



# Technical Proposal Volume I

A DESIGN-BUILD PROJECT

## Route 659 (Belmont Ridge Road) Reconstruct to 4-Lanes

From: Route 642 (Hay Road)

To: Route 2150 (Gloucester Parkway)

*Loudoun County, Virginia*

State Project No.: 0659-053-262, R204, C504,  
B670, B671

Contract ID No.: C00076244DB76

Date: June 17, 2015



**Attachment 4.0.1.1  
Technical Proposal  
Checklist and  
Contents**



## ATTACHMENT 4.0.1.1

### Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

#### TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

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

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
<b>Technical Proposal Checklist and Contents</b>	Attachment 4.0.1.1	Section 4.0.1.1	no	Section 4.0.1.1
<b>Acknowledgement of RFP, Revisions, and/or Addenda</b>	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Section 3.6
<b>Letter of Submittal</b>	NA	Sections 4.1		Pages 1-2
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	Pages 1-2
Offeror's official representative information	NA	Section 4.1.1	yes	Page 2
Authorized representative's original signature	NA	Section 4.1.1	yes	Page 2
Declaration of intent	NA	Section 4.1.2	yes	Page 2
120 day declaration	NA	Section 4.1.3	yes	Page 2
Point of Contact information	NA	Section 4.1.4	yes	Page 2
Principal Officer information	NA	Section 4.1.5	yes	Page 2
Final Completion Date	NA	Section 4.1.6	yes	Page 2
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.7	no	Appx 4.1.7
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.8	no	Appx 4.1.8

**ATTACHMENT 4.0.1.1**

**Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
<b>Offeror’s Qualifications</b>	NA	Section 4.2		Pages 3-5
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	Page 3
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	Page 5
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	Page 4-5
<b>Design Concept</b>	NA	Section 4.3		Pages 6-20; Vol II: 58-75
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	Pages 7-16; Vol II: 58-72
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	Pages 16-20; Vol II: 73-75
<b>Project Approach</b>	NA	Section 4.4		Pages 21-42
Environmental Management	NA	Section 4.4.1	yes	21-25
Utilities	NA	Section 4.4.2	yes	25-31
Geotechnical	NA	Section 4.4.3	yes	32-35

**ATTACHMENT 4.0.1.1**

**Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	36-42
<b>Construction of Project</b>	NA	Section 4.5		43-56
Sequence of Construction	NA	Section 4.5.1	yes	43-51
Transportation Management Plan	NA	Section 4.5.2	yes	51-56
<b>Disadvantaged Business Enterprises (DBE)</b>	NA	Section 4.6		57
Written statement of percent DBE participation	NA	Section 4.6	yes	57
<b>Proposal Schedule</b>	NA	Section 4.7		Section 4.7
Proposal Schedule	NA	Section 4.7	no	Section 4.7
Proposal Schedule Narrative	NA	Section 4.7	no	Section 4.7
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.7	no	CD-ROM

**Attachment 3.6  
Form C-78-RFP**



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

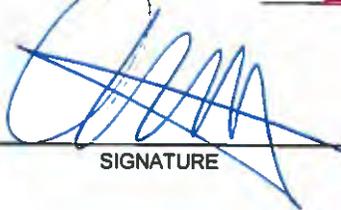
RFP NO. C00076244DB76  
 PROJECT NO.: 0659-053-262, R204, C504, B670, B671

**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 February 18, 2015 – RFP  
(Date)
2. Cover letter of March 6, 2015 – Addendum #1  
(Date)
3. Cover letter of May 7, 2015 – Addendum #2  
(Date)
4. Cover letter of June 5, 2015 – Addendum #3  
(Date)
5. Cover letter of June 12, 2015 – Addendum #4  
(Date)

 <hr/> SIGNATURE	<u>06/17/15</u> <hr/> DATE
<hr/> Aaron T. Myers for Allan Myers VA, Inc. <hr/> PRINTED NAME	<hr/> Vice President/General Manager <hr/> TITLE

# 4.1 Letter of Submittal





June 17, 2015

Stephen D. Kindy, P.E.  
Alternative Project Delivery Office  
Virginia Department of  
Transportation  
1401 East Broad Street  
Richmond, VA 23219

Letter of Submittal/Technical Proposal:  
**Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes**  
From: Route 642 (Hay Road) To: Route 2150 (Gloucester Pkwy)  
State Project No.: 0659-053-262, R204, C504, B670, B671  
Federal Project No.: STP-5A0-1(583)  
Contract ID Number: C00076244DB76

Dear Mr. Kindy:

Allan Myers (Myers) and Whitman, Requardt & Associates, LLP (WRA), herein referred to as the Myers/WRA Team (Team), has collaboratively developed our approach to the design and construction of the Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes Project (the Project).

Our Team’s experience working together on current VDOT design-build projects allows us to provide a customer focused, goal oriented approach to meeting the complex transportation needs of Northern Virginia residents. The Myers/WRA Team is currently working closely with VDOT to complete and deliver the *Walney Road Widening and Bridge Replacement design-build project* to our stakeholders on-time despite utility relocation delays outside of Myers’ control (long lead item for special fiber cable on back-order by Level 3 and Washington Gas construction field changes to their authorized design).

