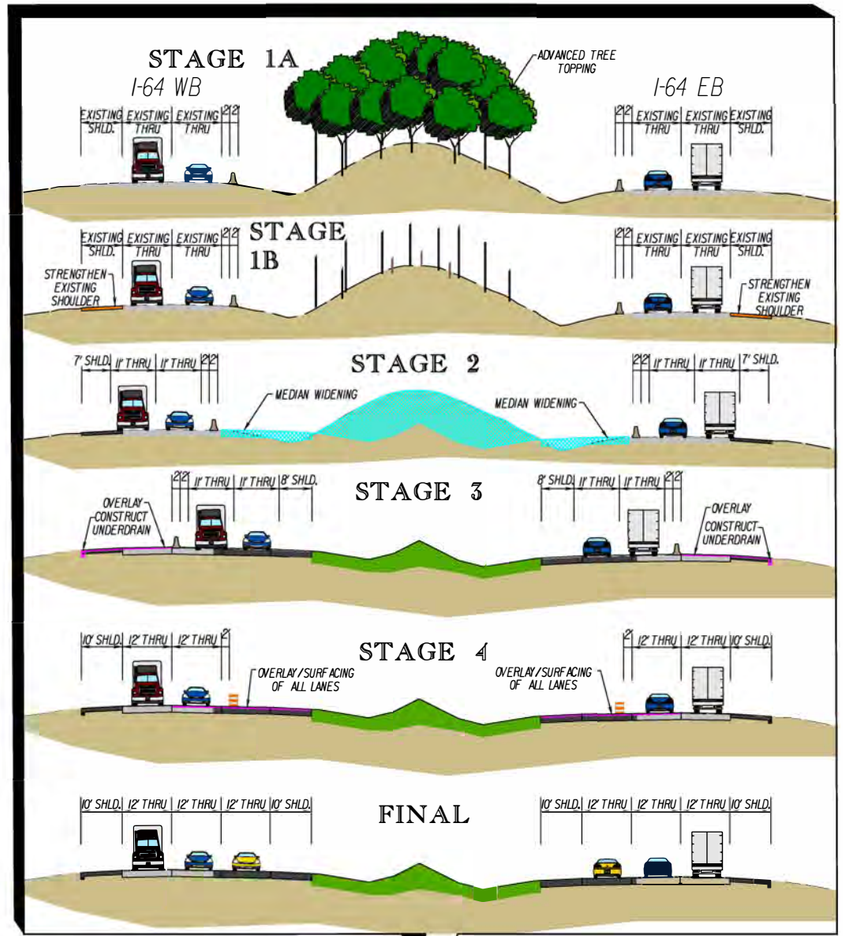
UNIQUE PROJECT CHALLENGES & SOLUTIONS

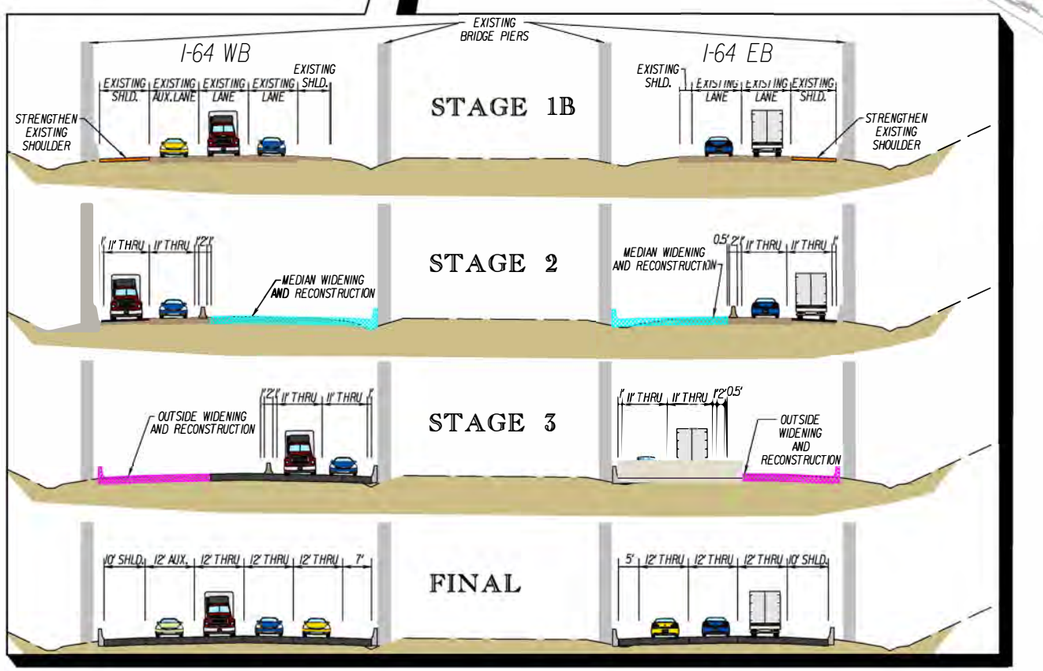
PROVIDE TEMPORARY TURN LANE TO ACCESS I-64 WB FROM ROUTE 33 NB TO AVOID SHORT ACCELERATION LANES ON I-64 AND POTENTIAL WORK ZONE HAZARDS

UNIQUE PROJECT CHALLENGES & SOLUTIONS

EARLY WORKS PACKAGE DUE TO TIME OF YEAR RESTRICTION WILL ALLOW FOR COMPLETION OF AREA 1. EARLY WORKS PACKAGE WILL PROPOSE TO SET BARRIER FOR TREE CLEARING.







LEGEND

- DENOTES STAGE 1B
- DENOTES STAGE 2
- DENOTES STAGE 3
- TEMPORARY CONCRETE BARRIER
- PERMANENT CONCRETE BARRIER
- GROUP 2 CHANNELIZING DEVICE

NOTE:
FOR CLARITY, OVERLAY/SURFACING NOT DEPICTED IN PLAN VIEW.

I-64 WB
I-64 EB
NEW KENT HWY
AREA 1
N HEN PECK RD
MATCH LINE - SEE EXHIBIT 4.5.2

SCALE	PROJECT	SHEET NO.
0 450' 900'	0064-063-623	1

EXHIBIT 4.5.2

MATCH LINE - SEE EXHIBIT 4.5.1

OLD ROXBURY ROAD

AREA 1

AREA 2

AIRPORT ROAD

I-64 WB

I-64 EB

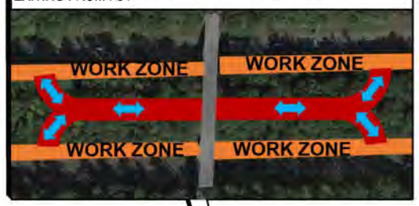
AREA 2

AREA 3

MATCH LINE - SEE EXHIBIT 4.5.3

UNIQUE PROJECT CHALLENGES & SOLUTIONS

MEDIAN ACCESS RAMP PROVIDED AT AIRPORT ROAD TO REDUCE WORK ZONE VEHICLES ENTERING OR EXITING FROM I-64



UNIQUE PROJECT CHALLENGES & SOLUTIONS

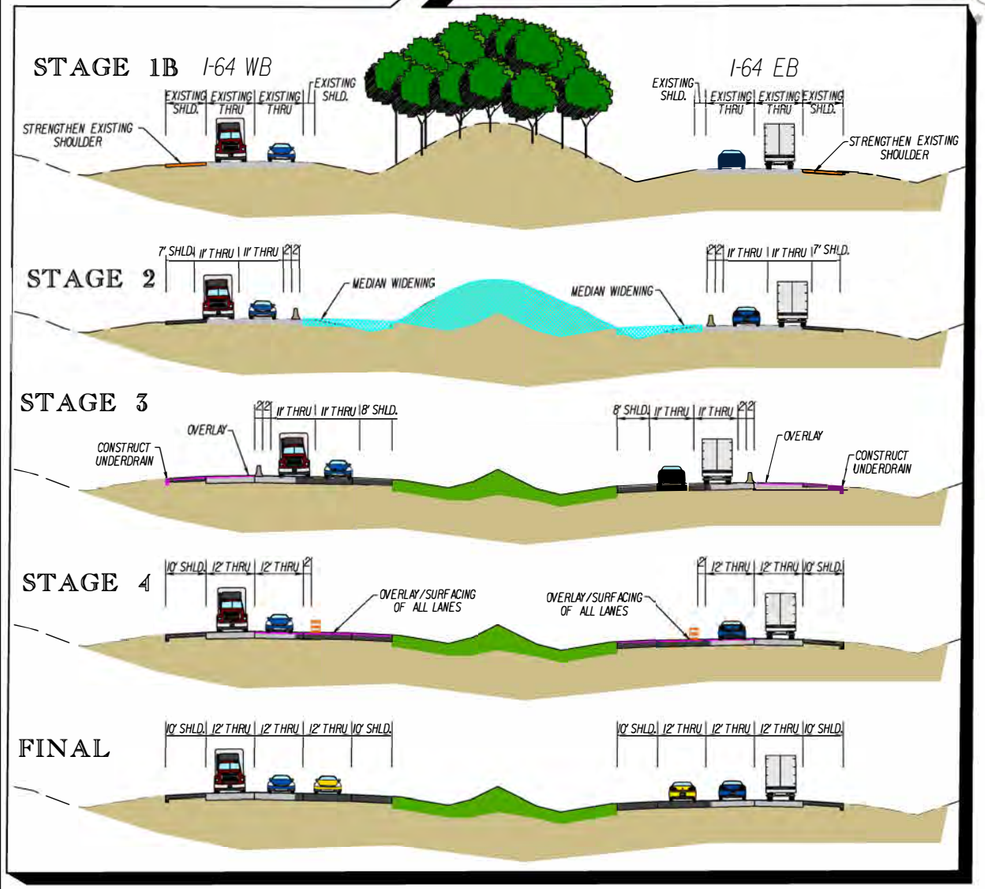
THE TEAM WILL PERFORM SHOULDER STRENGTHENING DURING STAGE 1B NIGHTLY OPERATIONS PRIOR TO SHIFTING TRAFFIC PARTIALLY ONTO SHOULDER IN STAGE 2.

UNIQUE PROJECT CHALLENGES & SOLUTIONS

THE TEAM WILL MAINTAIN A MINIMUM 7-FOOT WIDTH SHOULDER DURING STAGE 2 MEDIAN WIDENING FOR ENHANCED SAFETY.

MAINTAIN CONTINUOUS ACCESS OF ALL CROSSOVERS DURING CONSTRUCTION

UNIQUE PROJECT CHALLENGES & SOLUTIONS



LEGEND

- DENOTES STAGE 1B
- DENOTES STAGE 2
- DENOTES STAGE 3
- TEMPORARY CONCRETE BARRIER
- PERMANENT CONCRETE BARRIER
- GROUP 2 CHANNELIZING DEVICE

NOTE:
FOR CLARITY, OVERLAY/SURFACING NOT DEPICTED IN PLAN VIEW.

SCALE	PROJECT	SHEET NO.
0 450' 900'	0064-063-623	2

EXHIBIT 4.5.3

MATCH LINE - SEE EXHIBIT 4.5.2

AREA 3

EMMAUS CHURCH ROAD

I-64 WB

I-64 EB

OLIVET CHURCH ROAD

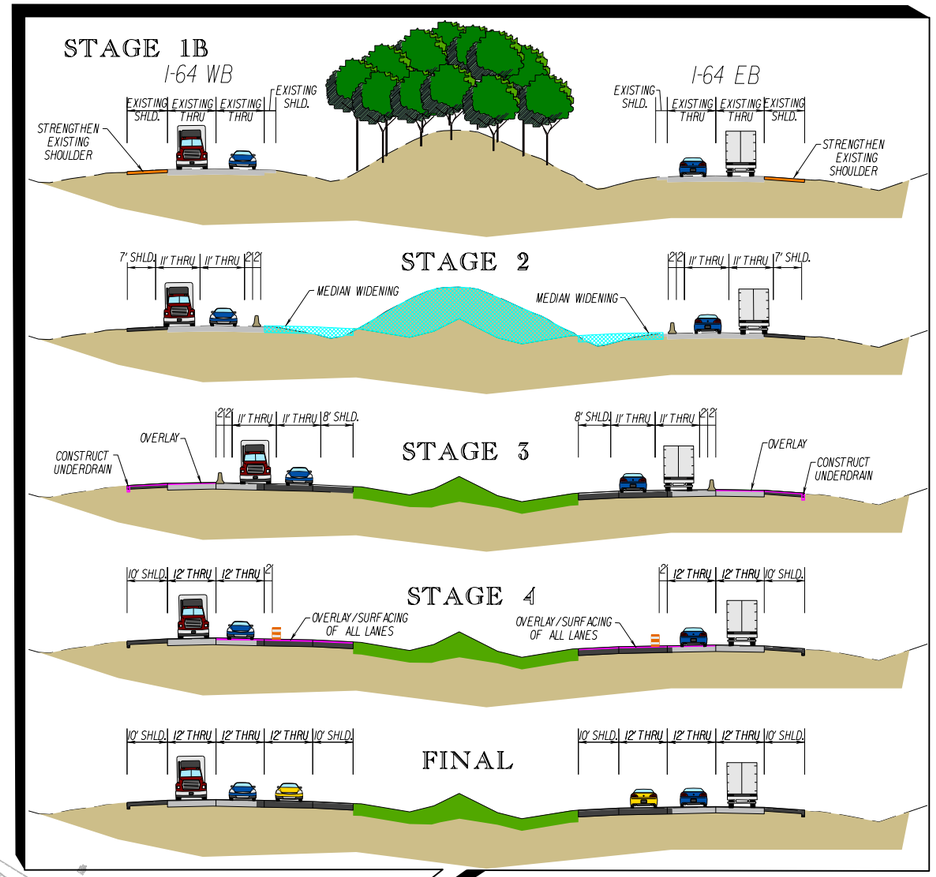
MATCH LINE - SEE EXHIBIT 4.5.4

UNIQUE PROJECT CHALLENGES & SOLUTIONS

THE TEAM WILL PERFORM SHOULDER STRENGTHENING DURING STAGE 1B NIGHTLY OPERATIONS PRIOR TO SHIFTING TRAFFIC PARTIALLY ONTO SHOULDER IN STAGE 2.

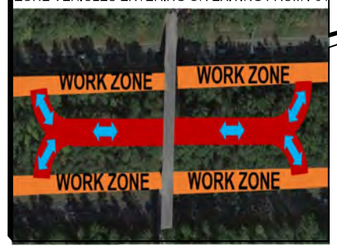
UNIQUE PROJECT CHALLENGES & SOLUTIONS

THE TEAM WILL MAINTAIN A MINIMUM 7-FOOT WIDTH SHOULDER DURING STAGE 2 MEDIAN WIDENING FOR ENHANCED SAFETY.



UNIQUE PROJECT CHALLENGES & SOLUTIONS

MEDIAN ACCESS RAMP PROVIDED AT OLIVET CHURCH ROAD TO REDUCE WORK ZONE VEHICLES ENTERING OR EXITING FROM I-64



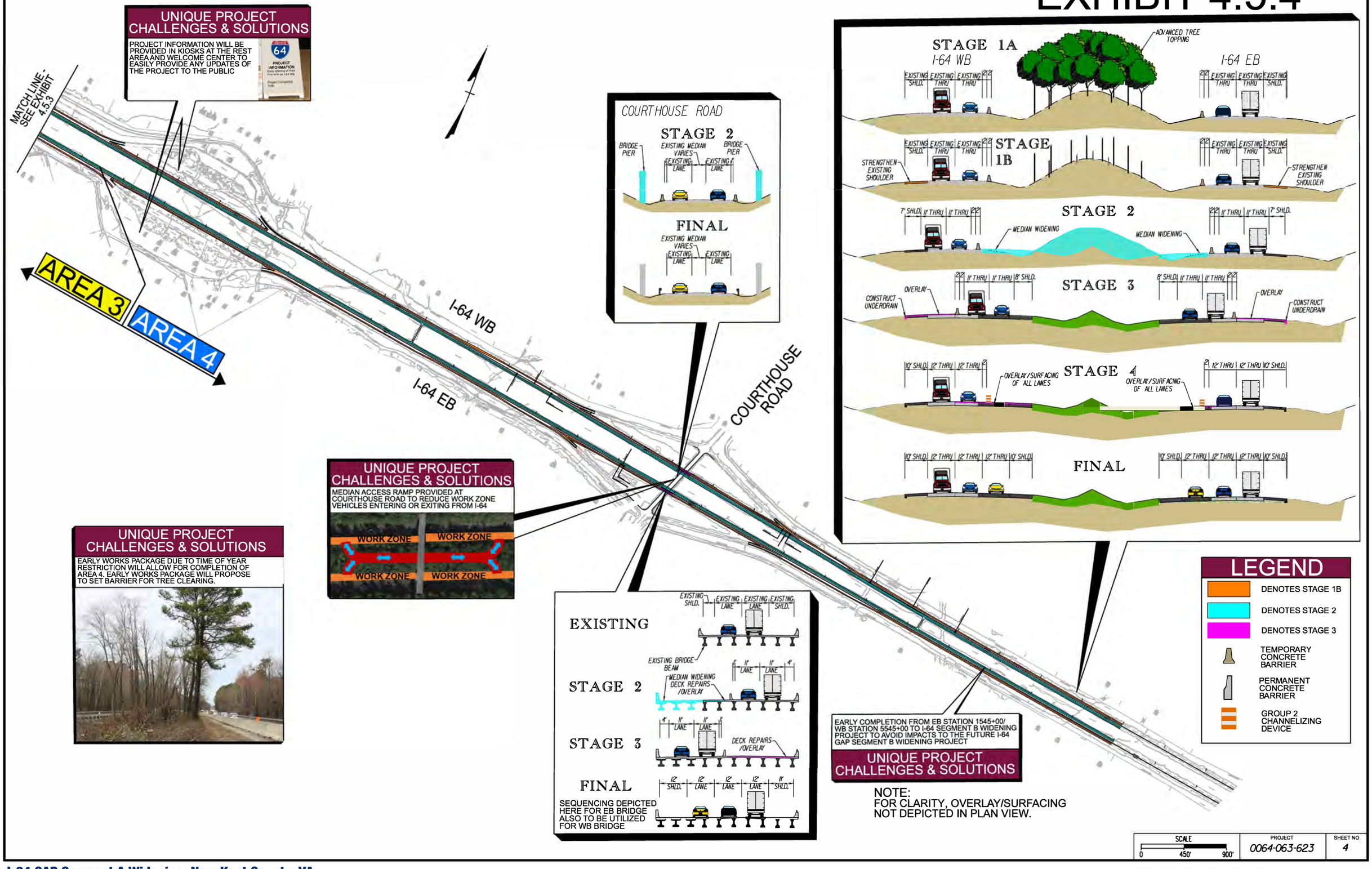
LEGEND

- DENOTES STAGE 1B
- DENOTES STAGE 2
- DENOTES STAGE 3
- TEMPORARY CONCRETE BARRIER
- PERMANENT CONCRETE BARRIER
- GROUP 2 CHANNELIZING DEVICE

NOTE:
FOR CLARITY, OVERLAY/SURFACING NOT DEPICTED IN PLAN VIEW.

SCALE	PROJECT	SHEET NO.
0 450' 900'	0064-063-623	3

EXHIBIT 4.5.4


UNIQUE PROJECT CHALLENGES & SOLUTIONS
PROJECT INFORMATION WILL BE PROVIDED IN KIOSKS AT THE REST AREA AND WELCOME CENTER TO EASILY PROVIDE ANY UPDATES OF THE PROJECT TO THE PUBLIC
PROJECT INFORMATION
MATCH LINE - SEE EXHIBIT 4.5.3
AREA 3
AREA 4
I-64 WB
I-64 EB
COURTHOUSE ROAD
COURTHOUSE ROAD
STAGE 2
BRIDGE PIER
EXISTING MEDIAN VARIES
EXISTING LANE
EXISTING LANE
BRIDGE PIER
FINAL
EXISTING MEDIAN VARIES
EXISTING LANE
EXISTING LANE
UNIQUE PROJECT CHALLENGES & SOLUTIONS
MEDIAN ACCESS RAMP PROVIDED AT COURTHOUSE ROAD TO REDUCE WORK ZONE VEHICLES ENTERING OR EXITING FROM I-64
WORK ZONE
WORK ZONE
WORK ZONE
WORK ZONE
UNIQUE PROJECT CHALLENGES & SOLUTIONS
EARLY WORKS PACKAGE DUE TO TIME OF YEAR RESTRICTION WILL ALLOW FOR COMPLETION OF AREA 4. EARLY WORKS PACKAGE WILL PROPOSE TO SET BARRIER FOR TREE CLEARING.
EXISTING
EXISTING SHLD.
EXISTING LANE
EXISTING LANE
EXISTING LANE
EXISTING SHLD.
STAGE 2
EXISTING BRIDGE BEAM
MEDIAN WIDENING DECK REPAIRS /OVERLAY
4'
11' LANE
11' LANE
4'
STAGE 3
4'
11' LANE
11' LANE
4'
DECK REPAIRS /OVERLAY
FINAL
12' SHLD.
12' LANE
12' LANE
12' LANE
11' SHLD.
SEQUENCING DEPICTED HERE FOR EB BRIDGE ALSO TO BE UTILIZED FOR WB BRIDGE
EARLY COMPLETION FROM EB STATION 1545+00/ WB STATION 5545+00 TO I-64 SEGMENT B WIDENING PROJECT TO AVOID IMPACTS TO THE FUTURE I-64 GAP SEGMENT B WIDENING PROJECT
UNIQUE PROJECT CHALLENGES & SOLUTIONS
NOTE:
FOR CLARITY, OVERLAY/SURFACING NOT DEPICTED IN PLAN VIEW.
STAGE 1A
I-64 WB
ADVANCED TREE TOPPING
I-64 EB
EXISTING SHLD.
EXISTING THRU
EXISTING THRU
12'
EXISTING THRU
EXISTING THRU
EXISTING SHLD.
STAGE 1B
STRENGTHEN EXISTING SHOULDER
STRENGTHEN EXISTING SHOULDER
STAGE 2
7' SHLD.
11' THRU
11' THRU
12'
MEDIAN WIDENING
MEDIAN WIDENING
12'
11' THRU
11' THRU
7' SHLD.
STAGE 3
OVERLAY
CONSTRUCT UNDERDRAIN
11' THRU
11' THRU
8' SHLD.
8' SHLD.
11' THRU
11' THRU
OVERLAY
CONSTRUCT UNDERDRAIN
STAGE 4
10' SHLD.
12' THRU
12' THRU
OVERLAY/SURFACING OF ALL LANES
OVERLAY/SURFACING OF ALL LANES
12' THRU
12' THRU
10' SHLD.
FINAL
10' SHLD.
12' THRU
12' THRU
12' THRU
10' SHLD.
10' SHLD.
12' THRU
12' THRU
12' THRU
10' SHLD.
LEGEND
DENOTES STAGE 1B
DENOTES STAGE 2
DENOTES STAGE 3
TEMPORARY CONCRETE BARRIER
PERMANENT CONCRETE BARRIER
GROUP 2 CHANNELIZING DEVICE
SCALE
0
450'
900'
PROJECT
0064-063-623
SHEET NO.
4

4.5.3 Proposal Schedule

4.5.3.1 Proposal Schedule

Our Team's Proposal Schedule is provided in our Volume II – Design Concept.

4.5.3.2 Proposal Schedule Narrative

Schedule Overview

Our Team has reviewed the Project and RFP schedule requirements in detail and developed our Proposal Schedule outlining our plan to successfully manage all phases of the work. This Schedule has been optimized to deliver the Project in the shortest time possible while meeting RFP requirements, minimizing impacts to stakeholders, protecting the environment, and ensuring the safety of workers and the public. Activity durations are derived from estimated quantities and combined with anticipated productions based on our experience and historical data on similar projects, with consideration for site specific conditions.

Schedule Milestones

Project milestones have been established to easily monitor the delivery of the Project through the design and construction phases in order to meet the Final Completion date of **July 30, 2027**. As an enhanced benefit to VDOT and the traveling public, our Team is committing to two Unique Milestones as follows:

Unique Milestone #1 will provide early opening of three WB I-64 lanes from Station 5050+00 to the western terminus of the Project by **November 19, 2026**. This provides the traveling public with over 1-mile of three (3) lanes of WB I-64 approaching I-295 prior to the 2026 Thanksgiving holiday, which will reduce congestion and improve operations at the Exit 205 Interchange.

Unique Milestone #2 will provide early Final Completion from I-64 EB Station 1545+00 and WB Station 5545+00 to the I-64 GAP Segment B Widening Project limits by **December 31, 2026, *7 months earlier than the overall Project Final Completion***. This milestone will avoid / minimize impacts to the future I-64 GAP Segment B Widening Project and allows Segment B's use of 1/2-mile of Segment A's limits for MOT, tapers, and tie-ins without conflict.

Table 12 provides a summary of the Milestone dates included in our Proposal Schedule.

Table 12 - Schedule Milestones

Contract and Schedule Milestones	Date
Notice of Intent to Award	August 15, 2023
CTB Approval / Notice to Award	September 20, 2023
Design-Build Contract Execution	October 04, 2023
Notice to Proceed	October 09, 2023
Unique Milestone #1	**November 19, 2026**
Unique Milestone #2	**December 31, 2026**
Final Completion	July 30, 2027

Schedule Calendars

Activity calendars are assigned using project-level calendars as specified below and based on 8-hour workdays:

- **5HOL: "5-day Workweek with Holidays":** Allows work five days per week except on standard holidays and is used for all design, administrative, and most construction activities in the CPM network.

- **5HOL_TOYR: "5-day holidays with Time-of-Year Restrictions:** This calendar is used for tree clearing activities which are affected by TOYR. It includes holidays as inserted in the '5 HOL' calendar and 'block-out' days for the TOYR from April 1 to November 14.
- **5 HOL_WTH_ASPHALT: "Winter shutdown:** Assigned to activities that are temperature sensitive and anticipated to be shut down during the winter, such as asphalt surface paving and pavement marking. This calendar includes holidays as inserted in the '5 HOL' calendar as well as 'block-out' days for the shutdown period from December 5 to March 15 of the following year.
- **7 Day: "7 day no holidays":** Allows work seven days per week on activities that progress on a calendar-day basis such as design and construction submittal review activities.

Work Breakdown Structure

Our Team has developed a detailed Proposal Schedule in accordance with the RFP requirements. The schedule is organized into a hierarchal Work Breakdown Structure (WBS) to demonstrate the relationships and activity durations amongst the milestones, Scope Validation Period, design, public involvement, environmental permitting, utilities, and construction. All elements of the design-build process are captured under the Level 1 WBS and are described below:

A. ***Schedule Milestones:*** Area reserved for easy review of the Project status. This contains major milestones that are critical to the Project or prescriptive in the RFP. This section also includes the Scope Validation Period, Unique Milestones, and various other milestones.

B. ***Design:*** Includes preliminary engineering services, plan development, QA/QC reviews, internal constructability reviews, submittal milestones, and interim and final review and approval of plans by VDOT and other agencies. This section of the schedule includes a second level WBS structure to group design activities by type of design submission classifying it by Preliminary Design and Final Design.

C. ***Public Involvement:*** This section of the schedule allows for coordination and preparation of planned public involvement meetings and updates with the stakeholders.

D. ***Environmental Permitting:*** Includes permit management and preparation, submissions, reviews, and approvals for all anticipated permit requirements.

E. ***Utility Relocations:*** The Utility Relocation section of the schedule includes coordination with utility owners, and includes activities for UFI meetings, preparation and approval of Plan and Estimates (P&E), and relocation construction divided by owner.

F. ***Construction:*** Includes all construction activities. This section of the schedule is segmented by levels of WBS structure to divide the construction activities by Stages and Work Areas to easily track progress to ensure on-time completion. This section also includes procurement, submittals, fabrication, and QA/QC.

Overall Plan to Accomplish the Work / Means and Methods

The following narrative describes our Team's overall plan and sequence of work grouped by the Level 1 WBS. The sequencing of each discipline was developed by considering the construction staging and determining the longest path to Project completion. We divided the Project into logical and manageable areas that can be tracked and managed by dedicated supervision during design and construction stages.

Design

This section of the schedule includes the activities required for preliminary and final design including geotechnical work, TMP Plan, roadway, noise barriers, and bridges design. Time for design QA/QC reviews has been accounted for within this section of the schedule, and a 21-calendar day activity for VDOT/FHWA review of each submission is included. The design phase also includes non-critical activities for the completion of surveys and utility test pits. Geotechnical investigations include a 90 calendar day activity duration for VDOT's review of the geotechnical report prior to submission of the final roadway and bridge plans.

The Design Schedule has been broken down into Preliminary Design and Final Design phases. The Preliminary Design includes the Early Tree Topping Plans and Early Start / MOT Plans for Stage 1A, the Design Phase QA/QC Plan, Survey and Mapping, and Geotechnical Investigations and Reporting.

The Final Design phase includes all Roadway and Bridge Design activities. Detailed design submissions have been broken down into three stages to allow for VDOT design reviews at interim periods. These Design stages are as follows:

Roadway Plans:

- 1st Submission at 60%
- 2nd Submission at 90%
- Final Submission at 100%

Bridge Plans:

- Stage 1 Bridge Report
- 90% Design Submission
- 100% Design Submission

Environmental Permitting

Environmental Permitting will begin upon Notice to Proceed with the completion of surveys and geotechnical boring layout plan required for the performance of Geotechnical Investigations in permitted areas. The Team will then focus on the Project-wide USACE NWP 23. The VSMP Construction General Permit (CGP) including LD-445 forms, will be submitted once Erosion and Sediment Control (ESC) plans are approved. The Approved VSMP permit is identified as a Hold Point on our Project Schedule and is required for land disturbance.

Public Involvement

This portion of the schedule includes submitting our Emergency Contact List, meeting with District Public Affairs and holding public outreach meetings at the start of the construction phase. The schedule includes a major milestone activity for the Public Information meetings before the start of construction. However, there are many other public involvement activities that our Team will perform, including meeting with affected stakeholders, providing information for regular updates at progress meetings, and communicating weekly lane closures. The Team will also maintain a log and database of issues, questions or comments received from stakeholders, and the corresponding response.

Right-of-Way /Easements

The Project does not require acquisition of any right-of-way or easements.

Utility Relocation

To simplify and track the utility coordination on the Project, our Team created a WBS that groups the utility

by owner. Within each utility owner group, we include activities for holding the Utility Field Investigation (UFI) meeting, followed by the preparation of the relocation design, the preparation and approval of the Plan and Estimates (P&E), and the relocation activities.

The utility relocation schedule starts with formal coordination meetings, obtaining as-builts, and obtaining designations and test pits to confirm conflicts. We will then hold formal UFI meetings with each utility, and coordinate with the designers and utility owners to develop a relocation plan. For unavoidable conflicts, the utilities will then prepare their P&E, and the Project Schedule will be updated. Utility relocations will progress in accordance with the Schedule.

For this Project we have identified the potential utility conflicts in Section 4.4.2 of the Technical Proposal. It is anticipated that the majority of the listed potential conflicts will be mitigated by our test-pitting and design strategies. However, we have kept the Virginia Natural Gas utility relocations on the Proposal Schedule to assure we have appropriate buffer built into this Work Area as a precaution.

Preconstruction, Submittals & Procurement

Key activities such as mobilization, subcontractor and major material procurement, submittals, shop drawings, and fabrication activities have been included in the schedule and link with the relevant design and construction packages.

Quality Assurance and Quality Control

In a separate WBS group, the Team has identified the QA/QC activities for the Project. These include the submission and approval of the QA/QC plan and the Preparatory Meetings that are required prior to commencing with construction activities. The overall Level of Effort for the QA/QC process is represented by a bar spanning all construction activities.

Construction

Project Work Areas

In order to efficiently execute our construction plan, the Project length has been broken into four major Roadway Work Areas, as shown in the Figure 4.5.3.2.1, and are divided by break points that allow for effective construction sequencing. The Work Areas were developed by reviewing the median construction operations and specifically the critical tree clearing that is subject to the TOYR's. Area 1 has the narrowest median width and limited tree save areas and aligns with Unique Milestone #1. Area 4 is adjacent to the I-64 GAP Segment B Widening Project and aligns with Unique Milestone #2. The remainder of the Project length is defined as Areas 2 and 3. This segmentation is also developed in conjunction with our Temporary Traffic Control (TTC) Plans and is of sufficient scope and size to allow individual construction management teams to oversee the operations. This allows maximum utilization of time, resources, and oversight of construction activities from a safety and quality perspective.

Figure 4.5.3.2.1 - Project Work Areas (I-64 EB Stationing shown)

Construction Sequence

The construction sequence was developed to provide a cohesive approach that focuses the entire Project Team on minimizing impacts to the traveling public while maximizing the opportunity to complete on time or early.

We propose four Stages of roadway construction corresponding to our Team's Transportation Management Plan (TMP) detailed in Section 4.5.2. Each Stage corresponds to a major traffic control sequence as construction activities progress. General work activities within each Stage are described in Table 13.

Table 13 - Construction Stages

Stage	Activity
Stage 1A	▪ Place temporary barrier service along median in Areas 1 and 4; and, ▪ Perform median tree topping (without land disturbance) in Areas 1 and 4.
Stage 1B	▪ Perform outside shoulder strengthening.
Stage 2	▪ Place temporary pavement markings and shift traffic partially onto the outside shoulder; ▪ Place temporary barrier service adjacent to the median; ▪ Activate temporary signal at Route 33/I-64 ramps and start concrete pavement replacment on I-64 in Area 1; ▪ Construct the median widening including box culvert extensions; ▪ Construct widenings of Bridges B-601 and B-602 over N Courthouse Road; and, ▪ Perform mill and overlay of existing left lane.
Stage 3	▪ Shift traffic onto the median widening and set temporary barrier service; ▪ Install underdrain on outside shoulders; ▪ Perform mill and overlay of outside lane and shoulder; ▪ Complete concrete pavement replacement on I-64 in Area 1; ▪ Construct ITS infrastructure and overhead signs; ▪ Install noise barriers; and, ▪ Install outside shoulder barriers (BPPS) and guardrail.
Stage 4	▪ Remove temporary barrier service; ▪ Perform final surface paving and pavement markings; ▪ Open road to final configuration; ▪ Perform inspections and punch lists; ▪ Achieve Unique Milestone #1 ▪ Achieve Unique Milestone #2, and, ▪ Achieve Project Final Completion.

Exhibits 4.5.1, 4.5.2, 4.5.3 and 4.5.4, included at the end of Section 4.5, depict our Temporary Traffic Control (TTC) plan for the major stages of construction. A detailed description of each Stage and the benefits of our Team's proposed sequence are as follows:

Stage 1A: Early Tree Topping In Areas 1 and 4

Through analysis of the Project Schedule, it is apparent that it is critical to start construction as early as possible. With confirmed Time-of-Year Restrictions (TOYR) in place from April 1st through November 14th for tree clearing operations, our Early Tree Topping Package will allow expeditious tree topping/felling in Areas 1 and 4 of the Project concurrent with Final Design. The work will be performed with minimal to no land disturbance.

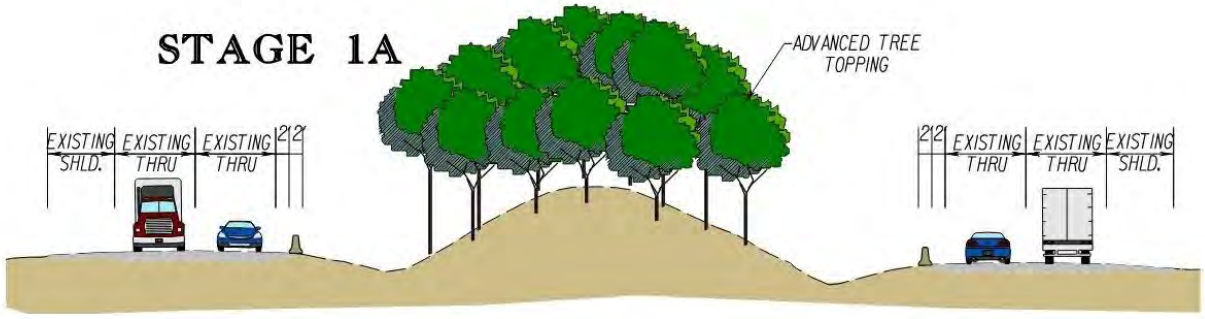


Figure 4.5.3.2.2 - Stage 1A - Early Tree Topping in Areas 1 and 4

To safely access the work and provide protection for motorists in Areas 1 and 4, temporary barrier service will be set 2-feet from the existing inside edge line along the median of both EB and WB I-64 as shown in Figure 4.5.3.2.2. Trees will be topped or felled without grubbing, so that any potential bat habitat is removed. This work is planned to begin in the 2023-2024 winter season and continue until the TOYR on April 1, 2024 is in place. Execution of this Early Work Package will allow earth disturbance and grubbing of these critical areas to begin as soon as plans are approved and all environmental permits are in-hand well before the end of the TOYR. Traffic remains in its current location throughout Stage 1A.

Stage 1B: Outside Shoulder Strengthening

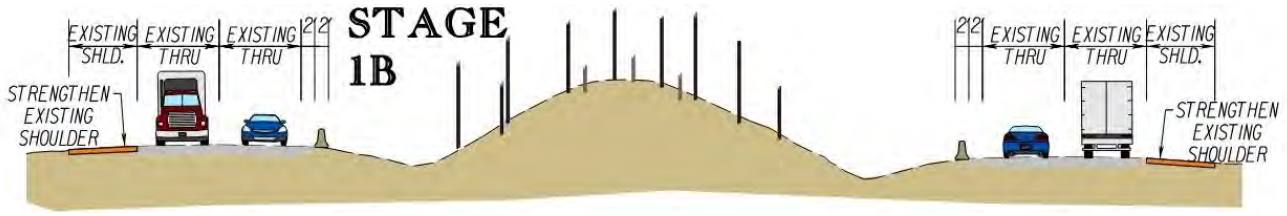


Figure 4.5.3.2.3 - Stage 1B - Strengthen Outside Shoulders

Stage 1B in our Temporary Traffic Control (TTC) Sequence performs the strengthening of the existing outside shoulders of I-64 as shown in Figure 4.5.3.2.3. This early strengthening allows the shoulders to be used for safe refuge for motorists in lieu of the continuous installation and relocation of emergency pull-offs. Since the required strengthening work is contained within existing VDOT right-of-way and requires no drainage adjustments, upon approval of the early TTC Plan Set, we will begin this work in Spring 2024 as the Stage 1A work finishes.

The existing shoulder will have seven inches milled out and replaced with seven inches of asphalt (3-inch BM-25.0D, 2-inch IM-19.0D, and 2-inch SM-12.5D). The shoulder strengthening operation will be performed at night with lane closures, and operations will be planned so that no drop-offs greater than 2-inches are remaining at the end of the shift.

As shown in our Design Concept, our TTC Plan will maintain a continuous 7-foot wide shoulder, without the need for emergency pulloffs during Stage 2. Traffic remains in its current configuration throughout Stage 1B.

Stage 2: Median Widening

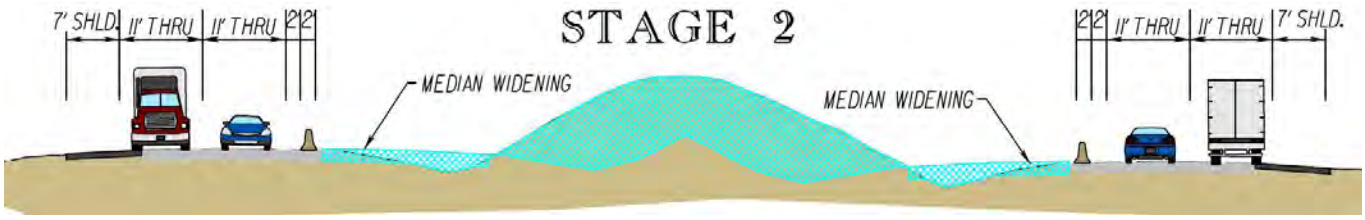


Figure 4.5.3.2.4 - Stage 2 - Inside Widening

Following the outside shoulder strengthening, Stage 2 work begins with placement of temporary pavement markings and shifting traffic onto a portion of the strengthened shoulders. Temporary barrier service will be placed along the entire length of the EB and WB lanes to safely separate traffic from the Stage 2 median work as shown in Figure 4.5.3.2.4. At all times, 11-foot travel lanes will be maintained as well as ***a 7-foot minimum right shoulder.***

Once traffic is shifted and temporary barrier service is in place, construction of the majority of the Project elements will begin. Specifically, Stage 2 consists of all of the I-64 median widening, drainage improvements, and bridge widening. EB and WB Work Areas will be constructed concurrently with emphasis on Area 4, to allow for the early completion of the eastern portion of the Project that ties into the I-64 GAP Segment B Widening Project (Unique Milestone #2), and WB Area 1, to allow early opening of the lengthened three-lane section approaching I-295 (Unique Milestone #1).

Roadway and Drainage Construction

Following the issuance of RFC Roadway Plans and the final environmental permits, clearing and grubbing activities will continue, and roadway drainage and excavation activities will commence concurrently for all Work Areas. For this median widening work, all construction run-off can be controlled in Phase 1 erosion and sediment control devices such as check dams, silt logs, sediment traps, and inlet protections. Drainage work in the Stage 2 median widening areas includes construction of the box culvert extensions and all new longitudinal median drainage ditches.

Figure 4.5.3.2.5 - Cement Treated Crushed Concrete Subbase Layer Option

Roadway excavation and grading starts with stripping of all native topsoil, and continues with cuts and fills to subgrade. In all areas, we have allowed time in our Project Schedule to account for the remediation or removal and replacement of soft or unsuitable soils. Our Team has elected to use the Asphalt Alternative Pavement Section utilizing either cement-treated crushed concrete, as shown in Figure 4.5.3.2.5, cement-treated RAP, or CTA as the subbase layer. Asphalt crews will place the 2-inch Open Graded Drainage Layer followed by the base asphalt layers. Finally, 3-inches of Intermediate Asphalt (SMA-19.0) will be placed prior to temporary pavement markings and the required guardrail installations.

In Area 1 at the Exit 205 interchange, portions of the existing travel lanes on EB and WB I-64 are concrete pavement and require complete removal and replacement with the new pavement section. As discussed in

Section 4.5.2, in order to eliminate a split traffic condition with narrow work zones, our Team will install a temporary signalized intersection on Route 33 and I-64 that allows NB Route 33 traffic headed to I-64 WB to divert from the existing loop ramp and safely join the ramp from SB Route 33 to I-64 WB. This modification allows the existing auxiliary/acceleration lane to be eliminated to create additional space for the concrete demolition and pavement reconstruction as shown in Figure 4.5.3.2.6. The temporary signalized intersection will be installed on Route 33 and activated in Stage 2 in advance of this work.

Figure 4.5.3.2.6 - Stage 2 Traffic Condition Under Bridge at Exit 205

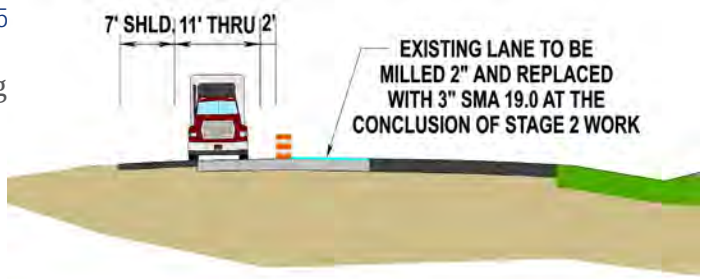


Figure 4.5.3.2.7 - Pavement Build-up of Existing Travel Lanes

The RFP requires a 3-inch build-up of the existing travel lanes in each direction which will require a 2-inch mill and replacement with 3-inches of SMA-19.0 and a final surface overlay of 2-inches of SMA-12.0. In order to match paving layers from the median widening lane and shoulder, at the conclusion of the Stage 2 work, the temporary barrier service will be removed, and the existing inside travel lane will be milled and overlaid with the 3-inches SMA-19.0 as shown in Figure 4.5.3.2.7. Concurrent with this work, crews will perform any required pavement patching/repairs identified during the Design Phase. All work will be performed under nightly lane closures. Once the mill and overlay work is complete, the lanes will then be ready for the Stage 3 traffic shift.

Bridge Construction
(N. Courthouse Road Bridges)

Stage 2 bridge work will focus on the median widened portions of structures B-601 and B-602 over N. Courthouse Road. These pair of bridges will be constructed concurrently to economize the use of specialty crews such as bridge demolition and pile driving. Stage 2 bridge work will require the partial demolition of the existing structure parapets and a portion of the deck to create the joint necessary for the widening tie-in. Temporary shoring will be required to support excavation of new piers and abutment elements. The N. Courthouse Road Bridges have a 3-Span arrangement very similar to the I-64/ Lakeshead Drive overpass shown in Figure 4.5.3.2.8 recently completed on the I-64 Corridor Improvements-Segment III Project.