*Icons are used throughout this proposal to identify design and/or construction elements that achieve VDOT’s Project priorities:*

-  Best Responsible Price
-  Optimize Schedule
-  Minimize User Impacts
-  Limit VDOT Risk

Our Team has identified three key elements for this Project, and assembled “Project Risk Task Teams” to focus on each: 1) design optimization to minimize safety conflicts with W&OD Trail users, 2) minimize overhead utility transmission line conflicts, and; 3) design roadway vertical profile adjustments to ease potential MOT conflicts. Throughout the development of our design and construction approaches, we have focused on VDOT’s Project priorities: pricing, schedule management, impact minimization, and risk limitation. Approach elements that forward these priorities are identified throughout our proposal with icons, as specified in the box above, so that VDOT can easily identify our risk management and optimization efforts to deliver the project safely, on-time, and within budget.

Our Project Risk Task Teams’ focused their efforts on four main areas in order to optimize the RFP design and best address VDOT’s Project priorities:

1. **Roadway design optimization:** We have optimized the vertical profile to maintain the current roadway elevations at both Chesterton Road and Portsmouth Boulevard. This vertical optimization also minimizes closures to Belmont Station Drive and traffic impacts to local/through commuters.
2. **Overhead utility impact avoidance:** We have modified both the substructure and superstructure of the bridge to avoid the use of deep foundations, and included shallower concrete beams to assist with constructability. Through this approach, we will not encroach on DVP’s minimum construction clearance envelope, and will avoid potential impacts to the existing line (no relocation and/or outages).

3. **Proactive, in-house public relations and outreach:** We have assigned Myers' Shannon Moody, as our Public Relations Manager. Using an in-house staff member provides Myers with direct and timely control of public outreach messaging; enables us to respond appropriately and quickly to the dynamic needs of the Project stakeholders, including VDOT; and allows for a more cost effective approach to public outreach.
4. **Concurrent sequencing of roadway construction / utility relocations:** This schedule management tactic will allow construction of a large portion of the northbound roadway concurrent with the required Loudoun County Water, overhead DVP Distribution, fiber, and Washington Gas relocations. We have learned through encountering utility delays on both our *Walney Road* and *Route 659 Improvements from Broadlands to Truro Parish projects* that it is best to proactively coordinate, manage, and provide support to utility companies prior to and during their relocation efforts.

### SUBMITTAL REQUIREMENTS

The Myers/WRA Team presents the following information as required by Section 4.1 of the RFP:

- 4.1.1 Recently, all of the companies of American Infrastructure have joined together under a unified name – Allan Myers. The legal entity executing the Contract with VDOT is as follows:
  - Allan Myers VA, Inc.**, 12500 Fair Lakes Circle, Suite 150, Fairfax, VA 22033
- 4.1.2 Allan Myers intends to enter into a contract with VDOT for the Project in accordance with the terms of the RFP.
- 4.1.3 The offer represented by the Technical and Price Proposals will remain in full force and effect for one hundred twenty (120) days after this Technical Proposal is submitted to VDOT.
- 4.1.4 DBPM, Thomas Heil, P.E. will serve as the Point of Contact for the Myers/WRA Team.
  - Thomas Heil, P.E., Design-Build Project Manager** (571) 485-0387 (Telephone)  
12500 Fair Lakes Circle, Suite 150 (703) 502-7550 (Fax)  
Fairfax, VA 22033 tom.heil@allanmyers.com
- 4.1.5 Vice President/General Manager, Aaron Myers is the Principal Officer for Allan Myers:
  - Aaron Myers, Vice President/General Manager** (804) 290-8500 (Telephone)  
301 Concourse Boulevard, Suite 300 (804) 418-7935 (Fax)  
Glen Allen, VA 23059 aaron.myers@allanmyers.com
- 4.1.6 The Interim Milestone Date of December 17, 2018 and the Final Completion date of April 30, 2019 are reflected in the Proposal Schedule (*Section 4.7*).
- 4.1.7 An executed Proposal Payment Agreement (*Attachment 9.3.1*) is included in *Appendix 4.1.7*.
- 4.1.8 Certification Regarding Debarment Forms are included in *Appendix 4.1.8* for Primary and Lower Tier Covered Transactions.

The Myers/WRA Team appreciates the opportunity that VDOT has provided us to partner with you and the local community on this exciting and challenging Project. I personally want to convey the commitment of our key staff and support personnel to deliver this Project to our collective stakeholders on-time, within budget, and in a safe manner, to provide lasting improvements to the local community.

Respectfully,

\_\_\_\_\_  
Aaron T. Myers, Vice President/General Manager  
Allan Myers

## 4.2 Offeror's Qualifications



## Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

From: Route 642 (Hay Road)

To: Route 2150 (Gloucester Parkway)

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### 4.2 QUALIFICATIONS

#### 4.2.1 CONFIRMATION OF SOQ INFORMATION

Since submission of the SOQ, the companies of American Infrastructure have joined under a new and unified brand name – Allan Myers. This is a change in name only; there has been no change in ownership or the structure of the Offeror. In accordance with Section 11.4 of the RFP, VDOT was notified of this change via letter on May 11, 2015. There have been no other changes made to the organizational structure of the Myers/WRA Team or the Key Personnel committed to the Project. Minor changes to non-key personnel were acknowledged by VDOT on May 28, 2015 and on June 9, 2015 and are reflected in red text on the organizational chart and narrative on Pages 4 and 5. All other information contained in our SOQ remains true and accurate.

The Myers/WRA Team is committed to keeping the Key Personnel identified during the SOQ phase intact throughout the duration of the Project. DBPM Thomas Heil, PE; DM John Maddox, PE; QAM Brian Henschel, PE, CCM, PMP and CM Ivan Saer, PE have formed an integrated team through their work together on VDOT's *Walney Road Widening and Bridge Replacement design-build (DB) project* and during the development of this Technical Proposal. These individuals are experienced with the scope of work and challenges presented by the Project, specifically two to four-lane widening on existing alignment; intricate TMP/MOT phasing; single-span bridge design and construction; complex utility coordination/relocation/betterments; challenging SWM BMPs; and coordination with the Northern Virginia Regional Park Authority (NVRPA).

**Design-Build Project Manager (DBPM), Thomas Heil, P.E.** has 28 years of experience with the design and construction of major transportation projects. He has held management positions (DBPM/DM/ Environmental Manager) on six DB/PPTA transportation projects in Virginia since 2006, ranging in size from approximately \$10M to \$1.39B. Tom is currently serving as the DBPM for two VDOT NOVA DB projects (*Walney Road Widening and Bridge Replacement* and *Rolling Road/Franconia-Springfield Pkwy Interchange Improvements*).

**Quality Assurance Manager (QAM), Brian Henschel, P.E., CCM, PMP** has 19 years of quality assurance and quality control experience on roadway, bridge, and utility projects. He is currently filling the role of QAM on three design-build projects, VDOT's *Greenview Drive Widening, CMU Campus Drive Connector/Route 123 Bridge and Improvements*, and Augusta County's *Route 636 over BBRR PPTA* where he prepared and implemented the QA/QC Plan per VDOT requirements, ensured quality compliance for work and materials on site, issued Non-Compliance Reports, and enacted the AR Plan as required. He is the QC Manager on VDOT's *Walney Road Widening and Bridge Replacement DB project*, managing and coordinating QC inspection and testing.

**Design Manager (DM), John Maddox, P.E.** has 29 years of experience designing major highway facilities and has been functioning in the role of DM for more than 20 years. Since 2001, he has managed more than 100 projects for VDOT in the NOVA District. John has served as DM on several major VDOT projects in the NOVA District including the *Fairfax County Parkway Interchange at Fair Lakes Parkway* and the *Walney Road Widening and Bridge Replacement DB projects*.

**Construction Manager (CM), Mr. Ivan Saer, P.E., DBIA** has 17 years of construction experience and is currently serving as the CM on VDOT's *Rolling Road/Franconia-Springfield Parkway Interchange Improvements DB project*. He is also serving as the Assistant Construction Engineer on the *Walney Road Widening and Bridge Replacement DB project*. Ivan served as CM for a \$20M multi-modal roadway project that included a 33 phase MOT effort to safely accommodate vehicles, buses, and pedestrians at the active *Vienna Metro Kiss-Ride facility*. For the demolition of a railroad bridge traversing Four Mile Run Trail, he worked closely with Northern Virginia Regional Commission to develop a MOT phasing plan focused on facility users including walkers, runners, and bicyclists.

## 4.2.2 ORGANIZATIONAL CHART AND NARRATIVE

### ORGANIZATIONAL CHART

The organizational chart on *Page 5* shows the chain of command for the Project and includes the individuals responsible for pertinent disciplines. This organizational structure mirrors the structure being used by the ~~AI~~ ~~WR&A~~ Myers/WRA Team on VDOT's *Walney Road Widening and Bridge Replacement DB project*.

### ORGANIZATIONAL CHART NARRATIVE

**VDOT** – The Department will coordinate directly with our DBPM as the primary contact for aspects of design and construction oversight of the Project. Open lines of communication between the QAM and VDOT will assist with monitoring quality assurance oversight. We anticipate VDOT's oversight and support in our coordination efforts with Project stakeholders. The ~~AI~~ ~~WR&A~~ Myers/WRA Team's PR) Manager will facilitate involvement of stakeholders to minimize additional effort needed by VDOT.

**Design-Build Management** – Our DBPM will serve as VDOT's single point of contact for the Project. Reporting to the DBPM are five primary reports; the QAM, DM, CM, PR and Safety Managers. The DBPM will also focus on third party coordination and will support the ROW), Utility, and PR efforts during design and construction. He will maintain an action item log for potential issues and a three-month look-ahead schedule to ensure the Project remains on schedule and in conformance with VDOT commitments.

**Quality Assurance** – The Manager (QAM) will report to our DBPM, with independent oversight by VDOT. Our QAM will also monitor the design and construction QC programs and coordinate with the DM and CM to ensure conformance with contract requirements and the "approved for construction" plans and specifications.

**Design** – Our DM will report to the DBPM and coordinate with both the DBPM and CM to develop a cost-effective, efficient, and constructible design. He will also coordinate with the CM during construction to confirm field conditions meet design assumptions and reevaluate these assumptions if necessary. The design discipline leads, Design QA/QC Manager, and ROW Manager will report to our DM.

**Construction** – The CM will report to the DBPM and communicate directly with the PR Manager on construction coordination with Project stakeholders. He will also communicate with the DM during both design and construction phases to ensure construction is consistent with the project design. Our CM will be on the Project site for the duration of construction operations and will oversee the construction team, including quality control, schedule, utility coordination, maintenance of traffic, and environmental leads.

**Stakeholder Coordination** – Our DBPM, DM, CM and PR Manager will work closely with VDOT to coordinate construction over and around the W&OD Trail, host public meetings during design, provide construction progress updates, and coordinate third party reviews. Coordination with utilities and environmental stakeholders will be supported by design and construction task leads for these areas.