Figure 4.5.3.2.8 - Beam Erection at Widened Bridges

Outside Work

Following completion of Stage 2 work, travel lanes will be shifted to a portion of the newly constructed median widening and inside lane that was milled and overlaid in Stage 2. On the right side, barrier service will be relocated to allow all Stage 3 work to commence behind the temporary barrier service as shown in Figure 4.5.3.2.9. Similar to Stage 2, our Team will

provide a minimum 7-foot-wide safety shoulder for the full length of the Project.

Figure 4.5.3.2.9 - Stage 3 - Outside Work

Roadway and Drainage Construction

Upon completion of the traffic shift, all existing guardrail and cable rail will be removed from the outside Project limits. New underdrain will be installed at the edge of the outside shoulders along with new outlet pipes. Existing outside ditchlines will be regraded as necessary to accept the underdrain and new drainage outfalls. In Area 1, at Exit 205 Interchange, the temporary signalized intersection will remain in operation following the traffic shift to Stage 3. The remaining existing concrete pavement will be removed and replaced, with traffic located as shown in Figure 4.5.3.2.10.

Figure 4.5.3.2.10 - Stage 3 Traffic Condition at Exit 205

Bridge Work

The existing portions of the bridge deck will be retrofitted to be continuous at pier locations. The existing abutments shall be retrofitted to use VDOT's standard deck extension detail with buried approach slabs. This will require complete replacement of the approach slabs and modification of the abutments. Repair of the existing bridge deck will include Type A milling, hydro-demolition, deck repairs, and construction of a Latex Modified Concrete overlay, as shown in Figure 4.5.3.2.11.

Figure 4.5.3.2.11 - Bridge Latex Modified Concrete Overlay

Noise Barriers

During Stage 3, work on the outside of I-64 will include construction of the noise barrier walls located along the EB and WB travel lanes in Area 1, as shown in Figure 4.5.3.2.12.

ITS / Signage

Early in Stage 3, the new ITS communications backbone conduits and junction boxes will be installed in conjunction with the grading and noise barrier construction. ITS cabinets and associated branch conduit will be installed to the individual devices. ITS and Overhead Sign foundations will be poured, and erection of the new devices and signs will be performed.

Guardrail and Paving

At the conclusion of the Stage 3 outside work, preparation will begin for the final paving and pavement markings in Stage 4. On the outside shoulders, the temporary SM-12.5D installed in Stage 1B will be milled and replaced with 3-inches of IM-19.0D and 2-inches of SM-12.5D. New

Figure 4.5.3.2.12 - Noise Barriers

guardrail will be installed as required following paving operations. For the existing outside travel lane, the surface will be milled 2-inches. Any required pavement patching will be performed and then the lane will be overlaid with 3-inches of SMA-19.0 and 2-inches of SMA-12.5.

Stage 4: Final Surface Paving and Pavement Markings

Figure 4.5.3.2.13 - Stage 4 - Final Surface Paving Operations

Stage 4 work, as shown in Figure 4.5.3.2.13, will consist of placement of all final surface asphalt material. Two-inches of SMA 12.5 asphalt will be placed on all new travel lanes and 2-inches of SM-12.5A will be placed on all new and reconstructed shoulders. Due to the multiple traffic shifts during construction, placement of surface asphalt at the end of all construction ensures that temporary pavement markings are not used on the finished product, and ensures that all final paving is completed at the same time. This provides for a smooth, "clean" look at the completion of the Project when all of the through lanes are opened to traffic on a permanent basis.

As elements are completed, we will work with VDOT to schedule Final Inspections and perform punchlist. Upon Acceptance, all traffic will be in its final configuration, as shown in Figure 4.5.3.2.14, and the Project will achieve Final Completion.

Figure 4.5.3.2.14 - Stage 4 - Final Traffic Configuration

Critical Path

The Critical Path on the Project has been defined as the Longest Path through the Schedule Network and is included as a filtered graphic in the Volume II Design Concept. The Critical Path begins with preliminary design activities required for the development of Roadway Plans. The Roadway Design activities and approval of the RFC Roadway Plans then become critical as they are the predecessor to starting the Stage 2 inside median widening construction. During Stage 2 work, the Critical Path moves through the different Work Areas as much of the grading work is crew-flowed. Once the inside median widening is complete and the Stage 3 traffic shifts are implemented, the Critical Path moves to the outside work, specifically in Area 4 that is tied to the Unique Milestone #2 at the eastern terminus of the Project and then to WB Area 1 tied to Unique Milestone #1. Stage 4 includes the final surface paving overlay and permanent pavement markings. The Critical Path in this Stage flows through all Work Areas and is scheduled to begin in the Fall 2026. In Area 4, the work associated with Unique Milestone #2 will be completed. Due to the temperature restriction of the SMA-12.5 surface pavement, the overlay work is shown to be suspended in several Work Areas in the winter of 2026-2027 and will resume in the Spring of 2027. Finally, the Critical Path flows to the creation and completion of the punchlist.

A detailed listing of Critical Path is as follows:

SCHEDULE MILESTONES

Preliminary Design

- DESIGN-BUILD CONTRACT EXECUTION
- NOTICE TO PROCEED (10/09/2023)
- BEGIN STAGE 2 CONSTRUCTION
- BEGIN STAGE 3 CONSTRUCTION
- BEGIN STAGE 4 CONSTRUCTION
- UNIQUE MILESTONE #1-THIRD LANE @ AREA 1 WB STA 5050+00 TO WESTERN TERMINUS
- UNIQUE MILESTONE #2 - EARLY FINAL COMPLETION FROM EB STA 1545+00 & WB STA 5545+00 TO EASTERN TERMINUS
- VDOT PUNCHLIST/POST INSTALLATION VIDEO STORM
- FINAL COMPLETION DATE

DESIGN PHASE

Preliminary Design

- DISTRIBUTE ACCESS LETTERS
- PROPERTY ACCESS HOLD
- SET CONTROL AND PANEL POINTS
- BASE MAPPING / FIELD SURVEY

Roadway Design

- SET HORIZONTAL AND VERTICAL GEOMETRY
- ROADWAY DRAINAGE DESIGN
- COMPLETE PLAN DETAILS
- COMPILE ROADWAY PLANS (1ST SUBMISSION)
- DESIGN QA/QC (1ST SUBMISSION)
- SUBMIT ROADWAY PLANS (1ST SUBMISSION)
- VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (1ST SUBMISSION)
- PREPARE ROADWAY PLANS (2ND SUBMISSION)
- DESIGN QA/QC (2ND SUBMISSION)
- SUBMIT ROADWAY PLANS (2ND SUBMISSION)
- VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (2ND SUBMISSION)
- PREPARE FINAL ROADWAY PLANS
- DESIGN FINAL QA/QC PLANS
- SUBMIT FINAL ROADWAY PLANS
- VDOT/FHWA REVIEW/COMMENT FINAL ROADWAY PLANS
- RFC PLANS ISSUED FOR CONSTRUCTION

CONSTRUCTION

STAGE 2 - I-64 NEW INSIDE LANES & BRIDGES

I-64 EASTBOUND

AREA 4 - STA 1570+00 TO 1447+50 (12,250 LF)

- Set EB Traffic Barrier Service and Attenuators
- Grub
- Install E&S Sediment Basins and Traps
- Strip Topsoil
- Cut to Fill

AREA 3 - STA 1447+50 TO 1286+00 (16,150 LF)
- EB Lane Shift - Eradicate and Install Temporary Pavement Markings
- Set EB Traffic Barrier Service and Attenuators
- Clear & Grub

AREA 2 - STA 1286+00 TO 1158+00 (12,800 LF)
- Clear & Grub

AREA 1 - STA 1158+00 TO 988+83 (16,917 LF)
- Grub
- Install E&S Perimeter Controls
- Install E&S Sediment Basins and Traps
- Strip Topsoil
- Install Storm & Riprap
- Cut to Fill
- Subgrade Stabilization & Undercut
- Install Subbase & Fine Grade
- Install Underdrain UD-4
- ASPHALT - Place OGDL
- ASPHALT - Place Base Asphalt
- ASPHALT - Place Intermediate Asphalt
- Respread Topsoil
- Install Guardrail
- Remove EB Traffic Barrier Service and Attenuators
- ASPHALT - Mill Existing Left Lane
- ASPHALT - Pavement Patching
- ASPHALT - SMA 19.0 Overlay

I-64 WESTBOUND

AREA 4 - STA 1570+00 TO 1447+50 (12,250 LF)
- Cut to Fill

AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)
- Cut to Fill
- Subgrade Stabilization & Undercut
- Install Subbase & Fine Grade
- Install Underdrain UD-4
- ASPHALT - Place OGDL
- ASPHALT - Place Base Asphalt
- ASPHALT - Place Intermediate Asphalt
- Respread Topsoil
- Install Guardrail
- Remove WB Traffic Barrier Service and Attenuators
- ASPHALT - Mill Existing Left Lane
- ASPHALT - Pavement Patching
- ASPHALT - SMA 19.0 Overlay

AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)
- Cut to Fill

AREA 1 - STA 5158+00 TO 5021+50 (13,650 LF)
- Cut to Fill
- Subgrade Stabilization & Undercut
- Install Subbase & Fine Grade
- Install Underdrain UD-4
- ASPHALT - Place OGDL

- ASPHALT - Place Base Asphalt
- ASPHALT - Place Intermediate Asphalt
- Respread Topsoil
- Install Guardrail
- Remove WB Traffic Barrier Service and Attenuators
- ASPHALT - Mill Existing Left Lane
- ASPHALT - Pavement Patching
- ASPHALT - SMA 19.0 Overlay

STAGE 3 - I-64 NEW OUTSIDE LANES & BRIDGES

I-64 EASTBOUND

AREA 4 - STA 1570+00 TO 1447+50 (12,250 LF)

- EB Lane Shift - Eradicate and Install Temporary Pavement Markings
- Partially Set EB Traffic Barrier Service and Attenuators
- Install E&S Perimeter Controls
- Cut Roadside Ditches/Pave Ditches

I-64 WESTBOUND

AREA 4 - STA 5570+00 TO 5447+50 (12,250 LF)

- WB Lane Shift - Eradicate and Install Temporary Pavement Markings
- Partially Set WB Traffic Barrier Service and Attenuators
- Install E&S Perimeter Controls
- Cut Roadside Ditches/Pave Ditches
- ITS

AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)

- Cut Roadside Ditches/Pave Ditches
- ITS

AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)

- Cut Roadside Ditches/Pave Ditches
- ITS

AREA 1 - STA 5158+00 TO 4988+83 (16,917 LF)

- Cut Roadside Ditches/Pave Ditches
- ITS
- Install Underdrain UD-4
- Respread Topsoil
- Stabilize Roadside
- ASPHALT - Mill Asphalt
- ASPHALT - Intermediate Asphalt
- Install Guardrail

STAGE 4 – FINAL OVERLAY and OPEN LANES

I-64 EASTBOUND

AREA 4 - STA 1470+50 TO 1545+00 (10,050 LF)

- Area 4 - Eradicate and Install Temporary Pavement Markings EB
- Area 4 - Place Surface Asphalt on I-64 EB

AREA 1 - STA 988+83 TO 1158+00 (16,917 LF)

- Area 1- Place Surface Asphalt on I-64 EB

AREA 2 - STA 1158+00 TO 1286+00 (12,800 LF)

- Area 2 - Place Surface Asphalt on I-64 EB

AREA 3 - STA 1286+00 TO 1447+50 (16,150 LF)

- Area 3 - Place Surface Asphalt on I-64 EB
- Area 3 - Asphalt Repairs I-64 EB

- Area 3 - Install Perm. Pvmnt Markings on I-64 EB
- Area 3 - Install Snowplowable Pvmnt Mrkrs on I-64 EB

I-64 WESTBOUND

AREA 4 - STA 5545+00 TO 5447+50 (10,050 LF)

- Area 4 - Place Surface Asphalt on I-64 WB

AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)

- Area 3 - Place Surface Asphalt on I-64 WB

AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)

- Area 2 - Place Surface Asphalt on I-64 WB

AREA 1 - STA 5158+00 TO 4988+83 (16,917 LF)

- Area 1 - Place Surface Asphalt on I-64 WB

Key Assumptions

- VDOT will review and approve Early Work packages as described.
- Environmental Permitting agencies will accept VDOT's avoidance and minimization efforts taken during the RFP phase as sufficient to process permits without delay.
- There are no hazardous materials, threated or endangered species, or unforeseen environmental constrains, other than those in the RFP, that could delay the Schedule.
- Crews are based on 8-hour workday and 5-day workday calendar. A detailed description of the calendars is included in this narrative. However, crews will increase work hours as necessary to maintain schedule.
- Night-time work restrictions will not be imposed other than as described in the RFP.

Appendix


EAST
INTERSTATE
64
INTERSTATE
64
BLUE STAR
MEMORIAL HIGHWAY
A tribute to the Armed Forces
that have defended the
United States of America
WELCOME TO
VIRGINIA

Attachment 4.0.1.1
Technical Proposal Checklist

ATTACHMENT 4.0.1.1

I-64 GAP Segment A Widening

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	Appendix
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Appendix
Letter of Submittal	NA	Sections 4.1		
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	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	2
Declaration of intent	NA	Section 4.1.2	yes	1
120 day declaration	NA	Section 4.1.3	yes	1
Point of Contact information	NA	Section 4.1.4	yes	1
Principal Officer information	NA	Section 4.1.5	yes	1
Interim Milestone and Final Completion Date(s)	NA	Section 4.1.6	yes	1
Unique Milestone Date(s) introduced by the Offeror	NA	Section 4.1.7	yes	1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.8	no	Appendix
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.9	no	Appendix
Commitment to achieve ten percent (10%) DBE goal	NA	Section 4.1.10	yes	2

ATTACHMENT 4.0.1.1

I-64 GAP Segment A Widening

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Confirmation on commercial and professional registration requirements	NA	Section 4.1.11	yes	2
Offeror's Qualifications	NA	Section 4.2		
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	3
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.1	yes	4
Organizational chart shall identify the names of the individuals selected for the positions of Deputy Key Personnel (if applicable), and Environmental Compliance Manager.	NA	Section 4.2.1	yes	4
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.1	yes	3
Design Concept	NA	Section 4.3		
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	5-14
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	15-19
Project Approach	NA	Section 4.4		
Environmental Management	NA	Section 4.4.1	yes	20-24

ATTACHMENT 4.0.1.1

I-64 GAP Segment A Widening

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Utilities	NA	Section 4.4.2	yes	24-29
Geotechnical	NA	Section 4.4.3	yes	29-31
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	31-42
Construction of Project	NA	Section 4.5		
Sequence of Construction	NA	Section 4.5.1	yes	43-51
11” x 17” graphics demonstrating proposed Sequence of Construction.	NA	Section 4.5	yes	59-62
Transportation Management Plan	NA	Section 4.5.2	yes	51-58
11” x 17” graphics demonstrating proposed MOT for each phase of Sequence of Construction.	NA	Section 4.5	yes	59-62
Proposal Schedule	NA	Section 4.5.3	no	Volume II
Proposal Schedule Narrative	NA	Section 4.5.3	no	Vol. I, Sec. 4.5.3.2
Proposal Schedule in electronic format	NA	Section 4.5.3	no	N/A

Attachment 3.6
Form C-78-RFP
Acknowledgement of RFP, Revisions, and/or Addenda

ATTACHMENT 3.6

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFP NO. C00122166DB119

PROJECT NO.: 0064-063-623, P101, R201, C501, B601, B602

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 RFP – March 22, 2023 (Date)
2. Cover letter of RFP Addendum #1 – April 28, 2023 (Date)
3. Cover letter of RFP Addendum #2 – May 24, 2023 (Date)
4. Cover letter of RFP Addendum #3 – June 5, 2023 (Date)
4. Cover letter of RFP Addendum #4 – June 12, 2023 (Date)

SIGNATURE

6/21/2023

DATE

Garry A. Palleschi

PRINTED NAME

Vice President

TITLE

Attachment 9.3.1
Proposal Payment Agreement

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this "Agreement") is made and entered into as of this ____ day of _____, 2023, by and between the Virginia Department of Transportation ("VDOT"), and Shirley Contracting Company, LLC ("Offeror").

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs") pursuant to VDOT's December 16, 2022 Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the **I-64 GAP Segment A Widening, Project No. 0064-063-623** ("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 **Two Hundred Fifteen Thousand and 00/100 Dollars ($ 215,000.00)** ("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] Shirley Contracting Company, LLC

By: _____

Name: Garry A. Palleschi

Title: Vice President

Attachment 11.8.6 (a) & (b) Certification Regarding Debarment Forms

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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.

Signature	June 22, 2023 Date	Vice President Title

Shirley Contracting Company, LLC
Name of Firm

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

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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.

Dave Mahoney 4/5/2023 Executive Vice President

Signature Date Title

Dewberry Engineers Inc.

Name of Firm

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

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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	6/1/2023	President
	Date	Title

Quinn Consulting Services, Inc.
Name of Firm

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

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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.

Brian J. Evans 6/6/23 Sr. Vice President
Signature Date Title

Branch Civil, Inc.
Name of Firm

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

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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.

6/2/23 — Vice President

Signature — Date — Title

Jon W. Ebbert, P.E.

McCallum Testing Laboratories

Name of Firm

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

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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.

6/12/2023

Signature Date

Regional Manager

Title

Terracon Consultants, Inc.

Name of Firm

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

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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.

Martin R. Zook 6/07/2023 Production mgr/VP
Signature Date Title

Quantum Spatial dba NV5 Geospatial
Name of Firm

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

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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.

DocuSigned by:
Cooper F. Munson
D830117A89C54AD...

06-06-2023	Vice President, General Counsel & Secretary
Signature Date	Title

Surveying And Mapping, LLC

Name of Firm

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

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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	5/31/2023	President
	Date	Title

Diversified Property Services, Inc.

Name of Firm

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

Project No.: 0064-063-623 P101, R201, C501, B601, B602

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	Date	Title
[signature]	5-31-23	Vice President

Key Title, II
Name of Firm

Attachment 4.2.1
Deputy Key Personnel Resume Forms

ATTACHMENT 4.2.1
DEPUTY KEY PERSONNEL RESUME FORM

Brief Resume of Key Personnel anticipated for the Project.

a. Name & Title: **Robert B. Johnson, III, Contract Manager**

b. Project Assignment: **Deputy Design-Build Project Manager (DDBPM)**

c. Name of the Firm with which you are employed at the time of submitting Technical Proposal:
Shirley Contracting Company, LLC

d. Employment History: With this Firm **14** Years With Other Firms **0** Years

Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):

Shirley Contracting Company, LLC.; Contract Manager (1/2022 to Present), Senior Project Manager (2/2019 to 1/2022), Project Manager (7/2015 to 2/2019), Assistant Project Manager (11/2011 to 7/2015), Project Engineer (6/2009 to 11/2011)

As Senior Project Manager, Robert is responsible for managing manpower, equipment and materials, quality and budget control, and compliance with job specifications. He is responsible for purchasing of major materials and subcontractors, writing contracts and purchase orders and managing cost control activities on the projects including owner and subcontractor payment requisitions, daily shift costs for self-perform activities and monthly Job Status Reports. Responsibilities also include safety training and enforcement, as well as equipment control and reporting.

Contract Manager/Senior Project Manager

- **Landmark West End, Alexandria, VA**; ($30.1M) 4/2023 to Present
- **Project Clover (Triangle/DCA7/Residual/Pearl), Stafford, VA**.; ($71.4M) 5/2021 to Present

Project Manager

- **Hoxton Field, Alexandria, VA;** ($2.1M), 11/2019 to 2021
- **Armature Works, Washington, DC;** ($4.2M), 10/2019 to 2021
- **Hoffman Town Center, Alexandria, VA;** ($3.8M), 6/2019 to 2021
- **MWAA Package P, Dulles, VA;** ($4.9M), 6/2019 to 2021
- **Artis Senior Living, Bethesda, MD;** ($2.4M), 4/2019 to 2021
- **500 Morse, Washington, DC;** ($1.3M), 3/2019 to 2021
- **PWC Mulch Pad, Prince William County, VA;** ($1.5M), 3/2019 to 5/2019
- **Market Terminal, Washington, DC;** ($5.6M), 9/2018 to 2019
- **Robinson Landing, Alexandria, VA;** ($680K), 4/2018 to 2019
- **Arlington National Cemetery Spoils Yard, Arlington, VA;** ($3.4M), 1/2018 to 2019
- **45 L Street – Washington, DC;** ($5.62M), 8/2017 to 2019
- **Fort Belvoir SWM Pond – Fort Belvoir, VA;** ($3.09M), 3/2017 to 4/2018
- **National Museum of the United States Army – Fort Belvoir, VA;** ($21.8M), 9/2016 to 2019
- **National Geospatial-Intelligence Agency Surface Lot – Fort Belvoir, VA;** ($4.17M), 4/2016 to 2/2017
- **Prince William Number 12 High School - Manassas, VA;** ($9.1M), 6/2015 to 9/2017

Assistant Project Manager

- **Chesterfield at Opitz Crossing - Woodbridge, VA;** ($3M), 1/2015 to 2016)

Assistant Project Manager/Project Manager

- **Capitol Crossing Highway, Deck, Bridge & Garage - Washington, DC;** ($11.2M), 12/2014 to 2018)
- **CSX NGI Phase II – Track Lowering, Washington, DC;** ($5M), 8/2014 to 2016)

Assistant Project Manager

- **Telegraph Road Improvements - Alexandria, VA;** ($10M), 5/2013 to 11/2014)
- **Eskridge Road Extension, Merrifield VA;** ($1.6M), 6/2012 to 5/2013)
- **Essrock Railroad Bridge, Martinsburg, WV;** (1.4M), 10/2011 to 5/2012)
- **Opal Interchange, Opal VA;** ($14M), 9/2011 to 12/2013)

Project Engineer

- **Eskridge Road Improvements, Merrifield VA;** ($4.2M), 2/2011 to 6/2012)

- **Fort Belvoir Main Post Infrastructure and Security Improvements, Fort Belvoir, VA;** ($32.7M), 2/2011 to 6/2012)

e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization:
Virginia Polytechnic Institute & State University, Blacksburg, VA / BS / 2009 / Building Construction

f. Active Registration: Year First Registered/ Discipline/VA Registration #:
2018 / OSHA 10 Certified #14-006048606
2010 / CPR and First Aid Certified #196002314392

g. Document the extent and depth of your experience and qualifications relevant to the Project.
1. *Note your role, responsibility, and specific job duties for each project, not those of the firm.*
2. *Note whether experience is with current firm or with other firm.*
3. *Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.*

(List only three (3) relevant projects for which you have performed a similar function. On-call contracts with multiple task orders (on multiple projects) should not be listed as a single project.

1. Landmark West End Alexandria, Virginia
Shirley Contracting Company, LLC, Project Manager (4/2023 to Present)

As Project Manager Robert's responsibilities include scheduling, management, and oversight of all day-to-day field construction activities including roadway construction, grading/earthwork, storm drainage installation, sanitary sewer installation, duct bank installation, utility relocations, maintenance of traffic setup and subcontractor coordination and scheduling. Scope of this $30.1 million project includes clearing of the existing shopping mall site, demolition of an existing flyover ramp, 70,000 CY of cut-to-fill earthwork, erosion and sediment controls, installation of storm sewer and structures, sanitary sewer line, and duct banks, constructing new roads, concrete flatwork, and traffic signals.

2. National Museum of the United States Army – Fort Belvoir, Virginia
Shirley Contracting Company, LLC, Project Manager (9/2016-2019)

As the Project Manager, Robert was responsible for workflow and allocation of resources to meet the needs of the Owner and execute the work in a professional manner, developing direct reports by reviewing all work product for accuracy, ensuring timely and accurate submissions of all project required documents, and maintaining accurate financial status of the project at all times. The scope of the $21.8 million project included building 0.5 miles of new two-lane roadway including excavation and haul off approximately 40,000 CY of dirt and approximately 100,000 CY of cut-to-fill across several phases of the project. The scope also included approximately 11,800 LF of storm sewer pipe, 142 storm structures, and 14 infiltration galleries. Other project work included 1,000 LF of dry utility ductbank, 19,400 SF of MSE retaining wall, 5,430 SF of segmental block wall, and 3,900 SF of reinforced concrete retaining walls. Several security features were also installed on the project including a guard booth, two wedge barriers, and two crash beams.

3. Capitol Crossing Highway, Deck, Bridge & Garage - Washington, DC
Shirley Contracting Company, LLC, Senior Project Manager (12/2014 – 2018)

As Senior Project Manager, Robert was responsible for workflow and allocation of resources to meet the needs of the Owner and execute the work in a professional manner, developed direct reports by reviewing all work product for accuracy, ensured timely accurate submissions of all project required documents, and maintained accurate financial status of the project at all times. Scope of the $11.2 million project included excavation and haul off approximately 315,000 CY of dirt from deep hole foundations and roadway tunnels along with the export of approximately 40,000 CY of spoils by other trades across several phases of the project. Additionally, the project scope included demolition of multiple items including 15,000 CY of concrete retaining walls, a simple span bridge, and a three-story concrete building.

ATTACHMENT 4.2.1
DEPUTY KEY PERSONNEL RESUME FORM

Brief Resume of Key Personnel anticipated for the Project.

a. Name & Title: **Carl C. Kaczmarek III, PE, Senior Associate**

b. Project Assignment: **Deputy Design Manager (DDM)**

c. Name of the Firm with which you are employed at the time of submitting Technical Proposal:
Dewberry Engineers Inc.

d. Employment History: With this Firm **14.5** Years With Other Firms **0** Years

Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):

Dewberry Engineers Inc.; Department Manager/Project Manager/Design Manager (2018-Present)

Responsible for oversight of the Roadway Department in Dewberry's Mid-Atlantic Transportation Design Group in the Fairfax and Gainesville offices. Responsibilities include oversight of the roadway staff and overall project management for roadway improvement projects, serving both public and private clients. Management requirements involve integrating multiple engineering disciplines, including roadway, structural, hydraulic, traffic, and environmental disciplines, as well as coordinating various subconsultant services. Specific project experience with Design and Project Management responsibilities include:

- **Loudoun County Task Order & Transportation Design Services,** 3/2020 to Present - Project Manager
- **Route 50 and Trailhead Drive Roundabout** ($5.9M), 11/2021 to Present - Design Manager
- **W&OD Trail Bridge Over Sterling Boulevard** ($12.8M), 1/2021 to Present - Project Manager
- **Boundary Channel Drive at I-395 Interchange Improvements** ($14.1M), 10/2021 to 12/2024 - Design Manager
- **Tall Cedars Parkway and Elk Lick Road Intersection** ($0.5M), 2/2020 to 12/2020, Project Manager
- **Warrenton Southern Interchange** ($19.6M), 2/2018 to 11/2020 - Assistant Design Manager/Lead Roadway Engineer

Dewberry Engineers Inc.; Lead Designer/Senior Project Engineer/Project Engineer (2009-2018)

Responsible for design for multiple design-build and design-bid-build projects, including coordination with subconsultants and design integration for ultimate project completion. Also provided lead design coordination efforts to incorporate overall roadway design including structural, hydraulic, traffic engineering, and environmental permitting services. Involved with internal coordination with other design disciplines, design-build team meetings with construction staff, as well as regular meetings with clients/owners for each of the projects. Roadway and hydraulic design responsibilities include development of horizontal alignments, vertical profiles, superelevation design, typical sections, 3D modeling, cross sections, roadway drainage plans and calculations, grading plans, cross sections, erosion & sediment control plans, roadway construction plans, utility relocation plans, right-of-way acquisition plans, general plan preparation for submissions, and prepared design and calculation documentation for agency review. Design projects with engineering roles include:

- **Route 11 Bridge Replacement Over I-81** ($12.6M), 12/2011 to 5/2019 - Lead Designer
- **Route 116 Back Creek Bridge Replacement** ($4.6M), 2/2013 to 5/2019 - Lead Designer
- **Route 684 Goose Creek Bridge Replacement** ($1.2M), 6/2014 to 9/2018 - Lead Designer
- **Route 659 Reconstruction and Widening** ($45.4M), 9/2015 to 12/2015 - Senior Project Engineer
- **Route 606 Reconstruction and Widening** ($92.9M), 7/2014 to 8/2014 - Senior Project Engineer
- **Route 7 Westbound Truck Climbing Lane** ($28.8M), 11/2013 to 5/2014 - Senior Project Engineer
- **Dulles Metro Rail Phase 2, Package A** ($1.2B), 6/2013 to 4/2014 - Senior Project Engineer
- **Route 7 and Route 659 Interchange** ($51.3M), 10/2011 to 8/2013 - Project Engineer
- **Route 27 & 244 Interchange** ($32.6M), 12/2011 to 6/2013 - Project Engineer
- **Route 50 Widening** ($77.3M), 9/2011 to 7/2013 - Project Engineer
- **ICC Contract C & D/E** ($635M), 02/2009 to 03/2012 - Inspector & Project Engineer

e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization:
Virginia Polytechnic Institute & State University, Blacksburg, VA / BS / 2008 / Civil Engineering

f. Active Registration: Year First Registered/ Discipline/VA Registration #:
2013 / Professional Engineer / Virginia #0402 051644

g. Document the extent and depth of your experience and qualifications relevant to the Project.
1. *Note your role, responsibility, and specific job duties for each project, not those of the firm.*
2. *Note whether experience is with current firm or with other firm.*

3. *Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.*

(List only three (3) relevant projects for which you have performed a similar function. On-call contracts with multiple task orders (on multiple projects) should not be listed as a single project.

1. Warrenton Southern Interchange Design-Build, Fauquier County, Virginia

Dewberry Engineers Inc., Assistant Design Manager/Lead Roadway Engineer (2/2018 – 11/2020)

Carl served as the Lead Roadway Engineer and supported the Design Manager in an Assistant Design Manager role throughout design and construction. This $19.8M design-build project consisted of roadway capacity and safety improvements at the intersection of US Route 15/17/29 Bypass and US Route 15/17/29 Business in Warrenton, Virginia. The existing at-grade intersection was replaced with a grade separated interchange featuring two roundabouts on each side of the bridge. Additional improvements included a Park & Ride facility, shared use path, lighting within the roundabouts and parking lot, and 70,000 SF of landscaping in accordance with the Journey Through Hallowed Ground (JTHG) Living Legacy Project. Carl managed the coordination with all design disciplines and sub-consultants, including but not limited to; field surveys (aerial mapping, wetland delineations, utility designations and test pits, pipe inspections, traffic counts, geotechnical investigations, pipe condition inspections), property research, noise analysis, environmental permitting and monitoring, roadway and stormwater management design, bridge design, traffic studies, maintenance of traffic, and landscaping. Carl was also responsible for the horizontal and vertical design, drainage design, erosion and sediment control design, right-of-way coordination and plan preparation, utility coordination, general plan preparation, quality control reviews, scheduling, interdisciplinary task management, and client coordination. Also provided support for stakeholder involvement with Lord Fairfax Community College, Fauquier County, JTHG, Town of Warrenton, impacted landowners, the traveling public, and VDOT. Construction support was also provided in the form of response to requests for information (RFI), shop drawing reviews, plan revisions, monthly progress meetings, and preparation of as-built drawings.

2. Boundary Channel Drive at I-395 Interchange, Arlington County, Virginia

Dewberry Engineers Inc., Design Manager & Responsible Charge Engineer (10/2016 – Present)

Carl is currently the Design Manager for these operational and safety improvements along I-395, Boundary Channel Drive, and Long Bridge Drive. This $14.1M Design-Build project consists of converting the existing crossroad ramp terminals into roundabouts on each side of I-395, a sidewalk, shared-use-path, and connection to Mount Vernon Trail. Associated improvements include updated signing, mill and overlay, pavement markings, curb and gutter, storm sewer, lighting, utility relocations, and landscaping. Carl is managing the coordination with all design disciplines and sub-consultants, including but not limited to; field surveys (wetland delineations, utility designations and test pits, traffic counts, geotechnical investigations), environmental permitting and monitoring, roadway and stormwater management design, maintenance of traffic, and plat preparation. Carl is also managing stakeholder involvement with the National Park Service (NPS), Washington Metropolitan Area Transit Authority (WMATA), Arlington County, Washington Headquarters Services (WHS), and VDOT. Extensive coordination was required with WHS, as part of this project is located on government property associated with the Pentagon Reservation, including obtaining permits for field investigations and utility coordination. Carl is also responsible for the horizontal and vertical design, drainage design, erosion and sediment control design, right-of-way coordination, quality control reviews, scheduling, interdisciplinary task management, and client coordination.

3. Route 50 and Trailhead Drive Roundabout, Loudoun County, Virginia

Dewberry Engineers Inc., Design Manager & Responsible Charge Engineer (11/2021 – Present)

This $5.9M Design-Build project, administered by Loudoun County Department of Transportation and Capital Infrastructure, is providing operational and safety improvements at the intersection of Route 50 and Trailhead Drive in Aldie, VA. A roundabout is being implemented to reduce speeds and address the high volume of crashes at this intersection. This project is being considered as a hybrid roundabout as it is a single lane roundabout, except for providing two westbound lanes on Route 50, with the inside lane designated for left turns onto Trailhead Drive and the outside lane for through/right turning traffic. Additional improvements include a northbound bypass lane for eastbound Route 50 traffic, pavement reconstruction, closed system drainage, lighting, and utility relocations. Carl is managing all design disciplines and sub-consultants, including but not limited to; field surveys, environmental permitting and monitoring, roadway and stormwater management design, maintenance of traffic, and plat preparation. Carl is also managing stakeholder coordination with Loudoun County, VDOT, Loudoun Water, and adjacent developers. Carl is responsible for sealed and signed roadway construction plans and is overseeing the QA/QC Program.

VOLUME II - DESIGN CONCEPT

Response to Request for Proposals

I-64 GAP Segment A Widening

From: I-64 MM 204.9
To: I-64 MM 215.6

New Kent County, Virginia

State Project No.: 0064-063-623 P101, R201, C501, B601, B602
Federal Project No.: NHPP-064-3(545)
Contract ID Number: C00122166DB119

June 22, 2023 - Electronic Copy

Submitted By:

SHIRLEY CONTRACTING COMPANY, LLC

In Association With:

Dewberry

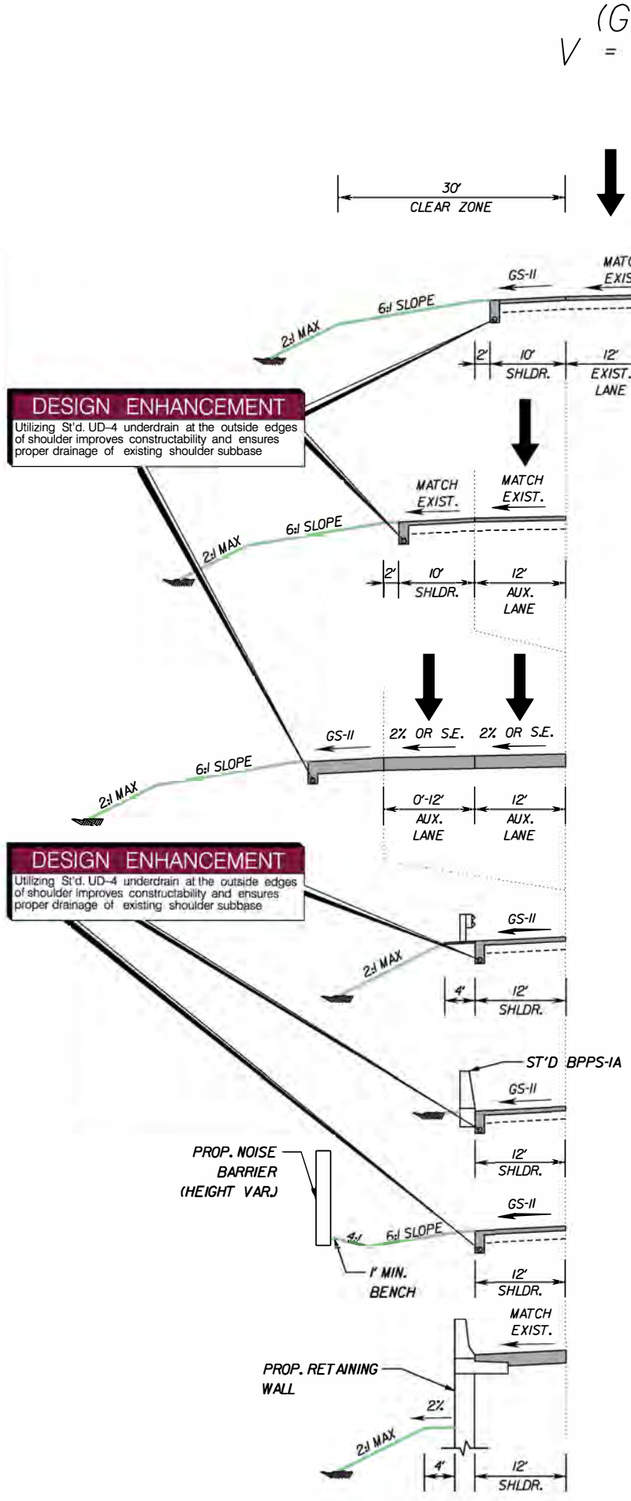
4.3.1 - Conceptual Roadway Plans

TYPICAL SECTIONS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	2A(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

I-64 WB (GS-INT) V = 70 MPH



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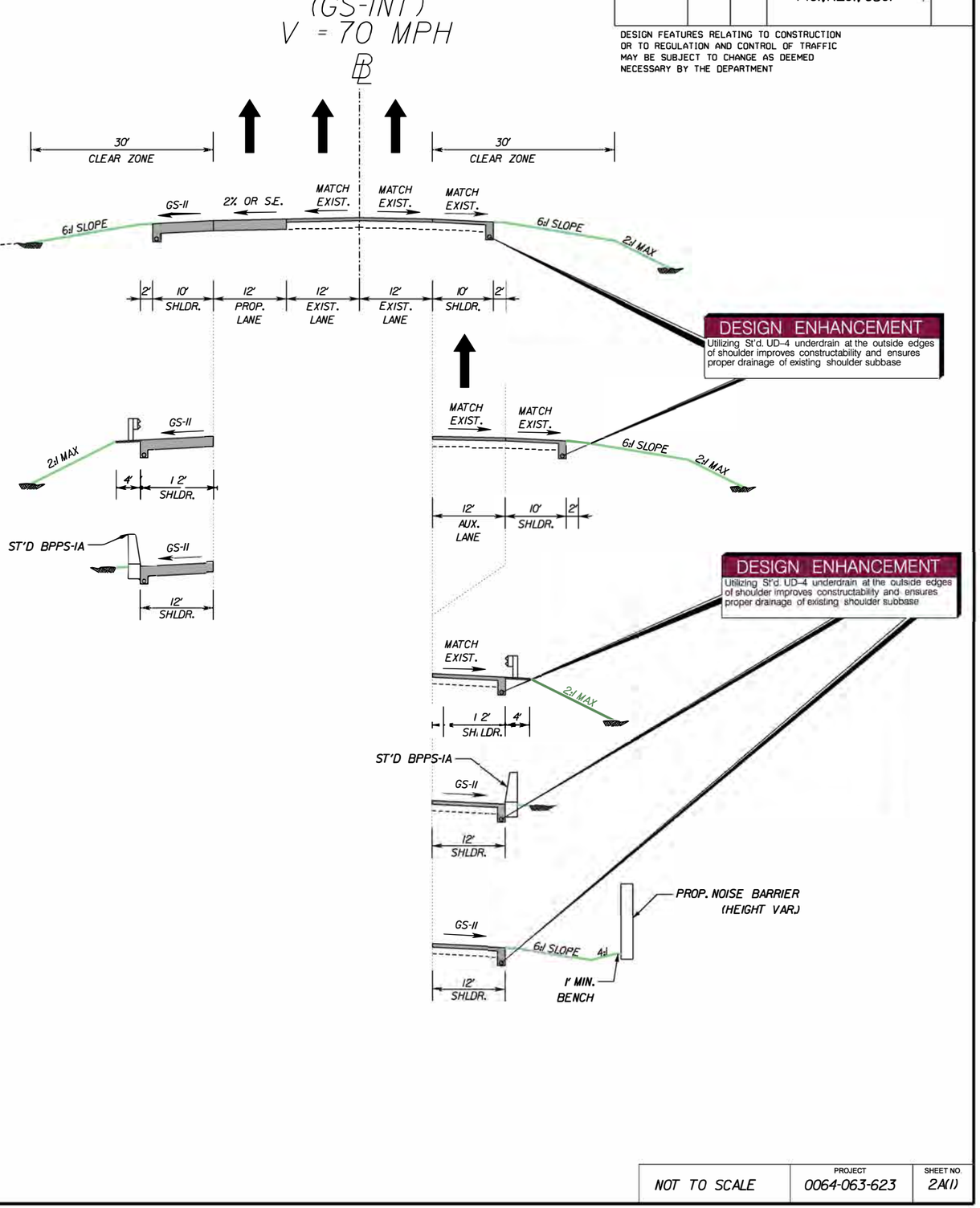

NOT TO SCALE	PROJECT 0064-063-623	SHEET NO. 2A(1)

TYPICAL SECTIONS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	2A(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

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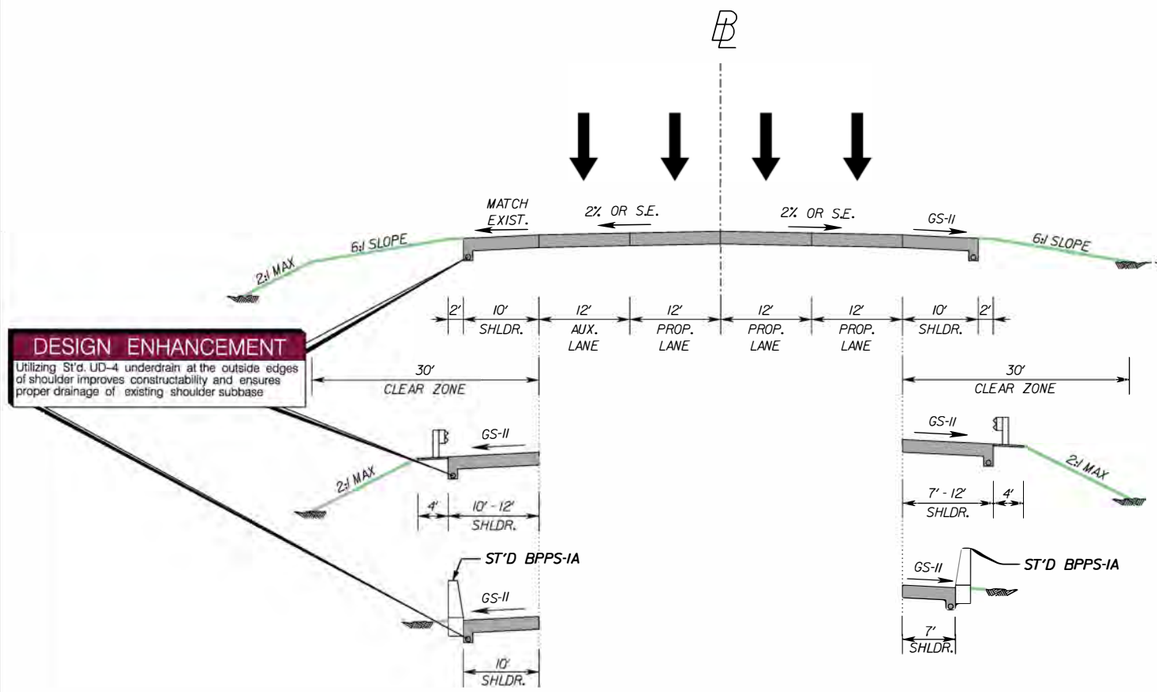
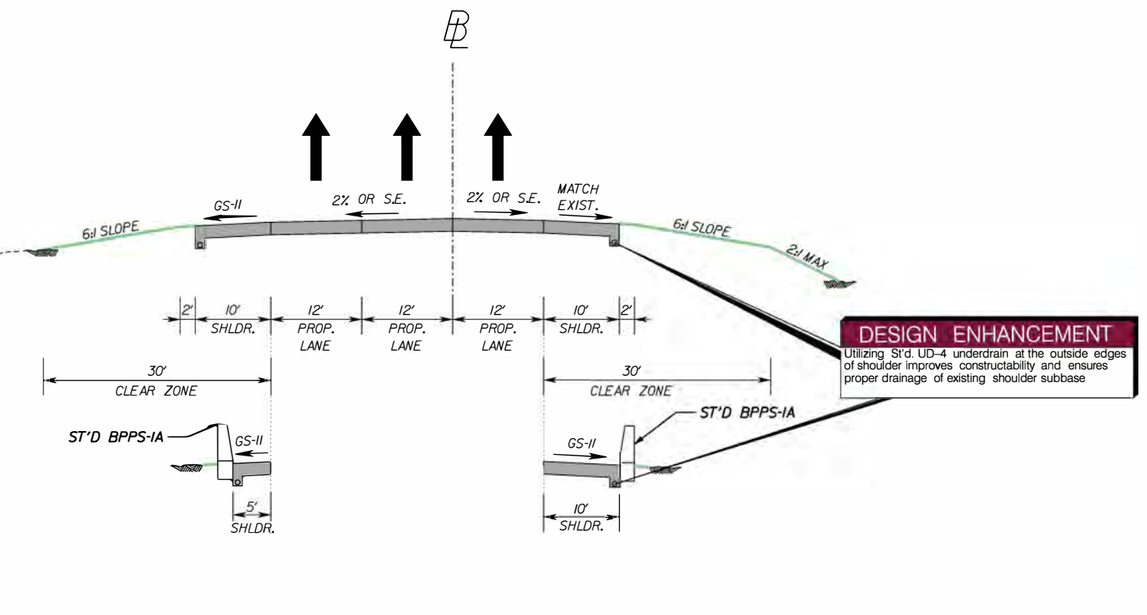