**Bridge Design** – Jeremy Schlüssel, P.E. will work closely with Bridge Superintendent, ~~Jeff Humphreys,~~ ~~DBIA,~~ ~~Chris Desirey~~ and Safety Manager, Sandra Genter during design development to optimize the bridge design with respect to constructability, cost, and safety of both the trail users and operations staff during construction. Mr. Schlüssel is currently the Lead Structural Engineer for the *GMU Campus Drive Connector Route 123 Bridge and Improvements DB*, ~~and~~ the *Route 636 over BBRR PPTA* ~~and~~ the *Walney Road projects*.

**Utilities** – The DM and DBPM will be actively engaged in the utility coordination process. Design Utilities Lead, Daniel Seli, PE and Construction Utility Coordinator, ~~Thomas-Lewis~~ ~~Mike O'Neill~~, will work collaboratively with the utility companies to minimize utility impacts, incorporate utility requirements into the design, and coordinate the schedule for required relocations. Mr. Seli has led over 140 utility relocation task assignments for VDOT in the NOVA area. ~~Mr. Lewis's most recent utility coordination experience was for AI's Myers' Fall Hill Avenue Bridge project, which involved the relocation of overhead utility lines along the length of the project and a utility bridge relocation across the Rappahannock Canal. Utilities included~~

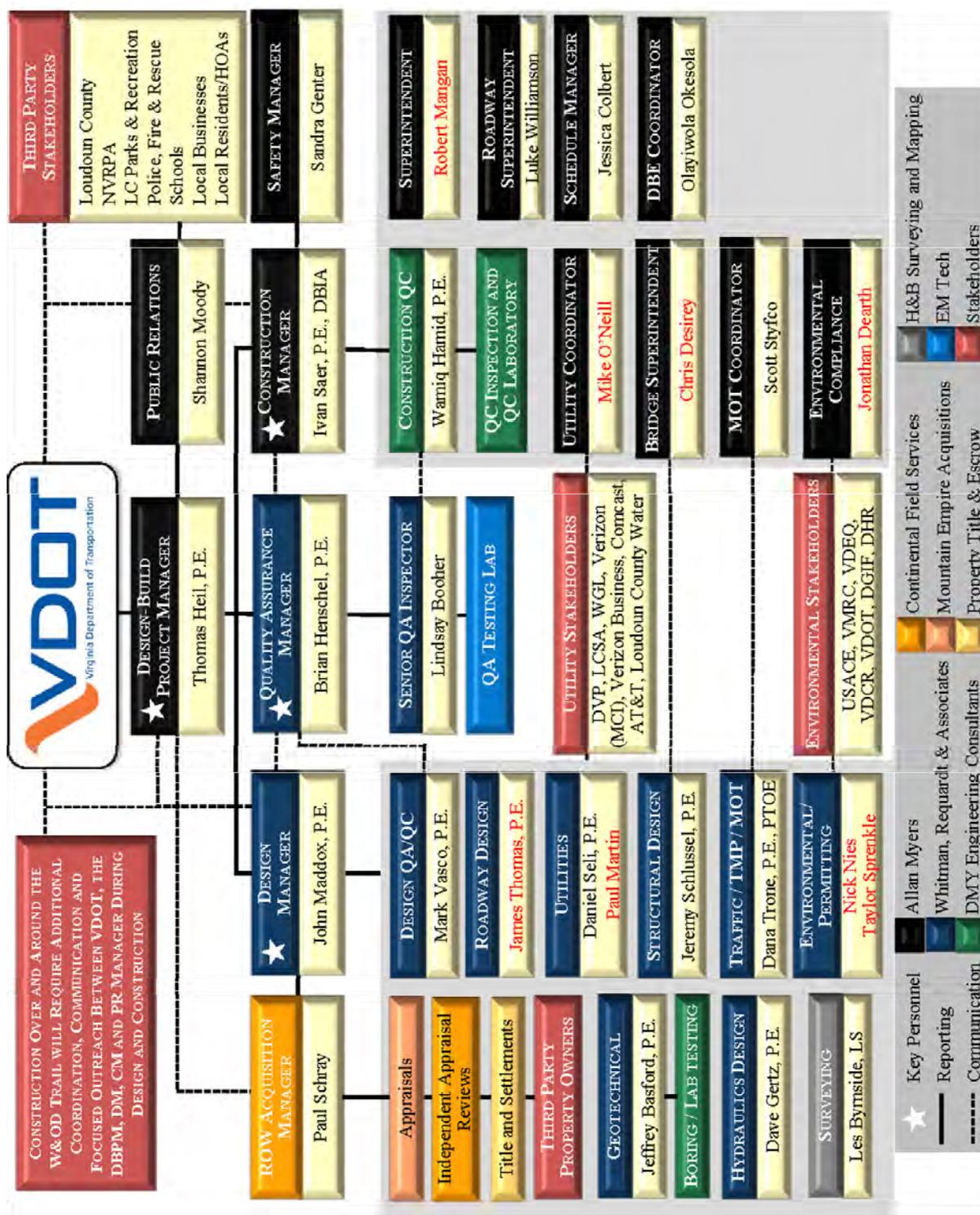
**Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes**

From: Route 642 (Hay Road)

To: Route 2150 (Gloucester Parkway)

~~Dominion Virginia Power, Columbia Gas, Cox, Comcast, Verizon, and the City of Fredericksburg Water/Sewer.~~

**Environmental Management** – Environmental/Permitting Leads, ~~Amanda Baxter~~ Nick Nies and Taylor Sprenkle and Construction Environmental Compliance Manager, ~~Michael Lachowicz~~ Jonathan Dearth will work collaboratively with the environmental stakeholders to finalize permits and ensure the conditions of the environmental permits are met during construction.



# 4.3 Design Concept



### 4.3 DESIGN CONCEPT

#### PROJECT DESCRIPTION

The Project involves the reconstruction and widening of Route 659 (Belmont Ridge Road) from an existing two-lane, undivided roadway to a four-lane median divided facility meeting VDOT Road Design Manual (RDM) Standard GS-6 for an Urban Minor Arterial classification with a design speed of 50 mph. The geometric Design Criteria is provided in the RFP with selected criteria identified in *Table 4.3.3*. In the Myers/WRA Team’s analysis, several opportunities were identified to offer alternative solutions that meet or exceed the Project requirements while reducing Project costs, minimizing impacts to the traveling public during construction, and providing for facilitated future improvements for the corridor.

#### DESIGN OPTIMIZATION

The Myers/WRA Team’s integrated design approach during this RFP phase has focused on analyzing means and methods to lower Project costs and provide for better control of the Project schedule while adhering to technical and contractual requirements. Design optimizations and refinement efforts have been collaboratively evaluated by task force teams that include design discipline specialists, construction staff, schedulers, and the QAM. Upon award, task force groups will be expanded to include VDOT and other stakeholders as appropriate. The goals of our task teams include (1) development of stream-lined sequence of construction / MOT phasing to meet the interim milestone and Project final completion dates; (2) utility conflict identification, minimization and coordination; (3) SWM optimization to reduce Project costs; (4) identification of rock and unsuitable soil locations and mitigation measures; (5) environmental resource identification and impact minimization/mitigation; and (6) reduction of bridge length to allow for concrete girders which reduces Project costs and future maintenance.

During this RFP design refinement phase, the Myers/WRA Team has identified Project features that pose challenges in design and construction and has collaborated to develop potential solutions. Some of the concepts developed by our Team are described in *Table 4.3.1*. Following NTP, our Team will continue to refine the design while focusing on schedule acceleration, public and worker safety, and delivering a project that meets or exceeds quality and performance standards and addresses long-term asset performance and durability.

*Table 4.3.1 Design Feature Optimization*

FEATURE	OPTIMIZATION	BENEFIT
Roadway Alignment	<ul style="list-style-type: none"> <li>Optimize Vertical Alignment on Route 659 (Belmont Ridge Rd)</li> </ul>	<ul style="list-style-type: none"> <li>Reduces total amount of rock excavation and the need for blasting of shallow rock between Chesterton Street and Portsmouth Boulevard</li> <li>Reduces Project costs by reducing rock excavation</li> <li>Provides shorter tie-ins at cross streets and entrances allowing traffic to move through intersections safely and minimizes for construction staging</li> </ul>
Intersections	<ul style="list-style-type: none"> <li>Reduced impacts along Chesterton St., Portsmouth Blvd. and Belmont Station Drive</li> </ul>	<ul style="list-style-type: none"> <li>Provides shorter tie-ins at cross streets allowing traffic to move through intersections safely due to less extreme grade differences</li> <li>Minimizes the need for extensive construction staging</li> <li>Avoids impact to brick driveway on Belmont Station Drive</li> </ul>
SWM	<ul style="list-style-type: none"> <li>Optimize, consolidate and minimize SWM facilities</li> </ul>	<ul style="list-style-type: none"> <li>Reduces impacts to wetlands and streams</li> <li>Reduces agency coordination / expedites approvals</li> <li>Reduces cost and schedule risks</li> <li>Reduces maintenance requirements</li> </ul>
Structures	<ul style="list-style-type: none"> <li>Increased Vertical Clearance to 16.5’ at W&amp;OD Trail which allows bridge length to be reduced by 20’ from RFP Conceptual Plan</li> </ul>	<ul style="list-style-type: none"> <li>Reduces Project costs</li> <li>Reduces construction time</li> <li>Provides increased vertical clearance to W&amp;OD Trail</li> <li>Concrete girders reduce future maintenance costs</li> <li>Meets NVRPA Trail opening criteria</li> </ul>

VDOT Priority Icon Legend			
	Price		Schedule
	Impacts		Risks

FEATURE	OPTIMIZATION	BENEFIT
W&OD Trail	<ul style="list-style-type: none"> <li>Increased Vertical Clearance to 16.5'</li> </ul>	<ul style="list-style-type: none"> <li>Shorter bridge length allows for shallower structure depth which allows for NVRPA preferred minimum vertical clearance of 16.5' (RFP = 14.5' min.) while maintaining NVRPA required Min. Elevation Open Area (Min. EOA)</li> <li>Reduced limits of construction within NVRPA ROW by raising trail profile</li> </ul>

**DURABILITY AND LONG-TERM ASSET PERFORMANCE**

One focus of the Myers/WRA Team was to provide durability and long term performance in the design modifications made to the RFP Conceptual Plan. The length of the MSE walls on the Project was reduced by optimizing vertical alignments and grading within VDOT standards while maintaining the safety of the corridor. Reducing the overall MSE wall length lowers the costs of inspections and maintenance in the future. The reduction in MSE wall length also reduces the length of the guardrail required on the approaches to the bridges which also reduces the maintenance costs. The Team’s proposed drainage design not only eliminated the need for manufactured BMPs, but greatly increased the amount of open drainage on the Project and reduced the need for a closed system. The Team’s design provides for more cost effective and easily maintained drainage system than compared with the closed system throughout and manufactured BMPs as proposed in the RFP Conceptual Plan.