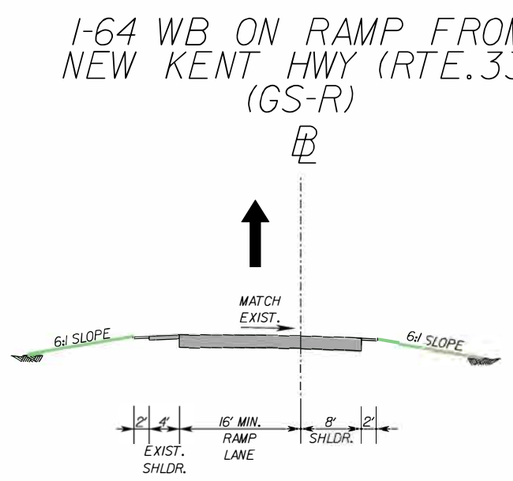
I-64 EB (GS-INT) V = 70 MPH



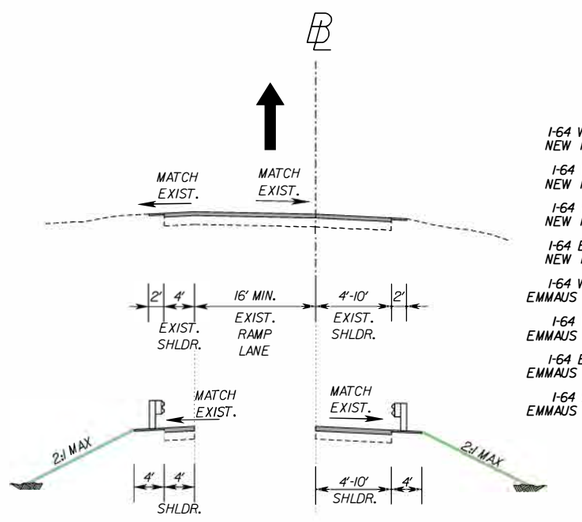
I-64 PROPOSED FULL DEPTH RECONSTRUCTION

WB STA.5027+09.41 TO STA.5042+44.77 EB STA.1027+04.84 TO STA.1029+21.02

I-64 WB ON RAMP FROM NEW KENT HWY (RTE.33) (GS-R)



I-64 ON/OFF RAMP (GS-R)



I-64 WB ON RAMP FROM NEW KENT HWY (RTE.33)	I-64 WB ON RAMP FROM INTERSTATE 64 W REST AREA
I-64 WB OFF RAMP TO NEW KENT HWY (RTE.33)	I-64 WB OFF RAMP TO INTERSTATE 64 W REST AREA
I-64 EB OFF RAMP TO NEW KENT HWY (RTE.33)	I-64 EB ON RAMP FROM INTERSTATE 64 E REST AREA
I-64 EB ON RAMP FROM NEW KENT HWY (RTE.33)	I-64 EB OFF RAMP TO INTERSTATE 64 E REST AREA
I-64 WB ON RAMP FROM EMMAUS CHURCH RD.(RTE.609)	I-64 WB ON RAMP FROM N COURTHOUSE RD.(RTE.155)
I-64 WB OFF RAMP TO EMMAUS CHURCH RD.(RTE.609)	I-64 WB OFF RAMP TO N COURTHOUSE RD.(RTE.155)
I-64 EB ON RAMP FROM EMMAUS CHURCH RD.(RTE.609)	I-64 EB ON RAMP FROM N COURTHOUSE RD.(RTE.155)
I-64 EB OFF RAMP TO EMMAUS CHURCH RD.(RTE.609)	I-64 EB OFF RAMP TO N COURTHOUSE RD.(RTE.155)

NOT TO SCALE	PROJECT 0064-063-623	SHEET NO. 2A(2)

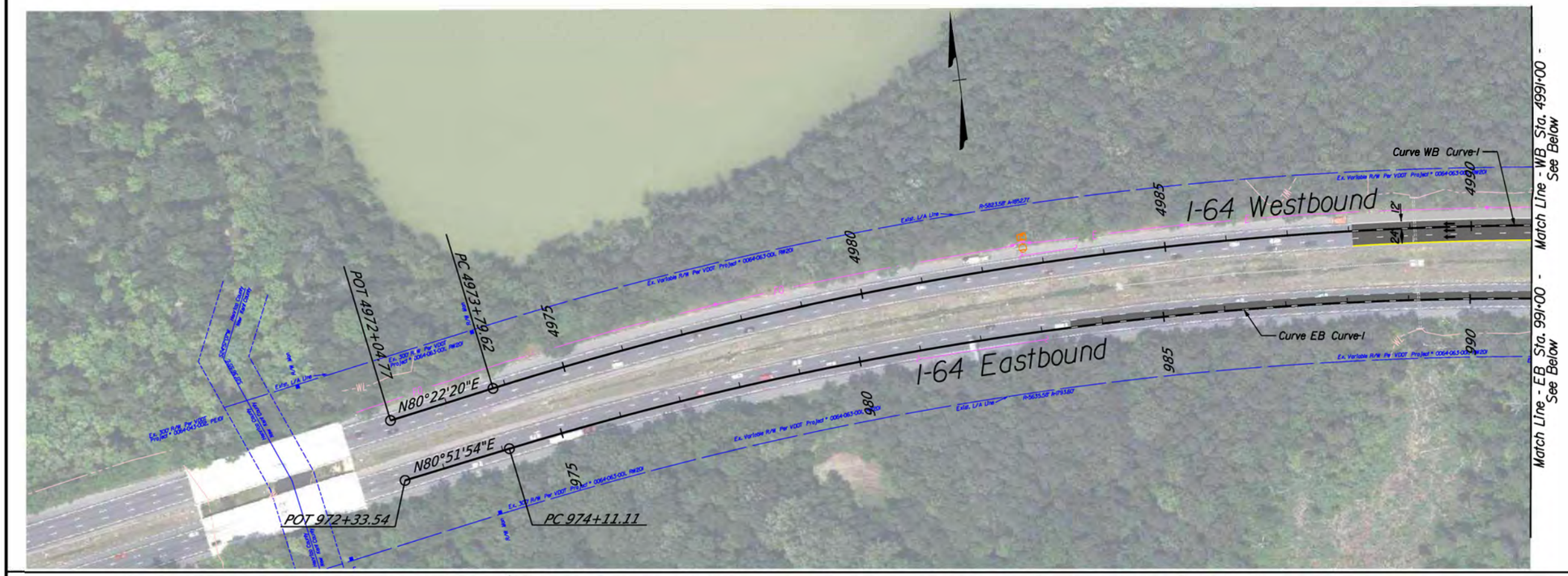
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	3

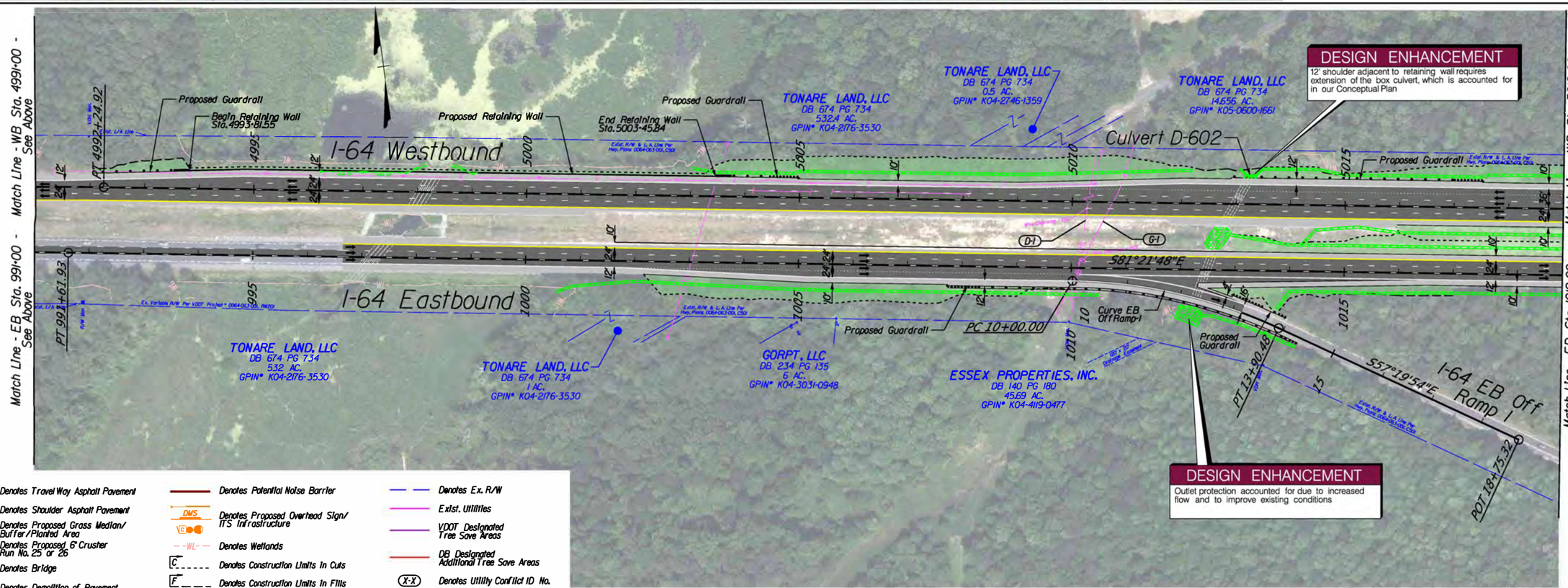
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

EB CURVE-1
PI = 982+93.60
DELTA = 17°46'17.73" (RT)
D = 01°00'54"
T = 882.50'
L = 1,750.82'
R = 5,644.66'
PC = 974+11.11
PT = 991+61.93
V = 70 MPH

WB CURVE-1
PI = 4983+10.15
DELTA = 18°14'49.93" (RT)
D = 00°59'20"
T = 930.53'
L = 1,845.30'
R = 5,794.20'
PC = 4973+79.62
PT = 4992+24.92
V = 70 MPH

EB OFFRAMP-1
PI = 11+98.16
DELTA = 24°01'54.09" (RT)
D = 06°09'16"
T = 198.16'
L = 390.48'
R = 930.98'
PC = 10+00.00
PT = 13+90.48
V = 50 MPH





- Denotes Travel Way Asphalt Pavement
- Denotes Shoulder Asphalt Pavement
- Denotes Proposed Grass Median/ Buffer/Planted Area
- Denotes Proposed 6" Crusher Run No. 25 or 26
- Denotes Bridge
- Denotes Demolition of Pavement
- Denotes Prop. Travel Lane
- Denotes Potential Noise Barrier
- Denotes Proposed Overhead Sign/ ITS Infrastructure
- Denotes Wetlands
- Denotes Construction Limits In Cuts
- Denotes Construction Limits In Fills
- Denotes Prop. Guardrail
- Denotes Ex. R/W
- Exist. Utilities
- VDOT Designated Tree Save Areas
- DB Designated Additional Tree Save Areas
- (X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	3

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	4

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

WB ONRAMP-1
PI = 15+26.71
DELTA = 41°15'17.03" (RT)
D = 07°50'55"
T = 274.79'
L = 525.62'
R = 730.00'
PC = 12+51.93
PT = 17+77.55
V = 45 MPH

WB ONLOOP-1
PI = 21+29.80
DELTA = 157°31'51.87" (RT)
D = 25°31'53"
T = 1,129.80'
L = 617.01'
R = 224.41'
PC = 10+00.00
PT = 16+17.01
V = 25 MPH

WB ONLOOP-1A
PI = 16+89.73
DELTA = 18°21'28.69" (RT)
D = 12°43'57"
T = 72.71'
L = 144.18'
R = 450.00'
PC = 16+17.01
PT = 17+61.19
V = 25 MPH

EB ONRAMP-1
PI = 15+13.94
DELTA = 34°55'16.26" (RT)
D = 07°49'12"
T = 230.46'
L = 446.57'
R = 732.69'
PC = 12+83.48
PT = 17+30.04
V = 45 MPH

WB OFFRAMP-1
PI = 13+77.80
DELTA = 44°06'21.68" (RT)
D = 06°08'37"
T = 377.80'
L = 717.92'
R = 932.61'
PC = 10+00.00
PT = 17+17.92
V = 35 MPH

DESIGN ENHANCEMENT
Design Concept only requires one (1) SWM facility, located within the interchange loop ramp to reduce median tree clearing, improve maintenance access, and improve interstate safety

DESIGN ENHANCEMENT
Eliminated SWM facility reduces clearing, reduces potential wetland impacts, and improves interstate safety through removal of access adjacent to a thru lane

DAVID L. HORSLEY, SR.
DB 525 PG 48
0.475 AC.
GPIN# K05-1792-1913

DAVID L. HORSLEY, SR.
DB 460 PG 986
6.78 AC.
GPIN# K05-2503-1498

DAVID L. HORSLEY, SR.
DB 462 PG 521
1.95 AC.
GPIN# K05-2807-1218

DAVID L. HORSLEY, SR.
DB 470 PG 705
1.95 AC.
GPIN# K05-2951-1338

DAVID L. HORSLEY, SR.
DB 470 PG 707
1.95 AC.
GPIN# K05-3084-1333

DAVID L. HORSLEY, SR.
DB 465 PG 704
1.95 AC.
GPIN# K05-3189-1324

EVELYN C. H. PILING CO. INC.
DB 73 PG 546
1.56 AC.
GPIN# K05-2616-1251

PATRIOTS LANDING HOMEOWNERS
DB 676 PG 416
3.628 AC.
GPIN# K05-3093-0548

TERRY/PETERSON RESIDENTIAL
DB 498 PG 584
22.96 AC.
GPIN# K05-1899-0092

ESSEX PROPERTIES, INC.
DB 140 PG 180
45.69 AC.
GPIN# K04-4119-0477

I-64 WB On Ramp 1
I-64 WB On Loop 1
I-64 WB Off Ramp 1
I-64 EB On Ramp 1
I-64 Westbound
I-64 Eastbound
RTE 33 SB NEW KENT HWY
RTE 33 NB NEW KENT HWY

Curve WB OnRamp-1
Curve WB OnLoop-1
Curve WB OnLoop-1A
Curve WB OffRamp-1
Curve EB OnRamp-1

POT 12+51.93
POT 17+77.55
POT 10+00.00
POT 17+61.19
PCC 16+17.01
POT 18+81.77
PT 17+17.92
PC 10+00.00
POT 10+00.00
PC 12+83.48
POT 17+30.04

S57°21'52"W
S81°22'51"E
N37°16'29"W
N63°45'54"E

Proposed Guardrail
Proposed BPPS
Begin Full Depth Reconstruction Sta. 5027+09.41
Begin Full Depth Reconstruction Sta. 1027+04.84
End Full Depth Reconstruction Sta. 1029+21.02
End Full Depth Reconstruction Sta.5042+44.77

Match Line - WB Sta. 5019+00 - See Sheet 3
Match Line - EB Sta. 1019+00 - See Sheet 3
Match Line - WB Sta. 5048+00 - See Sheet 5
Match Line - EB Sta. 1048+00 - See Sheet 5

Denotes Travel Way Asphalt Pavement
Denotes Shoulder Asphalt Pavement
Denotes Proposed Grass Median/ Buffer/Planted Area
Denotes Proposed 6" Crusher Run No. 25 or 26
Denotes Bridge
Denotes Demolition of Pavement
Denotes Prop. Travel Lane

Denotes Potential Noise Barrier
DMS Denotes Proposed Overhead Sign/ ITS Infrastructure
Denotes Wetlands
Denotes Construction Limits In Cuts
Denotes Construction Limits In Fills
Denotes Prop. Guardrail

Denotes Ex. R/W
Exist. Utilities
VDOT Designated Tree Save Areas
DB Designated Additional Tree Save Areas
(X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	4

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	5

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

DESIGN ENHANCEMENT
Adjusted the horizontal alignment from Sta. 5047+50 to Sta. 5085+74 to reflect existing conditions, providing 36' of travel lane width and eliminating outside shoulder widening

DESIGN ENHANCEMENT
Adjusted noise barrier alignments to maintain a minimum 35' offset from the travel lane, eliminating guardrail or barrier protection and improving interstate safety

DESIGN ENHANCEMENT
Adjusted noise barrier alignments to maintain a minimum 35' offset from the travel lane, eliminating guardrail or barrier protection and improving interstate safety

DESIGN ENHANCEMENT
Outlet protection accounted for due to increased flow and to improve existing conditions

DESIGN ENHANCEMENT
Drainage design reflects addressing degraded conditions of existing ditches and utilizing drop inlets and pipes to convey flow while maintaining noise barrier acoustic performance

DESIGN ENHANCEMENT
Outlet protection accounted for due to increased flow and to improve existing conditions

DESIGN ENHANCEMENT
Adjusted noise barrier alignments to maintain a minimum 35' offset from the travel lane, eliminating guardrail or barrier protection and improving interstate safety

ANNA E. WILLIAMS
DB 213 PG 171
2.03 AC.
GPIN# K05-3523-1074

DEXTER A. ADKINS
DB 120 PG 634
0.46 AC.
GPIN# K05-3537-1022

MICHAEL EDWARD MINTER
DB 112 PG 402
0.46 AC.
GPIN# K05-4061-1005

DWAYNE E. & CAREN T. FRANKS
DB 443 PG 616
0.46 AC.
GPIN# K05-4166-0988

DANA C. ADKINS
DB 136 PG 751
0.46 AC.
GPIN# K06-0117-0915

DAVID L. HOLLEY
DB 689 PG 185
0.46 AC.
GPIN# K06-0221-0902

SHERRY C. LAWSON
DB 680 PG 707
0.46 AC.
GPIN# K06-0321-0885

SHANNON HOPE SLATER
DB 663 PG 512
0.46 AC.
GPIN# K06-0401-0871

SHANNON H. SLATER
DB 617 PG 592
0.46 AC.
GPIN# K06-0487-0859

KENNETH C. & KAREN R. NEWBERRY
DB 335 PG 927
0.46 AC.
GPIN# K06-0598-0844

ROBERT & PATRICIA W. DOCTOR
DB 149 PG 796
0.46 AC.
GPIN# K06-0750-0819

ROBERT & PATRICIA W. DOCTOR
DB 149 PG 796
3.35 AC.
GPIN# K06-0959-1062

LAWRENCE C. & CASSANDRA J. STRAND
DB 136 PG 15
0.47 AC.
GPIN# K05-3856-1038

COUNTY OF NEW KENT
DB 11 PG 450
1.02 AC.
GPIN# K05-3458-0513

PATRIOTS LANDING MANAGEMENT CO.
DB 529 PG 396
1.6 AC.
GPIN# J05-3848-4781

PATRIOTS LANDING HOMEOWNERS
DB 523 PG 844
27.1 AC.
GPIN# J05-3188-3131

PATRIOTS LANDING HOMEOWNERS
DB 676 PG 416
14.4 AC.
GPIN# J05-4124-3127

I-64 Westbound

I-64 Eastbound

Culvert D-601

Proposed Guardrail

Match Line - EB Sta. 1048+00 - See Sheet 4

Match Line - WB Sta. 5048+00 - See Sheet 4

Match Line - WB Sta. 5073+00 - See Below

Match Line - EB Sta. 1073+00 - See Below

LEON B. BOWERY TRUST
DB 626 PG 512
123.58 AC.
GPIN# K06-2414-1462

EMMA L. BOWERY TRUSTEE
DB 648 PG 1373
91.9 AC.
GPIN# K07-0602-1570

PC 5078+05.45

PT 5085+73.86

Culvert D-603

Curve WB Curve-2

581°18'50"E

ARTHUR A. GNAEGY
DB 489 PG 56
5.01 AC.
GPIN# J06-2352-4647

BROOKWOOD ENTERPRISES
DB 79 PG 578
178.11 AC.
GPIN# 106-3758-4594

Match Line - WB Sta. 5073+00 - See Above

Match Line - EB Sta. 1073+00 - See Above

Match Line - WB Sta. 5102+00 - See Sheet 6

Match Line - EB Sta. 1102+00 - See Sheet 6

Denotes Travel Way Asphalt Pavement
Denotes Shoulder Asphalt Pavement
Denotes Proposed Grass Median/ Buffer/Planted Area
Denotes Proposed 6" Crusher Run No. 25 or 26
Denotes Bridge
Denotes Demolition of Pavement
Denotes Prop. Travel Lane

Denotes Potential Noise Barrier
Denotes Proposed Overhead Sign/ ITS Infrastructure
Denotes Wetlands
Denotes Construction Limits In Cuts
Denotes Construction Limits In Fills
Denotes Prop. Guardrail

Denotes Ex. R/W
Exist. Utilities
VDOT Designated Tree Save Areas
DB Designated Additional Tree Save Areas
(X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

WB CURVE-2
PI = 5081+89.66
DELTA = 00°44'01.59" (LT)
D = 00°05'44"
T = 384.21'
L = 768.41'
R = 60,000.00'
PC = 5078+05.45
PT = 5085+73.86
V = 70 MPH

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	5

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	6

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Match Line - EB Sta. 1102+00 - See Sheet 5

Match Line - WB Sta. 5102+00 - See Sheet 5

Match Line - EB Sta. 1127+00 - See Above

Match Line - WB Sta. 5127+00 - See Above

Match Line - EB Sta. 1127+00 - See Below

Match Line - WB Sta. 5127+00 - See Below

Match Line - EB Sta. 1156+00 - See Sheet 7

Match Line - WB Sta. 5156+00 - See Sheet 7

N HEN PECK RD

RTE 665

I-64 Westbound

I-64 Eastbound

S82°04'03"E

S81°34'03"E

S82°04'02"E

Culvert D-604

Culvert D-605

Proposed Guardrail

Proposed BPPS

Additional Forested Area to Remain

TIMOTHY DEPRIEST
DB 645 PG 541
1.10 AC.
GPIN# K07-1339-0382

DIANE F. WEAVER
DB 509 PG 27
1/2 AC.
GPIN# K07-1348-0163

JONATHAN X. OZOVEK
DB 691 PG 972
4 AC.
GPIN# K07-1821-0210

SAM A. & SHARON T. EL-DADA
DB 354 PG 184
4 AC.
GPIN# K07-2228-0158

ALAN KEITH HELMS
DB 688 PG 1888
4 AC.
GPIN# K07-2571-0045

JAMES W. LAWSON JR. TRUSTEE
DB 683 PG 1086
5.099 AC.
GPIN# J07-3727-4551

GARY O'KEEFE
DB 612 PG 372
0.602 AC.
GPIN# J07-1277-4284

RONALD C. & DAWN F. PRIDEMORE
DB 453 PG 128
0.407 AC.
GPIN# J07-1387-4319

MAGGIE ANN LASSITER
DB 20 PG 607
0.706 AC.
GPIN# J07-1493-4299

TIMOTHY O. SR. & DIANE W. HARRIS
DB 392 PG 679
8.469 AC.
GPIN# J07-2082-4159

WARNER F. EBERLY JR.
DB 665 PG 11
10.216 AC.
GPIN# J07-3602-4595

ANN H. SEITZ
DB 649 PG 1475
22.5 AC.
GPIN# J08-1904-4564

ANN H. SEITZ
DB 36 PG 300
6 7/8 AC.
GPIN# J08-1925-3270

STEPHEN N. & GAYLE D. SCHUMAN
DB 412 PG 872
20.766 AC.
GPIN# J07-3224-3951

TYRON & LAUREEN S. TOWNSEND
DB 275 PG 763
6.388 AC.
GPIN# J08-0713-3570

DONALD J. HOLMES
DB 615 PG 1323
6.13 AC.
GPIN# J08-1061-3394

WAYNE P. & LYNN E. MARKS
DB 506 PG 24
2.171 AC.
GPIN# J08-1931-3234

DESIGN ENHANCEMENT
Adjusted noise barrier alignments to maintain minimum 35' offset from the travel lane, eliminating guardrail or barrier protection and improving interstate safety

DESIGN ENHANCEMENT
Guardrail adjacent to outside shoulders provides protection of existing piers which are within clearzone but more than 30' from the edge of travel lane

DESIGN ENHANCEMENT
Outlet protection accounted for due to increased flow and to improve existing conditions

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of forested median to be retained

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of forested median to be retained

DESIGN ENHANCEMENT
Outlet protection accounted for due to increased flow and to improve existing conditions

- Denotes Travel Way Asphalt Pavement
- Denotes Shoulder Asphalt Pavement
- Denotes Proposed Grass Median/ Buffer/Planted Area
- Denotes Proposed 6" Crusher Run No. 25 or 26
- Denotes Bridge
- Denotes Demolition of Pavement
- Denotes Prop. Travel Lane
- Denotes Potential Noise Barrier
- DMS Denotes Proposed Overhead Sign/ ITS Infrastructure
- Denotes Wetlands
- C Denotes Construction Limits In Cuts
- F Denotes Construction Limits In Fills
- Denotes Prop. Guardrail
- Denotes Ex. R/W
- Exist. Utilities
- VDOT Designated Tree Save Areas
- DB Designated Additional Tree Save Areas
- (X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

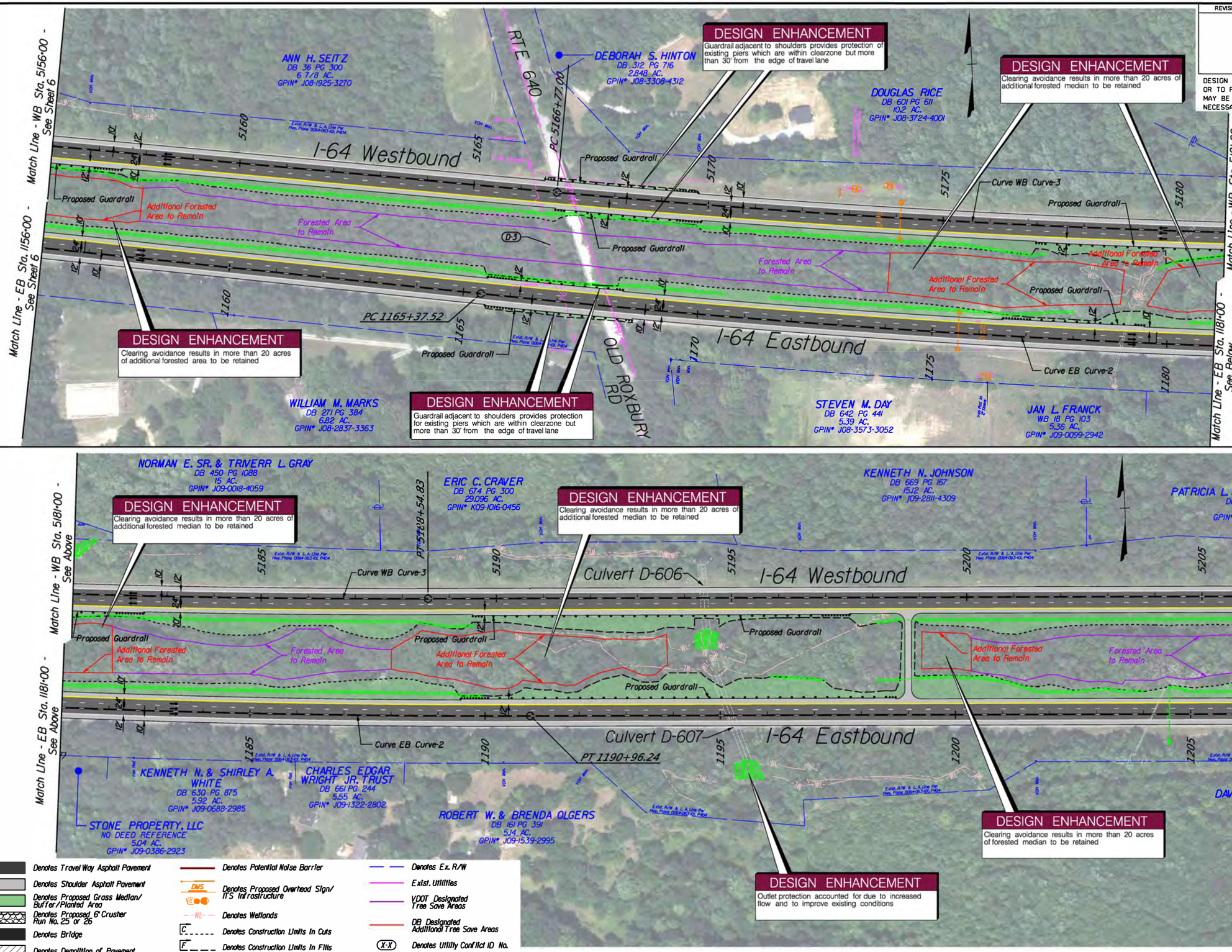
SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	6

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	7

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

WB CURVE-3
PI = 5177+66.71
DELTA = 05°21'26.00" (LT)
D = 00°14'46"
T = 1,089.71'
L = 2,177.83'
R = 23,292.00'
PC = 5166+77.00
PT = 5188+54.83
V = 70 MPH

EB CURVE-2
PI = 1178+18.09
DELTA = 06°06'30.58" (LT)
D = 00°14'19"
T = 1,280.57'
L = 2,558.72'
R = 24,000.00'
PC = 1165+37.52
PT = 1190+96.24
V = 70 MPH



SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	7

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	8

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

PATRICIA L. & JAMES E. ANKROM
DB 181 PG 558
19.79 AC.
GPIN# J09-3224-3878

KAYLA S. ISAAC
NO DEED REFERENCE
2.535 AC.
GPIN# J09-3951-3657

RTE 612 AIRPORT RD

JONATHAN GRIBBLE
DB 686 PG 1963
2.011 AC.
GPIN# J10-0346-3514

JOHN C. & L. HOBBIE CARLSON
DB 405 PG 114
5.0 AC.
GPIN# J10-0973-3759

CYNTHIA L. & DAVID LACY
DB 253 PG 357
93.54 AC.
GPIN# K10-1106-0413

JAMES T. JR. & TRESA C. WHITEHEAD
DB 1351 PG 1750
6 AC.
GPIN# J10-1528-3806

ARTHUR C. WORLEY
DB 469 PG 171
14.21 AC.
GPIN# J10-0675-2650

DESIGN ENHANCEMENT
Guardrail adjacent to outside shoulders provides protection of existing piers which are within clearzone but more than 30' from the edge of travel lane

Match Line - WB Sta. 5209+00 - See Sheet 7

Match Line - WB Sta. 5237+00 - See Below

Proposed Guardrail

Proposed BPPS

I-64 Westbound

S87°25'29"E

Forested Area to Remain

Proposed Guardrail

Forested Area to Remain

D-4

Match Line - EB Sta. 1209+00 - See Sheet 7

Match Line - EB Sta. 1537+00 - See Below

Proposed Guardrail

Proposed Guardrail

I-64 Eastbound

S87°25'21"E

DESIGN ENHANCEMENT
Guardrail adjacent to outside shoulders provides protection of existing piers which are within clearzone but more than 30' from the edge of travel lane

DAVID L. HORSLEY, SR.
DB 348 PG 339
180.99 AC.
GPIN# J09-2771-2900

BRUCE A. & CHERYL P. HALSEY
DB 249 PG 446
2.12 AC.
GPIN# J09-4052-3007

ARTHUR C. WORLEY
DB 469 PG 171
14.21 AC.
GPIN# J10-0675-2650

JAMES D. & SHEILA D. SCHIMPF
DB 517 PG 542
26.2 AC.
GPIN# J10-1898-2392

KRISTEN LEA HAMILTON
DB 656 PG 1878
19.9 AC.
GPIN# J10-2370-3804

KAELA C. RIFFE
DB 666 PG 2020
5 AC.
GPIN# J10-3109-3771

BRUCE PAUL SCOTT
DB 148 PG 315
5.0 AC.
GPIN# J10-3521-3755

GEORGE N. & DORIS L. SIMMONS
DB 138 PG 751
5.02 AC.
GPIN# J10-3867-3743

WILLIAM, JACKIE, & ROBERT BATKINS
DB 454 PG 569
15 AC.
GPIN# J11-0278-3639

THOMAS L. BURGESS JR.
DB 638 PG 559
13.19 AC.
GPIN# J11-0858-3343

Match Line - WB Sta. 5237+00 - See Above

Culvert D608

I-64 Westbound

PC 5252+16.11

Curve WB Curve-4

Proposed Guardrail

Proposed Guardrail

Forested Area to Remain

Additional Forested Area to Remain

Match Line - WB Sta. 5266+00 - See Sheet 9

Match Line - EB Sta. 1537+00 - See Above

I-64 Eastbound

PC 1255+54.85

Curve EB Curve-3

Match Line - EB Sta. 1266+00 - See Sheet 9

JAMES D. & SHEILA D. SCHIMPF
DB 517 PG 542
26.2 AC.
GPIN# J10-1898-2392

DESIGN ENHANCEMENT
Outlet protection accounted for due to increase flow and to improve existing conditions

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

WILLIAM W. & JACKIE V. BATKINS
DB 454 PG 569
23.74 AC.
GPIN# J10-3359-2577

GEORGE W. & SANDRA C. FISHER
DB 59 PG 465
202.01 AC.
GPIN# J10-3835-0745

Denotes Travel Way Asphalt Pavement
Denotes Shoulder Asphalt Pavement
Denotes Proposed Grass Median/ Buffer/Planted Area
Denotes Proposed 6" Crusher Run No. 25 or 26
Denotes Bridge
Denotes Demolition of Pavement
Denotes Prop. Travel Lane

Denotes Potential Noise Barrier
DMS Denotes Proposed Overhead Sign/ ITS Infrastructure
Denotes Wetlands
Denotes Construction Limits In Cuts
Denotes Construction Limits In Fills
Denotes Prop. Guardrail

Denotes Ex. R/W
Exist. Utilities
VDOT Designated Tree Save Areas
DB Designated Additional Tree Save Areas
(X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

WB CURVE-4
PI = 5269+60.65
DELTA = 08°42'25.75" (RT)
D = 00°15'00"
T = 1,744.54'
L = 3,482.36'
R = 22,915.00'
PC = 5252+16.11
PT = 5286+98.47
V = 70 MPH

EB CURVE-3
PI = 1273+00.01
DELTA = 08°42'34.02" (RT)
D = 00°15'00"
T = 1,745.16'
L = 3,483.60'
R = 22,917.16'
PC = 1255+54.85
PT = 1290+38.45
V = 70 MPH

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	8

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	9

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

WB CURVE-4
PI = 5269+60.65
DELTA = 08°42'25.75" (RT)
D = 00°15'00"
T = 1,744.54'
L = 3,482.36'
R = 22,915.00'
PC = 5252+16.11
PT = 5286+98.47
V = 70 MPH

EB OFFRAMP-2
PI = 11+31.57
DELTA = 11°31'20.35" (RT)
D = 04°23'37"
T = 131.57'
L = 262.25'
R = 1,304.07'
PC = 10+00.00
PT = 12+62.25
V = 35 MPH

EB CURVE-3
PI = 1273+00.01
DELTA = 08°42'34.02" (RT)
D = 00°15'00"
T = 1,745.16'
L = 3,483.60'
R = 22,917.16'
PC = 1255+54.85
PT = 1290+38.45
V = 70 MPH

RYAN EDWARD BATKINS
DB 620 PG 295
4.232 AC.
GPIN# JII-1089-3360

RANDAL RAIKOWSKI
DB 648 PG 966
2.532 AC.
GPIN# JII-1045-3667

THOMAS L. BURGESS JR.
DB 638 PG 559
1.919 AC.
GPIN# JII-0858-3343

ANTHONY GILBERT
DB 674 PG 1701
2.53 AC.
GPIN# JII-1680-3159

MICHAEL R. & DONNA B. DAVIS
DB 181 PG 656
2.3 AC.
GPIN# JII-2023-3211

DAVID G. & LORETTA L. OWNBY
DB 239 PG 668
5.00 AC.
GPIN# JII-2213-3310

WILLIAM R. DRUMHELLER JR.
DB 695 PG 533
5 AC.
GPIN# JII-2365-3447

WILLIAM R. DRUMHELLER JR.
DB 695 PG 533
5 AC.
GPIN# JII-2365-3447

GEORGE W. & SANDRA C. FISHER
DB 59 PG 465
202.01 AC.
GPIN# JI0-3835-0745

COUNTY OF NEW KENT
DB 433 PG 113
1461.2 AC.
GPIN# JII-2800-1343

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

DESIGN ENHANCEMENT
Median SWM facility eliminated, reducing median tree clearing and improving interstate safety as a result of reduced median access

Match Line - WB Sta. 5286+00 - See Sheet 8

Match Line - EB Sta. 1266+00 - See Sheet 8

Match Line - WB Sta. 5291+00 - See Below

Match Line - EB Sta. 1291+00 - See Below

I-64 Westbound

I-64 Eastbound

Curve WB Curve-4

Curve EB Curve-3

PT 5286+98.47

PT 1290+38.45

Additional Forested Area to Remain

Proposed Guardrail

DONALD E. CARL TR.
DB 629 PG 614
3.78 AC.
GPIN# JII-3445-2903

SHON & TARA DARNELL
DB 687 PG 940
3.63 AC.
GPIN# JII-3805-2822

NEW KENT COUNTY
DB 651 PG 268
552.864 AC.
GPIN# JII-3637-3912

PINE FORK, LLC
DB 683 PG 914
25.53 AC.
GPIN# JI2-0406-4515

COUNTY OF NEW KENT
DB 433 PG 113
1461.2 AC.
GPIN# JII-2800-1343

THEATRE SQUARE, LC
DB 479 PG 810
3.8 AC.
GPIN# JI2-0659-1807

THEATRE SQUARE, LC
NO DEED REFERENCE
43.72 AC.
GPIN# JI2-1740-0776

CULVERT D-610

CULVERT D-609

PCC 20+98.11

PC 10+00.00

Curve EB Off Ramp-2

Match Line - WB Sta. 5291+00 - See Above

Match Line - EB Sta. 1291+00 - See Above

Match Line - WB Sta. 5319+00 - See Sheet 10

Match Line - EB Sta. 1319+00 - See Sheet 10

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

DESIGN ENHANCEMENT
Outlet protection accounted for due to increased flow and to improve existing conditions

Denotes Travel Way Asphalt Pavement
Denotes Shoulder Asphalt Pavement
Denotes Proposed Grass Median/ Buffer/Planted Area
Denotes Proposed 6" Crusher Run No. 25 or 26
Denotes Bridge
Denotes Demolition of Pavement
Denotes Prop. Travel Lane

Denotes Potential Noise Barrier
Denotes Proposed Overhead Sign/ ITS Infrastructure
Denotes Wetlands
Denotes Construction Limits In Cuts
Denotes Construction Limits In Fills
Denotes Prop. Guardrail

Denotes Ex. R/W
Exist. Utilities
VDOT Designated Tree Save Areas
DB Designated Additional Tree Save Areas
(X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	9

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	10

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

DESIGN ENHANCEMENT
Outlet protection accounted for due to increased flow and to improve existing conditions

DESIGN ENHANCEMENT
Median SWM facility eliminated, reducing median tree clearing, wetland impacts,and improving interstate safety as a result of reduced median access

DESIGN ENHANCEMENT
Guardrail adjacent to outside shoulders provides protection of existing piers which are within clearzone but more than 30' from the edge of travel lane

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

BEVERLY L. SR. & SHERRY HEATH
DB 393 PG 88
27 AC.
GPIN# JI2-2865-2502

NEW KENT COUNTY
DB 508 PG 217
1.379 AC.
GPIN# JI3-0001-2335

KENT FARMS HOLDING COMPANY, LLC
DB 649 PG 927
69.61 AC.
GPIN# JI3-2466-1400

COUNTY OF NEW KENT
DB 179 PG 35
0.5 AC.
GPIN# JI3-0862-1522

THEATRE SQUARE, LC
NO DEED REFERENCE
4.372 AC.
GPIN# JI2-1740-0776

COUNTY OF NEW KENT
DB 462 PG 381
0.723 AC.
GPIN# JI2-3572-0869

WILCOHESS, LLC
DB 627 PG 1327
15.076 AC.
GPIN# JI2-3013-0591

SPF INVESTMENTS, LLC
DB 414 PG 409
444.80 AC.
GPIN# 113-0958-4889

RTE 609 EMMAUS CHURCH RD

I-64 Westbound

I-64 Eastbound

I-64 WB On Ramp 2

I-64 WB Off Ramp 2

I-64 EB Off Ramp 2

I-64 EB On Ramp 2

Curve WB OnRamp -2

Curve WB OffRamp-2

Curve EB OffRamp2A

Curve EB OffRamp-2

Curve EB OnRamp-2

Curve EB OnRamp-2A

POT 10+00.00

PC 14+06.12

POT 19+97.93

PT 16+40.81

PCC 12+62.25

PT 15+54.58

POT 17+45.58

PC 10+00.00

PC 16+66.76

PT 14+78.13

PCC 25+02.38

S80°18'42"W

S78°42'03"E

S78°42'47"E

S61°46'48"E

N60°55'36"W

N76°08'33"E

Proposed Guardrail

Proposed BPPS

Additional Forested Area to Remain

Forested Area to Remain

Match Line - WB Sta. 5319+00 - See Sheet 9

Match Line - WB Sta. 5348+00 - See Sheet 11

Match Line - EB Sta. 1319+00 - See Sheet 9

Match Line - EB Sta. 1348+00 - See Sheet 11

EB OFFRAMP-2	EB OFFRAMP-2A	EB ONRAMP-2	EB ONRAMP-2A
PI = 11+31.57	PI = 14+08.52	PI = 12+43.38	PI = 20+91.40
DELTA = 11°31'20.35" (RT)	DELTA = 05°24'38.30" (RT)	DELTA = 26°23'05.07" (LT)	ELTA = 25°08'40.96" (RT)
D = 04°23'37"	D = 01°51'03"	D = 05°31'06"	D = 03°00'33"
T = 131.57'	T = 146.27'	T = 243.38'	T = 424.65'
L = 262.25'	L = 292.33'	L = 478.13'	L = 835.62'
R = 1,304.07'	R = 3,095.60'	R = 1,038.29'	R = 1,904.08'
PC = 10+00.00	PC = 12+62.25	PC = 10+00.00	PC = 16+66.76
PT = 12+62.25	PT = 15+54.58	PT = 14+78.13	PT = 25+02.38
V = 35 MPH	V = 35 MPH	V = 50 MPH	V = 50 MPH

WB ONRAMP-2	WB OFFRAMP-2
PI = 17+56.03	PI = 13+23.00
DELTA = 20°58'14.87" (RT)	DELTA = 17°47'27.46" (RT)
D = 03°01'50"	D = 02°46'35"
T = 349.91'	T = 323.00'
L = 691.99'	L = 640.81'
R = 1,890.64'	R = 2,063.72'
PC = 14+06.12	PC = 10+00.00
PT = 20+98.11	PT = 16+40.81
V = 50 MPH	V = 35 MPH

Denotes Travel Way Asphalt Pavement
Denotes Shoulder Asphalt Pavement
Denotes Proposed Grass Median/ Buffer/Planted Area
Denotes Proposed 6" Crusher Run No. 25 or 26
Denotes Bridge
Denotes Demolition of Pavement
Denotes Prop. Travel Lane

Denotes Potential Noise Barrier
Denotes Proposed Overhead Sign/ ITS Infrastructure
Denotes Wetlands
Denotes Construction Limits In Cuts
Denotes Construction Limits In Fills
Denotes Prop. Guardrail

Denotes Ex. R/W
Exist. Utilities
VDOT Designated Tree Save Areas
DB Designated Additional Tree Save Areas
(X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist.R/W per RFP

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	10

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	11

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

KENT FARMS HOLDING COMPANY, LLC
DB 649 PG 927
69.61 AC.
GPIN# 113-2466-1400

KENT FARMS HOLDING COMPANY, LLC
DB 649 PG 970
481.707 AC.
GPIN# K13-3182-0536

TRANZ CHESAPEAKE, LLC
DB 630 PG 1335
7.4 AC.
GPIN# 114-2435-1050

SPF INVESTMENTS, LLC
DB 414 PG 409
444.80 AC.
GPIN# 113-0958-4889

SPF INVESTMENTS, LLC
DB 414 PG 409
67.15 AC.
GPIN# 113-3790-4958

SPF INVESTMENTS, LLC
DB 414 PG 409
63.69 AC.
GPIN# 114-2072-4712

Match Line - WB Sta. 5348+00 - See Sheet 10

Match Line - EB Sta. 1348+00 - See Sheet 10

Match Line - WB Sta. 5372+00 - See Below

Match Line - EB Sta. 1372+00 - See Below

Match Line - WB Sta. 5372+00 - See Above

Match Line - EB Sta. 1372+00 - See Above

Match Line - WB Sta. 5402+00 - See Sheet 12

Match Line - EB Sta. 1402+00 - See Sheet 12

I-64 Westbound

I-64 Eastbound

Curve WB Off Ramp-2

PC 10+00.00

PC 5382+43.77

PC 1397+32.24

Proposed Guardrail

Additional Forested Area to Remain

Forested Area to Remain

CULVERT D-612

CULVERT D-611

Curve WB Curve-5

Curve EB Curve-4

Existing R/W & L.A. Line Per Hwy. Plans 0064-063-101, C502

Drainage Easement

VDOT Min.