By reducing the overall bridge length, the Myers/WRA Team was able to make a switch from a curved structural steel superstructure to a parallel girder prestressed concrete bulb tee superstructure. This change improves the overall constructability of the bridge structure by reducing the complexity of constructing the skewed and curved structural steel design and eliminating the need for girder splices. Using concrete beams, in lieu of steel, eliminates the need to evaluate the fatigue prone elements inherent in highly skewed and curved steel structures. Skewed, curved structures can lead to inefficient use of structural steel to meet the lower allowable stresses. Eliminating the need for splices allows for faster structure erection and shorter maintenance of traffic phasing. Concrete superstructures are inherently stiffer than optimized steel superstructures. For long term performance, this reduces overall deflections and induced vibrations which can cause unintended maintenance issues, especially on a highly skewed bridge where these affects can concentrate in the acute corners of the deck. The structure will be jointless with the use of a deck slab extension abutment and will utilize high strength concrete (up to 10 ksi in the girders), low permeability concrete, and stainless steel reinforcing in the bridge deck. The material and geometric selections produce a very durable and low maintenance bridge solution that will easily satisfy the required structure design life.

**DESIGN CRITERIA**

The Myers/WRA Team’s proposal meets or exceeds the design criteria indicated for the Project as detailed in the RFP. No deviations from those criteria are proposed, nor do we propose any design waivers or design exceptions for this Project.

**4.3.1 CONCEPTUAL ROADWAY PLANS**

Volume II of this Technical Proposal contains the 11” x 17” graphics that illustrate our Conceptual Project Plans. Callout boxes throughout the plans demonstrate how the proposed design meets or exceeds the RFP requirements. To explain our design concept and each benefit to the Project, we have narratively addressed each element (Items “a” through “h”) from the RFP.

**(a) GENERAL GEOMETRY**

The specifications provided in the RFP designate the geometry and configuration of each of the roadways

*Table 4.3.2 Roadway Design Requirements*

SELECTED CRITERIA	REQUIREMENT
Design Speed	50 mph
Stopping Sight Distance	425 feet
Minimum Radius	929 feet
Maximum Grade <sup>(1)</sup>	7%
Crest/Sag Vertical Curve “K”	84/96
Lane Width	12 feet
Full Shoulder Width	4 feet LT/0 feet RT
Clear Zone Width	24 feet
Travel Lane Cross Slope	2% new lane
Shoulder Cross Slope	5% maximum

included in the design package. Our proposed design meets or exceeds the geometric requirements of the RFP. Table 4.3.3 shows the geometric standards to be used in the development of the proposed roadway facility.

*Table 4.3.3 Roadway Geometry*

ROADWAY	GS STANDARD	NUMBER AND WIDTH OF LANES	WIDTHS OF SHOULDERS OR CURB & GUTTER	WIDTH OF SIDEWALKS/ SHARED USE PATHS
Route 659	GS-6	4-12' Lanes	4'/8' paved/total Inside Shoulders; St'd CG-7 Outside	10' Shared Use Path (SUP) both sides
Hearford Lane	GS-4	16' min. Pavement Width	2' graded	N/A
Chesterton Street	GS-8	2-17' Lanes	St'd CG-6	N/A
Luck Lane	N/A	2-24' Lanes	St'd CG-2	N/A
Portsmouth Boulevard	GS-7	4-12' Lanes	St'd CB-6 Outside / MS-1A Median	5' Sidewalk
Belmont Station Drive	GS-8	2-16' Lanes	St'd CG-6	5' Sidewalk
Builders Lane	GS-8	2-18' Lanes	St'd CG-6	N/A
Jackpit Connector	GS-8	2-12' Lanes	12' paved LT / St'd CG-6 RT	N/A
Jackpit Lane	N/A	2-10.5' Lanes	8' graded LT / St'd CG-6 RT	N/A

**(b) HORIZONTAL AND VERTICAL ALIGNMENTS**

The horizontal alignment for this Project is constrained by the right-of-way limits as depicted in the RFP Conceptual Plans, which limit the amount the alignment can be modified. Based on this constraint, the Myers/WRA Team implemented enhancements to the vertical alignment that modified the RFP design concept to reduce Project costs, improve mobility of the public during construction and minimize environmental impacts by reducing the Project footprint. These enhancements are described in Table 4.3.4.

*Table 4.3.4 Proposed Vertical Alignment Benefits*

ENHANCEMENT	BENEFIT
<b>Optimize Route 659 Profile</b> 	<ul style="list-style-type: none"> <li>Reduce rock excavation by 50% as a result of raising profile through areas of shallow rock (between Chesterton Street. and Portsmouth Drive), which reduces Project costs</li> </ul>
<b>Optimize W&amp;OD Trail Profile</b> 	<ul style="list-style-type: none"> <li>Reduce length of reconstruction of the W&amp;OD Trail to meet 4(f) requirements (RFP length = 450 LF, Design length = 432 LF)</li> <li>Increase minimum RFP required vertical clearance of 14.5' to NVRPA required minimum of 16.5'.</li> </ul>
<b>Reduce grade difference at intersections</b> 	<ul style="list-style-type: none"> <li>Improved mobility of the motorists and pedestrians through intersections by reducing construction staging necessary to maintain safety of the public</li> <li>Reduce tie-in limits along side streets (Chesterton = -51 LF, Portsmouth = -221 LF, Belmont Station = -184 LF)</li> </ul>