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

DESIGN ENHANCEMENT
Median SWM facility eliminated, reducing median tree clearing and improving interstate safety as a result of reduced median access

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

WB OFFRAMP-2
PI = 13+23.00
DELTA = 17°47'27.46" (RT)
D = 02°46'35"
T = 323.00'
L = 640.81'
R = 2,063.72'
PC = 10+00.00
PT = 16+40.81
V = 35 MPH

WB CURVE-5
PI = 5397+50.87
DELTA = 03°42'45.73" (LT)
D = 00°07'24"
T = 1,507.10'
L = 3,013.15'
R = 46,500.00'
PC = 5382+43.77
PT = 5412+56.92
V = 70 MPH

EB CURVE-4
PI = 1409+62.45
DELTA = 03°04'29.79" (LT)
D = 00°07'30"
T = 1,230.21'
L = 2,459.83'
R = 45,834.32'
PC = 1397+32.24
PT = 1421+92.07
V = 70 MPH

- Denotes Travel Way Asphalt Pavement
- Denotes Shoulder Asphalt Pavement
- Denotes Proposed Grass Median/ Buffer/Planted Area
- Denotes Proposed 6" Crusher Run No. 25 or 26
- Denotes Bridge
- Denotes Demolition of Pavement
- Denotes Prop. Travel Lane
- Denotes Potential Noise Barrier
- DMS — Denotes Proposed Overhead Sign/ ITS Infrastructure
- -WL- Denotes Wetlands
- C ----- Denotes Construction Limits In Cuts
- F ----- Denotes Construction Limits In Fills
- Denotes Prop. Guardrail
- Denotes Ex. R/W
- Exist. Utilities
- VDOT Designated Tree Save Areas
- DB Designated Additional Tree Save Areas
- (X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	11

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	12

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

DESIGN ENHANCEMENT
Guardrail adjacent to outside shoulder provides protection of existing piers which are within clearzone but more than 30' from the edge of travel lane

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

DESIGN ENHANCEMENT
Guardrail adjacent to outside shoulder provides protection of existing piers which are within clearzone but more than 30' from the edge of travel lane

TRANZ CHESAPEAKE, LLC
DB 630 PG 1335
74 AC.
GPIN# JI4-2435-1050

SPF INVESTMENTS, LLC
DB 414 PG 409
63.69 AC.
GPIN# 114-2072-4712

WAYNE LOVETTE
DB 628 PG 898
2 AC.
GPIN# 114-3552-5013

DAVID WAYNE BOWMAN, JR.
DB 642 PG 462
2.08 AC.
GPIN# 114-3923-4875

RTE 618

OLIVET CHURCH RD

I-64 Westbound

I-64 Eastbound

Match Line - WB Sta. 5402+00 - See Sheet 11

Match Line - EB Sta. 1402+00 - See Sheet 11

Match Line - WB Sta. 5423+00 - See Below

Match Line - EB Sta. 1423+00 - See Below

Curve WB Curve-5

Curve EB Curve-4

PT 5412+56.92

PT 1421+92.07

S82°25'40"E

Proposed Guardrail

Proposed BPPS

Forested Area to Remain

Additional Forested Area to Remain

D-5

WB CURVE-5
PI = 5397+50.87
DELTA = 03°42'45.73" (LT)
D = 00°07'24"
T = 1,507.10'
L = 3,013.15'
R = 46,500.00'
PC = 5382+43.77
PT = 5412+56.92
V = 70 MPH

EB CURVE-4
PI = 1409+62.45
DELTA = 03°04'29.79" (LT)
D = 00°07'30"
T = 1,230.21'
L = 2,459.83'
R = 45,834.32'
PC = 1397+32.24
PT = 1421+92.07
V = 70 MPH

CRISS CROSS PROPERTIES, LLC
DB 691 PG 1814
328 AC.
GPIN# 115-2588-2049

PC 5424+42.88

PT 5426+48.00

PCC 16+13.57

Curve WB Curve-6

WB CURVE-6
PI = 5425+45.44
DELTA = 00°39'36.98" (RT)
D = 00°19'19"
T = 102.56'
L = 205.13'
R = 17,800.00'
PC = 5424+42.88
PT = 5426+48.00
V = 70 MPH

HEATHER B. & BRIAN K. HALL
DB 476 PG 427
2.932 AC.
GPIN# 115-0161-4751

CHRISTOPHER H. HARTMAN
DB 661 PG 1588
2.7933 AC.
GPIN# 115-0430-4651

JAMES C. JONES
DB 502 PG 662
3.14 AC.
GPIN# 115-0682-4605

HARRY L. HARPER
DB 649 PG 1424
5.35 AC.
GPIN# 115-1029-4636

W. J. MEREDITH ET ALS
DB 625 PG 655
3.15 AC.
GPIN# 115-1330-4696

COUNTY OF NEW KENT
DB 457 PG 511
0.59 AC.
GPIN# 115-1375-4712

TAWNY ANDRAOS
DB 675 PG 783
44.044 AC.
GPIN# 115-1593-3652

Denotes Travel Way Asphalt Pavement
Denotes Shoulder Asphalt Pavement
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Denotes Bridge
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Denotes Prop. Travel Lane

Denotes Potential Noise Barrier
DMS Denotes Proposed Overhead Sign/ ITS Infrastructure
Denotes Wetlands
Denotes Construction Limits In Cuts
Denotes Construction Limits In Fills
Denotes Prop. Guardrail

Denotes Ex. R/W
Exist. Utilities
VDOT Designated Tree Save Areas
DB Designated Additional Tree Save Areas
(X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	12

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	13

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

WB REST AREA OFFRAMP-1A
PI = 11+87.11
DELTA = 32°31'11.64" (RT)
D = 08°55'51"
T = 187.11'
L = 364.13'
R = 641.54'
PC = 10+00.00
PT = 13+64.13
e = MATCH EX.
V = 25 MPH

CRISS CROSS PROPERTIES, LLC
DB 691 PG 1814
98.12 AC.
GPIN# JI5-3471-1130

CRISS CROSS PROPERTIES, LLC
DB 691 PG 1814
32.8 AC.
GPIN# JI5-2588-2049

Match Line - WB Sta. 5445+00 - See Sheet 12

Match Line - WB Sta. 5473+00 - See Sheet 14

Match Line - EB Sta. 1445+00 - See Sheet 12

Match Line - EB Sta. 1473+00 - See Sheet 14

Curve WB Rest Area OnRamp-1

I-64 WB Rest Area On Ramp 1

POT 36+62.97

PC 11+23.96

POT 10+00.00

S71°11'35"W

PC 33+16.29

Curve WB Rest Area OnRamp-1A

N81°44'23"W

I-64 Westbound

PT 24+01.30

Curve WB Rest Area OffRamp-1

POT 15+24.02

N49°15'00"W

PT 13+64.13

I-64 WB Off Ramp 1

CULVERT D-613

PC 20+00.00

PC 10+00.00

Proposed Guardrail

S81°46'12"E

Curve WB Rest Area OffRamp-1A

Forested Area to Remain

Additional Forested Area to Remain

W-3

D-6

V-2

V-3

CULVERT D-614

Curve EB Rest Area OnRamp-1A

S81°47'16"E

I-64 Eastbound

S81°46'23"E

N78°52'38"E

PC 10+00.00

Curve EB Rest Area OffRamp-1

PT 12+60.75

PC 13+44.41

S65°35'46"E

PT 16+00.72

Curve EB Rest Area OffRamp-1A

I-64 EB Rest Area Off Ramp 1

Curve EB Rest Area OnRamp-1

PC 28+96.34

PT 30+69.65

PC 31+35.69

PCC 34+07.72

I-64 EB On Ramp 1

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to remain

DESIGN ENHANCEMENT
Clearing avoidance results in more than 20 acres of additional forested median to be retained

DAVID W. BOWMAN
DB 407 PG 82
7.3 AC.
GPIN# 115-2543-4167

MICHAEL L. & DEBBIE J. ANDERSON
DB 596 PG 484
4.0 AC.
GPIN# 115-2707-3882

CRISS CROSS PROPERTIES, LLC
DB 629 PG 1988
317.37 AC.
GPIN# 115-2144-2290

Denotes Travel Way Asphalt Pavement
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Denotes Prop. Travel Lane

Denotes Potential Noise Barrier
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Denotes Wetlands
Denotes Construction Limits in Cuts
Denotes Construction Limits in Fills
Denotes Prop. Guardrail

Denotes Ex. R/W
Exist. Utilities
VDOT Designated Tree Save Areas
DB Designated Additional Tree Save Areas
(X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

WB REST AREA ONRAMP-1
PI = 13+73.42
DELTA = 27°02'35.95" (RT)
D = 05°31'25"
T = 249.45'
L = 489.61'
R = 1,037.31'
PC = 11+23.96
PT = 16+13.57
V = 50 MPH

WB REST AREA ONRAMP-1A
PI = 34+91.68
DELTA = 21°26'22.03" (LT)
D = 06°11'03"
T = 175.40'
L = 346.69'
R = 926.50'
PC = 33+16.29
PT = 36+62.97
V = 50 MPH

EB REST AREA OFFRAMP-1
PI = 11+31.25
DELTA = 16°11'29.94" (RT)
D = 06°12'35"
T = 131.25'
L = 260.75'
R = 922.69'
PC = 10+00.00
PT = 12+60.75
V = 25 MPH

EB REST AREA OFFRAMP-1A
PI = 14+73.42
DELTA = 16°10'36.20" (LT)
D = 06°18'41"
T = 129.01'
L = 256.31'
R = 907.81'
PC = 13+44.41
PT = 16+00.72
V = 25 MPH

WB REST AREA OFFRAMP-1
PI = 22+03.52
DELTA = 23°32'28.67" (LT)
D = 05°51'59"
T = 203.52'
L = 401.30'
R = 976.70'
PC = 20+00.00
PT = 24+01.30
V = 25 MPH

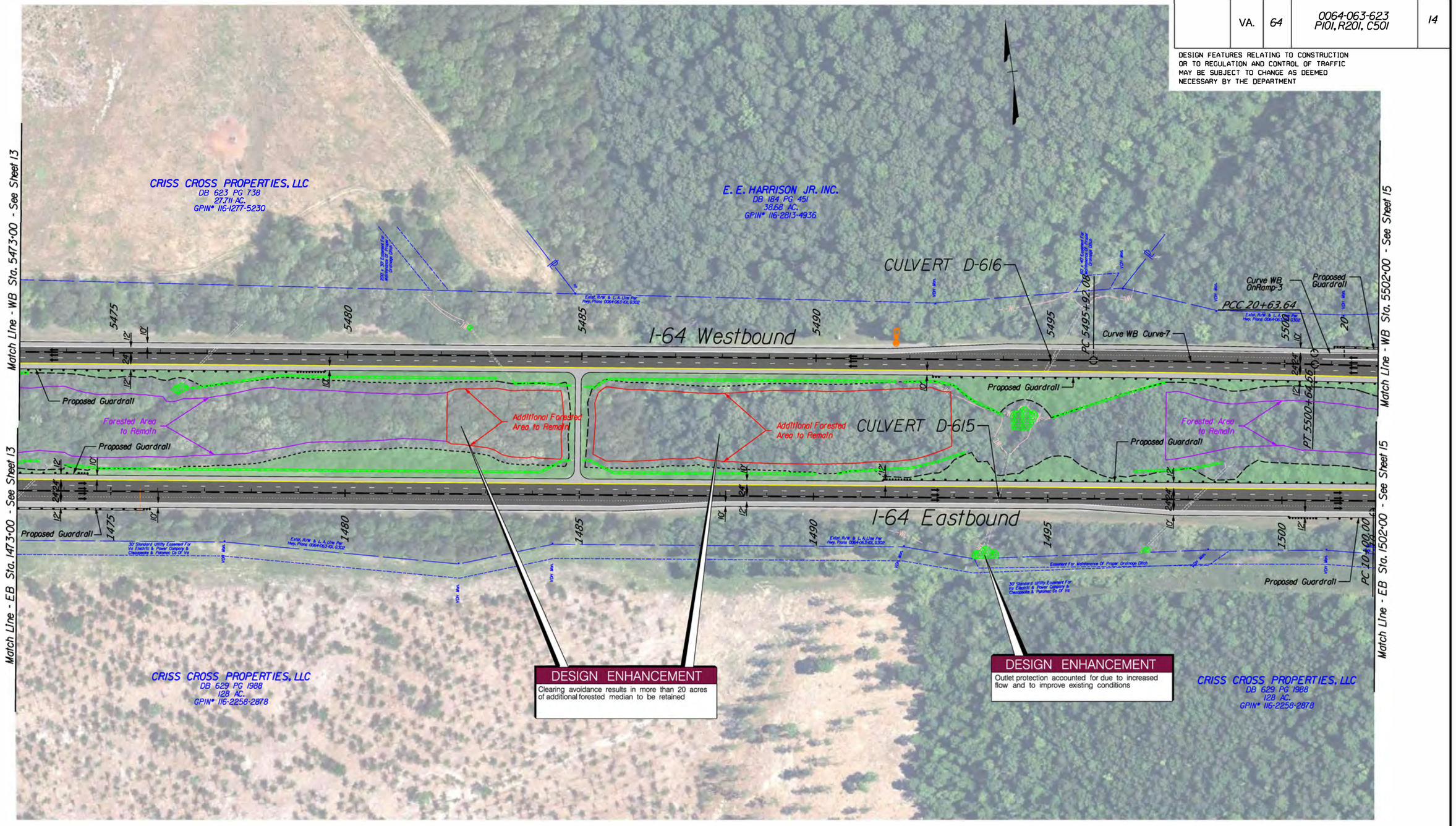
EB REST AREA ONRAMP-1
PI = 29+83.83
DELTA = 19°20'59.56" (LT)
D = 11°09'52"
T = 87.49'
L = 173.32'
R = 513.20'
PC = 28+96.34
PT = 30+69.65
V = 50 MPH

EB REST AREA ONRAMP-1A
PI = 32+73.01
DELTA = 19°20'05.82" (RT)
D = 07°06'28"
T = 137.32'
L = 272.03'
R = 806.10'
PC = 31+35.69
PT = 34+07.72
e = MATCH EX.
V = 50 MPH

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	13

REVISED	STATE	STATE		SHEET NO
		ROUTE	PROJECT	
	VA.	64	0064-063-623 P101, R201, C501	14

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



Denotes Travel Way Asphalt Pavement
Denotes Shoulder Asphalt Pavement
Denotes Proposed Grass Median/ Buffer/Planted Area
Denotes Proposed 6" Crusher Run No. 25 or 26
Denotes Bridge
Denotes Demolition of Pavement
Denotes Prop. Travel Lane

Denotes Potential Noise Barrier
DMS / ITS — Denotes Proposed Overhead Sign/ ITS Infrastructure
-WL- Denotes Wetlands
C Denotes Construction Limits In Cuts
F Denotes Construction Limits In Fills
Denotes Prop. Guardrail

Denotes Ex. R/W
Exist. Utilities
VDOT Designated Tree Save Areas
DB Designated Additional Tree Save Areas
(X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

WB ONRAMP-3
PI = 17+88.77
DELTA = 12°28'11.62" (RT)
D = 02°15'33"
T = 277.07'
L = 551.95'
R = 2,536.05'
PC = 15+11.70
PT = 20+63.64
V = 50 MPH

WB CURVE-7
PI = 5498+28.38
DELTA = 01°04'59.10" (RT)
D = 00°13'45"
T = 236.30'
L = 472.58'
R = 25,000.00'
PC = 5495+92.08
PT = 5500+64.66
V = 70 MPH

SCALE 0 100' 200' | PROJECT 0064-063-623 | SHEET NO. 14

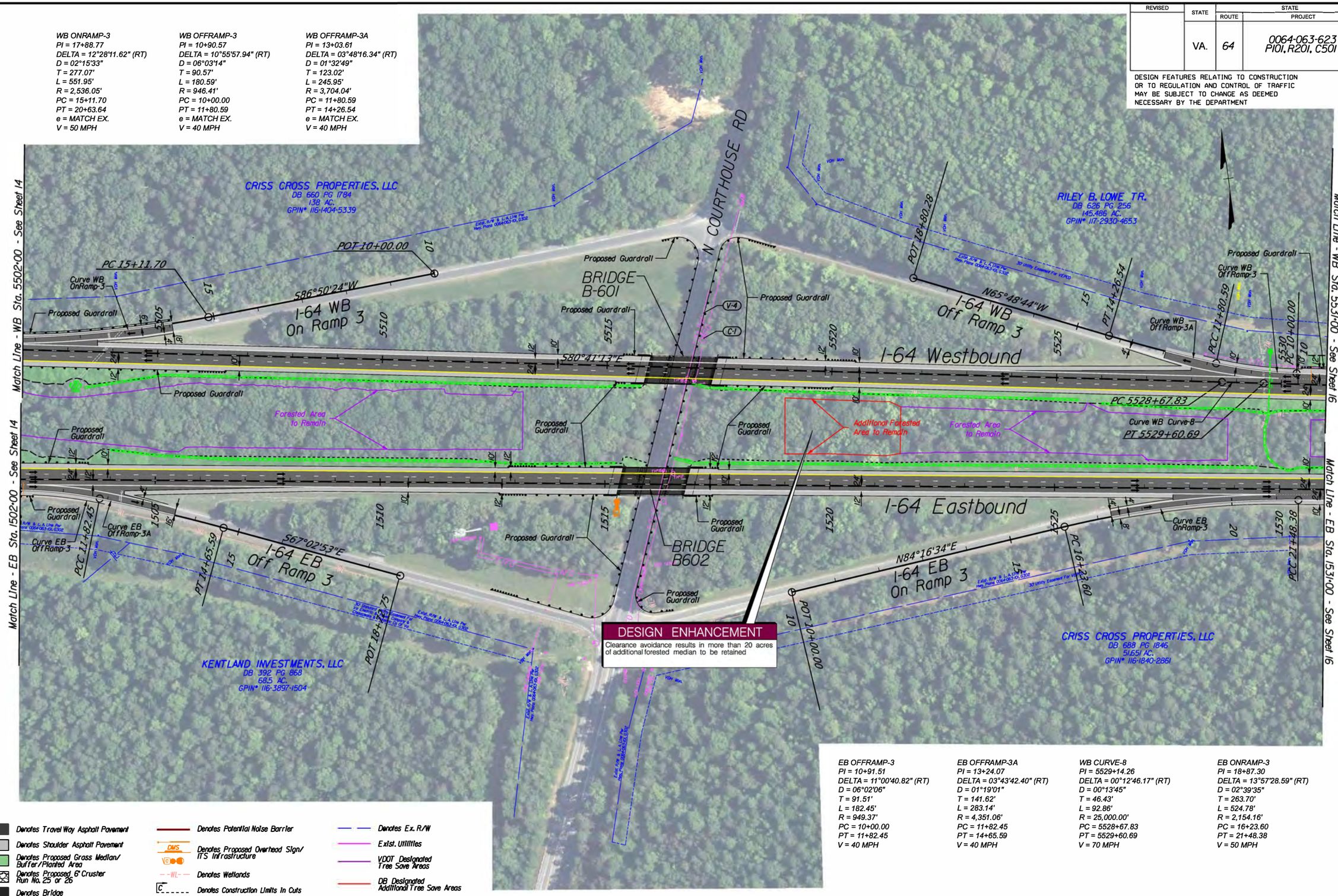
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	15

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

WB ONRAMP-3
PI = 17+88.77
DELTA = 12°28'11.62" (RT)
D = 02°15'33"
T = 277.07'
L = 551.95'
R = 2,536.05'
PC = 15+11.70
PT = 20+63.64
e = MATCH EX.
V = 50 MPH

WB OFFRAMP-3
PI = 10+90.57
DELTA = 10°55'57.94" (RT)
D = 06°03'14"
T = 90.57'
L = 180.59'
R = 946.41'
PC = 10+00.00
PT = 11+80.59
e = MATCH EX.
V = 40 MPH

WB OFFRAMP-3A
PI = 13+03.61
DELTA = 03°48'16.34" (RT)
D = 01°32'49"
T = 123.02'
L = 245.95'
R = 3,704.04'
PC = 11+80.59
PT = 14+26.54
e = MATCH EX.
V = 40 MPH



EB OFFRAMP-3
PI = 10+91.51
DELTA = 11°00'40.82" (RT)
D = 06°02'06"
T = 91.51'
L = 182.45'
R = 949.37'
PC = 10+00.00
PT = 11+82.45
V = 40 MPH

EB OFFRAMP-3A
PI = 13+24.07
DELTA = 03°43'42.40" (RT)
D = 01°19'01"
T = 141.62'
L = 283.14'
R = 4,351.06'
PC = 11+82.45
PC = 14+65.59
V = 40 MPH

WB CURVE-8
PI = 5529+14.26
DELTA = 00°12'46.17" (RT)
D = 00°13'45"
T = 46.43'
L = 92.86'
R = 25,000.00'
PC = 5528+67.83
PT = 5529+60.69
V = 70 MPH

EB ONRAMP-3
PI = 18+87.30
DELTA = 13°57'28.59" (RT)
D = 02°39'35"
T = 263.70'
L = 524.78'
R = 2,154.16'
PC = 16+23.60
PT = 21+48.38
V = 50 MPH

- *Denotes Travel Way Asphalt Pavement*
- *Denotes Shoulder Asphalt Pavement*
- *Denotes Proposed Grass Median/ Buffer/Planted Area*
- *Denotes Proposed 6" Crusher Run No. 25 or 26*
- *Denotes Bridge*
- *Denotes Demolition of Pavement*
- *Denotes Prop. Travel Lane*
- *Denotes Potential Noise Barrier*
- *Denotes Proposed Overhead Sign/ ITS Infrastructure*
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- *Denotes Construction Limits In Cuts*
- *Denotes Construction Limits In Fills*
- *Denotes Prop. Guardrail*
- *Denotes Ex. R/W*
- *Exist. Utilities*
- *VDOT Designated Tree Save Areas*
- *DB Designated Additional Tree Save Areas*
- *(X-X) Denotes Utility Conflict ID No.*

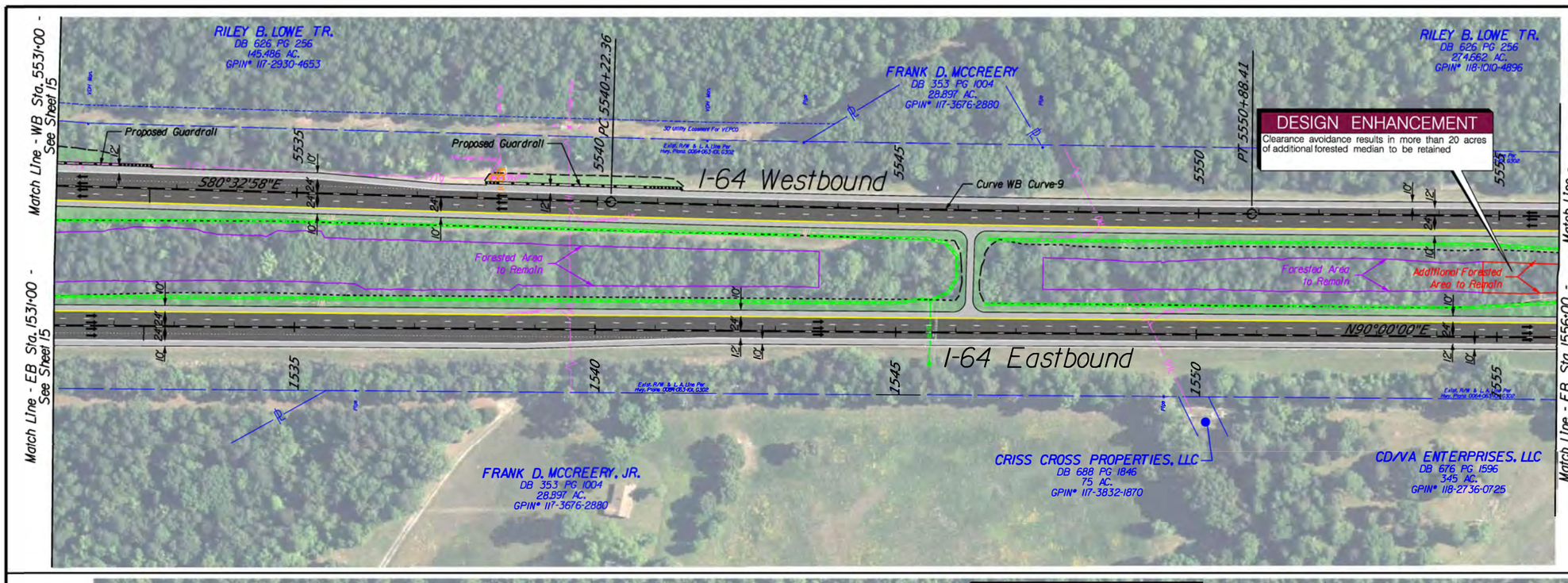
Note: No changes to Exist. R/W per RFP

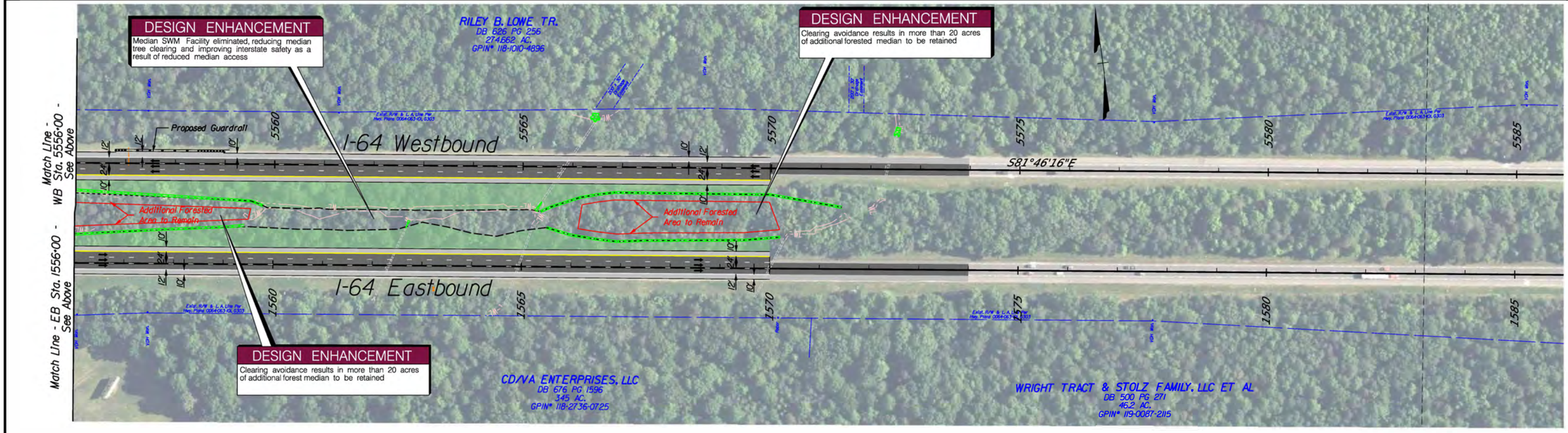
SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	15

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.	64	0064-063-623 P101, R201, C501	16

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

WB CURVE-9
PI = 5545+55.40
DELTA = 01°13'17.79" (LT)
D = 00°06'53"
T = 533.05'
L = 1,066.05'
R = 50,000.00'
PC = 5540+22.36
PT = 5550+88.41
V = 70 MPH





- Denotes Travel Way Asphalt Pavement
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- Denotes Ex. R/W
- Exist. Utilities
- VDOT Designated Tree Save Areas
- DB Designated Additional Tree Save Areas
- (X-X) Denotes Utility Conflict ID No.

Note: No changes to Exist. R/W per RFP

SCALE	PROJECT	SHEET NO.
0 100' 200'	0064-063-623	16

4.3.2 - Conceptual Structural Plans

STATE	FEDERAL AID ROUTE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	—	NHPP-064-3(545)	64	0064-063-623, B601, B602	1
Federal Structure No. 000000000012671 000000000012669			FHWA Construction and Scour Code:		X281-SN
Federal Stewardship and Oversight Code: FO				UPC No.	122805

DESIGN EXCEPTION(S):

None.

GENERAL NOTES:

Width: 59'-0" face-to-face of curb EB; 59'-0" face-to-face of curb WB.

Span layout: 38'-6½" - 65'-5" - 38'-6½" EB
38'-6½" - 65'-5" - 38'-6½" WB

Capacity: HL-93 loading for widening portion of structure. HS-20 loading and alternate military loading for existing structure.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2020.

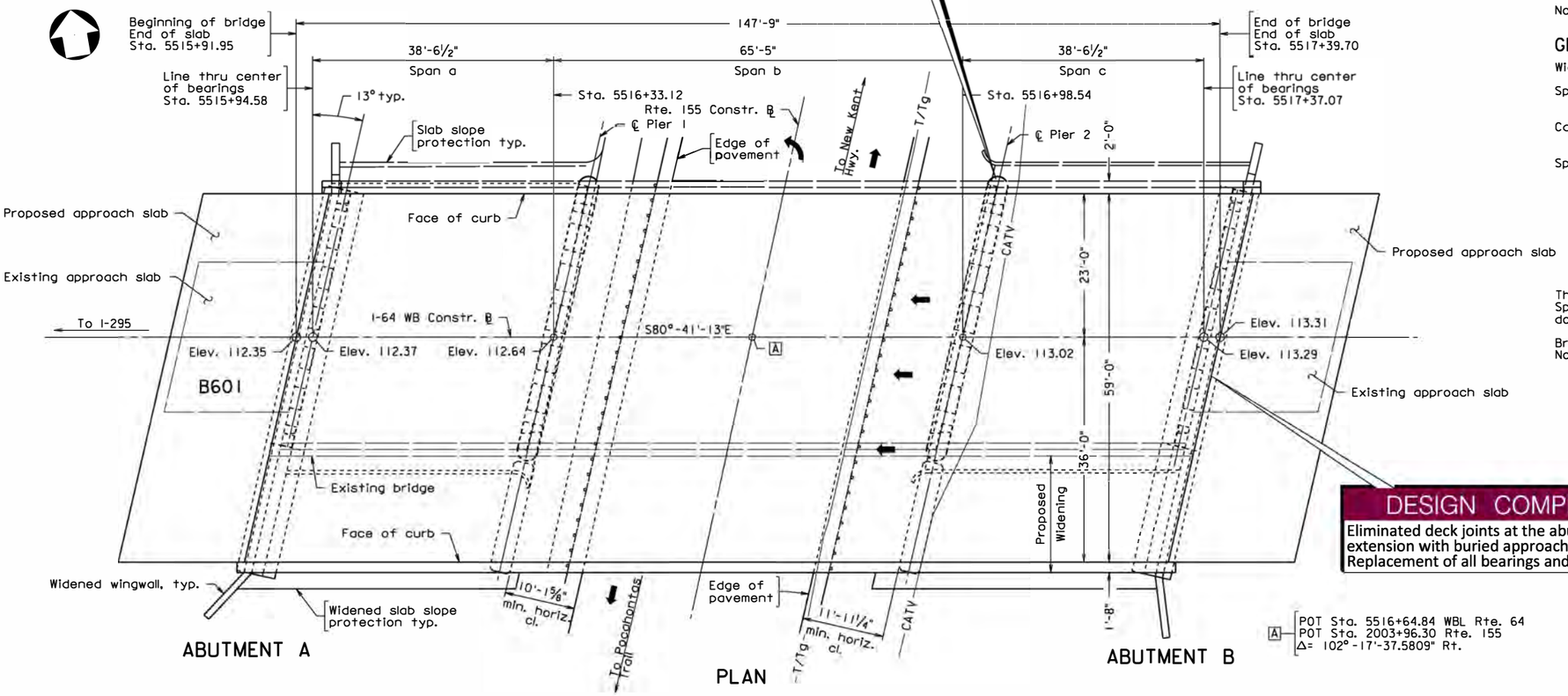
Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; and VDOT Modifications. (Widened Structure)

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 is 2008 (EB) and 2009 (WB). Existing Plan No. is 202-19.

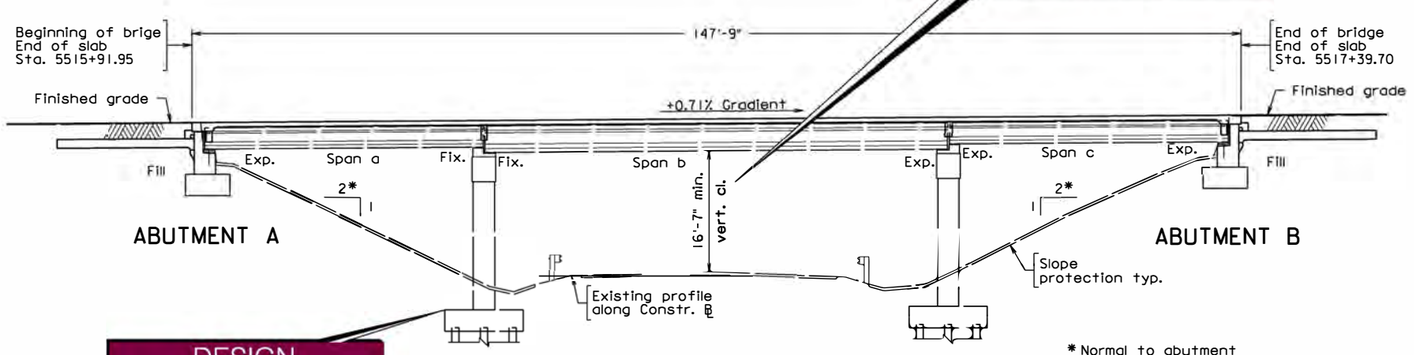
DESIGN COMPLIANCE
Eliminated deck joints at the piers.
Replacement of all bearings and components.



A — POT Sta. 5516+64.84 WBL Rte. 64
POT Sta. 2003+96.30 Rte. 155
Δ= 102°-17'-37.5809" Rt.

DESIGN COMPLIANCE
Eliminated deck joints at the abutments. Deck extension with buried approach slabs.
Replacement of all bearings and components.

DESIGN COMPLIANCE
Minimum vertical clearance has been met.



* Normal to abutment

DEVELOPED SECTION ALONG I-64 WBL CONSTR. ℄
Minimum vertical clearance from survey

DESIGN ENHANCEMENT
Analysis of fixed pier for joint elimination completed using finite element model, no strengthening required.

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

Scale: 3/32" = 1'-0"

No.	Description	Date
	REVISIONS	

For Table of Revisions, see Sheet 2.

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED BRIDGE WIDENING AND REPAIRS ON

I-64 EB/WB OVER RTE. 155
(N. COURTHOUSE RD.)
NEW KENT CO. - 3.44 MI. TO RTE. 106
PROJ. 0064-063-623, B601, B602

Recommended for Approval: _____ Shirley Contracting Company, LLC — Date

Approved: _____ Chief Engineer — Date

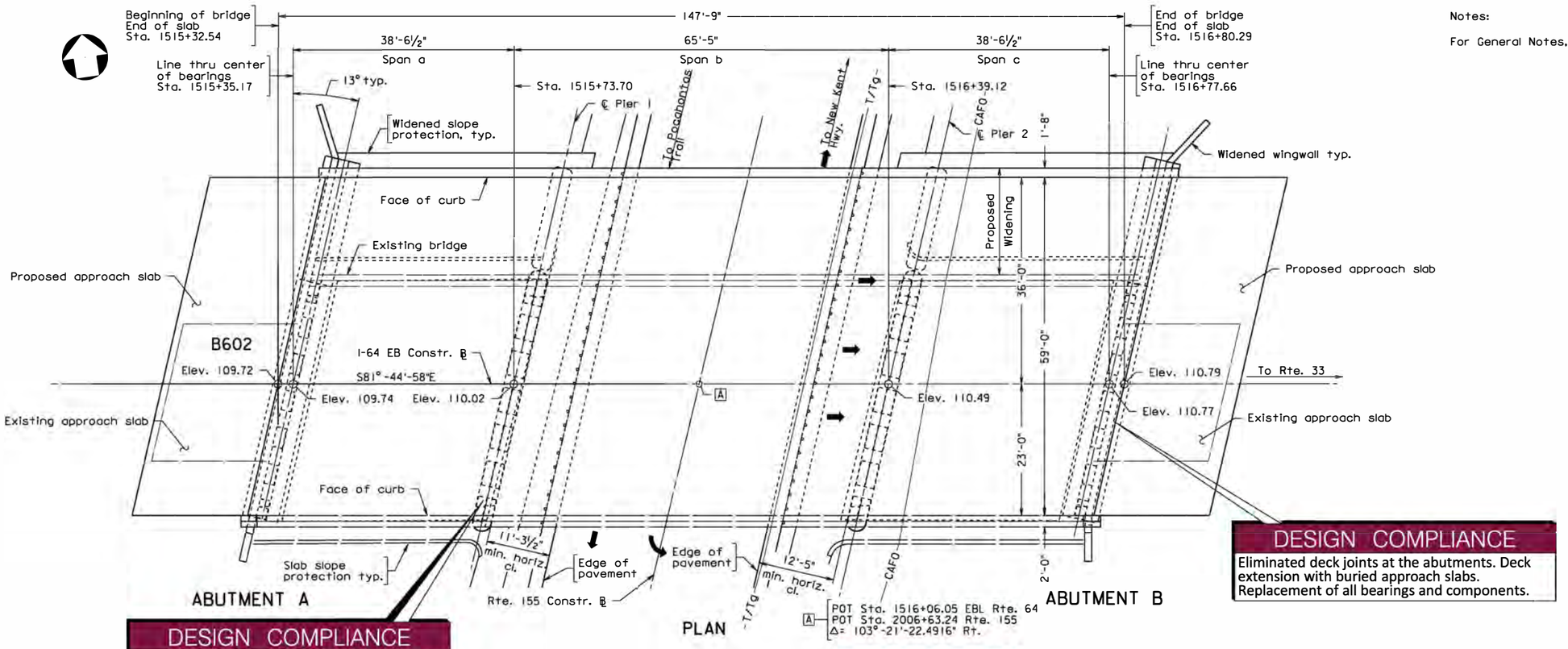
Date: June 22, 2023

202-19A
Sheet 1 of 3

202-19A_001.dgn

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
VDOT PROJECT MANAGER	
DISTRICT CONSTRUCTION ENGINEER	
DEWBERRY ENGINEERS INC. FAIRFAX, VA STRUCTURAL ENGINEER	
PLANS BY:	Dewberry Engineers Inc.
COORDINATED:	
SUPERVISED:	James D. Davidson
DESIGNED:	Luis De Leon
DRAWN:	John P. Doulis
CHECKED:	Evan J.Ashe

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		64	0064-063-623, B601, B602	2



DESIGN COMPLIANCE

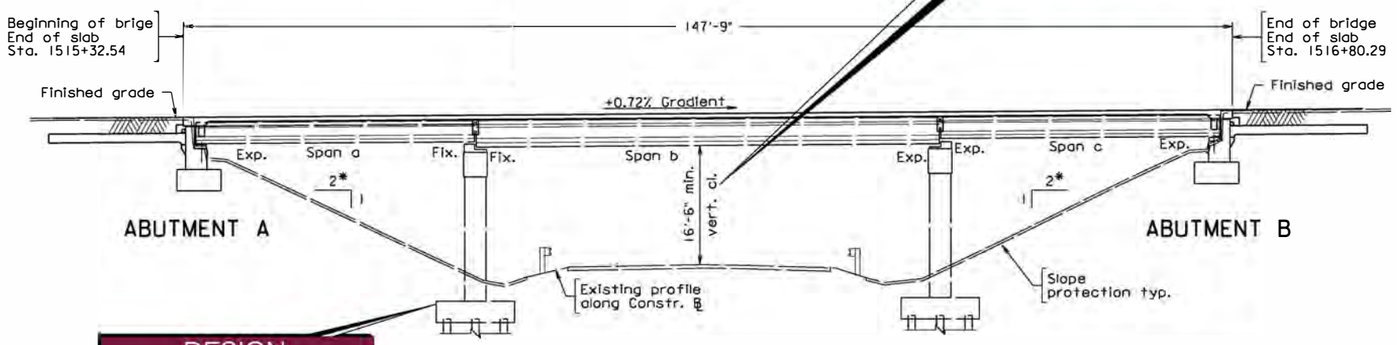
Eliminated deck joints at the piers. Replacement of all bearings and components.

DESIGN COMPLIANCE

Eliminated deck joints at the abutments. Deck extension with buried approach slabs. Replacement of all bearings and components.

DESIGN COMPLIANCE

Minimum vertical clearance has been met.



DESIGN ENHANCEMENT

Analysis of fixed pier for joint elimination completed using finite element model, no strengthening required.

DEVELOPED SECTION ALONG I-64 EB CONSTR. ℄

Minimum vertical clearance from survey

Notes:

For General Notes, see sheet 1.

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

Scale: 3/32 " = 1'-0"

DEWBERRY ENGINEERS INC.
FAIRFAX, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

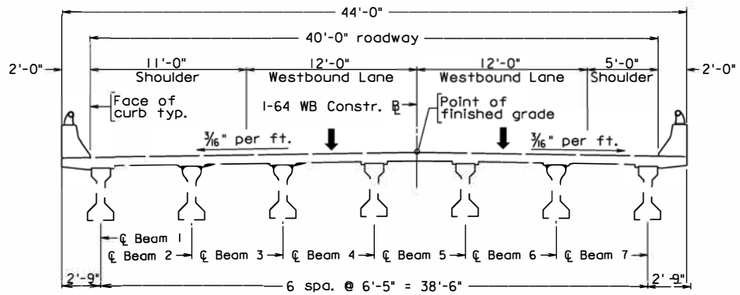
STRUCTURE AND BRIDGE DIVISION

I-64 EB OVER RTE. 155 PLAN AND DEVELOPED SECTION ALONG CONSTR. ℄

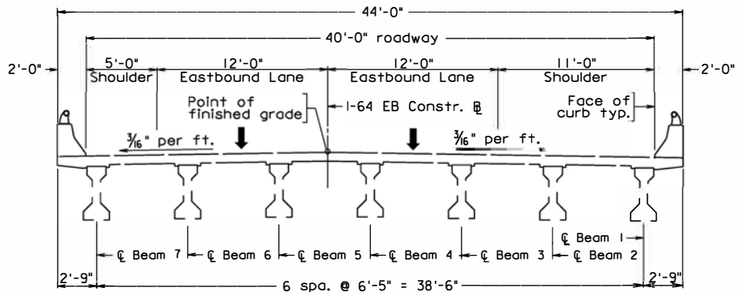
Designed: EJA	Date	Plan No.	Sheet No.
Drawn: JPD	June 2023	202-19A	2 of 3
Checked: DD			

202-19A_002.dgn

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		64	0064-063-623, B601, B602	3



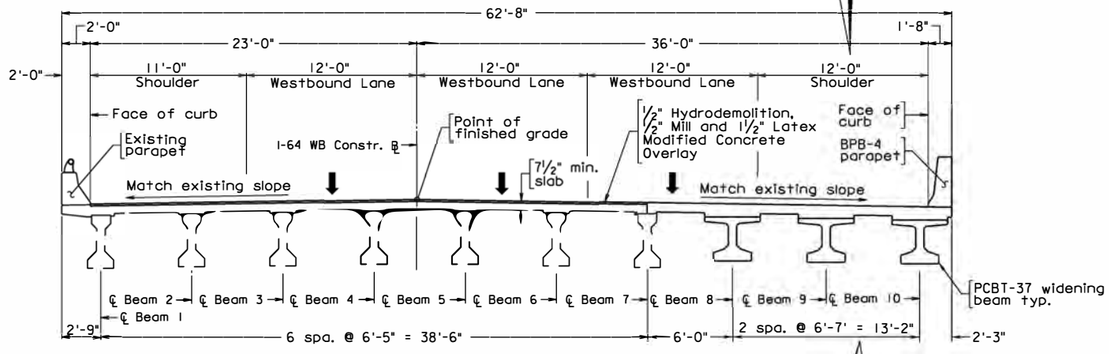
EXISTING - TRANSVERSE SECTION - B601



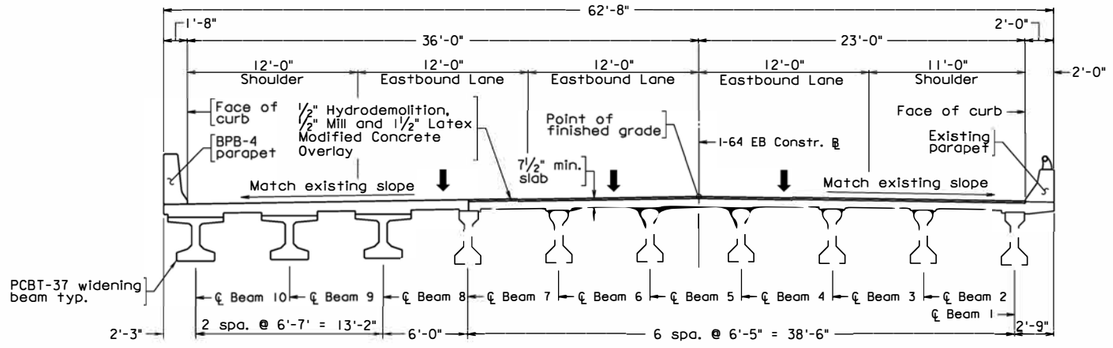
EXISTING - TRANSVERSE SECTION - B602

DESIGN COMPLIANCE

Spread meets requirements for temporary and final condition. During temporary condition shoulders will be maximized to reduce impact of spread on travel lane.



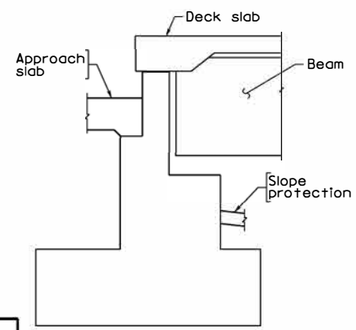
TRANSVERSE SECTION - B601



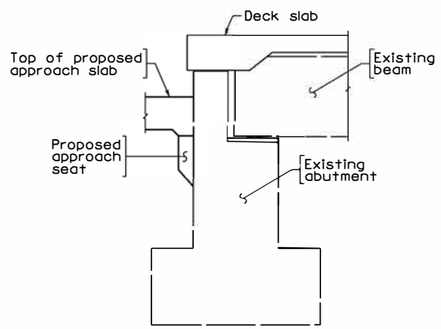
TRANSVERSE SECTION - B602

DESIGN ENHANCEMENT

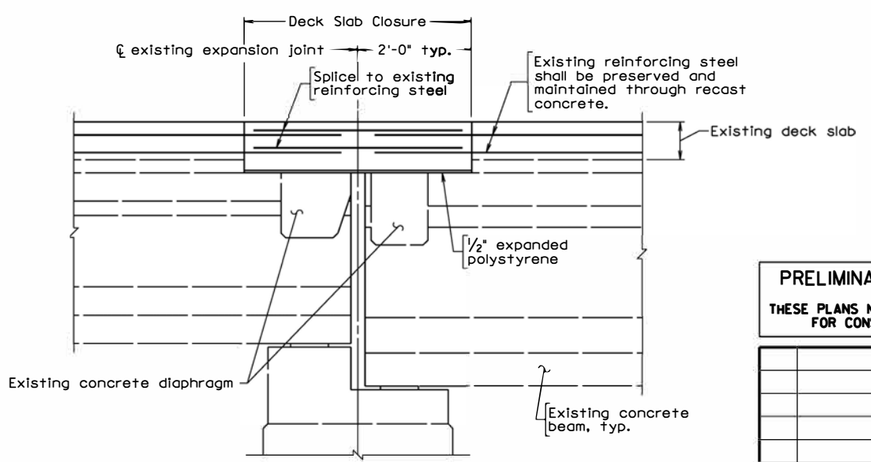
PCBT-37 beams selected for the widening to provide required vertical clearance and since the beams have a similar moment of intertia as the existing AASHTO Type III beams.



PROPOSED ABUTMENT SECTION
Not to scale



MODIFIED EXISTING ABUTMENT SECTION
Not to scale



JOINT CLOSURE DETAIL AT PIERS (FLEXIBLE LINK SLAB)
Scale: 3/4" = 1'-0"

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

DEWBERRY ENGINEERS INC.
FAIRFAX, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

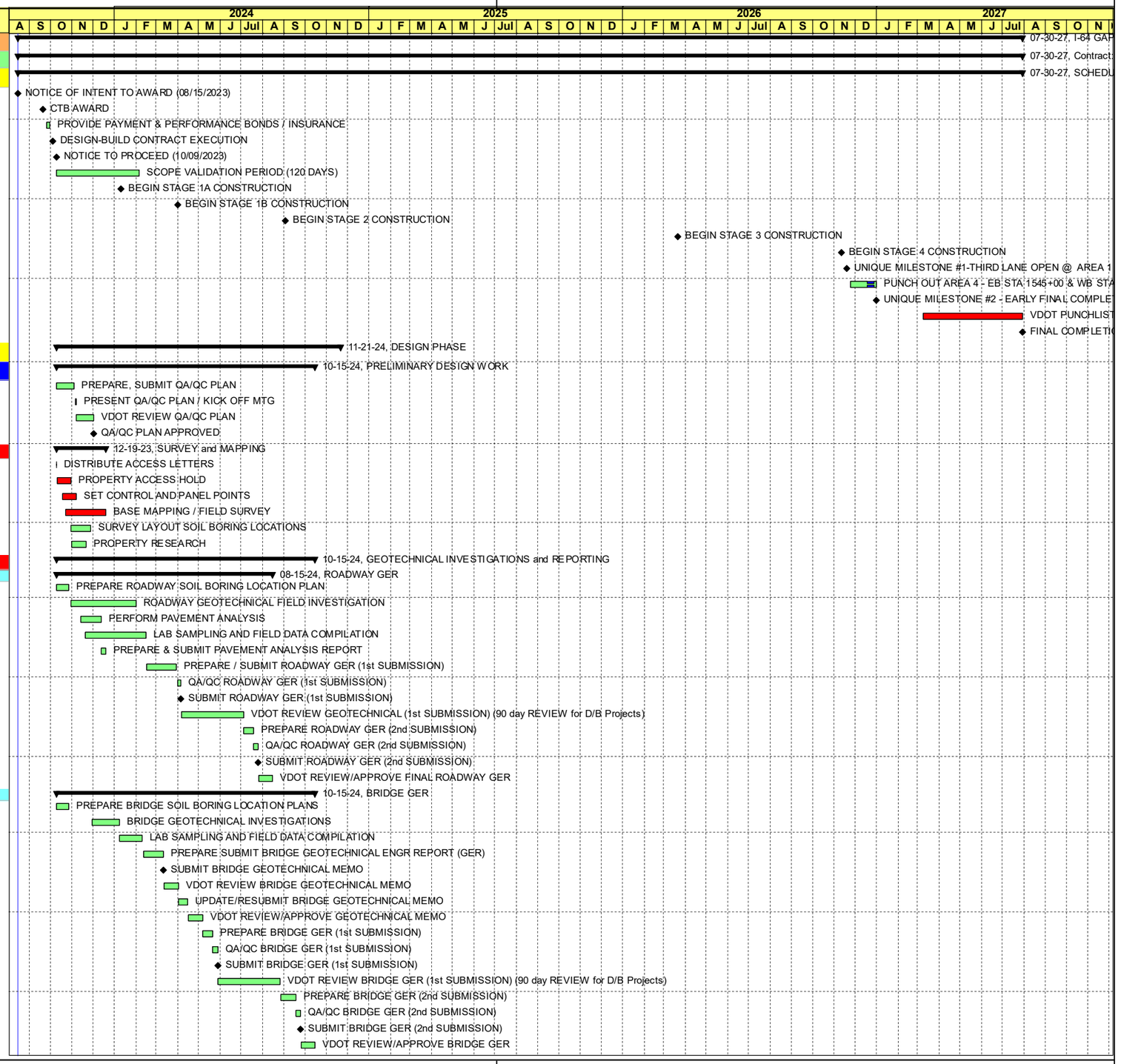
TRANSVERSE SECTIONS

Designed: EJA	Date	Plan No.	Sheet No.
Drawn: JPD	June 2023	202-19A	3 of 3
Checked: JDD			

202-19A_003.dgn

4.5.3.1 - Proposal Schedule

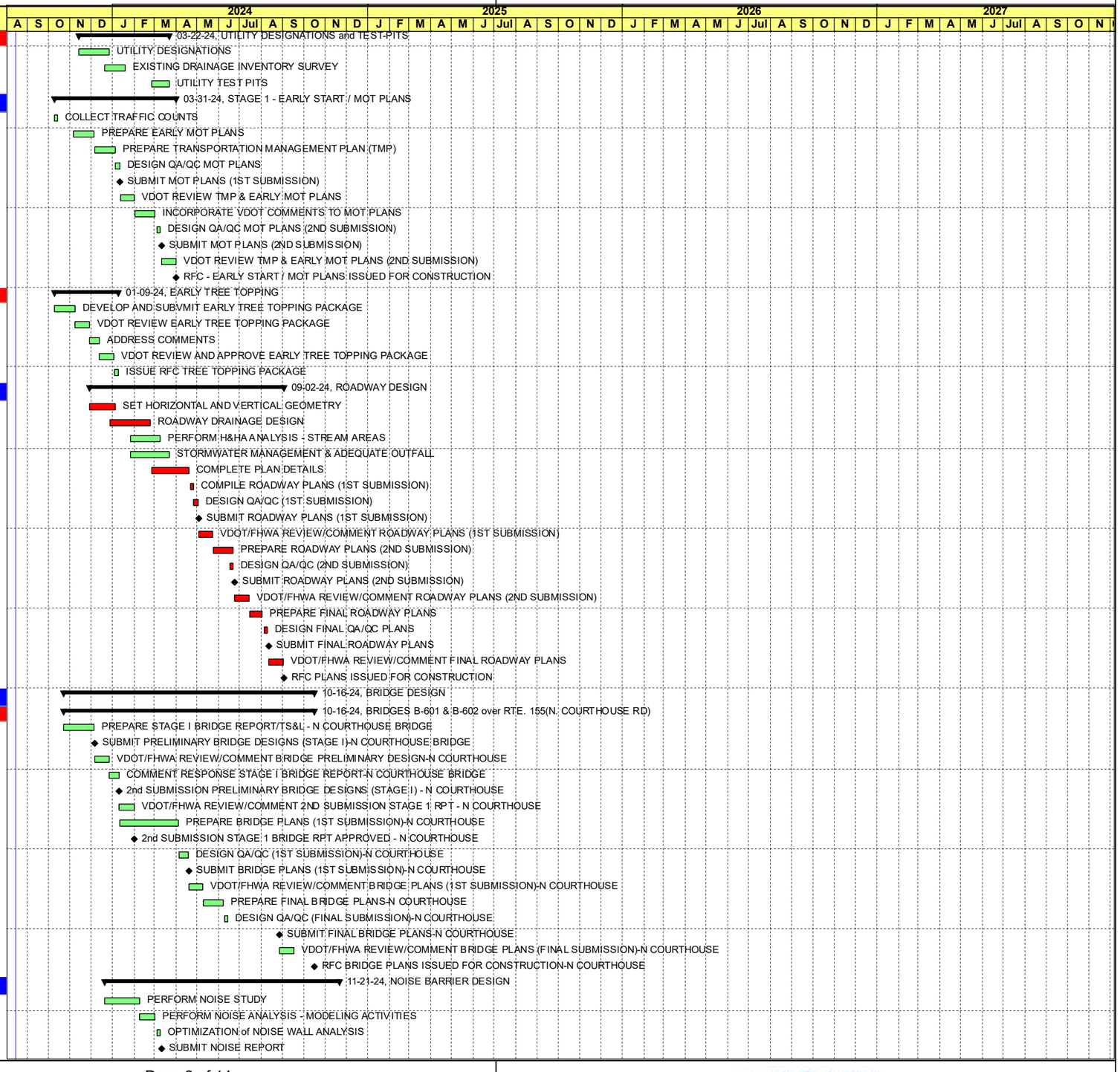
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
I-64 GAP SEGMENT A WIDENING		996	08-15-23	07-30-27	0
Contract: C00122166DB119 I-64 GAP SEGMENT A WIDENING		996	08-15-23	07-30-27	0
SCHEDULE MILESTONES		996	08-15-23	07-30-27	0
A-1000	NOTICE OF INTENT TO AWARD (08/15/2023)	0	08-15-23*		0
A-1020	CTB AWARD	0	09-20-23*		0
A-1030	PROVIDE PAYMENT & PERFORMANCE BONDS / INSUF	5	09-25-23	09-29-23	4
A-1040	DESIGN-BUILD CONTRACT EXECUTION	0	10-04-23*		0
A-1050	NOTICE TO PROCEED (10/09/2023)	0	10-09-23		2
A-1060	SCOPE VALIDATION PERIOD (120 DAYS)	120	10-09-23	02-05-24	210
A-1065	BEGIN STAGE 1A CONSTRUCTION	0	01-10-24		2
A-1070	BEGIN STAGE 1B CONSTRUCTION	0	04-01-24		46
A-1080	BEGIN STAGE 2 CONSTRUCTION	0	09-02-24		1
A-1100	BEGIN STAGE 3 CONSTRUCTION	0	03-21-26		2
A-1110	BEGIN STAGE 4 CONSTRUCTION	0	11-11-26		0
A-1120	UNIQUE MILESTONE #1-THIRD LANE OPEN @ AREA 1	0		11-19-26*	0
A-1130	PUNCH OUT AREA 4 - EB STA 1545+00 & WB STA 5545	20	11-25-26	12-31-26	0
A-1135	UNIQUE MILESTONE #2 - EARLY FINAL COMPLETION F	0		12-31-26*	0
A-1140	VDOT PUNCHLIST/POST INSTALLATION VIDEO STORM	100	03-09-27	07-30-27	0
A-1170	FINAL COMPLETION DATE	0		07-30-27*	0
DESIGN PHASE		285	10-09-23	11-21-24	416
PRELIMINARY DESIGN WORK		259	10-09-23	10-15-24	113
BA-1000	PREPARE, SUBMIT QA/QC PLAN	20	10-09-23	11-03-23	50
BA-1010	PRESENT QA/QC PLAN / KICK OFF MTG	1	11-06-23	11-06-23	50
BA-1020	VDOT REVIEW QA/QC PLAN	25	11-07-23	12-01-23	76
BA-1030	QA/QC PLAN APPROVED	0		12-01-23	52
SURVEY and MAPPING		50	10-09-23	12-19-23	96
BAA-1000	DISTRIBUTE ACCESS LETTERS	1	10-09-23	10-09-23	2
BAA-1010	PROPERTY ACCESS HOLD	15	10-10-23	10-30-23	2
BAA-1020	SET CONTROL AND PANEL POINTS	20	10-18-23	11-06-23	2
BAA-1030	BASE MAPPING / FIELD SURVEY	40	10-23-23	12-19-23	2
BAA-1040	SURVEY LAYOUT SOIL BORING LOCATIONS	19	10-30-23	11-27-23	12
BAA-1050	PROPERTY RESEARCH	15	10-31-23	11-20-23	115
GEOTECHNICAL INVESTIGATIONS and REPORTING		259	10-09-23	10-15-24	113
ROADWAY GER		217	10-09-23	08-15-24	11
BAB1-1000	PREPARE ROADWAY SOIL BORING LOCATION PLAN	15	10-09-23	10-27-23	12
BAB1-1010	ROADWAY GEOTECHNICAL FIELD INVESTIGATION	65	10-30-23	02-01-24	12
BAB1-1020	PERFORM PAVEMENT ANALYSIS	20	11-13-23	12-12-23	87
BAB1-1030	LAB SAMPLING AND FIELD DATA COMPILATION	60	11-20-23	02-15-24	12
BAB1-1040	PREPARE & SUBMIT PAVEMENT ANALYSIS REPORT	5	12-13-23	12-19-23	87
BAB1-1050	PREPARE / SUBMIT ROADWAY GER (1st SUBMISSION)	30	02-16-24	03-29-24	12
BAB1-1060	QA/QC ROADWAY GER (1st SUBMISSION)	5	04-01-24	04-05-24	12
BAB1-1070	SUBMIT ROADWAY GER (1st SUBMISSION)	0		04-05-24	12
BAB1-1080	VDOT REVIEW GEOTECHNICAL (1st SUBMISSION) (90	90	04-06-24	07-04-24	18
BAB1-1090	PREPARE ROADWAY GER (2nd SUBMISSION)	10	07-05-24	07-18-24	12
BAB1-1100	QA/QC ROADWAY GER (2nd SUBMISSION)	5	07-19-24	07-25-24	12
BAB1-1110	SUBMIT ROADWAY GER (2nd SUBMISSION)	0		07-25-24	12
BAB1-1120	VDOT REVIEW/APPROVE FINAL ROADWAY GER	21	07-26-24	08-15-24	18
BRIDGE GER		259	10-09-23	10-15-24	113
BAB2-1000	PREPARE BRIDGE SOIL BORING LOCATION PLANS	15	10-09-23	10-27-23	138
BAB2-1030	BRIDGE GEOTECHNICAL INVESTIGATIONS	25	11-30-23	01-08-24	117
BAB2-1050	LAB SAMPLING AND FIELD DATA COMPILATION	25	01-08-24	02-09-24	117
BAB2-1055	PREPARE SUBMIT BRIDGE GEOTECHNICAL ENGR REF	20	02-12-24	03-11-24	117
BAB2-1060	SUBMIT BRIDGE GEOTECHNICAL MEMO	0		03-11-24	117
BAB2-1070	VDOT REVIEW BRIDGE GEOTECHNICAL MEMO	21	03-12-24	04-01-24	167
BAB2-1080	UPDATE/RESUBMIT BRIDGE GEOTECHNICAL MEMO	10	04-02-24	04-15-24	116
BAB2-1090	VDOT REVIEW/APPROVE GEOTECHNICAL MEMO	21	04-16-24	05-06-24	167
BAB2-1100	PREPARE BRIDGE GER (1st SUBMISSION)	10	05-07-24	05-20-24	116
BAB2-1110	QA/QC BRIDGE GER (1st SUBMISSION)	5	05-21-24	05-28-24	116
BAB2-1120	SUBMIT BRIDGE GER (1st SUBMISSION)	0		05-28-24	116
BAB2-1130	VDOT REVIEW BRIDGE GER (1st SUBMISSION) (90 day	90	05-29-24	08-26-24	164
BAB2-1140	PREPARE BRIDGE GER (2nd SUBMISSION)	15	08-27-24	09-17-24	113
BAB2-1150	QA/QC BRIDGE GER (2nd SUBMISSION)	5	09-18-24	09-24-24	113
BAB2-1160	SUBMIT BRIDGE GER (2nd SUBMISSION)	0		09-24-24	113
BAB2-1170	VDOT REVIEW/APPROVE BRIDGE GER	21	09-25-24	10-15-24	164



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

SHIRLEY CONTRACTING COMPANY, LLC

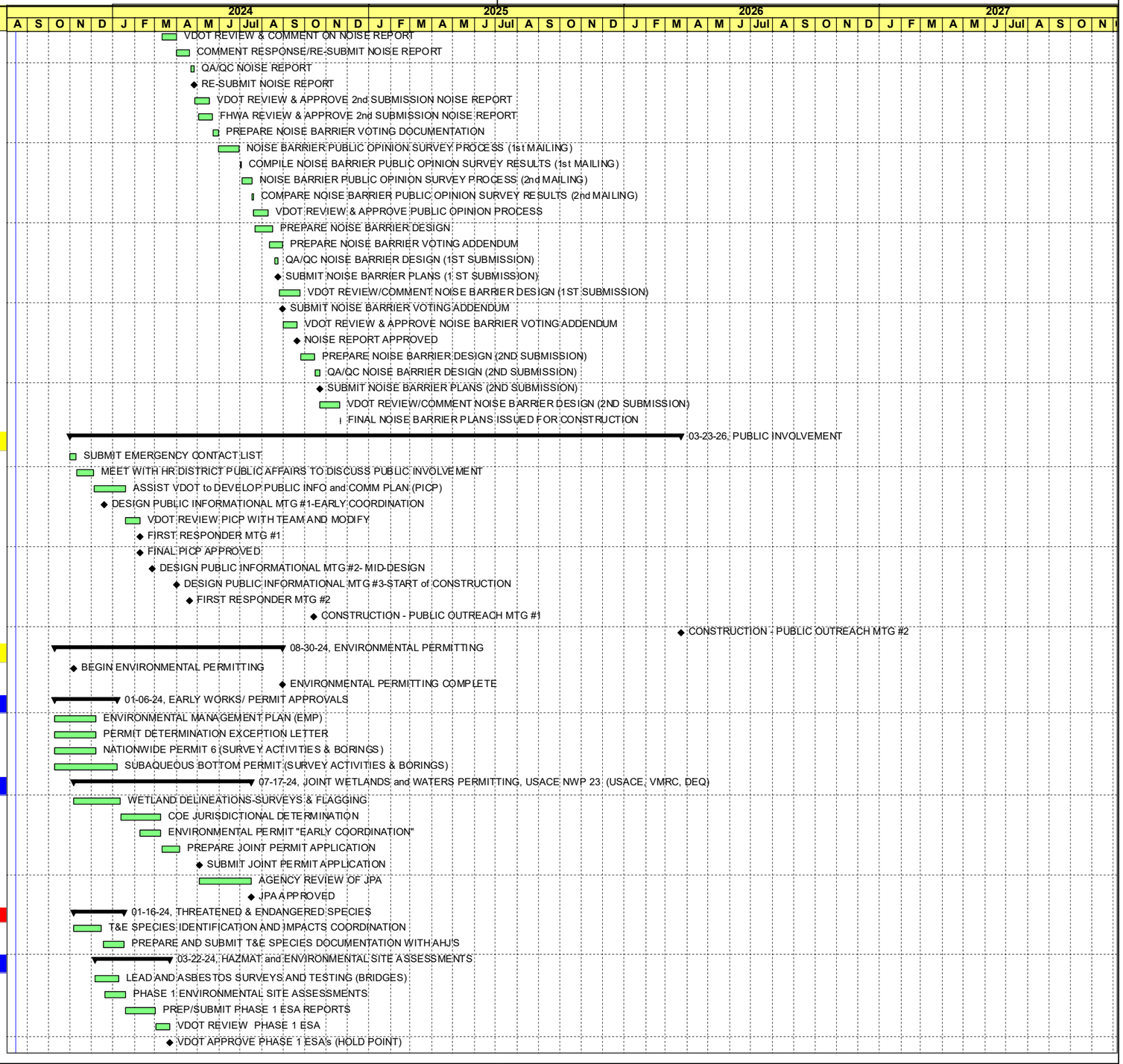
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
UTILITY DESIGNATIONS and TEST-PITS		90	11-13-23	03-22-24	117
BAC-1000	UTILITY DESIGNATIONS	30	11-13-23	12-27-23	42
BAC-1010	EXISTING DRAINAGE INVENTORY SURVEY	20	12-20-23	01-18-24	27
BAC-1020	UTILITY TEST PITS	20	02-26-24	03-22-24	117
STAGE 1 - EARLY START / MOT PLANS		120	10-09-23	03-31-24	24
BB-1000	COLLECT TRAFFIC COUNTS	5	10-09-23	10-13-23	40
BB-1010	PREPARE EARLY MOT PLANS	20	11-06-23	12-05-23	25
BB-1020	PREPARE TRANSPORTATION MANAGEMENT PLAN (TM	20	12-06-23	01-04-24	25
BB-1030	DESIGN QA/QC MOT PLANS	5	01-05-24	01-11-24	25
BB-1040	SUBMIT MOT PLANS (1ST SUBMISSION)	0		01-11-24	25
BB-1050	VDOT REVIEW TMP & EARLY MOT PLANS	21	01-12-24	02-01-24	35
BB-1060	INCORPORATE VDOT COMMENTS TO MOT PLANS	20	02-02-24	03-01-24	24
BB-1070	DESIGN QA/QC MOT PLANS (2ND SUBMISSION)	5	03-04-24	03-08-24	24
BB-1080	SUBMIT MOT PLANS (2ND SUBMISSION)	0	03-11-24		24
BB-1090	VDOT REVIEW TMP & EARLY MOT PLANS (2ND SUBMI	21	03-11-24	03-31-24	32
BB-1100	RFC - EARLY START / MOT PLANS ISSUED FOR CONS	0		03-31-24	32
EARLY TREE TOPPING		63	10-09-23	01-09-24	2
A1000	DEVELOP AND SUBVMIT EARLY TREE TOPPING PACK	30	10-09-23	11-07-23	2
A1010	VDOT REVIEW EARLY TREE TOPPING PACKAGE	21	11-08-23	11-28-23	2
A1020	ADDRESS COMMENTS	10	11-29-23	12-12-23	2
A1030	VDOT REVIEW AND APPROVE EARLY TREE TOPPING	21	12-13-23	01-02-24	2
A1040	ISSUE RFC TREE TOPPING PACKAGE	5	01-03-24	01-09-24	2
ROADWAY DESIGN		193	11-29-23	09-02-24	0
BC-1000	SET HORIZONTAL AND VERTICAL GEOMETRY	25	11-29-23	01-04-24	2
BC-1010	ROADWAY DRAINAGE DESIGN	40	12-28-23	02-23-24	2
BC-1020	PERFORM H&HA ANALYSIS - STREAM AREAS	30	01-26-24	03-08-24	75
BC-1030	STORMWATER MANAGEMENT & ADEQUATE OUTFALL	40	01-26-24	03-22-24	12
BC-1040	COMPLETE PLAN DETAILS	40	02-26-24	04-19-24	2
BC-1050	COMPILE ROADWAY PLANS (1ST SUBMISSION)	4	04-22-24	04-25-24	2
BC-1060	DESIGN QA/QC (1ST SUBMISSION)	5	04-26-24	05-02-24	2
BC-1070	SUBMIT ROADWAY PLANS (1ST SUBMISSION)	0	05-03-24		2
BC-1080	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (1S	21	05-03-24	05-23-24	4
BC-1090	PREPARE ROADWAY PLANS (2ND SUBMISSION)	20	05-24-24	06-21-24	1
BC-1100	DESIGN QA/QC (2ND SUBMISSION)	5	06-17-24	06-21-24	1
BC-1110	SUBMIT ROADWAY PLANS (2ND SUBMISSION)	0	06-24-24		1
BC-1120	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (2I	21	06-24-24	07-14-24	1
BC-1130	PREPARE FINAL ROADWAY PLANS	15	07-15-24	08-02-24	1
BC-1140	DESIGN FINAL QA/QC PLANS	5	08-05-24	08-09-24	1
BC-1150	SUBMIT FINAL ROADWAY PLANS	0	08-12-24		1
BC-1160	VDOT/FHWA REVIEW/COMMENT FINAL ROADWAY PLA	21	08-12-24	09-01-24	1
BC-1170	RFC PLANS ISSUED FOR CONSTRUCTION	0	09-02-24		1
BRIDGE DESIGN		249	10-23-23	10-16-24	113
BRIDGES B-601 & B-602 over RTE. 155(N. COURTHOUSE RD)		249	10-23-23	10-16-24	113
BDA-1000	PREPARE STAGE I BRIDGE REPORT/TS&L - N COURTH	30	10-23-23	12-05-23	164
BDA-1010	SUBMIT PRELIMINARY BRIDGE DESIGNS (STAGE I)-N	0	12-06-23		169
BDA-1020	VDOT/FHWA REVIEW/COMMENT BRIDGE PRELIMINAR	21	12-06-23	12-26-23	244
BDA-1030	COMMENT RESPONSE STAGE I BRIDGE REPORT-N CO	10	12-27-23	01-10-24	170
BDA-1040	2nd SUBMISSION PRELIMINARY BRIDGE DESIGNS (ST	0		01-10-24	170
BDA-1050	VDOT/FHWA REVIEW/COMMENT 2ND SUBMISSION ST	21	01-10-24	01-31-24	309
BDA-1060	PREPARE BRIDGE PLANS (1ST SUBMISSION)-N COUR	60	01-11-24	04-04-24	170
BDA-1070	2nd SUBMISSION STAGE 1 BRIDGE RPT APPROVED - I	0		01-31-24	309
BDA-1120	DESIGN QA/QC (1ST SUBMISSION)-N COURTHOUSE	10	04-05-24	04-18-24	170
BDA-1130	SUBMIT BRIDGE PLANS (1ST SUBMISSION)-N COURTH	0	04-19-24		170
BDA-1140	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (1ST	21	04-19-24	05-09-24	245
BDA-1150	PREPARE FINAL BRIDGE PLANS-N COURTHOUSE	20	05-10-24	06-07-24	168
BDA-1160	DESIGN QA/QC (FINAL SUBMISSION)-N COURTHOUSE	5	06-10-24	06-14-24	168
BDA-1170	SUBMIT FINAL BRIDGE PLANS-N COURTHOUSE	0	08-27-24		118
BDA-1180	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (FINA	21	08-27-24	09-16-24	193
BDA-1190	RFC BRIDGE PLANS ISSUED FOR CONSTRUCTION-N C	0	10-16-24		113
NOISE BARRIER DESIGN		235	12-20-23	11-21-24	416
BE-1500	PERFORM NOISE STUDY	35	12-20-23	02-08-24	25
BE-1510	PERFORM NOISE ANALYSIS - MODELING ACTIVITIES	15	02-09-24	03-01-24	25
BE-1520	OPTIMIZATION of NOISE WALL ANALYSIS	5	03-04-24	03-08-24	25
BE-1530	SUBMIT NOISE REPORT	0	03-11-24		25



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

SHIRLEY CONTRACTING COMPANY, LLC

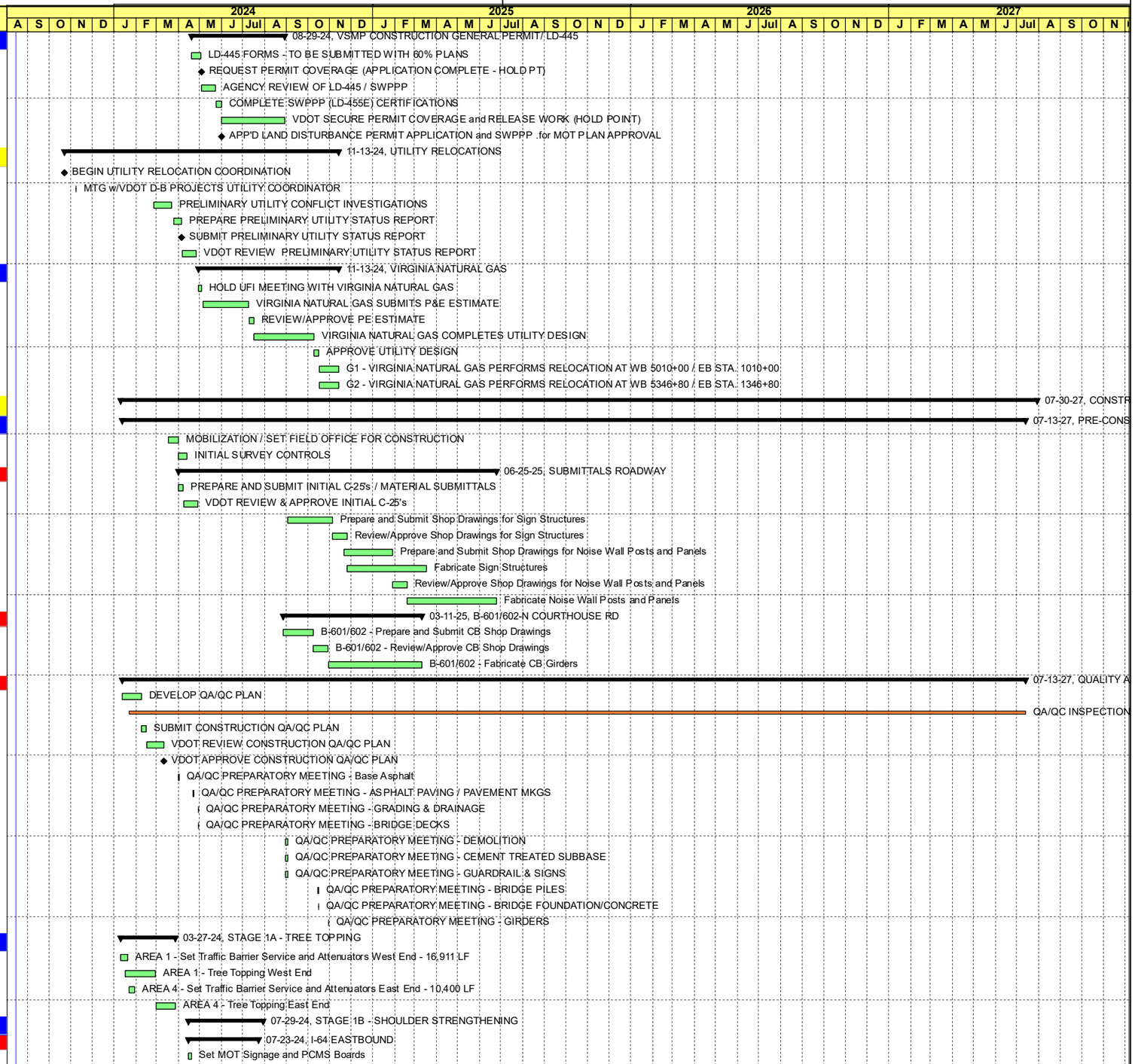
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
BE-1540	VDOT REVIEW & COMMENT ON NOISE REPORT	21	03-11-24	03-31-24	35
BE-1550	COMMENT RESPONSE/RE-SUBMIT NOISE REPORT	15	04-01-24	04-19-24	25
BE-1560	QA/QC NOISE REPORT	5	04-22-24	04-26-24	25
BE-1570	RE-SUBMIT NOISE REPORT	0		04-26-24	25
BE-1580	VDOT REVIEW & APPROVE 2nd SUBMISSION NOISE R	21	04-27-24	05-17-24	38
BE-1590	FHWA REVIEW & APPROVE 2nd SUBMISSION NOISE F	21	05-02-24	05-22-24	606
BE-1600	PREPARE NOISE BARRIER VOTING DOCUMENTATION	5	05-23-24	05-30-24	417
BE-1610	NOISE BARRIER PUBLIC OPINION SURVEY PROCESS	30	05-31-24	06-29-24	603
BE-1620	COMPILE NOISE BARRIER PUBLIC OPINION SURVEY F	2	07-01-24	07-02-24	415
BE-1630	NOISE BARRIER PUBLIC OPINION SURVEY PROCESS	15	07-03-24	07-17-24	602
BE-1640	COMPARE NOISE BARRIER PUBLIC OPINION SURVEY	2	07-18-24	07-19-24	416
BE-1650	VDOT REVIEW & APPROVE PUBLIC OPINION PROCESS	21	07-20-24	08-09-24	604
BE-2000	PREPARE NOISE BARRIER DESIGN	20	07-22-24	08-16-24	416
BE-1660	PREPARE NOISE BARRIER VOTING ADDENDUM	15	08-12-24	08-30-24	417
BE-2010	QA/QC NOISE BARRIER DESIGN (1ST SUBMISSION)	5	08-19-24	08-23-24	416
BE-2020	SUBMIT NOISE BARRIER PLANS (1 ST SUBMISSION)	0		08-23-24	416
BE-2030	VDOT REVIEW/COMMENT NOISE BARRIER DESIGN (1:	21	08-26-24	09-24-24	416
BE-1670	SUBMIT NOISE BARRIER VOTING ADDENDUM	0		08-30-24	417
BE-1680	VDOT REVIEW & APPROVE NOISE BARRIER VOTING A	21	08-31-24	09-20-24	605
BE-1690	NOISE REPORT APPROVED	0		09-20-24	605
BE-2040	PREPARE NOISE BARRIER DESIGN (2ND SUBMISSION)	15	09-25-24	10-15-24	416
BE-2050	QA/QC NOISE BARRIER DESIGN (2ND SUBMISSION)	5	10-16-24	10-22-24	416
BE-2060	SUBMIT NOISE BARRIER PLANS (2ND SUBMISSION)	0		10-22-24	416
BE-2070	VDOT REVIEW/COMMENT NOISE BARRIER DESIGN (2I	21	10-23-24	11-20-24	416
BE-2080	FINAL NOISE BARRIER PLANS ISSUED FOR CONSTRU	0	11-21-24	11-21-24	416
PUBLIC INVOLVEMENT		603	10-31-23	03-23-26	239
C-1000	SUBMIT EMERGENCY CONTACT LIST	10	10-31-23	11-09-23	1047
C-1010	MEET WITH HR DISTRICT PUBLIC AFFAIRS TO DISCUS	15	11-10-23	12-04-23	723
C-1020	ASSIST VDOT to DEVELOP PUBLIC INFO and COMM PL	45	12-05-23	01-18-24	1043
C-1030	DESIGN PUBLIC INFORMATIONAL MTG #1-EARLY COOI	0		12-19-23	748
C-1040	VDOT REVIEW PICP WITH TEAM AND MODIFY	21	01-19-24	02-08-24	1043
C-1050	FIRST RESPONDER MTG #1	0		02-09-24	723
C-1060	FINAL PICP APPROVED	0	02-09-24		723
C-1070	DESIGN PUBLIC INFORMATIONAL MTG #2- MID-DESIGN	0	02-26-24		763
C-1080	DESIGN PUBLIC INFORMATIONAL MTG #3-START of CC	0		04-01-24	738
C-1090	FIRST RESPONDER MTG #2	0		04-19-24	723
C-1110	CONSTRUCTION - PUBLIC OUTREACH MTG #1	0	10-14-24		601
C-1120	CONSTRUCTION - PUBLIC OUTREACH MTG #2	0	03-23-26		239
ENVIRONMENTAL PERMITTING		227	10-09-23	08-30-24	176
D-1000	BEGIN ENVIRONMENTAL PERMITTING	0	11-06-23		117
D-1010	ENVIRONMENTAL PERMITTING COMPLETE	0	08-30-24		1
EARLY WORKS/ PERMIT APPROVALS		90	10-09-23	01-06-24	45
D-2000	ENVIRONMENTAL MANAGEMENT PLAN (EMP)	60	10-09-23	12-07-23	75
D-2010	PERMIT DETERMINATION EXCEPTION LETTER	60	10-09-23	12-07-23	75
D-2020	NATIONWIDE PERMIT 6 (SURVEY ACTIVITIES & BORIN	60	10-09-23	12-07-23	75
D-2030	SUBAQUEOUS BOTTOM PERMIT (SURVEY ACTIVITIES	90	10-09-23	01-06-24	45
JOINT WETLANDS and WATERS PERMITTING, USACE NWP 23 (USA		175	11-06-23	07-17-24	33
DA-1000	WETLAND DELINEATIONS-SURVEYS & FLAGGING	45	11-06-23	01-11-24	72
DA-1010	COE JURISDICTIONAL DETERMINATION	40	01-12-24	03-08-24	72
DA-1020	ENVIRONMENTAL PERMIT "EARLY COORDINATION"	20	02-09-24	03-08-24	123
DA-1030	PREPARE JOINT PERMIT APPLICATION	20	03-11-24	04-05-24	72
DA-1050	SUBMIT JOINT PERMIT APPLICATION	0	05-03-24		33
DA-1055	AGENCY REVIEW OF JPA	75	05-03-24	07-16-24	48
DA-1090	JPA APPROVED	0	07-17-24		48
THREATENED & ENDANGERED SPECIES		48	11-06-23	01-16-24	109
DAA-1000	T&E SPECIES IDENTIFICATION AND IMPACTS COORDI	40	11-06-23	12-15-23	158
DAA-1010	PREPARE AND SUBMIT T&E SPECIES DOCUMENTATIC	20	12-18-23	01-16-24	109
HAZMAT and ENVIRONMENTAL SITE ASSESSMENTS		75	12-06-23	03-22-24	288
DB-1000	LEAD AND ASBESTOS SURVEYS AND TESTING (BRIDC	35	12-06-23	01-09-24	237
DB-1010	PHASE 1 ENVIRONMENTAL SITE ASSESSMENTS	20	12-20-23	01-18-24	288
DB-1020	PREP/SUBMIT PHASE 1 ESA REPORTS	30	01-19-24	03-01-24	288
DB-1030	VDOT REVIEW PHASE 1 ESA	21	03-02-24	03-22-24	416
DB-1040	VDOT APPROVE PHASE 1 ESA's (HOLD POINT)	0		03-22-24	288