**Vertical Alignment Adjustments** – Minimizing the earthwork required to construct this net-borrow Project is important to reduce construction costs, minimize the duration of construction and limit the number of trucks on the road to haul fill material. Limiting the cut in areas of shallow bedrock will also help to reduce costs and construction duration. The proposed changes to the profile allow the limits of work along the side streets and entrances to be minimized which provides safe access throughout the duration of construction. Table 4.3.5 demonstrates how modifying the profile has helped to reduce costs, limit constructability issues and provide benefits to the public. With the profile closer to existing grades at the intersections, mobility through these areas will be maintained during construction and the need for multiple stages to maintain traffic during construction is greatly reduced. Between Luck Lane and Portsmouth Boulevard, the Route 659 profile was raised by approximately two feet above what was shown in the RFP Conceptual Plan and in the vicinity of

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To: Route 2150 (Gloucester Parkway)

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	Price		Schedule
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Belmont Station Drive the profile was lowered by approximately four feet below what was shown in the RFP Conceptual Plan which reduces the grade change between proposed and existing at these intersections and increases the safety of the public during construction. Other benefits of these adjustments are lower project costs and a more manageable construction schedule.

*Table 4.3.5 – Vertical Alignment Optimization*

STATION	EARTHWORK DIFFERENCE BETWEEN RFP AND PROPOSED DESIGN (CY)			BENEFIT
	VDOT RFP	Myers/WRA Team	Net Difference	
<b>Begin Project to Sta. 68+00</b>	Cut = 24,858 Fill = 3,121	Cut = 23,201 Fill = 2,796	Cut = (1,657) Fill = (325)	<b>Safety:</b> Flattening of profile increases stopping sight distance provided
<b>Sta. 68+00 to Sta. 92+50</b>	Cut = 37,591 Fill = 7,743	Cut = 30,549 Fill = 6,978	Cut = (7,042) Fill = (765)	<b>Cost, construction impact:</b> Less excavation required in areas where shallow rock will be encountered which reduces Project costs; intersection with Luck Stone and Portsmouth more closely matches existing grades
<b>Sta. 92+50 to Sta. 118+50</b>	Cut = 27,457 Fill = 24,976	Cut = 20,390 Fill = 29,516	Cut = (7,067) Fill = 4,540	<b>Cost:</b> Less excavation required in areas where shallow rock will be encountered which reduces Project costs
<b>Sta. 119+75 to Sta. 139+00</b>	Cut = 4,192 Fill = 52,864	Cut = 14,459 Fill = 44,394	Cut = 10,267 Fill = (8,470)	<b>Construction impact:</b> Lower profile through Belmont Station intersection allows for Project footprint along this street to be reduced by 184 lf.

The proposed vertical alignment on the W&OD Trail is approximately 4” higher than what is proposed in the RFP Conceptual Plans but still provides 16.5’ of vertical clearance between the Trail and the bottom of the bridge structures. The Myers/WRA Team proposes a concrete bridge design, which allows the trail to be at a higher elevation with greater vertical clearance under the bridge and still maintain the minimum vertical clearance to the Dominion overhead transmission line. This 16.5’ of vertical clearance between the trail and the bottom of the bridge structures is an improvement upon the RFP required minimum of 14.5’ and matches the minimum requirement for clearance as based on the NVRPA guidelines. The greater vertical clearance over the trail allows for the NVRPA minimum EOA requirement to be met with shorter bridges reducing construction costs and future maintenance costs. Adjusting the Trail profile also reduces the construction limits within the NVRPA right-of-way.

**(c) MAXIMUM GRADE FOR SEGMENTS AND CONNECTORS**

The Route 659 improvements will be built in accordance with the requirements of the RFP, including roadway grades. Wherever possible, the proposed grades were reduced from the RFP design as a result of the optimized vertical profile along Route 659. The proposed grade for each roadway is at or below the maximum allowable grades as demonstrated in *Table 4.3.6*.

*Table 4.3.6 Maximum Roadway Grades*

ROADWAY	PROPOSED MAX GRADE %	MAXIMUM ALLOWABLE GRADE % (VDOT ST'D)
Route 659	6.10	7 (GS-6)
Portsmouth Blvd	2.00	8 (GS-7)
Builders Lane	5.79	8 (GS-8)
Hearford Lane	3.80	10 (GS-4)
Service Entrance	0.37	10 (GS-9)
Chesterton Street	2.20	8 (GS-8)
Belmont Station Dr	1.58	8 (GS-8)
Jackpit Connector	5.00	8 (GS-8)

**(d) TYPICAL SECTIONS**

The typical roadway sections included in Volume II beginning on page 58, meet or exceed the requirements of the RFP. The RFP typical sections were maintained throughout the Project. The noisewall between Sta. 52+00 and Sta. 62+50 was relocated behind the sanitary sewer force main in order to avoid relocating the sewer line.

**(e) HYDRAULIC AND STORMWATER MANAGEMENT DESIGN**

The Myers/WRA Team’s proposed drainage system and stormwater management (SWM) facilities will be designed for better control of the Project schedule and reducing the Project cost by minimizing the amount of storm sewer pipes, reducing SWM pond excavations, and eliminating manufactured BMPs. The Team’s optimized vertical alignment, along with the reduced storm sewer pipe, greatly reduces the amount of rock excavation required during construction.