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

SHIRLEY CONTRACTING COMPANY, LLC

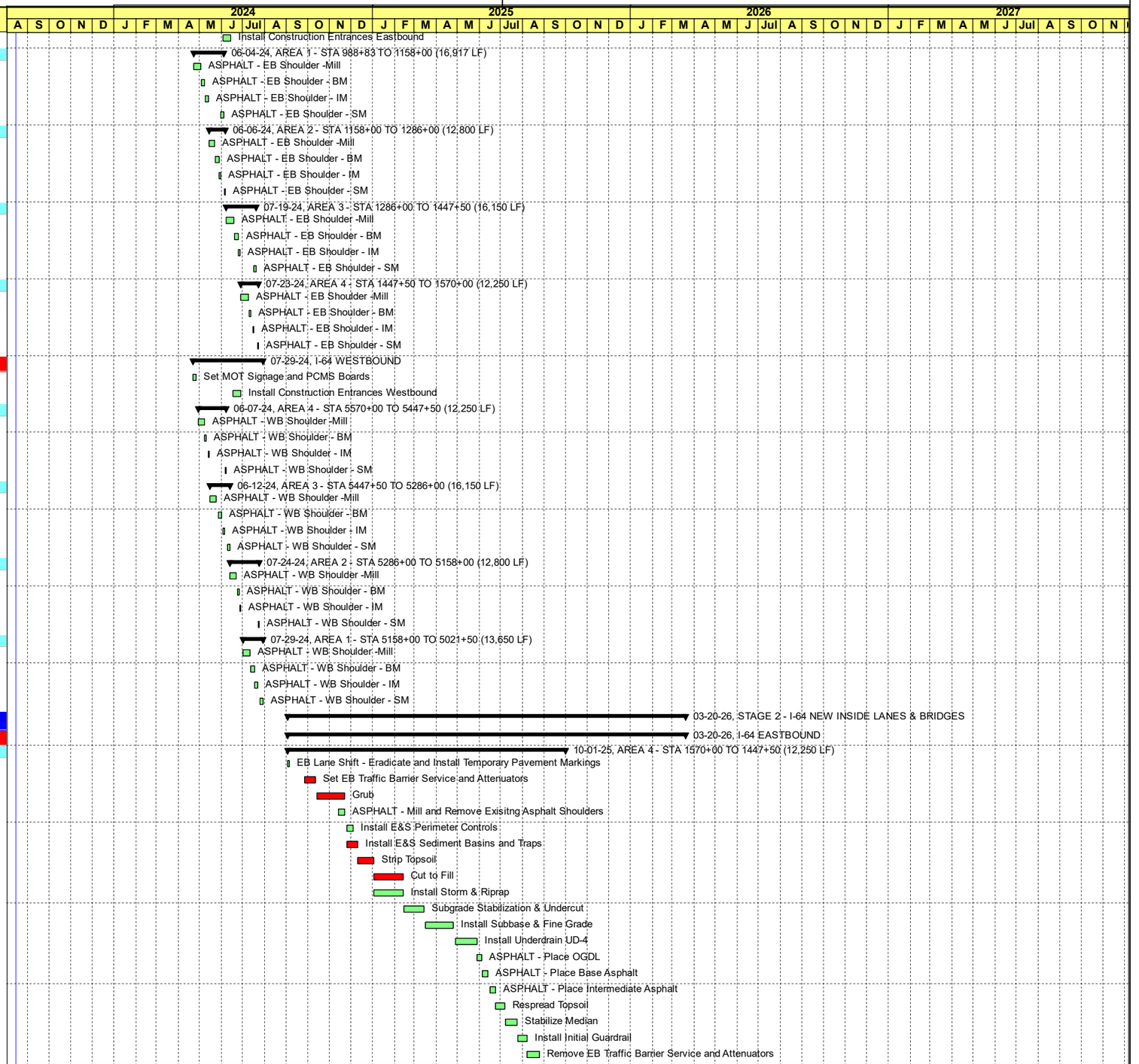
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
VSMP CONSTRUCTION GENERAL PERMIT/ LD-445		93	04-19-24	08-29-24	1
DC-1000	LD-445 FORMS - TO BE SUBMITTED WITH 60% PLANS	10	04-19-24	05-02-24	3
DC-1010	REQUEST PERMIT COVERAGE (APPLICATION COMPLI	0	05-03-24		5
DC-1020	AGENCY REVIEW OF LD-445 / SWPPP	21	05-03-24	05-23-24	5
DC-1030	COMPLETE SWPPP (LD-455E) CERTIFICATIONS	5	05-24-24	05-31-24	2
DC-1040	VDOT SECURE PERMIT COVERAGE and RELEASE WO	90	06-01-24	08-29-24	4
DC-1050	APP'D LAND DISTURBANCE PERMIT APPLICATION and	0	06-01-24		4
UTILITY RELOCATIONS		270	10-23-23	11-13-24	143
F-1000	BEGIN UTILITY RELOCATION COORDINATION	0	10-23-23		177
F-1010	MTG w/VDOT D-B PROJECTS UTILITY COORDINATOR	1	11-08-23	11-08-23	165
F-1020	PRELIMINARY UTILITY CONFLICT INVESTIGATIONS	20	02-26-24	03-22-24	93
F-1030	PREPARE PRELIMINARY UTILITY STATUS REPORT	10	03-25-24	04-05-24	93
F-1040	SUBMIT PRELIMINARY UTILITY STATUS REPORT	0		04-05-24	93
F-1050	VDOT REVIEW PRELIMINARY UTILITY STATUS REPOF	21	04-06-24	04-26-24	135
VIRGINIA NATURAL GAS		140	04-29-24	11-13-24	143
FI-1000	HOLD UFI MEETING WITH VIRGINIA NATURAL GAS	5	04-29-24	05-03-24	92
FI-1010	VIRGINIA NATURAL GAS SUBMITS P&E ESTIMATE	45	05-06-24	07-09-24	92
FI-1020	REVIEW/APPROVE PE ESTIMATE	5	07-10-24	07-16-24	92
FI-1030	VIRGINIA NATURAL GAS COMPLETES UTILITY DESIGN	60	07-17-24	10-09-24	92
FI-1040	APPROVE UTILITY DESIGN	5	10-10-24	10-16-24	92
FI-1050	G1 - VIRGINIA NATURAL GAS PERFORMS RELOCATION	20	10-17-24	11-13-24	143
FI-1060	G2 - VIRGINIA NATURAL GAS PERFORMS RELOCATION	20	10-17-24	11-13-24	92
CONSTRUCTION		895	01-10-24	07-30-27	0
PRE-CONSTRUCTION, SUBMITTALS and MATERIAL PROCUREMENT		880	01-12-24	07-13-27	7
GA-1000	MOBILIZATION / SET FIELD OFFICE FOR CONSTRUCTI	10	03-18-24	04-01-24	24
GA-1010	INITIAL SURVEY CONTROLS	10	04-01-24	04-12-24	24
SUBMITTALS ROADWAY		314	04-01-24	06-25-25	417
GAA-1000	PREPARE AND SUBMIT INITIAL C-25's / MATERIAL SUB	7	04-01-24	04-07-24	225
GAA-1010	VDOT REVIEW & APPROVE INITIAL C-25's	21	04-08-24	04-28-24	225
GAA-1030	Prepare and Submit Shop Drawings for Sign Structures	45	09-03-24	11-04-24	335
GAA-1050	Review/Approve Shop Drawings for Sign Structures	21	11-05-24	11-25-24	486
GAA-1020	Prepare and Submit Shop Drawings for Noise Wall Posts a	45	11-21-24	01-28-25	416
GAA-1070	Fabricate Sign Structures	75	11-26-24	03-17-25	335
GAA-1040	Review/Approve Shop Drawings for Noise Wall Posts and F	21	01-29-25	02-18-25	600
GAA-1060	Fabricate Noise Wall Posts and Panels	90	02-19-25	06-25-25	417
B-601/602-N COURTHOUSE RD		135	08-27-24	03-11-25	118
GAB-1000	B-601/602 - Prepare and Submit CB Shop Drawings	30	08-27-24	10-08-24	118
GAB-1010	B-601/602 - Review/Approve CB Shop Drawings	21	10-09-24	10-29-24	173
GAB-1020	B-601/602 - Fabricate CB Girders	90	10-30-24	03-11-25	118
QUALITY ASSURANCE / QUALITY CONTROL PROCESS		880	01-12-24	07-13-27	7
GAEE-1000	DEVELOP QA/QC PLAN	20	01-12-24	02-08-24	64
GAEE-1140	QA/QC INSPECTIONS / REPORTING / AS-BUILTS	874	01-22-24	07-13-27	7
GAEE-1010	SUBMIT CONSTRUCTION QA/QC PLAN	5	02-09-24	02-15-24	64
GAEE-1020	VDOT REVIEW CONSTRUCTION QA/QC PLAN	25	02-16-24	03-11-24	91
GAEE-1030	VDOT APPROVE CONSTRUCTION QA/QC PLAN	0		03-11-24	64
GAEE-1130	QA/QC PREPARATORY MEETING - Base Asphalt	1	04-01-24	04-01-24	50
GAEE-1040	QA/QC PREPARATORY MEETING - ASPHALT PAVING / I	1	04-22-24	04-22-24	28
GAEE-1070	QA/QC PREPARATORY MEETING - GRADING & DRAINA	1	04-29-24	04-29-24	156
GAEE-1100	QA/QC PREPARATORY MEETING - BRIDGE DECKS	1	04-29-24	04-29-24	360
GAEE-1050	QA/QC PREPARATORY MEETING - DEMOLITION	1	08-30-24	09-03-24	258
GAEE-1110	QA/QC PREPARATORY MEETING - CEMENT TREATED	1	08-30-24	09-03-24	182
GAEE-1120	QA/QC PREPARATORY MEETING - GUARDRAIL & SIGNS	1	08-30-24	09-03-24	274
GAEE-1060	QA/QC PREPARATORY MEETING - BRIDGE PILES	1	10-15-24	10-16-24	113
GAEE-1080	QA/QC PREPARATORY MEETING - BRIDGE FOUNDATIC	1	10-16-24	10-16-24	140
GAEE-1090	QA/QC PREPARATORY MEETING - GIRDERS	1	10-30-24	10-30-24	207
STAGE 1A - TREE TOPPING		55	01-10-24	03-27-24	2
GB-1000	AREA 1 - Set Traffic Barrier Service and Attenuators West	8	01-10-24	01-19-24	2
GB-1020	AREA 1 - Tree Topping West End	30	01-17-24	02-28-24	2
GB-1010	AREA 4 - Set Traffic Barrier Service and Attenuators East I	6	01-22-24	01-29-24	24
GB-1030	AREA 4 - Tree Topping East End	20	02-29-24	03-27-24	2
STAGE 1B - SHOULDER STRENGTHENING		74	04-15-24	07-29-24	83
I-64 EASTBOUND		70	04-15-24	07-23-24	77
GBA-1000	Set MOT Signage and PCMS Boards	5	04-15-24	04-19-24	24



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

SHIRLEY CONTRACTING COMPANY, LLC

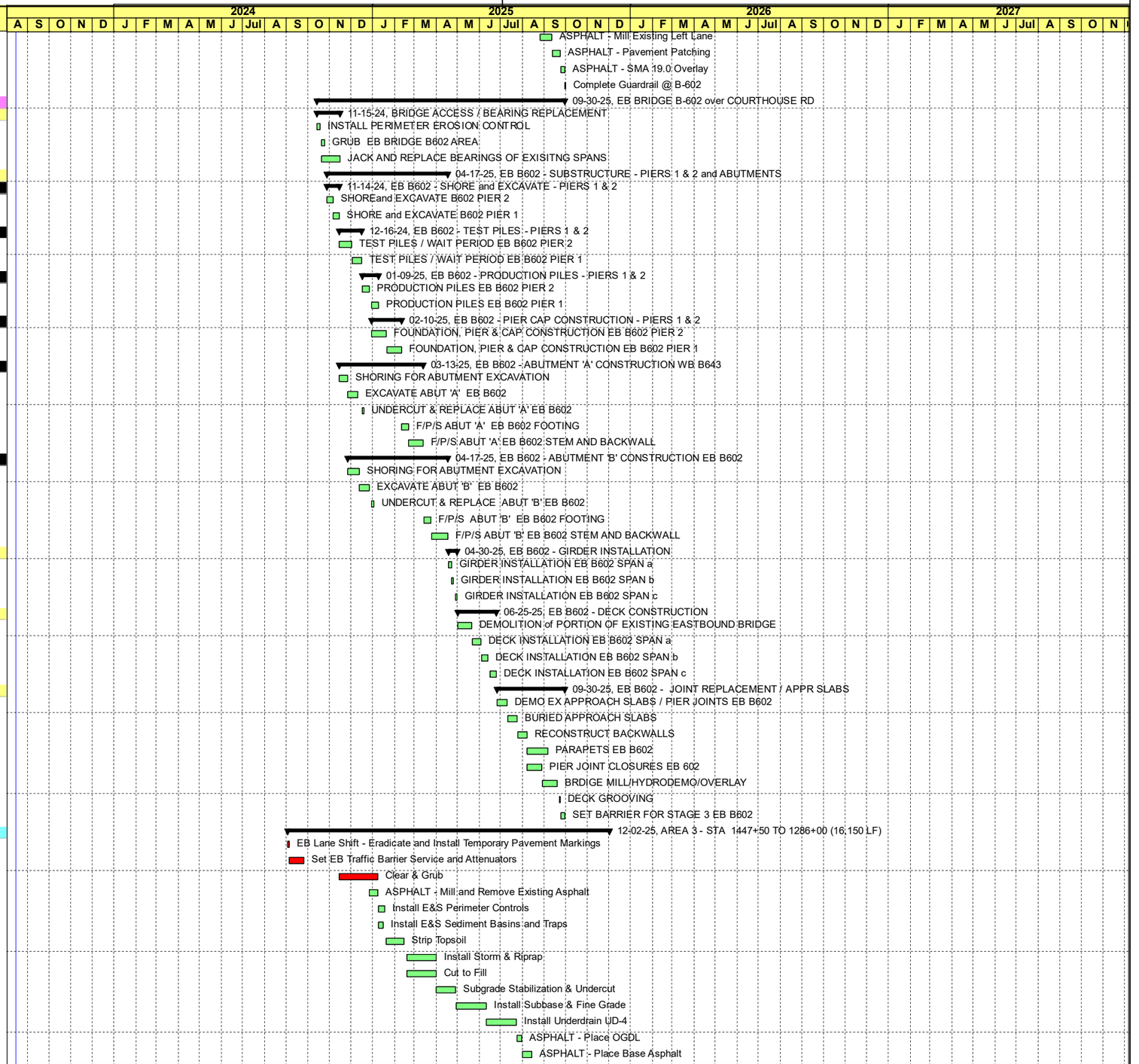
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GBA-1010	Install Construction Entrances Eastbound	10	06-03-24	06-14-24	103
AREA 1 - STA 988+83 TO 1158+00 (16,917 LF)		30	04-23-24	06-04-24	28
GBE1-1000	ASPHALT - EB Shoulder -Mill	8	04-23-24	05-02-24	28
GBE1-1010	ASPHALT - EB Shoulder - BM	4	05-03-24	05-08-24	28
GBE1-1020	ASPHALT - EB Shoulder - IM	3	05-09-24	05-13-24	28
GBE1-1030	ASPHALT - EB Shoulder - SM	3	05-31-24	06-04-24	28
AREA 2 - STA 1158+00 TO 1286+00 (12,800 LF)		17	05-14-24	06-06-24	28
GBA2-1000	ASPHALT - EB Shoulder -Mill	7	05-14-24	05-22-24	28
GBA2-1010	ASPHALT - EB Shoulder - BM	3	05-23-24	05-28-24	28
GBA2-1020	ASPHALT - EB Shoulder - IM	2	05-29-24	05-30-24	28
GBA2-1030	ASPHALT - EB Shoulder - SM	2	06-05-24	06-06-24	28
AREA 3 - STA 1286+00 TO 1447+50 (16,150 LF)		30	06-07-24	07-19-24	28
GBE3-1000	ASPHALT - EB Shoulder -Mill	8	06-07-24	06-18-24	28
GBE3-1010	ASPHALT - EB Shoulder - BM	4	06-19-24	06-24-24	28
GBE3-1020	ASPHALT - EB Shoulder - IM	3	06-25-24	06-27-24	28
GBE3-1030	ASPHALT - EB Shoulder - SM	3	07-17-24	07-19-24	28
AREA 4 - STA 1447+50 TO 1570+00 (12,250 LF)		17	06-28-24	07-23-24	28
GBE4-1000	ASPHALT - EB Shoulder -Mill	7	06-28-24	07-09-24	28
GBE4-1010	ASPHALT - EB Shoulder - BM	3	07-10-24	07-12-24	28
GBE4-1020	ASPHALT - EB Shoulder - IM	2	07-15-24	07-16-24	28
GBE4-1030	ASPHALT - EB Shoulder - SM	2	07-22-24	07-23-24	28
I-64 WESTBOUND		69	04-22-24	07-29-24	83
GBB-1000	Set MOT Signage and PCMS Boards	5	04-22-24	04-26-24	24
GBB-1010	Install Construction Entrances Westbound	10	06-17-24	06-28-24	103
AREA 4 - STA 5570+00 TO 5447+50 (12,250 LF)		29	04-29-24	06-07-24	24
GBW4-1000	ASPHALT - WB Shoulder -Mill	7	04-29-24	05-07-24	24
GBW4-1010	ASPHALT - WB Shoulder - BM	3	05-08-24	05-10-24	24
GBW4-1020	ASPHALT - WB Shoulder - IM	2	05-13-24	05-14-24	24
GBW4-1030	ASPHALT - WB Shoulder - SM	2	06-06-24	06-07-24	24
AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)		20	05-15-24	06-12-24	24
GBW3-1000	ASPHALT - WB Shoulder -Mill	8	05-15-24	05-24-24	24
GBW3-1010	ASPHALT - WB Shoulder - BM	4	05-28-24	05-31-24	24
GBW3-1020	ASPHALT - WB Shoulder - IM	3	06-03-24	06-05-24	24
GBW3-1030	ASPHALT - WB Shoulder - SM	3	06-10-24	06-12-24	24
AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)		29	06-13-24	07-24-24	24
GBW2-1000	ASPHALT - WB Shoulder -Mill	7	06-13-24	06-21-24	24
GBW2-1010	ASPHALT - WB Shoulder - BM	3	06-24-24	06-26-24	24
GBW2-1020	ASPHALT - WB Shoulder - IM	2	06-27-24	06-28-24	24
GBW2-1030	ASPHALT - WB Shoulder - SM	2	07-23-24	07-24-24	24
AREA 1 - STA 5158+00 TO 5021+50 (13,650 LF)		20	07-01-24	07-29-24	24
GBW1-1000	ASPHALT - WB Shoulder -Mill	8	07-01-24	07-11-24	24
GBW1-1010	ASPHALT - WB Shoulder - BM	4	07-12-24	07-17-24	24
GBW1-1020	ASPHALT - WB Shoulder - IM	3	07-18-24	07-22-24	24
GBW1-1030	ASPHALT - WB Shoulder - SM	3	07-25-24	07-29-24	24
STAGE 2 - I-64 NEW INSIDE LANES & BRIDGES		391	09-03-24	03-20-26	239
I-64 EASTBOUND		391	09-03-24	03-20-26	239
AREA 4 - STA 1570+00 TO 1447+50 (12,250 LF)		274	09-03-24	10-01-25	117
GBE4-1040	EB Lane Shift - Eradicate and Install Temporary Pavement	2	09-03-24	09-04-24	15
GBE4-1050	Set EB Traffic Barrier Service and Attenuators	12	09-26-24	10-11-24	0
GCE4-1000	Grub	30	10-14-24	11-22-24	0
GCE4-1040	ASPHALT - Mill and Remove Exisitng Asphalt Shoulders	7	11-14-24	11-22-24	123
GCE4-1010	Install E&S Perimeter Controls	6	11-25-24	12-04-24	4
GCE4-1020	Install E&S Sediment Basins and Traps	10	11-25-24	12-10-24	0
GCE4-1030	Strip Topsoil	15	12-11-24	01-02-25	0
GCE4-1050	Cut to Fill	30	01-03-25	02-13-25	0
GCE4-1060	Install Storm & Riprap	30	01-03-25	02-13-25	68
GCE4-1055	Subgrade Stabilization & Undercut	20	02-14-25	03-14-25	48
GCE4-1070	Install Subbase & Fine Grade	30	03-17-25	04-25-25	48
GCE4-1080	Install Underdrain UD-4	22	04-28-25	05-28-25	48
GCE4-1090	ASPHALT - Place OGDL	5	05-29-25	06-04-25	48
GCE4-1100	ASPHALT - Place Base Asphalt	7	06-05-25	06-13-25	48
GCE4-1110	ASPHALT - Place Intermediate Asphalt	6	06-16-25	06-23-25	48
GCE4-1120	Respread Topsoil	9	06-24-25	07-07-25	48
GCE4-1130	Stabilize Median	13	07-08-25	07-24-25	48
GCE4-1132	Install Initial Guardrail	10	07-25-25	08-07-25	55
GCE4-1135	Remove EB Traffic Barrier Service and Attenuators	12	08-08-25	08-25-25	55



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

SHIRLEY CONTRACTING COMPANY, LLC

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GCE4-1140	ASPHALT - Mill Existing Left Lane	12	08-26-25	09-11-25	55
GCE4-1170	ASPHALT - Pavement Patching	8	09-12-25	09-23-25	55
GCE4-1180	ASPHALT - SMA 19.0 Overlay	4	09-24-25	09-29-25	55
GCE4-1410	Complete Guardrail @ B-602	2	09-30-25	10-01-25	117
EB BRIDGE B-602 over COURTHOUSE RD		244	10-14-24	09-30-25	118
BRIDGE ACCESS / BEARING REPLACEMENT		25	10-14-24	11-15-24	195
GDC2a-1000	INSTALL PERIMETER EROSION CONTROL	5	10-14-24	10-18-24	91
GDC2a-1020	GRUB EB BRIDGE B602 AREA	5	10-21-24	10-25-24	91
GDC2a-1030	JACK AND REPLACE BEARINGS OF EXISITNG SPANS	20	10-21-24	11-15-24	195
EB B602 - SUBSTRUCTURE - PIERS 1 & 2 and ABUTMENTS		119	10-28-24	04-17-25	91
EB B602 - SHORE and EXCAVATE - PIERS 1 & 2		14	10-28-24	11-14-24	91
GDC2b0-1060	SHOREand EXCAVATE B602 PIER 2	7	10-28-24	11-05-24	91
GDC2b0-1070	SHORE and EXCAVATE B602 PIER 1	7	11-06-24	11-14-24	91
EB B602 - TEST PILES - PIERS 1 & 2		20	11-15-24	12-16-24	91
GDC2b1-1060	TEST PILES / WAIT PERIOD EB B602 PIER 2	10	11-15-24	12-02-24	91
GDC2b1-1070	TEST PILES / WAIT PERIOD EB B602 PIER 1	10	12-03-24	12-16-24	91
EB B602 - PRODUCTION PILES - PIERS 1 & 2		16	12-17-24	01-09-25	98
GDC2b2-1060	PRODUCTION PILES EB B602 PIER 2	8	12-17-24	12-27-24	91
GDC2b2-1070	PRODUCTION PILES EB B602 PIER 1	8	12-30-24	01-09-25	98
EB B602 - PIER CAP CONSTRUCTION - PIERS 1 & 2		30	12-30-24	02-10-25	91
GDC2b3-1060	FOUNDATION, PIER & CAP CONSTRUCTION EB B602 P	15	12-30-24	01-20-25	91
GDC2b3-1070	FOUNDATION, PIER & CAP CONSTRUCTION EB B602 P	15	01-21-25	02-10-25	91
EB B602 - ABUTMENT 'A' CONSTRUCTION WB B643		80	11-15-24	03-13-25	91
GDC2b4-1000	SHORING FOR ABUTMENT EXCAVATION	8	11-15-24	11-26-24	130
GDC2b4-1010	EXCAVATE ABUT 'A' EB B602	8	11-27-24	12-10-24	130
GDC2b4-1020	UNDERCUT & REPLACE ABUT 'A' EB B602	3	12-17-24	12-19-24	126
GDC2b4-1030	F/P/S ABUT 'A' EB B602 FOOTING	7	02-11-25	02-20-25	91
GDC2b4-1040	F/P/S ABUT 'A' EB B602 STEM AND BACKWALL	15	02-21-25	03-13-25	91
EB B602 - ABUTMENT 'B' CONSTRUCTION EB B602		97	11-27-24	04-17-25	91
GDC2c4-1000	SHORING FOR ABUTMENT EXCAVATION	10	11-27-24	12-12-24	134
GDC2c4-1010	EXCAVATE ABUT 'B' EB B602	10	12-13-24	12-27-24	134
GDC2c4-1020	UNDERCUT & REPLACE ABUT 'B' EB B602	3	12-30-24	01-02-25	140
GDC2c4-1030	F/P/S ABUT 'B' EB B602 FOOTING	7	03-14-25	03-24-25	91
GDC2c4-1040	F/P/S ABUT 'B' EB B602 STEM AND BACKWALL	18	03-25-25	04-17-25	91
EB B602 - GIRDER INSTALLATION		9	04-18-25	04-30-25	91
GDC2d-1000	GIRDER INSTALLATION EB B602 SPAN a	3	04-18-25	04-22-25	91
GDC2d-1050	GIRDER INSTALLATION EB B602 SPAN b	3	04-23-25	04-25-25	91
GDC2d-1070	GIRDER INSTALLATION EB B602 SPAN c	3	04-28-25	04-30-25	91
EB B602 - DECK CONSTRUCTION		39	05-01-25	06-25-25	91
GDC2a-1010	DEMOLITION of PORTION OF EXISTING EASTBOUND E	15	05-01-25	05-21-25	91
GDC2e-1000	DECK INSTALLATION EB B602 SPAN a	8	05-22-25	06-03-25	91
GDC2e-1030	DECK INSTALLATION EB B602 SPAN b	8	06-04-25	06-13-25	91
GDC2e-1050	DECK INSTALLATION EB B602 SPAN c	8	06-16-25	06-25-25	91
EB B602 - JOINT REPLACEMENT / APPR SLABS		67	06-26-25	09-30-25	118
GDC2g-1000	DEMO EX APPROACH SLABS / PIER JOINTS EB B602	10	06-26-25	07-10-25	118
GDC2g-1045	BURIED APPROACH SLABS	10	07-11-25	07-24-25	118
GDC2g-1035	RECONSTRUCT BACKWALLS	10	07-25-25	08-07-25	118
GDC2g-1010	PARAPETS EB B602	20	08-08-25	09-05-25	128
GDC2g-1020	PIER JOINT CLOSURES EB 602	15	08-08-25	08-28-25	118
GDC2g-1025	BRDIGE MILL/HYDRODEMO/OVERLAY	15	08-29-25	09-19-25	118
GDC2g-1027	DECK GROOVING	2	09-22-25	09-23-25	118
GDC2g-1030	SET BARRIER FOR STAGE 3 EB B602	5	09-24-25	09-30-25	118
AREA 3 - STA 1447+50 TO 1286+00 (16,150 LF)		316	09-03-24	12-02-25	105
GBE3-1040	EB Lane Shift - Eradicate and Install Temporary Pavement	2	09-03-24	09-04-24	0
GBE3-1050	Set EB Traffic Barrier Service and Attenuators	15	09-05-24	09-25-24	0
GCE3-1000	Clear & Grub	35	11-15-24	01-08-25	21
GCE3-1040	ASPHALT - Mill and Remove Existing Asphalt	8	12-27-24	01-08-25	145
GCE3-1010	Install E&S Perimeter Controls	7	01-09-25	01-17-25	29
GCE3-1020	Install E&S Sediment Basins and Traps	5	01-09-25	01-15-25	31
GCE3-1030	Strip Topsoil	20	01-20-25	02-14-25	29
GCE3-1050	Install Storm & Riprap	30	02-18-25	03-31-25	101
GCE3-1060	Cut to Fill	30	02-18-25	03-31-25	29
GCE3-1065	Subgrade Stabilization & Undercut	20	04-01-25	04-28-25	68
GCE3-1070	Install Subbase & Fine Grade	30	04-29-25	06-10-25	68
GCE3-1080	Install Underdrain UD-4	30	06-11-25	07-23-25	68
GCE3-1090	ASPHALT - Place OGDL	6	07-24-25	07-31-25	68
GCE3-1100	ASPHALT - Place Base Asphalt	10	08-01-25	08-14-25	68



Remaining Level of Effort | Remaining Work | Milestone
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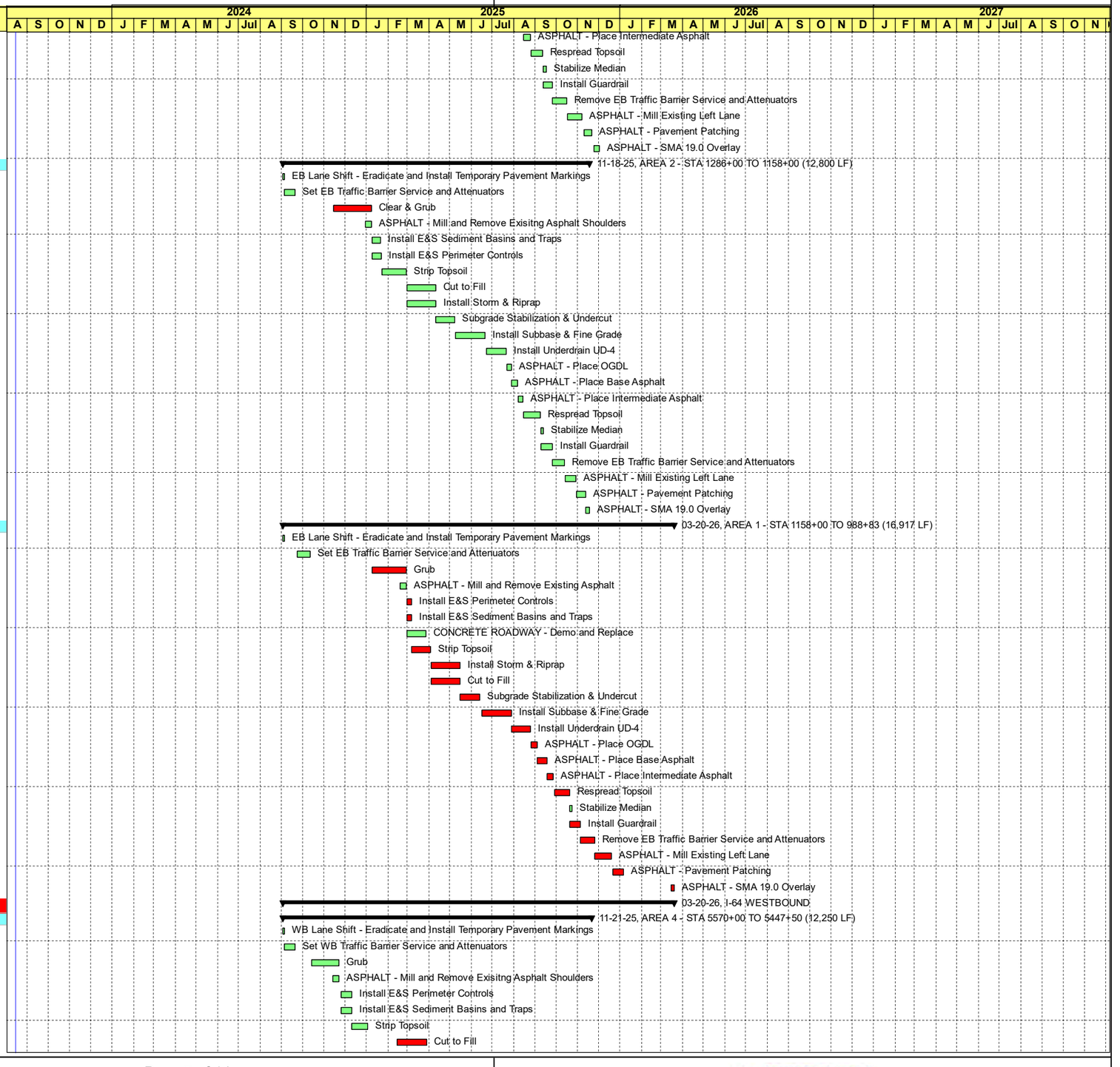
SHIRLEY CONTRACTING COMPANY, LLC

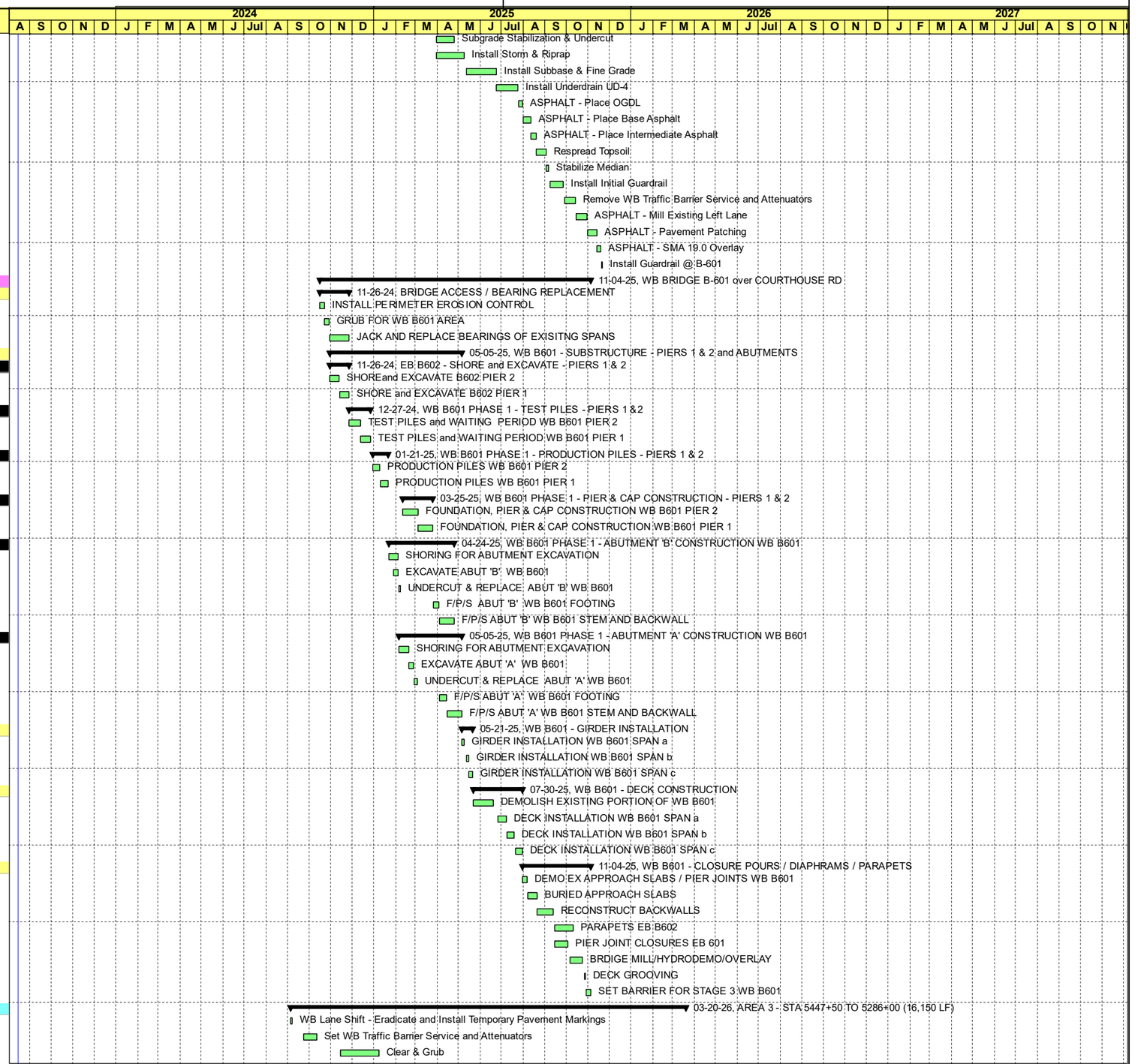
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GCE3-1110	ASPHALT - Place Intermediate Asphalt	7	08-15-25	08-25-25	68
GCE3-1120	Respread Topsoil	12	08-26-25	09-11-25	72
GCE3-1130	Stabilize Median	3	09-12-25	09-16-25	158
GCE3-1140	Install Guardrail	10	09-12-25	09-25-25	75
GCE3-1170	Remove EB Traffic Barrier Service and Attenuators	15	09-26-25	10-16-25	75
GCE3-1180	ASPHALT - Mill Existing Left Lane	16	10-17-25	11-07-25	75
GCE3-1190	ASPHALT - Pavement Patching	10	11-10-25	11-21-25	75
GCE3-1200	ASPHALT - SMA 19.0 Overlay	5	11-24-25	12-02-25	13
AREA 2 - STA 1286+00 TO 1158+00 (12,800 LF)		308	09-03-24	11-18-25	307
GBA2-1040	EB Lane Shift - Eradicate and Install Temporary Pavement	2	09-03-24	09-04-24	601
GBA2-1050	Set EB Traffic Barrier Service and Attenuators	12	09-05-24	09-20-24	601
GCE2-1000	Clear & Grub	35	11-15-24	01-08-25	47
GCE2-1040	ASPHALT - Mill and Remove Exisitng Asphalt Shoulders	7	12-30-24	01-08-25	154
GCE2-1010	Install E&S Sediment Basins and Traps	9	01-09-25	01-21-25	52
GCE2-1020	Install E&S Perimeter Controls	10	01-09-25	01-22-25	51
GCE2-1030	Strip Topsoil	25	01-23-25	02-27-25	51
GCE2-1050	Cut to Fill	30	02-28-25	04-10-25	51
GCE2-1060	Install Storm & Riprap	30	02-28-25	04-10-25	51
GCE2-1055	Subgrade Stabilization & Undercut	20	04-11-25	05-08-25	69
GCE2-1070	Install Subbase & Fine Grade	30	05-09-25	06-20-25	69
GCE2-1080	Install Underdrain UD-4	20	06-23-25	07-21-25	79
GCE2-1090	ASPHALT - Place OGDL	5	07-22-25	07-28-25	79
GCE2-1100	ASPHALT - Place Base Asphalt	7	07-29-25	08-06-25	82
GCE2-1110	ASPHALT - Place Intermediate Asphalt	6	08-07-25	08-14-25	83
GCE2-1120	Respread Topsoil	16	08-15-25	09-08-25	83
GCE2-1130	Stabilize Median	4	09-09-25	09-12-25	190
GCE2-1140	Install Guardrail	13	09-09-25	09-25-25	83
GCE2-1170	Remove EB Traffic Barrier Service and Attenuators	12	09-26-25	10-13-25	83
GCE2-1180	ASPHALT - Mill Existing Left Lane	12	10-14-25	10-29-25	83
GCE2-1190	ASPHALT - Pavement Patching	10	10-30-25	11-12-25	83
GCE2-1200	ASPHALT - SMA 19.0 Overlay	4	11-13-25	11-18-25	21
AREA 1 - STA 1158+00 TO 988+83 (16,917 LF)		391	09-03-24	03-20-26	239
GBE1-1040	EB Lane Shift - Eradicate and Install Temporary Pavement	2	09-03-24	09-04-24	613
GBE1-1050	Set EB Traffic Barrier Service and Attenuators	15	09-23-24	10-11-24	601
GCE1-1000	Grub	35	01-09-25	02-27-25	47
GCE1-1040	ASPHALT - Mill and Remove Existing Asphalt	7	02-19-25	02-27-25	102
GCE1-1010	Install E&S Perimeter Controls	5	02-28-25	03-06-25	47
GCE1-1020	Install E&S Sediment Basins and Traps	5	02-28-25	03-06-25	47
GCE1-1045	CONCRETE ROADWAY - Demo and Replace	20	02-28-25	03-27-25	102
GCE1-1030	Strip Topsoil	20	03-07-25	04-03-25	47
GCE1-1050	Install Storm & Riprap	30	04-04-25	05-15-25	47
GCE1-1060	Cut to Fill	30	04-04-25	05-15-25	47
GCE1-1065	Subgrade Stabilization & Undercut	20	05-16-25	06-13-25	47
GCE1-1070	Install Subbase & Fine Grade	30	06-16-25	07-28-25	47
GCE1-1080	Install Underdrain UD-4	20	07-29-25	08-25-25	47
GCE1-1090	ASPHALT - Place OGDL	6	08-26-25	09-03-25	47
GCE1-1100	ASPHALT - Place Base Asphalt	10	09-04-25	09-17-25	47
GCE1-1110	ASPHALT - Place Intermediate Asphalt	7	09-18-25	09-26-25	47
GCE1-1120	Respread Topsoil	16	09-29-25	10-20-25	47
GCE1-1130	Stabilize Median	4	10-21-25	10-24-25	100
GCE1-1140	Install Guardrail	11	10-21-25	11-04-25	47
GCE1-1170	Remove EB Traffic Barrier Service and Attenuators	15	11-05-25	11-25-25	47
GCE1-1180	ASPHALT - Mill Existing Left Lane	16	11-26-25	12-19-25	47
GCE1-1190	ASPHALT - Pavement Patching	10	12-22-25	01-06-26	47
GCE1-1200	ASPHALT - SMA 19.0 Overlay	5	03-16-26	03-20-26	0
I-64 WESTBOUND		391	09-03-24	03-20-26	104
AREA 4 - STA 5570+00 TO 5447+50 (12,250 LF)		311	09-03-24	11-21-25	80
GBW4-1040	WB Lane Shift - Eradicate and Install Temporary Pavement	2	09-03-24	09-04-24	45
GBW4-1050	Set WB Traffic Barrier Service and Attenuators	12	09-05-24	09-20-24	45
GCW4-1000	Grub	30	10-14-24	11-22-24	30
GCW4-1040	ASPHALT - Mill and Remove Exisitng Asphalt Shoulders	7	11-14-24	11-22-24	133
GCW4-1010	Install E&S Perimeter Controls	10	11-25-24	12-10-24	30
GCW4-1020	Install E&S Sediment Basins and Traps	10	11-25-24	12-10-24	30
GCW4-1030	Strip Topsoil	15	12-11-24	01-02-25	30
GCW4-1050	Cut to Fill	30	02-14-25	03-28-25	0



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

SHIRLEY CONTRACTING COMPANY, LLC

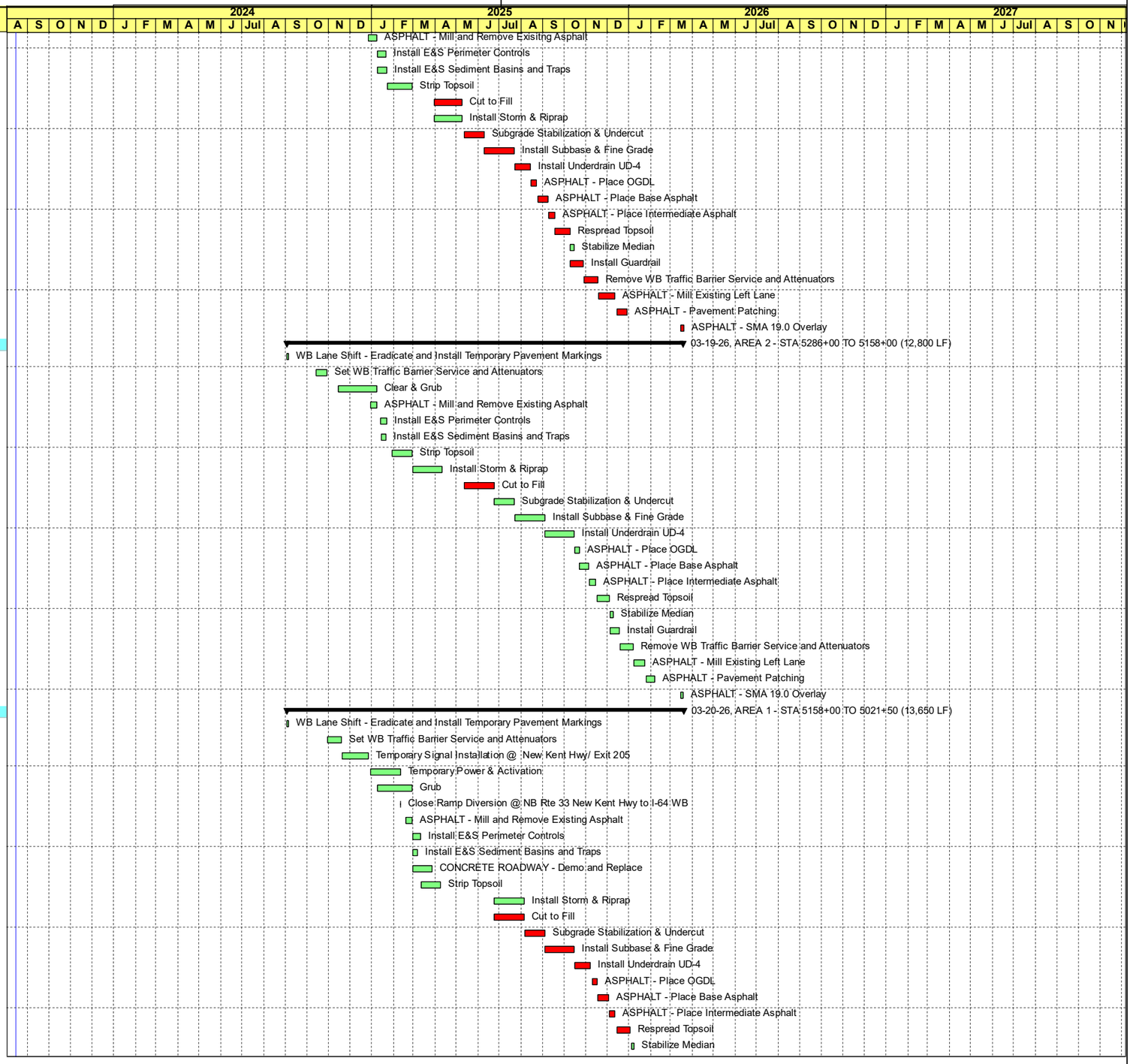
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GCW4-1055	Subgrade Stabilization & Undercut	20	03-31-25	04-25-25	28
GCW4-1060	Install Storm & Riprap	30	03-31-25	05-09-25	18
GCW4-1070	Install Subbase & Fine Grade	30	05-12-25	06-23-25	18
GCW4-1080	Install Underdrain UD-4	22	06-24-25	07-24-25	18
GCW4-1090	ASPHALT - Place OGDL	5	07-25-25	07-31-25	18
GCW4-1100	ASPHALT - Place Base Asphalt	7	08-01-25	08-11-25	18
GCW4-1110	ASPHALT - Place Intermediate Asphalt	6	08-12-25	08-19-25	18
GCW4-1120	Respread Topsoil	9	08-20-25	09-02-25	18
GCW4-1130	Stabilize Median	3	09-03-25	09-05-25	18
GCW4-1140	Install Initial Guardrail	15	09-08-25	09-26-25	18
GCW4-1170	Remove WB Traffic Barrier Service and Attenuators	12	09-29-25	10-14-25	18
GCW4-1180	ASPHALT - Mill Existing Left Lane	12	10-15-25	10-30-25	18
GCW4-1190	ASPHALT - Pavement Patching	10	10-31-25	11-13-25	18
GCW4-1200	ASPHALT - SMA 19.0 Overlay	4	11-14-25	11-19-25	18
GCW4-1410	Install Guardrail @ B-601	2	11-20-25	11-21-25	80
WB BRIDGE B-601 over COURTHOUSE RD		267	10-16-24	11-04-25	91
BRIDGE ACCESS / BEARING REPLACEMENT		30	10-16-24	11-26-24	204
GCC2a-1000	INSTALL PERIMETER EROSION CONTROL	5	10-16-24	10-22-24	117
GCC2a-1010	GRUB FOR WB B601 AREA	5	10-23-24	10-29-24	117
GDC2a-1040	JACK AND REPLACE BEARINGS OF EXISITNG SPANS	20	10-30-24	11-26-24	204
WB B601 - SUBSTRUCTURE - PIERS 1 & 2 and ABUTMENTS		129	10-30-24	05-05-25	95
EB B602 - SHORE and EXCAVATE - PIERS 1 & 2		20	10-30-24	11-26-24	117
GDC2b0-1080	SHOREand EXCAVATE B602 PIER 2	10	10-30-24	11-12-24	117
GDC2b0-1090	SHORE and EXCAVATE B602 PIER 1	10	11-13-24	11-26-24	117
WB B601 PHASE 1 - TEST PILES - PIERS 1 &2		20	11-27-24	12-27-24	117
GCC2b1-1060	TEST PILES and WAITING PERIOD WB B601 PIER 2	10	11-27-24	12-12-24	117
GCC2b1-1070	TEST PILES and WAITING PERIOD WB B601 PIER 1	10	12-13-24	12-27-24	117
WB B601 PHASE 1 - PRODUCTION PILES - PIERS 1 & 2		16	12-30-24	01-21-25	118
GCC2b2-1060	PRODUCTION PILES WB B601 PIER 2	8	12-30-24	01-09-25	117
GCC2b2-1070	PRODUCTION PILES WB B601 PIER 1	8	01-10-25	01-21-25	118
WB B601 PHASE 1 - PIER & CAP CONSTRUCTION - PIERS 1 & 2		30	02-11-25	03-25-25	95
GCC2b3-1060	FOUNDATION, PIER & CAP CONSTRUCTION WB B601 F	15	02-11-25	03-04-25	95
GCC2b3-1070	FOUNDATION, PIER & CAP CONSTRUCTION WB B601 F	15	03-05-25	03-25-25	95
WB B601 PHASE 1 - ABUTMENT 'B' CONSTRUCTION WB B601		66	01-22-25	04-24-25	102
GCC2c4-1000	SHORING FOR ABUTMENT EXCAVATION	10	01-22-25	02-04-25	118
GCC2c4-1010	EXCAVATE ABUT 'B' WB B601	5	01-29-25	02-04-25	126
GCC2c4-1020	UNDERCUT & REPLACE ABUT 'B' WB B601	3	02-05-25	02-07-25	126
GCC2c4-1030	F/P/S ABUT 'B' WB B601 FOOTING	7	03-26-25	04-03-25	95
GCC2c4-1040	F/P/S ABUT 'B' WB B601 STEM AND BACKWALL	15	04-04-25	04-24-25	102
WB B601 PHASE 1 - ABUTMENT 'A' CONSTRUCTION WB B601		63	02-05-25	05-05-25	95
GCC2b4-1000	SHORING FOR ABUTMENT EXCAVATION	10	02-05-25	02-19-25	118
GCC2b4-1010	EXCAVATE ABUT 'A' WB B601	5	02-20-25	02-26-25	118
GCC2b4-1020	UNDERCUT & REPLACE ABUT 'A' WB B601	3	02-27-25	03-03-25	118
GCC2b4-1030	F/P/S ABUT 'A' WB B601 FOOTING	7	04-04-25	04-14-25	95
GCC2b4-1040	F/P/S ABUT 'A' WB B601 STEM AND BACKWALL	15	04-15-25	05-05-25	95
WB B601 - GIRDER INSTALLATION		12	05-06-25	05-21-25	95
GCC2d-1000	GIRDER INSTALLATION WB B601 SPAN a	4	05-06-25	05-09-25	95
GCC2d-1080	GIRDER INSTALLATION WB B601 SPAN b	4	05-12-25	05-15-25	95
GCC2d-1090	GIRDER INSTALLATION WB B601 SPAN c	4	05-16-25	05-21-25	95
WB B601 - DECK CONSTRUCTION		48	05-22-25	07-30-25	91
GCC2e-1010	DEMOLISH EXISTING PORTION OF WB B601	20	05-22-25	06-19-25	95
GCC2e-1000	DECK INSTALLATION WB B601 SPAN a	8	06-26-25	07-08-25	91
GCC2e-1060	DECK INSTALLATION WB B601 SPAN b	8	07-09-25	07-18-25	91
GCC2e-1080	DECK INSTALLATION WB B601 SPAN c	8	07-21-25	07-30-25	91
WB B601 - CLOSURE POURS / DIAPHRAMS / PARAPETS		68	07-31-25	11-04-25	91
GDC2g-1055	DEMO EX APPROACH SLABS / PIER JOINTS WB B601	5	07-31-25	08-06-25	91
GDC2g-1065	BURIED APPROACH SLABS	10	08-07-25	08-20-25	91
GDC2g-1075	RECONSTRUCT BACKWALLS	16	08-21-25	09-12-25	91
GDC2g-1085	PARAPETS EB B602	20	09-15-25	10-10-25	103
GDC2g-1095	PIER JOINT CLOSURES EB 601	15	09-15-25	10-03-25	91
GDC2g-1105	BRDIGE MILL/HYDRODEMO/OVERLAY	15	10-06-25	10-24-25	91
GDC2g-1115	DECK GROOVING	2	10-27-25	10-28-25	91
GDC2g-1125	SET BARRIER FOR STAGE 3 WB B601	5	10-29-25	11-04-25	91
AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)		389	09-05-24	03-20-26	30
GBW3-1040	WB Lane Shift - Eradicate and Install Temporary Pavement	2	09-05-24	09-06-24	70
GBW3-1050	Set WB Traffic Barrier Service and Attenuators	15	09-23-24	10-11-24	60
GCW3-1000	Clear & Grub	35	11-15-24	01-08-25	21



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

SHIRLEY CONTRACTING COMPANY, LLC

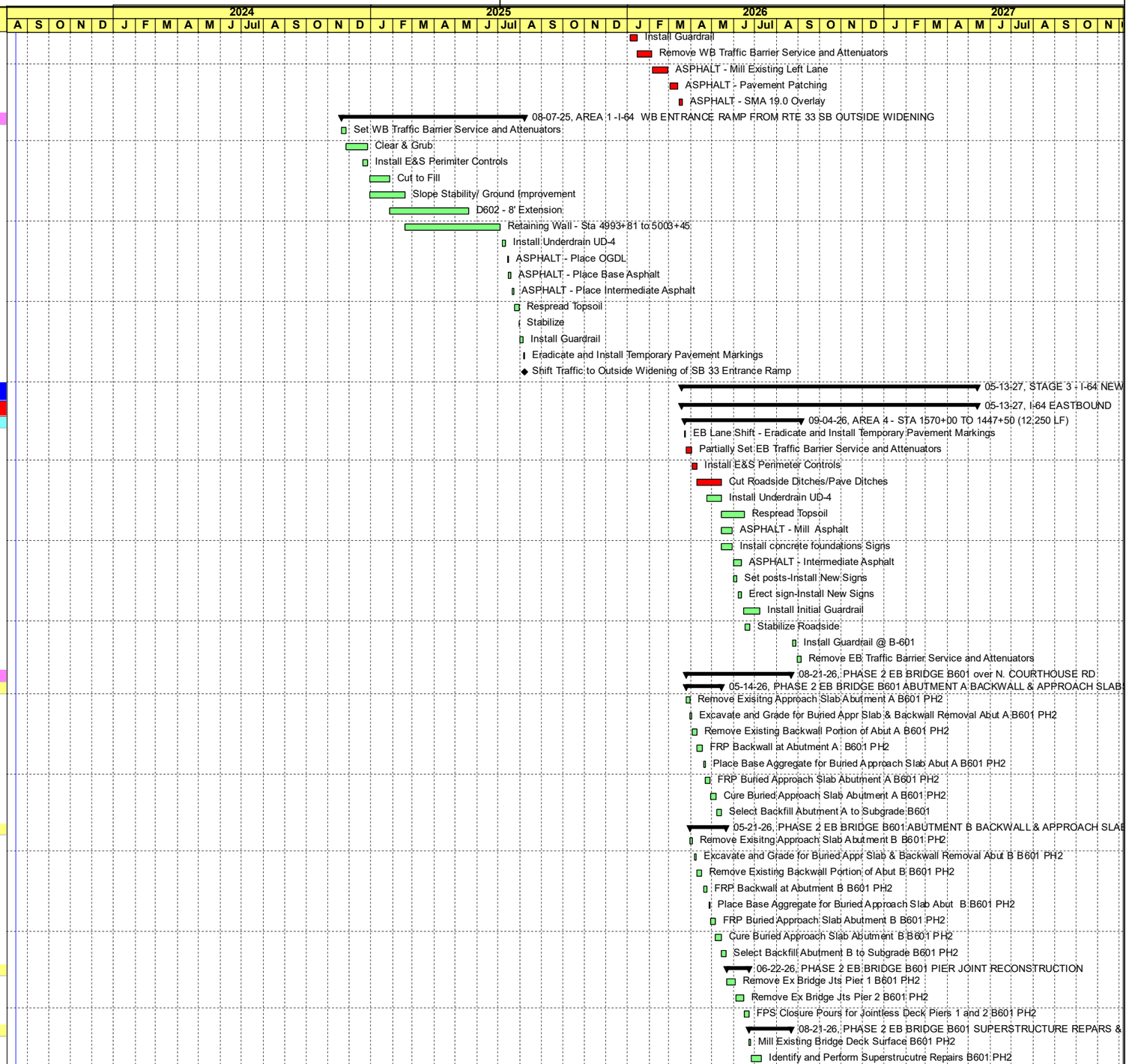
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GCW3-1040	ASPHALT - Mill and Remove Exisitng Asphalt	8	12-27-24	01-08-25	158
GCW3-1010	Install E&S Perimeter Controls	9	01-09-25	01-21-25	22
GCW3-1020	Install E&S Sediment Basins and Traps	10	01-09-25	01-22-25	21
GCW3-1030	Strip Topsoil	25	01-23-25	02-27-25	21
GCW3-1050	Cut to Fill	30	03-31-25	05-09-25	0
GCW3-1060	Install Storm & Riprap	30	03-31-25	05-09-25	72
GCW3-1055	Subgrade Stabilization & Undercut	20	05-12-25	06-09-25	52
GCW3-1070	Install Subbase & Fine Grade	30	06-10-25	07-22-25	52
GCW3-1080	Install Underdrain UD-4	17	07-23-25	08-14-25	52
GCW3-1090	ASPHALT - Place OGDL	6	08-15-25	08-22-25	52
GCW3-1100	ASPHALT - Place Base Asphalt	10	08-25-25	09-08-25	52
GCW3-1110	ASPHALT - Place Intermediate Asphalt	7	09-09-25	09-17-25	52
GCW3-1120	Respread Topsoil	16	09-18-25	10-09-25	52
GCW3-1130	Stabilize Median	4	10-10-25	10-15-25	137
GCW3-1140	Install Guardrail	13	10-10-25	10-28-25	52
GCW3-1170	Remove WB Traffic Barrier Service and Attenuators	15	10-29-25	11-18-25	52
GCW3-1180	ASPHALT - Mill Existing Left Lane	16	11-19-25	12-12-25	52
GCW3-1190	ASPHALT - Pavement Patching	10	12-15-25	12-29-25	52
GCW3-1200	ASPHALT - SMA 19.0 Overlay	5	03-16-26	03-20-26	0
AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)		390	09-03-24	03-19-26	61
GBW2-1040	WB Lane Shift - Eradicate and Install Temporary Pavement	2	09-03-24	09-04-24	87
GBW2-1050	Set WB Traffic Barrier Service and Attenuators	12	10-14-24	10-29-24	60
GCW2-1000	Clear & Grub	35	11-15-24	01-08-25	53
GCW2-1040	ASPHALT - Mill and Remove Existing Asphalt	7	12-30-24	01-08-25	154
GCW2-1010	Install E&S Perimeter Controls	7	01-14-25	01-22-25	56
GCW2-1020	Install E&S Sediment Basins and Traps	5	01-15-25	01-21-25	57
GCW2-1030	Strip Topsoil	20	01-30-25	02-27-25	51
GCW2-1050	Install Storm & Riprap	30	02-28-25	04-10-25	51
GCW2-1060	Cut to Fill	30	05-12-25	06-23-25	0
GCW2-1065	Subgrade Stabilization & Undercut	20	06-24-25	07-22-25	18
GCW2-1070	Install Subbase & Fine Grade	30	07-23-25	09-03-25	18
GCW2-1080	Install Underdrain UD-4	30	09-04-25	10-15-25	18
GCW2-1090	ASPHALT - Place OGDL	5	10-16-25	10-22-25	18
GCW2-1100	ASPHALT - Place Base Asphalt	10	10-23-25	11-05-25	18
GCW2-1110	ASPHALT - Place Intermediate Asphalt	7	11-06-25	11-14-25	18
GCW2-1120	Respread Topsoil	12	11-17-25	12-04-25	25
GCW2-1130	Stabilize Median	3	12-05-25	12-09-25	130
GCW2-1140	Install Guardrail	10	12-05-25	12-18-25	25
GCW2-1170	Remove WB Traffic Barrier Service and Attenuators	12	12-19-25	01-07-26	25
GCW2-1180	ASPHALT - Mill Existing Left Lane	12	01-08-26	01-23-26	25
GCW2-1190	ASPHALT - Pavement Patching	10	01-26-26	02-06-26	25
GCW2-1200	ASPHALT - SMA 19.0 Overlay	4	03-16-26	03-19-26	1
AREA 1 - STA 5158+00 TO 5021+50 (13,650 LF)		391	09-03-24	03-20-26	104
GBW1-1040	WB Lane Shift - Eradicate and Install Temporary Pavement	2	09-03-24	09-04-24	99
GBW1-1050	Set WB Traffic Barrier Service and Attenuators	15	10-30-24	11-19-24	60
GCW1-0010	Temporary Signal Installation @ New Kent Hwy/ Exit 205	25	11-20-24	12-27-24	60
GCW1-0020	Temporary Power & Activation	30	12-30-24	02-10-25	60
GCW1-1000	Grub	35	01-09-25	02-27-25	53
GCW1-0030	Close Ramp Diversion @ NB Rte 33 New Kent Hwy to I-64	1	02-11-25	02-11-25	383
GCW1-1040	ASPHALT - Mill and Remove Existing Asphalt	8	02-18-25	02-27-25	111
GCW1-1010	Install E&S Perimeter Controls	8	02-28-25	03-11-25	53
GCW1-1020	Install E&S Sediment Basins and Traps	5	02-28-25	03-06-25	56
GCW1-1045	CONCRETE ROADWAY - Demo and Replace	20	02-28-25	03-27-25	111
GCW1-1030	Strip Topsoil	20	03-12-25	04-08-25	53
GCW1-1050	Install Storm & Riprap	30	06-24-25	08-05-25	20
GCW1-1060	Cut to Fill	30	06-24-25	08-05-25	0
GCW1-1065	Subgrade Stabilization & Undercut	20	08-06-25	09-03-25	0
GCW1-1070	Install Subbase & Fine Grade	30	09-04-25	10-15-25	0
GCW1-1080	Install Underdrain UD-4	17	10-16-25	11-07-25	0
GCW1-1090	ASPHALT - Place OGDL	6	11-10-25	11-17-25	0
GCW1-1100	ASPHALT - Place Base Asphalt	10	11-18-25	12-03-25	0
GCW1-1110	ASPHALT - Place Intermediate Asphalt	7	12-04-25	12-12-25	0
GCW1-1120	Respread Topsoil	13	12-15-25	01-02-26	0
GCW1-1130	Stabilize Median	4	01-05-26	01-08-26	50



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

SHIRLEY CONTRACTING COMPANY, LLC

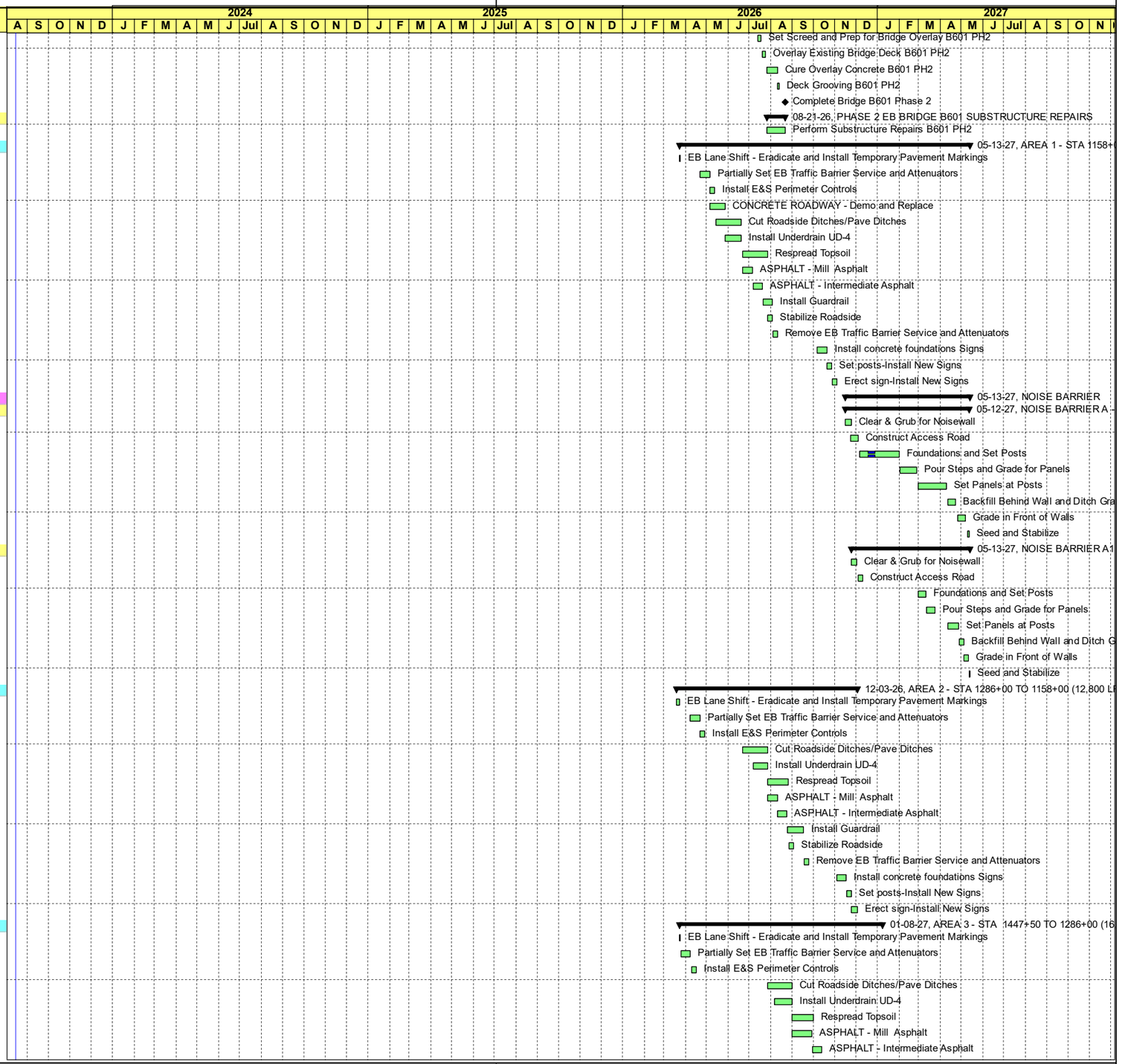
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GCW1-1140	Install Guardrail	8	01-05-26	01-14-26	0
GCW1-1170	Remove WB Traffic Barrier Service and Attenuators	15	01-15-26	02-04-26	0
GCW1-1180	ASPHALT - Mill Existing Left Lane	16	02-05-26	02-27-26	0
GCW1-1190	ASPHALT - Pavement Patching	10	03-02-26	03-13-26	0
GCW1-1200	ASPHALT - SMA 19.0 Overlay	5	03-16-26	03-20-26	0
AREA 1 -I-64 WB ENTRANCE RAMP FROM RTE 33 SB OUTSIDE WIDENING		180	11-20-24	08-07-25	155
GBW1-2000	Set WB Traffic Barrier Service and Attenuators	5	11-20-24	11-26-24	64
GBW1-2010	Clear & Grub	20	11-27-24	12-27-24	64
GBW1-2020	Install E&S Perimiter Controls	5	12-20-24	12-27-24	155
GBW1-2030	Cut to Fill	20	12-30-24	01-27-25	155
GBW1-2035	Slope Stability/ Ground Improvement	35	12-30-24	02-18-25	155
GBW1-2038	D602 - 8' Extension	80	01-28-25	05-20-25	186
GBW1-2040	Retaining Wall - Sta 4993+81 to 5003+45	96	02-19-25	07-03-25	155
GBW1-2045	Install Underdrain UD-4	5	07-07-25	07-11-25	155
GBW1-2050	ASPHALT - Place OGDL	2	07-14-25	07-15-25	155
GBW1-2060	ASPHALT - Place Base Asphalt	3	07-16-25	07-18-25	155
GBW1-2070	ASPHALT - Place Intermediate Asphalt	3	07-21-25	07-23-25	155
GBW1-2080	Respread Topsoil	5	07-24-25	07-30-25	155
GBW1-2090	Stabilize	1	07-31-25	07-31-25	155
GBW1-2100	Install Guardrail	3	08-01-25	08-05-25	155
GBW1-2110	Eradicate and Install Temporary Pavement Markings	2	08-06-25	08-07-25	155
GBW1-2120	Shift Traffic to Outside Widening of SB 33 Entrance Ramp	0		08-07-25	155
STAGE 3 - I-64 NEW OUTSIDE LANES & BRIDGES		289	03-19-26	05-13-27	52
I-64 EASTBOUND		289	03-19-26	05-13-27	52
AREA 4 - STA 1570+00 TO 1447+50 (12,250 LF)		118	03-23-26	09-04-26	33
GCE4-1150	EB Lane Shift - Eradicate and Install Temporary Pavement	2	03-23-26	03-24-26	0
GCE4-1160	Partially Set EB Traffic Barrier Service and Attenuators	7	03-25-26	04-02-26	0
GDE4-1000	Install E&S Perimeter Controls	5	04-03-26	04-09-26	0
GDE4-1010	Cut Roadside Ditches/Pave Ditches	25	04-10-26	05-14-26	0
GDE4-1020	Install Underdrain UD-4	15	04-24-26	05-14-26	29
GDE4-1030	Respread Topsoil	22	05-15-26	06-16-26	29
GDE4-1050	ASPHALT - Mill Asphalt	10	05-15-26	05-29-26	44
GEB4-1000	Install concrete foundations Signs	10	05-15-26	05-29-26	40
GDE4-1054	ASPHALT - Intermediate Asphalt	10	06-01-26	06-12-26	44
GEB4-1010	Set posts-Install New Signs	5	06-01-26	06-05-26	40
GEB4-1020	Erect sign-Install New Signs	5	06-08-26	06-12-26	40
GDE4-1060	Install Initial Guardrail	17	06-15-26	07-08-26	44
GDE4-1040	Stabilize Roadside	5	06-17-26	06-23-26	83
GDE4-1065	Install Guardrail @ B-601	5	08-24-26	08-28-26	33
GDE4-1090	Remove EB Traffic Barrier Service and Attenuators	5	08-31-26	09-04-26	33
PHASE 2 EB BRIDGE B601 over N. COURTHOUSE RD		106	03-25-26	08-21-26	33
PHASE 2 EB BRIDGE B601 ABUTMENT A BACKWALL & APPROACH SLABS		37	03-25-26	05-14-26	0
GDG1110-1000	Remove Exisitng Approach Slab Abutment A B601 PH2	4	03-25-26	03-30-26	0
GDG1110-1010	Excavate and Grade for Buried Appr Slab & Backwall Remc	3	03-31-26	04-02-26	0
GDG1110-1020	Remove Existing Backwall Portion of Abut A B601 PH2	5	04-03-26	04-09-26	0
GDG1110-1030	FRP Backwall at Abutment A B601 PH2	6	04-10-26	04-17-26	0
GDG1110-1040	Place Base Aggregate for Buried Approach Slab Abut A B6(	2	04-20-26	04-21-26	0
GDG1110-1050	FRP Buried Approach Slab Abutment A B601 PH2	5	04-22-26	04-28-26	0
GDG1110-1060	Cure Buried Approach Slab Abutment A B601 PH2	7	04-29-26	05-07-26	0
GDG1110-1070	Select Backfill Abutment A to Subgrade B601	5	05-08-26	05-14-26	0
PHASE 2 EB BRIDGE B601 ABUTMENT B BACKWALL & APPROACH SLABS		38	03-31-26	05-21-26	0
GDG1120-1000	Remove Exisitng Approach Slab Abutment B B601 PH2	4	03-31-26	04-03-26	2
GDG1120-1010	Excavate and Grade for Buried Appr Slab & Backwall Remc	3	04-06-26	04-08-26	2
GDG1120-1020	Remove Existing Backwall Portion of Abut B B601 PH2	5	04-10-26	04-16-26	1
GDG1120-1030	FRP Backwall at Abutment B B601 PH2	5	04-20-26	04-24-26	0
GDG1120-1040	Place Base Aggregate for Buried Approach Slab Abut B B(	2	04-27-26	04-28-26	0
GDG1120-1050	FRP Buried Approach Slab Abutment B B601 PH2	5	04-29-26	05-05-26	0
GDG1120-1060	Cure Buried Approach Slab Abutment B B601 PH2	7	05-06-26	05-14-26	0
GDG1120-1070	Select Backfill Abutment B to Subgrade B601 PH2	5	05-15-26	05-21-26	0
PHASE 2 EB BRIDGE B601 PIER JOINT RECONSTRUCTION		21	05-22-26	06-22-26	0
GDG1130-1000	Remove Ex Bridge Jts Pier 1 B601 PH2	8	05-22-26	06-03-26	0
GDG1130-1010	Remove Ex Bridge Jts Pier 2 B601 PH2	8	06-04-26	06-15-26	0
GDG1130-1020	FPS Closure Pours for Jointless Deck Piers 1 and 2 B601 I	5	06-16-26	06-22-26	0
PHASE 2 EB BRIDGE B601 SUPERSTRUCTURE REPARS & DECK OVERLAY		43	06-23-26	08-21-26	33
GDG1140-1000	Mill Existing Bridge Deck Surface B601 PH2	3	06-23-26	06-25-26	16
GDG1140-1010	Identify and Perform Superstrucutre Repairs B601 PH2	10	06-26-26	07-10-26	16



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

SHIRLEY CONTRACTING COMPANY, LLC

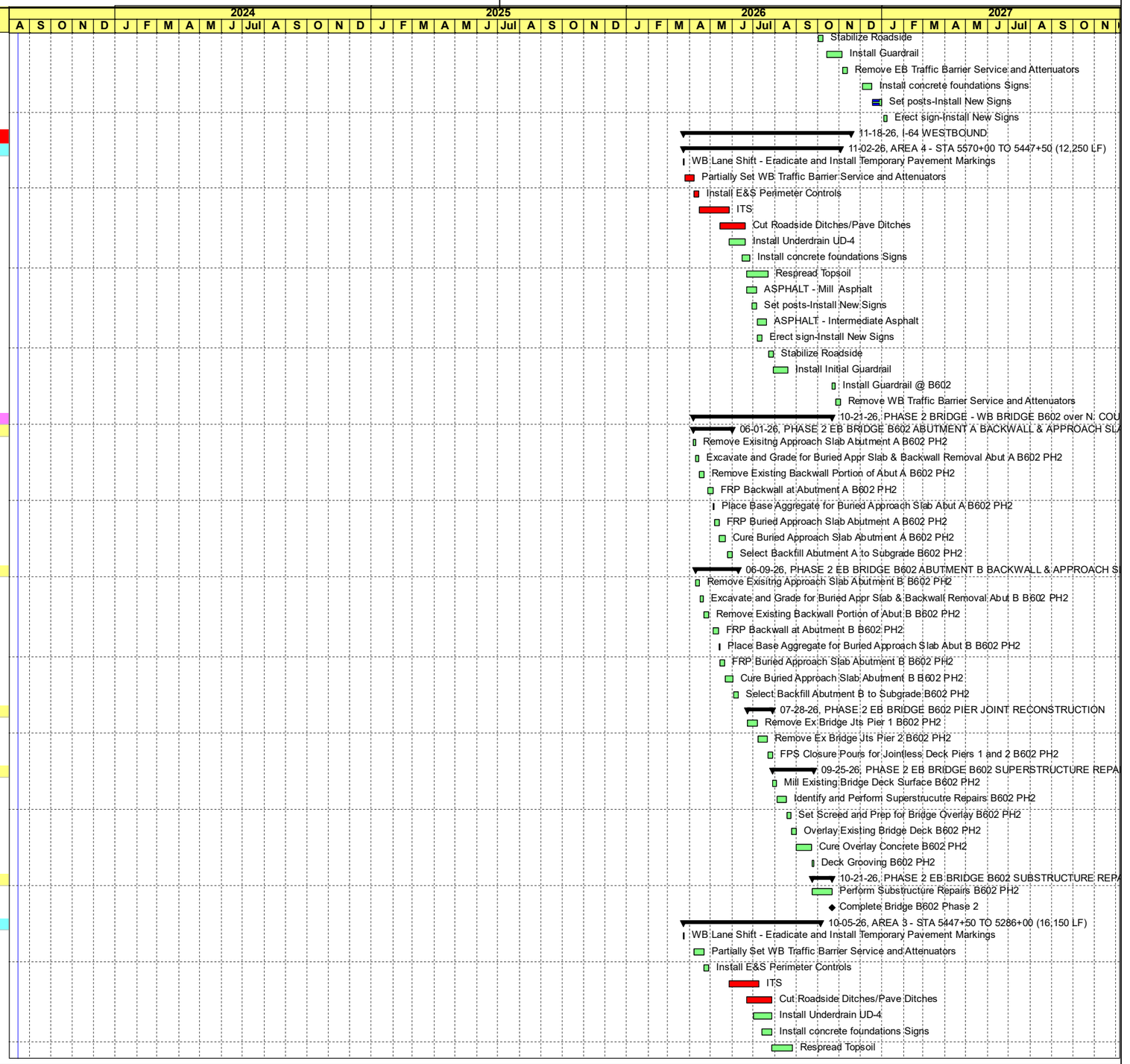
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GDG1140-1020	Set Screed and Prep for Bridge Overlay B601 PH2	5	07-13-26	07-17-26	16
GDG1140-1030	Overlay Existing Bridge Deck B601 PH2	5	07-20-26	07-24-26	16
GDG1140-1040	Cure Overlay Concrete B601 PH2	11	07-27-26	08-10-26	39
GDG1140-1050	Deck Grooving B601 PH2	3	08-11-26	08-13-26	39
GDG1140-1060	Complete Bridge B601 Phase 2	0		08-21-26	33
PHASE 2 EB BRIDGE B601 SUBSTRUCTURE REPAIRS		20	07-27-26	08-21-26	21
GG1150-1000	Perform Substructure Repairs B601 PH2	20	07-27-26	08-21-26	21
AREA 1 - STA 1158+00 TO 988+83 (16,917 LF)		287	03-23-26	05-13-27	52
GCE1-1150	EB Lane Shift - Eradicate and Install Temporary Pavement	2	03-23-26	03-24-26	0
GCE1-1160	Partially Set EB Traffic Barrier Service and Attenuators	10	04-22-26	05-05-26	31
GDE1-1000	Install E&S Perimeter Controls	5	05-06-26	05-12-26	31
GDE1-1045	CONCRETE ROADWAY - Demo and Replace	15	05-06-26	05-27-26	50
GDE1-1010	Cut Roadside Ditches/Pave Ditches	25	05-15-26	06-19-26	3
GDE1-1020	Install Underdrain UD-4	17	05-28-26	06-19-26	21
GDE1-1030	Respread Topsoil	25	06-22-26	07-27-26	26
GDE1-1050	ASPHALT - Mill Asphalt	10	06-22-26	07-06-26	33
GDE1-1054	ASPHALT - Intermediate Asphalt	10	07-07-26	07-20-26	36
GDE1-1060	Install Guardrail	10	07-21-26	08-03-26	36
GDE1-1040	Stabilize Roadside	5	07-28-26	08-03-26	60
GDE1-1090	Remove EB Traffic Barrier Service and Attenuators	5	08-04-26	08-10-26	188
GEB1-1000	Install concrete foundations Signs	10	10-07-26	10-20-26	40
GEB1-1010	Set posts-Install New Signs	5	10-21-26	10-27-26	40
GEB1-1020	Erect sign-Install New Signs	5	10-28-26	11-03-26	40
NOISE BARRIER		120	11-16-26	05-13-27	52
NOISE BARRIER A - EB 1046+00 to 1082+00 (3,630 LF)		119	11-16-26	05-12-27	53
GDC5-1000	Clear & Grub for Noisewall	7	11-16-26	11-24-26	56
GDC5-1010	Construct Access Road	8	11-23-26	12-04-26	52
GDC5-1020	Foundations and Set Posts	35	12-07-26	02-01-27	52
GDC5-1030	Pour Steps and Grade for Panels	18	02-02-27	02-26-27	52
GDC5-1040	Set Panels at Posts	30	03-01-27	04-09-27	52
GDC5-1050	Backfill Behind Wall and Ditch Grading	10	04-12-27	04-23-27	53
GDC5-1060	Grade in Front of Walls	10	04-26-27	05-07-27	53
GDC5-1070	Seed and Stabilize	3	05-10-27	05-12-27	53
NOISE BARRIER A1 - EB 1104+50 to 1111+50 (700 LF)		113	11-25-26	05-13-27	52
GDA5a-1000	Clear & Grub for Noisewall	4	11-25-26	12-02-26	81
GDA5a-1010	Construct Access Road	5	12-04-26	12-10-26	113
GDA5a-1020	Foundations and Set Posts	9	03-01-27	03-11-27	64
GDA5a-1030	Pour Steps and Grade for Panels	9	03-12-27	03-24-27	64
GDA5a-1040	Set Panels at Posts	12	04-12-27	04-27-27	52
GDA5a-1050	Backfill Behind Wall and Ditch Grading	5	04-28-27	05-04-27	52
GDA5a-1060	Grade in Front of Walls	5	05-05-27	05-11-27	52
GDA5a-1070	Seed and Stabilize	2	05-12-27	05-13-27	52
AREA 2 - STA 1286+00 TO 1158+00 (12,800 LF)		181	03-19-26	12-03-26	110
GCE2-1150	EB Lane Shift - Eradicate and Install Temporary Pavement	2	03-19-26	03-23-26	43
GCE2-1160	Partially Set EB Traffic Barrier Service and Attenuators	10	04-08-26	04-21-26	31
GDE2-1000	Install E&S Perimeter Controls	5	04-22-26	04-28-26	40
GDE2-1010	Cut Roadside Ditches/Pave Ditches	25	06-22-26	07-27-26	3
GDE2-1020	Install Underdrain UD-4	15	07-07-26	07-27-26	11
GDE2-1030	Respread Topsoil	22	07-28-26	08-26-26	26
GDE2-1050	ASPHALT - Mill Asphalt	10	07-28-26	08-10-26	18
GDE2-1054	ASPHALT - Intermediate Asphalt	10	08-11-26	08-24-26	21
GDE2-1060	Install Guardrail	17	08-25-26	09-17-26	21
GDE2-1040	Stabilize Roadside	5	08-27-26	09-02-26	43
GDE2-1090	Remove EB Traffic Barrier Service and Attenuators	5	09-18-26	09-24-26	158
GEB2-1000	Install concrete foundations Signs	10	11-04-26	11-17-26	40
GEB2-1010	Set posts-Install New Signs	5	11-18-26	11-24-26	40
GEB2-1020	Erect sign-Install New Signs	5	11-25-26	12-03-26	40
AREA 3 - STA 1447+50 TO 1286+00 (16,150 LF)		199	03-23-26	01-08-27	92
GCE3-1150	EB Lane Shift - Eradicate and Install Temporary Pavement	2	03-23-26	03-24-26	30
GCE3-1160	Partially Set EB Traffic Barrier Service and Attenuators	10	03-25-26	04-07-26	31
GDE3-1000	Install E&S Perimeter Controls	5	04-10-26	04-16-26	43
GDE3-1010	Cut Roadside Ditches/Pave Ditches	25	07-28-26	08-31-26	3
GDE3-1020	Install Underdrain UD-4	17	08-07-26	08-31-26	3
GDE3-1030	Respread Topsoil	22	09-01-26	10-01-26	23
GDE3-1050	ASPHALT - Mill Asphalt	20	09-01-26	09-29-26	3
GDE3-1054	ASPHALT - Intermediate Asphalt	10	09-30-26	10-13-26	3



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

SHIRLEY CONTRACTING COMPANY, LLC

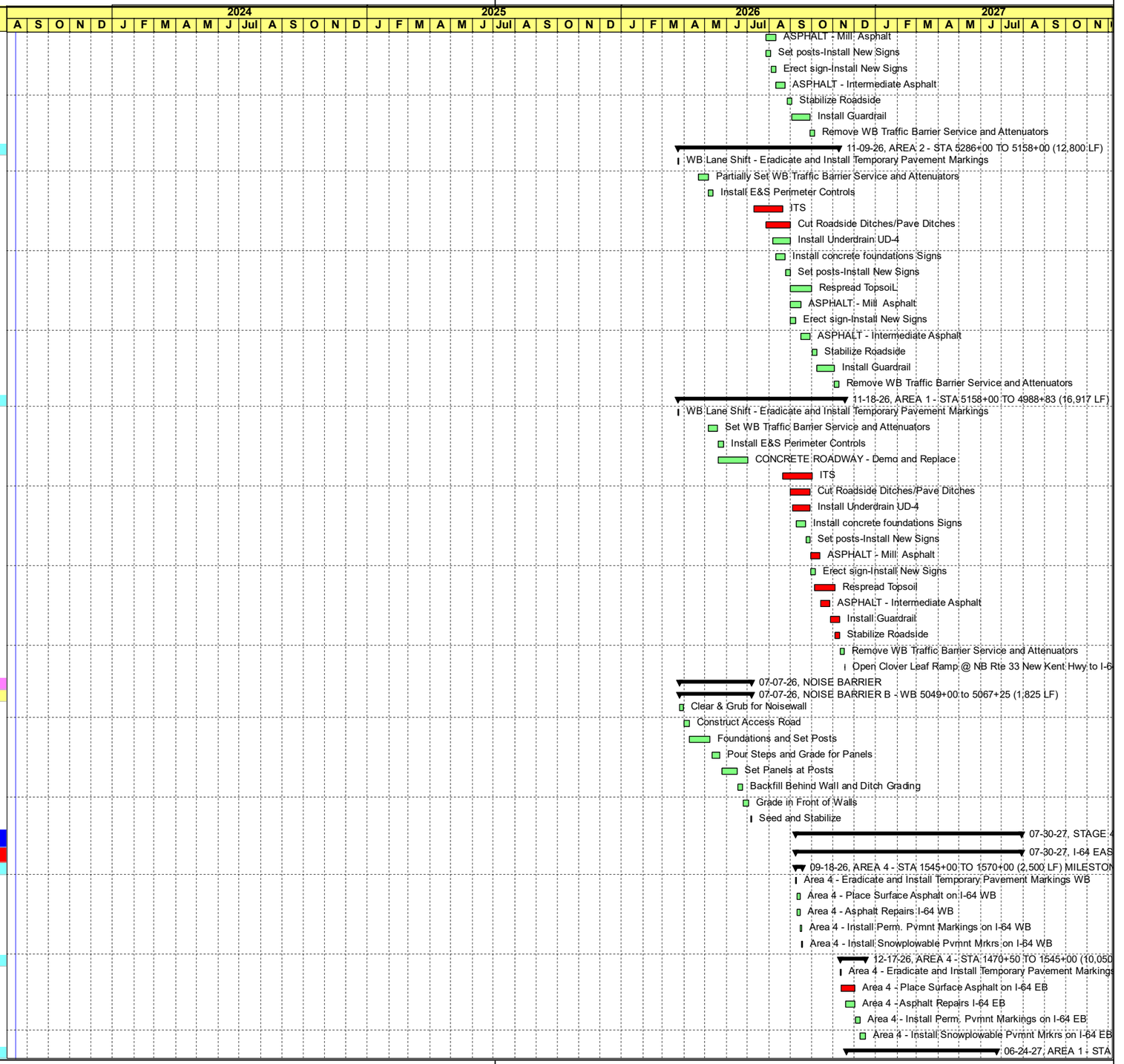
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GDE3-1040	Stabilize Roadside	5	10-02-26	10-08-26	23
GDE3-1060	Install Guardrail	17	10-14-26	11-05-26	3
GDE3-1090	Remove EB Traffic Barrier Service and Attenuators	5	11-06-26	11-12-26	125
GEB3-1000	Install concrete foundations Signs	10	12-04-26	12-17-26	40
GEB3-1010	Set posts-Install New Signs	5	12-18-26	12-31-26	40
GEB3-1020	Erect sign-Install New Signs	5	01-04-27	01-08-27	40
I-64 WESTBOUND		170	03-23-26	11-18-26	106
AREA 4 - STA 5570+00 TO 5447+50 (12,250 LF)		158	03-23-26	11-02-26	18
GCW4-1150	WB Lane Shift - Eradicate and Install Temporary Pavement	2	03-23-26	03-24-26	0
GCW4-1160	Partially Set WB Traffic Barrier Service and Attenuators	10	03-25-26	04-07-26	0
GDW4-1000	Install E&S Perimeter Controls	5	04-08-26	04-14-26	0
GDW4-1015	ITS	30	04-15-26	05-27-26	0
GDW4-1010	Cut Roadside Ditches/Pave Ditches	25	05-15-26	06-19-26	0
GDW4-1020	Install Underdrain UD-4	17	05-28-26	06-19-26	65
GWB4-1000	Install concrete foundations Signs	10	06-15-26	06-26-26	40
GDW4-1030	Respread Topsoil	22	06-22-26	07-22-26	58
GDW4-1050	ASPHALT - Mill Asphalt	10	06-22-26	07-06-26	65
GWB4-1010	Set posts-Install New Signs	5	06-29-26	07-06-26	40
GDW4-1054	ASPHALT - Intermediate Asphalt	10	07-07-26	07-20-26	65
GWB4-1020	Erect sign-Install New Signs	5	07-07-26	07-13-26	40
GDW4-1040	Stabilize Roadside	5	07-23-26	07-29-26	58
GDW4-1060	Install Initial Guardrail	15	07-30-26	08-19-26	58
GDW4-1100	Install Guardrail @ B602	3	10-22-26	10-26-26	0
GDW4-1090	Remove WB Traffic Barrier Service and Attenuators	5	10-27-26	11-02-26	18
PHASE 2 BRIDGE - WB BRIDGE B602 over N. COURTHOUSE RD		140	04-06-26	10-21-26	0
PHASE 2 EB BRIDGE B602 ABUTMENT A BACKWALL & APPROACH SLABS		40	04-06-26	06-01-26	10
GDG1210-1000	Remove Exisitng Approach Slab Abutment A B602 PH2	4	04-06-26	04-09-26	12
GDG1210-1010	Excavate and Grade for Buried Appr Slab & Backwall Remc	3	04-10-26	04-14-26	12
GDG1210-1020	Remove Existing Backwall Portion of Abut A B602 PH2	5	04-15-26	04-21-26	12
GDG1210-1030	FRP Backwall at Abutment A B602 PH2	6	04-27-26	05-04-26	9
GDG1210-1040	Place Base Aggregate for Buried Approach Slab Abut A B6(	2	05-05-26	05-06-26	10
GDG1210-1050	FRP Buried Approach Slab Abutment A B602 PH2	5	05-07-26	05-13-26	10
GDG1210-1060	Cure Buried Approach Slab Abutment A B602 PH2	7	05-14-26	05-22-26	10
GDG1210-1070	Select Backfill Abutment A to Subgrade B602 PH2	5	05-26-26	06-01-26	10
PHASE 2 EB BRIDGE B602 ABUTMENT B BACKWALL & APPROACH SLABS		42	04-10-26	06-09-26	9
GDG1220-1000	Remove Exisitng Approach Slab Abutment B B602 PH2	4	04-10-26	04-15-26	14
GDG1220-1010	Excavate and Grade for Buried Appr Slab & Backwall Remc	3	04-16-26	04-20-26	14
GDG1220-1020	Remove Existing Backwall Portion of Abut B B602 PH2	5	04-22-26	04-28-26	13
GDG1220-1030	FRP Backwall at Abutment B B602 PH2	6	05-05-26	05-12-26	9
GDG1220-1040	Place Base Aggregate for Buried Approach Slab Abut B B6	2	05-13-26	05-14-26	9
GDG1220-1050	FRP Buried Approach Slab Abutment B B602 PH2	5	05-15-26	05-21-26	9
GDG1220-1060	Cure Buried Approach Slab Abutment B B602 PH2	7	05-22-26	06-02-26	9
GDG1220-1070	Select Backfill Abutment B to Subgrade B602 PH2	5	06-03-26	06-09-26	9
PHASE 2 EB BRIDGE B602 PIER JOINT RECONSTRUCTION		25	06-23-26	07-28-26	0
GDG1230-1000	Remove Ex Bridge Jts Pier 1 B602 PH2	10	06-23-26	07-07-26	0
GDG1230-1010	Remove Ex Bridge Jts Pier 2 B602 PH2	10	07-08-26	07-21-26	0
GDG1230-1020	FPS Closure Pours for Jointless Deck Piers 1 and 2 B602 I	5	07-22-26	07-28-26	0
PHASE 2 EB BRIDGE B602 SUPERSTRUCTURE REPARS & DECK OVERLAY		42	07-29-26	09-25-26	18
GDG1240-1000	Mill Existing Bridge Deck Surface B602 PH2	4	07-29-26	08-03-26	0
GDG1240-1010	Identify and Perform Superstrucutre Repairs B602 PH2	10	08-04-26	08-17-26	0
GDG1240-1020	Set Screed and Prep for Bridge Overlay B602 PH2	5	08-18-26	08-24-26	0
GDG1240-1030	Overlay Existing Bridge Deck B602 PH2	5	08-25-26	08-31-26	0
GDG1240-1040	Cure Overlay Concrete B602 PH2	15	09-01-26	09-22-26	0
GDG1240-1050	Deck Grooving B602 PH2	3	09-23-26	09-25-26	18
PHASE 2 EB BRIDGE B602 SUBSTRUCTURE REPAIRS		21	09-23-26	10-21-26	0
GDG1250-1000	Perform Substructure Repairs B602 PH2	21	09-23-26	10-21-26	0
GDG1250-1010	Complete Bridge B602 Phase 2	0		10-21-26	0
AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)		138	03-23-26	10-05-26	117
GCW3-1150	WB Lane Shift - Eradicate and Install Temporary Pavement	2	03-23-26	03-24-26	30
GCW3-1160	Partially Set WB Traffic Barrier Service and Attenuators	10	04-08-26	04-21-26	20
GDW3-1000	Install E&S Perimeter Controls	5	04-22-26	04-28-26	20
GDW3-1015	ITS	30	05-28-26	07-09-26	0
GDW3-1010	Cut Roadside Ditches/Pave Ditches	25	06-22-26	07-27-26	0
GDW3-1020	Install Underdrain UD-4	17	07-02-26	07-27-26	38
GWB3-1000	Install concrete foundations Signs	10	07-14-26	07-27-26	40
GDW3-1030	Respread Topsoil	22	07-28-26	08-26-26	31



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

SHIRLEY CONTRACTING COMPANY, LLC

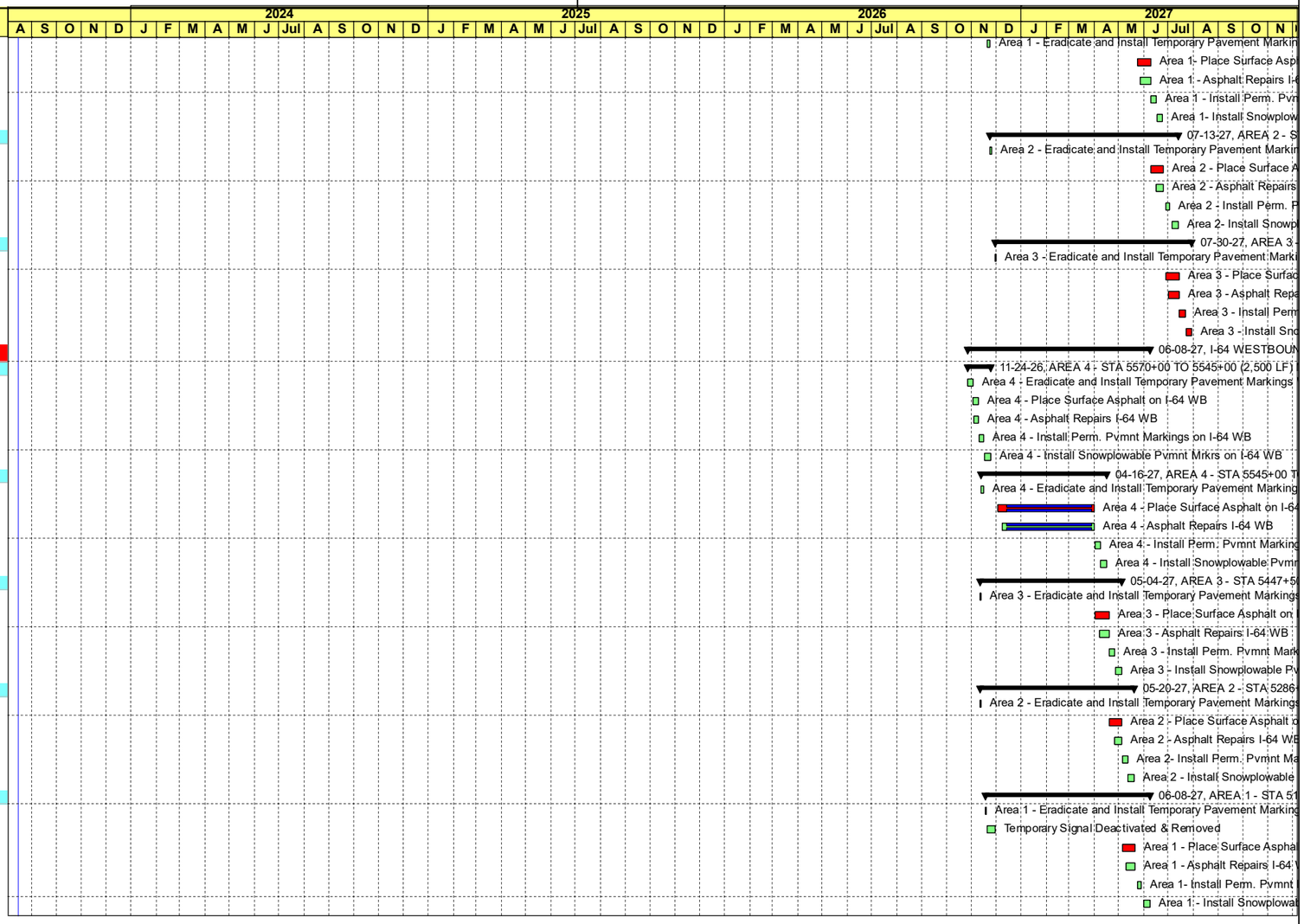
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GDW3-1050	ASPHALT - Mill Asphalt	10	07-28-26	08-10-26	38
GWB3-1010	Set posts-Install New Signs	5	07-28-26	08-03-26	40
GWB3-1020	Erect sign-Install New Signs	5	08-04-26	08-10-26	40
GDW3-1054	ASPHALT - Intermediate Asphalt	10	08-11-26	08-24-26	38
GDW3-1040	Stabilize Roadside	5	08-27-26	09-02-26	31
GDW3-1060	Install Guardrail	17	09-03-26	09-28-26	31
GDW3-1090	Remove WB Traffic Barrier Service and Attenuators	5	09-29-26	10-05-26	117
AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)		163	03-23-26	11-09-26	104
GCW2-1150	WB Lane Shift - Eradicate and Install Temporary Pavement	2	03-23-26	03-24-26	60
GCW2-1160	Partially Set WB Traffic Barrier Service and Attenuators	10	04-22-26	05-05-26	40
GDW2-1000	Install E&S Perimeter Controls	5	05-06-26	05-12-26	40
GDW2-1015	ITS	30	07-10-26	08-20-26	0
GDW2-1010	Cut Roadside Ditches/Pave Ditches	25	07-28-26	08-31-26	0
GDW2-1020	Install Underdrain UD-4	17	08-07-26	08-31-26	111
GWB2-1000	Install concrete foundations Signs	10	08-11-26	08-24-26	40
GWB2-1010	Set posts-Install New Signs	5	08-25-26	08-31-26	40
GDW2-1030	Respread TopsoiL	22	09-01-26	10-01-26	23
GDW2-1050	ASPHALT - Mill Asphalt	10	09-01-26	09-15-26	111
GWB2-1020	Erect sign-Install New Signs	5	09-01-26	09-08-26	40
GDW2-1054	ASPHALT - Intermediate Asphalt	10	09-16-26	09-29-26	111
GDW2-1040	Stabilize Roadside	5	10-02-26	10-08-26	23
GDW2-1060	Install Guardrail	17	10-09-26	11-02-26	104
GDW2-1090	Remove WB Traffic Barrier Service and Attenuators	5	11-03-26	11-09-26	104
AREA 1 - STA 5158+00 TO 4988+83 (16,917 LF)		170	03-23-26	11-18-26	106
GCW1-1150	WB Lane Shift - Eradicate and Install Temporary Pavement	2	03-23-26	03-24-26	0
GCW1-1160	Set WB Traffic Barrier Service and Attenuators	10	05-06-26	05-19-26	60
GDW1-1000	Install E&S Perimeter Controls	5	05-20-26	05-27-26	60
GDW1-1045	CONCRETE ROADWAY - Demo and Replace	30	05-20-26	07-01-26	62
GDW1-1015	ITS	30	08-21-26	10-02-26	0
GDW1-1010	Cut Roadside Ditches/Pave Ditches	20	09-01-26	09-29-26	0
GDW1-1020	Install Underdrain UD-4	17	09-04-26	09-29-26	0
GWB1-1000	Install concrete foundations Signs	10	09-09-26	09-22-26	40
GWB1-1010	Set posts-Install New Signs	5	09-23-26	09-29-26	40
GDW1-1050	ASPHALT - Mill Asphalt	10	09-30-26	10-13-26	0
GWB1-1020	Erect sign-Install New Signs	5	09-30-26	10-06-26	40
GDW1-1030	Respread Topsoil	22	10-05-26	11-03-26	0
GDW1-1054	ASPHALT - Intermediate Asphalt	10	10-14-26	10-27-26	0
GDW1-1060	Install Guardrail	10	10-28-26	11-10-26	0
GDW1-1040	Stabilize Roadside	5	11-04-26	11-10-26	0
GDW1-1065	Remove WB Traffic Barrier Service and Attenuators	5	11-11-26	11-17-26	0
GDW1-1110	Open Clover Leaf Ramp @ NB Rte 33 New Kent Hwy to I-6	1	11-18-26	11-18-26	106
NOISE BARRIER		73	03-25-26	07-07-26	89
NOISE BARRIER B - WB 5049+00 to 5067+25 (1,825 LF)		73	03-25-26	07-07-26	89
GDA5b-1080	Clear & Grub for Noisewall	5	03-25-26	03-31-26	0
GDA5b-1081	Construct Access Road	6	04-01-26	04-08-26	89
GDA5b-1082	Foundations and Set Posts	22	04-09-26	05-08-26	89
GDA5b-1090	Pour Steps and Grade for Panels	10	05-11-26	05-22-26	89
GDA5b-1091	Set Panels at Posts	16	05-26-26	06-16-26	89
GDA5b-1100	Backfill Behind Wall and Ditch Grading	6	06-17-26	06-24-26	89
GDA5b-1110	Grade in Front of Walls	6	06-25-26	07-02-26	89
GDA5b-1120	Seed and Stabilize	2	07-06-26	07-07-26	89
STAGE 4 - FINAL OVERLAY and OPEN LANES		221	09-08-26	07-30-27	0
I-64 EASTBOUND		221	09-08-26	07-30-27	0
AREA 4 - STA 1545+00 TO 1570+00 (2,500 LF) MILESTONE 2		9	09-08-26	09-18-26	41
GDE4-1110	Area 4 - Eradicate and Install Temporary Pavement Markinç	2	09-08-26	09-09-26	33
GDE4-1120	Area 4 - Place Surface Asphalt on I-64 WB	3	09-10-26	09-14-26	35
GDE4-1130	Area 4 - Asphalt Repairs I-64 WB	3	09-10-26	09-14-26	38
GDE4-1140	Area 4 - Install Perm. Pvmnt Markings on I-64 WB	2	09-15-26	09-16-26	38
GDE4-1150	Area 4 - Install Snowplowable Pvmnt Mrkrs on I-64 WB	2	09-17-26	09-18-26	41
AREA 4 - STA 1470+50 TO 1545+00 (10,050 LF)		25	11-11-26	12-17-26	107
GDE4-1070	Area 4 - Eradicate and Install Temporary Pavement Markinç	2	11-11-26	11-12-26	0
GEE4-1000	Area 4 - Place Surface Asphalt on I-64 EB	12	11-13-26	12-02-26	0
GEE4-1005	Area 4 - Asphalt Repairs I-64 EB	8	11-19-26	12-02-26	40
GEE4-1020	Area 4 - Install Perm. Pvmnt Markings on I-64 EB	5	12-03-26	12-09-26	40
GEE4-1040	Area 4 - Install Snowplowable Pvmnt Mrkrs on I-64 EB	6	12-10-26	12-17-26	107
AREA 1 - STA 988+83 TO 1158+00 (16,917 LF)		144	11-20-26	06-24-27	12



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

SHIRLEY CONTRACTING COMPANY, LLC

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GDE1-1070	Area 1 - Eradicate and Install Temporary Pavement Marking	2	11-20-26	11-23-26	116
GEE1-1000	Area 1- Place Surface Asphalt on I-64 EB	12	05-24-27	06-09-27	0
GEE1-1005	Area 1 - Asphalt Repairs I-64 EB	8	05-28-27	06-09-27	13
GEE1-1020	Area 1 - Install Perm. Pvmnt Markings on I-64 EB	5	06-10-27	06-16-27	13
GEE1-1040	Area 1- Install Snowplowable Pvmnt Mrkrs on I-64 EB	6	06-17-27	06-24-27	12
AREA 2 - STA 1158+00 TO 1286+00 (12,800 LF)		153	11-24-26	07-13-27	7
GDE2-1070	Area 2 - Eradicate and Install Temporary Pavement Marking	2	11-24-26	11-25-26	116
GEE2-1000	Area 2 - Place Surface Asphalt on I-64 EB	12	06-10-27	06-25-27	0
GEE2-1005	Area 2 - Asphalt Repairs I-64 EB	8	06-16-27	06-25-27	7
GEE2-1020	Area 2 - Install Perm. Pvmnt Markings on I-64 EB	5	06-28-27	07-02-27	7
GEE2-1040	Area 2- Install Snowplowable Pvmnt Mrkrs on I-64 EB	6	07-06-27	07-13-27	7
AREA 3 - STA 1286+00 TO 1447+50 (16,150 LF)		164	11-30-26	07-30-27	0
GDE3-1070	Area 3 - Eradicate and Install Temporary Pavement Marking	2	11-30-26	12-01-26	116
GEE3-1000	Area 3 - Place Surface Asphalt on I-64 EB	12	06-28-27	07-14-27	0
GEE3-1005	Area 3 - Asphalt Repairs I-64 EB	8	07-02-27	07-14-27	0
GEE3-1020	Area 3 - Install Perm. Pvmnt Markings on I-64 EB	6	07-15-27	07-22-27	0
GEE3-1040	Area 3 - Install Snowplowable Pvmnt Mrkrs on I-64 EB	6	07-23-27	07-30-27	0
I-64 WESTBOUND		151	10-27-26	06-08-27	17
AREA 4 - STA 5570+00 TO 5545+00 (2,500 LF) MILESTONE 2		21	10-27-26	11-24-26	0
GDW4-0100	Area 4 - Eradicate and Install Temporary Pavement Marking	5	10-27-26	11-02-26	0
GDW4-0110	Area 4 - Place Surface Asphalt on I-64 WB	5	11-03-26	11-09-26	0
GDW4-0120	Area 4 - Asphalt Repairs I-64 WB	4	11-04-26	11-09-26	0
GDW4-0130	Area 4 - Install Perm. Pvmnt Markings on I-64 WB	5	11-10-26	11-16-26	0
GDW4-0140	Area 4 - Install Snowplowable Pvmnt Mrkrs on I-64 WB	6	11-17-26	11-24-26	0
AREA 4 - STA 5545+00 TO 5447+50 (10,050 LF)		102	11-13-26	04-16-27	35
GDW4-1070	Area 4 - Eradicate and Install Temporary Pavement Marking	2	11-13-26	11-16-26	10
GEW4-1010	Area 4 - Place Surface Asphalt on I-64 WB	12	12-03-26	04-01-27	0
GEW4-1015	Area 4 - Asphalt Repairs I-64 WB	8	12-09-26	04-01-27	35
GEW4-1030	Area 4 - Install Perm. Pvmnt Markings on I-64 WB	5	04-02-27	04-08-27	35
GEW4-1050	Area 4 - Install Snowplowable Pvmnt Mrkrs on I-64 WB	6	04-09-27	04-16-27	35
AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)		116	11-11-26	05-04-27	29
GDW3-1070	Area 3 - Eradicate and Install Temporary Pavement Marking	2	11-11-26	11-12-26	91
GEW3-1010	Area 3 - Place Surface Asphalt on I-64 WB	12	04-02-27	04-19-27	0
GEW3-1015	Area 3 - Asphalt Repairs I-64 WB	8	04-08-27	04-19-27	29
GEW3-1030	Area 3 - Install Perm. Pvmnt Markings on I-64 WB	5	04-20-27	04-26-27	29
GEW3-1050	Area 3 - Install Snowplowable Pvmnt Mrkrs on I-64 WB	6	04-27-27	05-04-27	29
AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)		128	11-11-26	05-20-27	23
GDW2-1070	Area 2 - Eradicate and Install Temporary Pavement Marking	2	11-11-26	11-12-26	103
GEW2-1010	Area 2 - Place Surface Asphalt on I-64 WB	12	04-20-27	05-05-27	0
GEW2-1015	Area 2 - Asphalt Repairs I-64 WB	8	04-26-27	05-05-27	24
GEW2-1030	Area 2- Install Perm. Pvmnt Markings on I-64 WB	5	05-06-27	05-12-27	24
GEW2-1050	Area 2 - Install Snowplowable Pvmnt Mrkrs on I-64 WB	6	05-13-27	05-20-27	23
AREA 1 - STA 5158+00 TO 4988+83 (16,917 LF)		135	11-18-26	06-08-27	17
GDW1-1070	Area 1 - Eradicate and Install Temporary Pavement Marking	2	11-18-26	11-19-26	0
GDW1-1075	Temporary Signal Deactivated & Removed	5	11-20-26	11-30-26	105
GEW1-1010	Area 1 - Place Surface Asphalt on I-64 WB	12	05-06-27	05-21-27	0
GEW1-1015	Area 1 - Asphalt Repairs I-64 WB	10	05-10-27	05-21-27	18
GEW1-1030	Area 1- Install Perm. Pvmnt Markings on I-64 WB	5	05-24-27	05-28-27	18
GEW1-1050	Area 1 - Install Snowplowable Pvmnt Mrkrs on I-64 WB	6	06-01-27	06-08-27	17



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

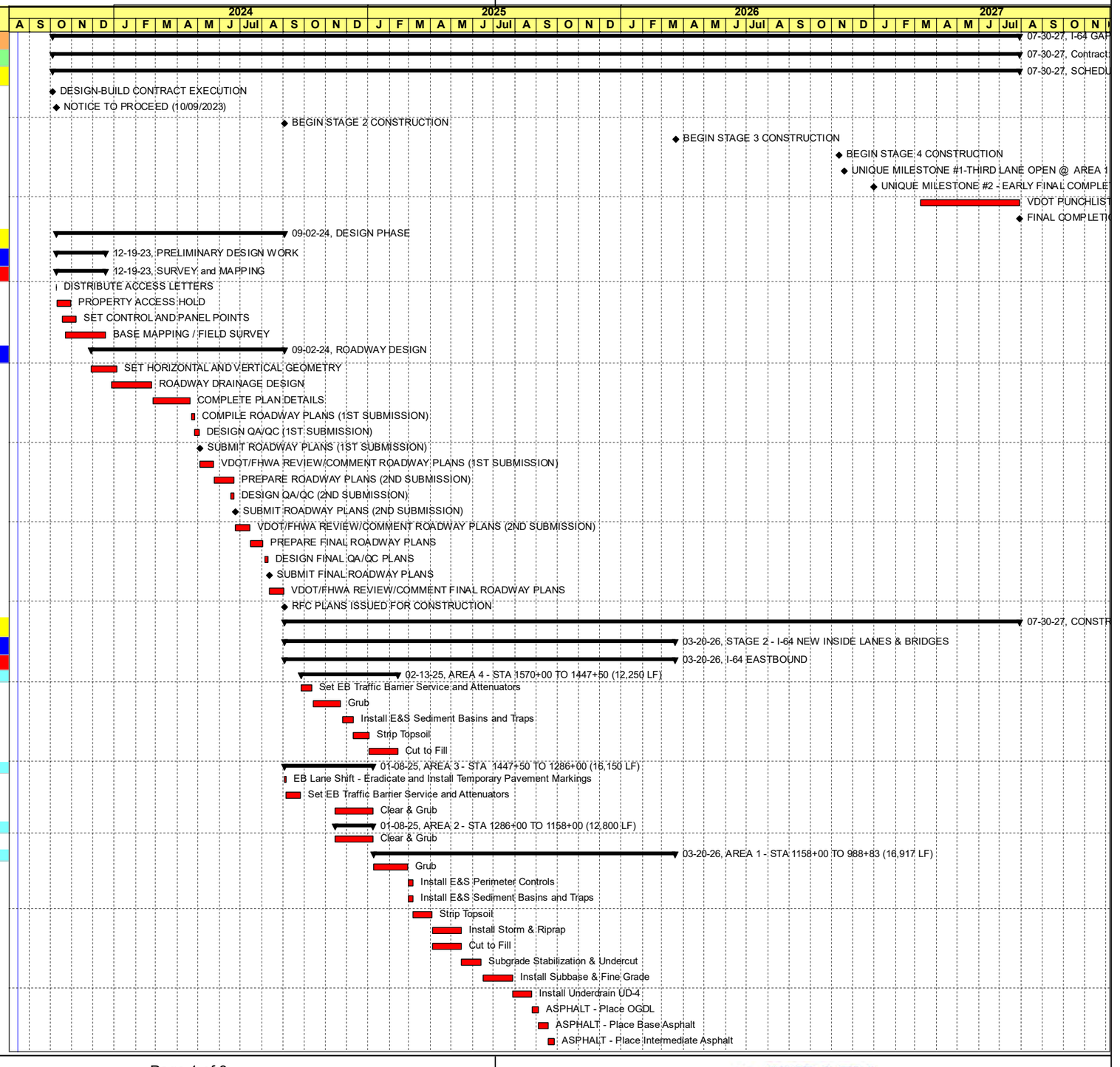
SHIRLEY CONTRACTING COMPANY, LLC

C00122166DB119 I-64 GAP SEGMENT A WIDENING

4.5.3.1 PROPOSAL SCHEDULE - CRITICAL PATH

JUNE 22, 2023

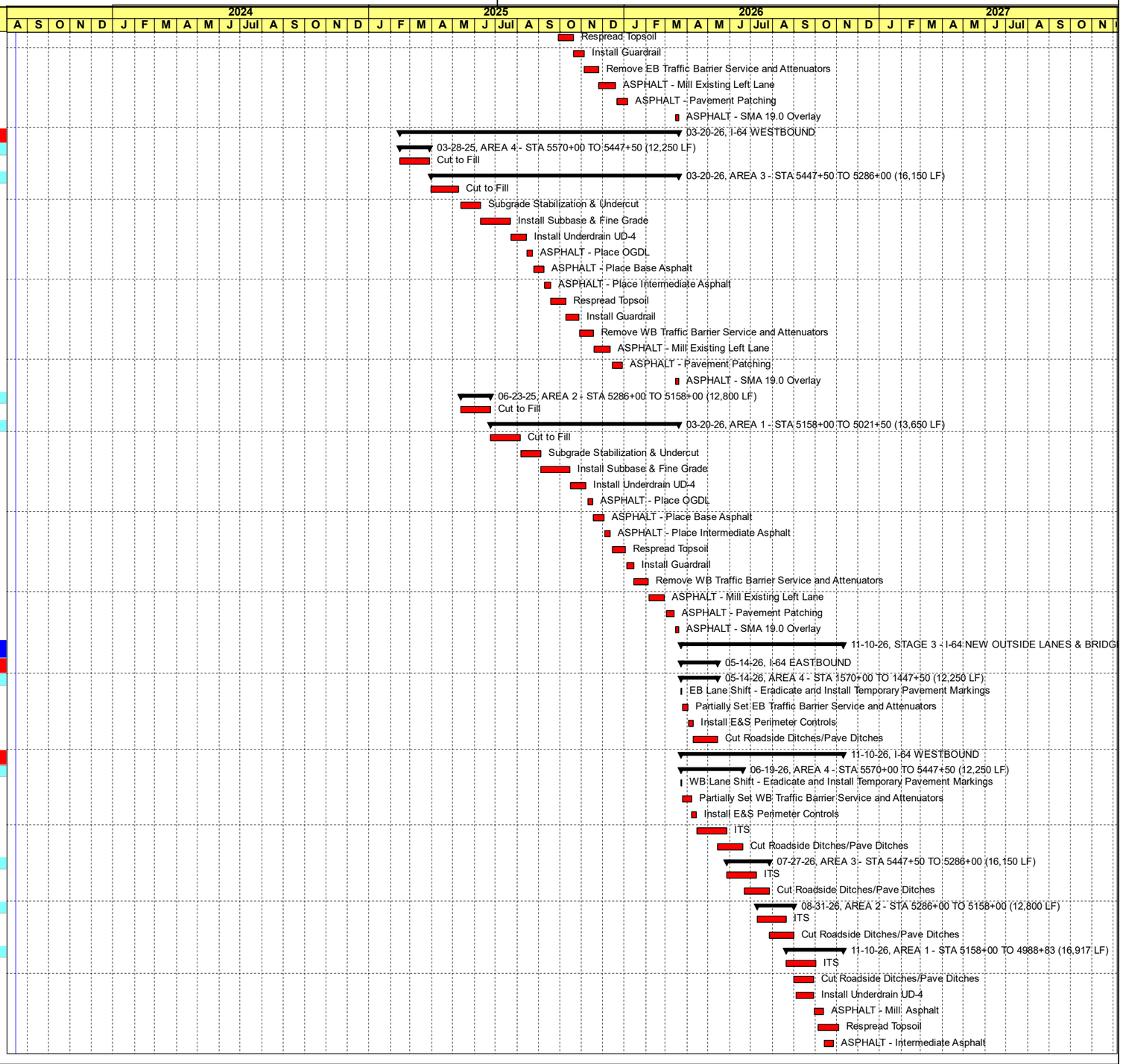
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
I-64 GAP SEGMENT A WIDENING		961	10-04-23	07-30-27	0
Contract: C00122166DB119 I-64 GAP SEGMENT A WIDENING		961	10-04-23	07-30-27	0
SCHEDULE MILESTONES		961	10-04-23	07-30-27	0
A-1040	DESIGN-BUILD CONTRACT EXECUTION	0	10-04-23*		0
A-1050	NOTICE TO PROCEED (10/09/2023)	0	10-09-23		2
A-1080	BEGIN STAGE 2 CONSTRUCTION	0	09-02-24		1
A-1100	BEGIN STAGE 3 CONSTRUCTION	0	03-21-26		2
A-1110	BEGIN STAGE 4 CONSTRUCTION	0	11-11-26		0
A-1120	UNIQUE MILESTONE #1-THIRD LANE OPEN @ AREA 1	0		11-19-26*	0
A-1135	UNIQUE MILESTONE #2 - EARLY FINAL COMPLETION F	0		12-31-26*	0
A-1140	VDOT PUNCHLIST/POST INSTALLATION VIDEO STORM	100	03-09-27	07-30-27	0
A-1170	FINAL COMPLETION DATE	0		07-30-27*	0
DESIGN PHASE		228	10-09-23	09-02-24	0
PRELIMINARY DESIGN WORK		50	10-09-23	12-19-23	2
SURVEY and MAPPING		50	10-09-23	12-19-23	2
BAA-1000	DISTRIBUTE ACCESS LETTERS	1	10-09-23	10-09-23	2
BAA-1010	PROPERTY ACCESS HOLD	15	10-10-23	10-30-23	2
BAA-1020	SET CONTROL AND PANEL POINTS	20	10-18-23	11-06-23	2
BAA-1030	BASE MAPPING / FIELD SURVEY	40	10-23-23	12-19-23	2
ROADWAY DESIGN		193	11-29-23	09-02-24	0
BC-1000	SET HORIZONTAL AND VERTICAL GEOMETRY	25	11-29-23	01-04-24	2
BC-1010	ROADWAY DRAINAGE DESIGN	40	12-28-23	02-23-24	2
BC-1040	COMPLETE PLAN DETAILS	40	02-26-24	04-19-24	2
BC-1050	COMPILE ROADWAY PLANS (1ST SUBMISSION)	4	04-22-24	04-25-24	2
BC-1060	DESIGN QA/QC (1ST SUBMISSION)	5	04-26-24	05-02-24	2
BC-1070	SUBMIT ROADWAY PLANS (1ST SUBMISSION)	0	05-03-24		2
BC-1080	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (1S	21	05-03-24	05-23-24	4
BC-1090	PREPARE ROADWAY PLANS (2ND SUBMISSION)	20	05-24-24	06-21-24	1
BC-1100	DESIGN QA/QC (2ND SUBMISSION)	5	06-17-24	06-21-24	1
BC-1110	SUBMIT ROADWAY PLANS (2ND SUBMISSION)	0	06-24-24		1
BC-1120	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (2I	21	06-24-24	07-14-24	1
BC-1130	PREPARE FINAL ROADWAY PLANS	15	07-15-24	08-02-24	1
BC-1140	DESIGN FINAL QA/QC PLANS	5	08-05-24	08-09-24	1
BC-1150	SUBMIT FINAL ROADWAY PLANS	0	08-12-24		1
BC-1160	VDOT/FHWA REVIEW/COMMENT FINAL ROADWAY PLA	21	08-12-24	09-01-24	1
BC-1170	RFC PLANS ISSUED FOR CONSTRUCTION	0	09-02-24		1
CONSTRUCTION		730	09-03-24	07-30-27	0
STAGE 2 - I-64 NEW INSIDE LANES & BRIDGES		391	09-03-24	03-20-26	0
I-64 EASTBOUND		391	09-03-24	03-20-26	0
AREA 4 - STA 1570+00 TO 1447+50 (12,250 LF)		97	09-26-24	02-13-25	0
GBE4-1050	Set EB Traffic Barrier Service and Attenuators	12	09-26-24	10-11-24	0
GCE4-1000	Grub	30	10-14-24	11-22-24	0
GCE4-1020	Install E&S Sediment Basins and Traps	10	11-25-24	12-10-24	0
GCE4-1030	Strip Topsoil	15	12-11-24	01-02-25	0
GCE4-1050	Cut to Fill	30	01-03-25	02-13-25	0
AREA 3 - STA 1447+50 TO 1286+00 (16,150 LF)		88	09-03-24	01-08-25	21
GBE3-1040	EB Lane Shift - Eradicate and Install Temporary Pavement	2	09-03-24	09-04-24	0
GBE3-1050	Set EB Traffic Barrier Service and Attenuators	15	09-05-24	09-25-24	0
GCE3-1000	Clear & Grub	35	11-15-24	01-08-25	21
AREA 2 - STA 1286+00 TO 1158+00 (12,800 LF)		35	11-15-24	01-08-25	47
GCE2-1000	Clear & Grub	35	11-15-24	01-08-25	47
AREA 1 - STA 1158+00 TO 988+83 (16,917 LF)		303	01-09-25	03-20-26	0
GCE1-1000	Grub	35	01-09-25	02-27-25	47
GCE1-1010	Install E&S Perimeter Controls	5	02-28-25	03-06-25	47
GCE1-1020	Install E&S Sediment Basins and Traps	5	02-28-25	03-06-25	47
GCE1-1030	Strip Topsoil	20	03-07-25	04-03-25	47
GCE1-1050	Install Storm & Riprap	30	04-04-25	05-15-25	47
GCE1-1060	Cut to Fill	30	04-04-25	05-15-25	47
GCE1-1065	Subgrade Stabilization & Undercut	20	05-16-25	06-13-25	47
GCE1-1070	Install Subbase & Fine Grade	30	06-16-25	07-28-25	47
GCE1-1080	Install Underdrain UD-4	20	07-29-25	08-25-25	47
GCE1-1090	ASPHALT - Place OGDL	6	08-26-25	09-03-25	47
GCE1-1100	ASPHALT - Place Base Asphalt	10	09-04-25	09-17-25	47
GCE1-1110	ASPHALT - Place Intermediate Asphalt	7	09-18-25	09-26-25	47



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

SHIRLEY CONTRACTING COMPANY, LLC

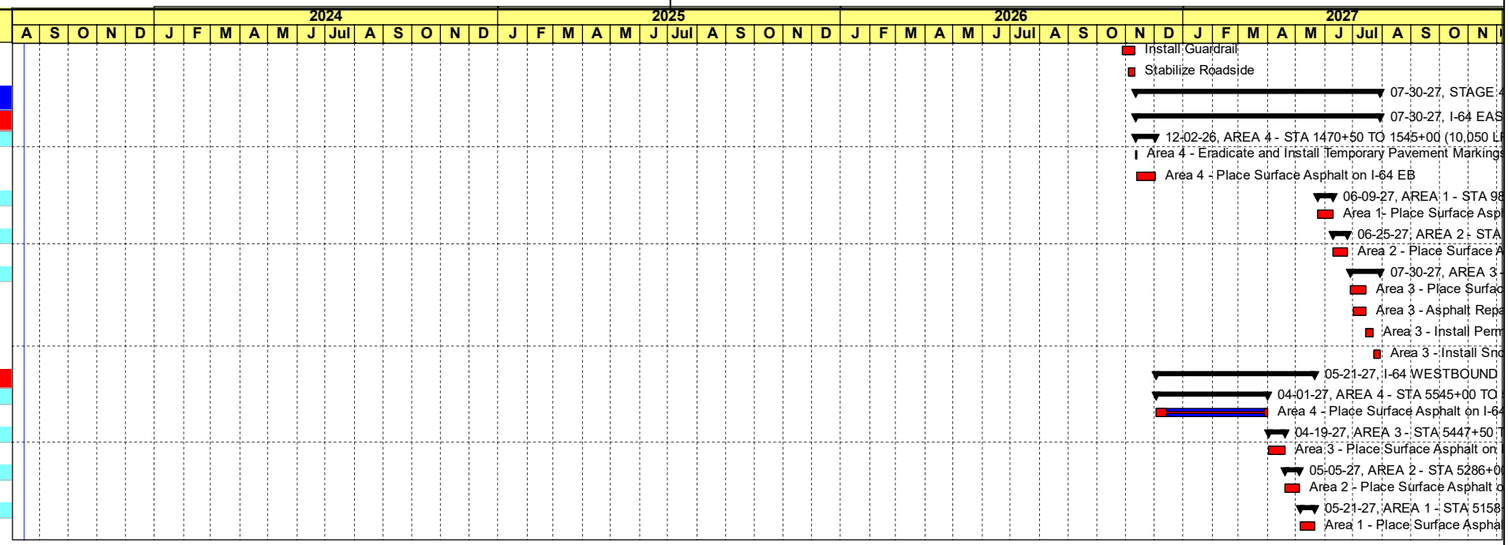
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GCE1-1120	Respread Topsoil	16	09-29-25	10-20-25	47
GCE1-1140	Install Guardrail	11	10-21-25	11-04-25	47
GCE1-1170	Remove EB Traffic Barrier Service and Attenuators	15	11-05-25	11-25-25	47
GCE1-1180	ASPHALT - Mill Existing Left Lane	16	11-26-25	12-19-25	47
GCE1-1190	ASPHALT - Pavement Patching	10	12-22-25	01-06-26	47
GCE1-1200	ASPHALT - SMA 19.0 Overlay	5	03-16-26	03-20-26	0
I-64 WESTBOUND		277	02-14-25	03-20-26	0
AREA 4 - STA 5570+00 TO 5447+50 (12,250 LF)		30	02-14-25	03-28-25	0
GCW4-1050	Cut to Fill	30	02-14-25	03-28-25	0
AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)		247	03-31-25	03-20-26	0
GCW3-1050	Cut to Fill	30	03-31-25	05-09-25	0
GCW3-1055	Subgrade Stabilization & Undercut	20	05-12-25	06-09-25	52
GCW3-1070	Install Subbase & Fine Grade	30	06-10-25	07-22-25	52
GCW3-1080	Install Underdrain UD-4	17	07-23-25	08-14-25	52
GCW3-1090	ASPHALT - Place OGDL	6	08-15-25	08-22-25	52
GCW3-1100	ASPHALT - Place Base Asphalt	10	08-25-25	09-08-25	52
GCW3-1110	ASPHALT - Place Intermediate Asphalt	7	09-09-25	09-17-25	52
GCW3-1120	Respread Topsoil	16	09-18-25	10-09-25	52
GCW3-1140	Install Guardrail	13	10-10-25	10-28-25	52
GCW3-1170	Remove WB Traffic Barrier Service and Attenuators	15	10-29-25	11-18-25	52
GCW3-1180	ASPHALT - Mill Existing Left Lane	16	11-19-25	12-12-25	52
GCW3-1190	ASPHALT - Pavement Patching	10	12-15-25	12-29-25	52
GCW3-1200	ASPHALT - SMA 19.0 Overlay	5	03-16-26	03-20-26	0
AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)		30	05-12-25	06-23-25	0
GCW2-1060	Cut to Fill	30	05-12-25	06-23-25	0
AREA 1 - STA 5158+00 TO 5021+50 (13,650 LF)		187	06-24-25	03-20-26	0
GCW1-1060	Cut to Fill	30	06-24-25	08-05-25	0
GCW1-1065	Subgrade Stabilization & Undercut	20	08-06-25	09-03-25	0
GCW1-1070	Install Subbase & Fine Grade	30	09-04-25	10-15-25	0
GCW1-1080	Install Underdrain UD-4	17	10-16-25	11-07-25	0
GCW1-1090	ASPHALT - Place OGDL	6	11-10-25	11-17-25	0
GCW1-1100	ASPHALT - Place Base Asphalt	10	11-18-25	12-03-25	0
GCW1-1110	ASPHALT - Place Intermediate Asphalt	7	12-04-25	12-12-25	0
GCW1-1120	Respread Topsoil	13	12-15-25	01-02-26	0
GCW1-1140	Install Guardrail	8	01-05-26	01-14-26	0
GCW1-1170	Remove WB Traffic Barrier Service and Attenuators	15	01-15-26	02-04-26	0
GCW1-1180	ASPHALT - Mill Existing Left Lane	16	02-05-26	02-27-26	0
GCW1-1190	ASPHALT - Pavement Patching	10	03-02-26	03-13-26	0
GCW1-1200	ASPHALT - SMA 19.0 Overlay	5	03-16-26	03-20-26	0
STAGE 3 - I-64 NEW OUTSIDE LANES & BRIDGES		164	03-23-26	11-10-26	0
I-64 EASTBOUND		39	03-23-26	05-14-26	0
AREA 4 - STA 1570+00 TO 1447+50 (12,250 LF)		39	03-23-26	05-14-26	0
GCE4-1150	EB Lane Shift - Eradicate and Install Temporary Pavement	2	03-23-26	03-24-26	0
GCE4-1160	Partially Set EB Traffic Barrier Service and Attenuators	7	03-25-26	04-02-26	0
GDE4-1000	Install E&S Perimeter Controls	5	04-03-26	04-09-26	0
GDE4-1010	Cut Roadside Ditches/Pave Ditches	25	04-10-26	05-14-26	0
I-64 WESTBOUND		164	03-23-26	11-10-26	0
AREA 4 - STA 5570+00 TO 5447+50 (12,250 LF)		64	03-23-26	06-19-26	0
GCW4-1150	WB Lane Shift - Eradicate and Install Temporary Pavement	2	03-23-26	03-24-26	0
GCW4-1160	Partially Set WB Traffic Barrier Service and Attenuators	10	03-25-26	04-07-26	0
GDW4-1000	Install E&S Perimeter Controls	5	04-08-26	04-14-26	0
GDW4-1015	ITS	30	04-15-26	05-27-26	0
GDW4-1010	Cut Roadside Ditches/Pave Ditches	25	05-15-26	06-19-26	0
AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)		42	05-28-26	07-27-26	0
GDW3-1015	ITS	30	05-28-26	07-09-26	0
GDW3-1010	Cut Roadside Ditches/Pave Ditches	25	06-22-26	07-27-26	0
AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)		37	07-10-26	08-31-26	0
GDW2-1015	ITS	30	07-10-26	08-20-26	0
GDW2-1010	Cut Roadside Ditches/Pave Ditches	25	07-28-26	08-31-26	0
AREA 1 - STA 5158+00 TO 4988+83 (16,917 LF)		57	08-21-26	11-10-26	0
GDW1-1015	ITS	30	08-21-26	10-02-26	0
GDW1-1010	Cut Roadside Ditches/Pave Ditches	20	09-01-26	09-29-26	0
GDW1-1020	Install Underdrain UD-4	17	09-04-26	09-29-26	0
GDW1-1050	ASPHALT - Mill Asphalt	10	09-30-26	10-13-26	0
GDW1-1030	Respread Topsoil	22	10-05-26	11-03-26	0
GDW1-1054	ASPHALT - Intermediate Asphalt	10	10-14-26	10-27-26	0



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

SHIRLEY CONTRACTING COMPANY, LLC

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
GDW1-1060	Install Guardrail	10	10-28-26	11-10-26	0
GDW1-1040	Stabilize Roadside	5	11-04-26	11-10-26	0
STAGE 4 - FINAL OVERLAY and OPEN LANES		175	11-11-26	07-30-27	0
I-64 EASTBOUND		175	11-11-26	07-30-27	0
AREA 4 - STA 1470+50 TO 1545+00 (10,050 LF)		14	11-11-26	12-02-26	0
GDE4-1070	Area 4 - Eradicate and Install Temporary Pavement Marking	2	11-11-26	11-12-26	0
GEE4-1000	Area 4 - Place Surface Asphalt on I-64 EB	12	11-13-26	12-02-26	0
AREA 1 - STA 988+83 TO 1158+00 (16,917 LF)		12	05-24-27	06-09-27	0
GEE1-1000	Area 1- Place Surface Asphalt on I-64 EB	12	05-24-27	06-09-27	0
AREA 2 - STA 1158+00 TO 1286+00 (12,800 LF)		12	06-10-27	06-25-27	0
GEE2-1000	Area 2 - Place Surface Asphalt on I-64 EB	12	06-10-27	06-25-27	0
AREA 3 - STA 1286+00 TO 1447+50 (16,150 LF)		23	06-28-27	07-30-27	0
GEE3-1000	Area 3 - Place Surface Asphalt on I-64 EB	12	06-28-27	07-14-27	0
GEE3-1005	Area 3 - Asphalt Repairs I-64 EB	8	07-02-27	07-14-27	0
GEE3-1020	Area 3 - Install Perm. Pvmnt Markings on I-64 EB	6	07-15-27	07-22-27	0
GEE3-1040	Area 3 - Install Snowplowable Pvmnt Mrkrs on I-64 EB	6	07-23-27	07-30-27	0
I-64 WESTBOUND		48	12-03-26	05-21-27	0
AREA 4 - STA 5545+00 TO 5447+50 (10,050 LF)		12	12-03-26	04-01-27	0
GEW4-1010	Area 4 - Place Surface Asphalt on I-64 WB	12	12-03-26	04-01-27	0
AREA 3 - STA 5447+50 TO 5286+00 (16,150 LF)		12	04-02-27	04-19-27	0
GEW3-1010	Area 3 - Place Surface Asphalt on I-64 WB	12	04-02-27	04-19-27	0
AREA 2 - STA 5286+00 TO 5158+00 (12,800 LF)		12	04-20-27	05-05-27	0
GEW2-1010	Area 2 - Place Surface Asphalt on I-64 WB	12	04-20-27	05-05-27	0
AREA 1 - STA 5158+00 TO 4988+83 (16,917 LF)		12	05-06-27	05-21-27	0
GEW1-1010	Area 1 - Place Surface Asphalt on I-64 WB	12	05-06-27	05-21-27	0



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

SHIRLEY CONTRACTING COMPANY, LLC