**Hydraulic Design** – The proposed drainage system will be designed to reduce the Project cost by reevaluating the drainage design supplied in the RFP package. Conveying drainage over long linear distances requires close coordination and planning of the roadway profile between the roadway and drainage staff to ensure there is sufficient elevation drop to meet the required pipe cover and designed flow velocity. The topography within the Project ranges from relatively flat to moderate slopes (0.4% to 8.0%). Per the geotechnical report, dated January 27, 2015, the existing bedrock layer is a major challenge for underground closed drainage systems. In some areas, the existing bedrock layer can be as shallow as 2.5 feet below the existing ground elevation. Ditches and culverts will be utilized primarily along the median, conveyed to a closed storm sewer system on either side of the road, and ultimately drained into the proposed facilities. The proposed storm sewer systems will be utilized to convey on-site runoff. *Table 4.3.7* shows where the off-site runoff is separated from the Project runoff.

*Table 4.3.7 Proposed Major Drainage Crossings and Benefits*

FEATURE	DESCRIPTION	BENEFIT
<b>Open Channels</b> (Sta. 118+50 to 120+00) 	Improved open channels are proposed to separate off-site runoff under the Route 659 bridges	Reducing the proposed permanent drainage easements and pedestrian impact on the W&OD Trail allows for shorter bridge spans
<b>SWM Culvert</b> (Sta. 121+00) 	The proposed culvert is designed to convey the 100-year storm from the existing SWM pond (The Chase and Belmont Country Club)	Eliminating the potential for flooding caused by the rerouting of the outlet and overflow of the existing pond to the W&OD Trail by maintaining existing drainage patterns under Route 659
<b>Culvert</b> (Sta. 123+50) 	The proposed culvert is designed to bypass off-site runoff	Preventing a potential backup flow into the roadway drainage system
<b>Culverts</b> (Sta. 129+50) 	The proposed culverts are designed to bypass off-site runoff	Preventing potential flooding from the off-site runoff

Separating on-site runoff from off-site runoff is proposed to optimize the roadway drainage system. Additionally, it will eliminate many of the storm sewer crossings and parallel systems which were described in the drainage calculations supplied in the RFP package, further benefiting other design components. These benefits include:

- The proposed drainage design **reduces the quantity of storm sewer pipes required and amount of excavation needed, including trench rock**. In addition, it reduces the cost for wet and dry utility crossings requiring deep excavations to fit below the storm pipes.
- Minimizing the impacts to traffic by reducing the number of crossing pipes to be installed under the roadway. The proposed drainage design will consider the TMP phases to be utilized during the construction. The Project runoff will be conveyed to permanent basins which minimizes the need for temporary traps or basins. As a result, **permanent drainage and temporary construction easements are reduced**.
- By separating on-site runoff, the number of **outfalls is reduced from nine as specified in the RFP to six**.

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- Reducing the need for future inspections and maintenance of the storm drain systems by **reducing the amount of proposed pipe**.



- **Providing safety to adjacent sites** by directing Project runoff to control structures in the proposed SWM facility prior to discharging to the natural outfalls.

**Stormwater Management Design** – The stormwater management plans will be designed to ensure compliance with the Loudoun County Facilities Standards Manual (FSM), VDOT Stormwater Management Standards, and follow the VA Department of Environmental Quality (DEQ) guidelines; minimize right-of-way acquisition; and avoid wetlands and minor flood zones as identified in the Loudoun County GIS map. The stormwater management design for the Project is governed by the “old” technical criteria outlined in Part IIC of the VA stormwater management regulations, VDOT IIM 195, and the requirements of the Loudoun County Local Reservoir Protection Requirements. For the water quality requirements, the performance-based criteria will be used as the main tool for determining pollutant removal rate requirements. The stormwater management facilities will be designed to address the water quality requirements listed in the VDOT IIM 195 Section 5.4.

The Project creates a substantial increase in impervious area over the existing condition which presents the need for stormwater management facilities to meet VDOT/DEQ/Loudoun FSM requirements. Additional challenges presented by the Project are shallow bedrock layers and multiple identified wetlands near the potential SWM/BMP pond locations. Myers/WRA are aware of these potential SWM/BMP pond locations that are within or near the wetland limits and prefer to relocate these ponds away from the wetland; however, the location is bounded by permanent stormwater management easements shown on the RFP Conceptual plans and the Ashburn Overlook, LLC development proffer conditions. The proposed SWM/BMP facilities will be designed to minimize or avoid the wetland impact.

A preliminary analysis indicated that the Project is located within three 6<sup>th</sup> Order DEQ Hydrologic Unit Codes (HUC): PL14, PL16, and PL19. The Project is also located within 5-mile radius upstream of the Lower Goose Creek dam; as a result, the Loudoun County Reservoir Protection Area (RPA) Requirements apply. These requirements were not accounted for in the RFP conceptual design package. The PL14 is the only watershed located within the Loudoun County RPA and drains to the Lower Goose Creek. Per Loudoun County FSM RPA Requirements, the PL14 watershed was analyzed for the RFP using the 10 percent of watershed average impervious land cover, instead of 16 percent. This adjustment is shown in the revised pollutant removal rate, *Table 4.3.8*.

*Table 4.3.8 Pollutant Removal Rates Comparison*

Watershed	Pollutant Removal Rate (lbs/yr)	
	RFP Requirement	Reevaluated Requirement
Lower Goose Creek (PL14)	9.77	10.22
Lower Goose Creek (PL16)	13.45	13.45
Broad Run (PL19)	5.15	5.15
<b>Total</b>	<b>28.37</b>	<b>28.82</b>

The drainage calculations supplied in the RFP package showed three extended detention basins, manufactured BMPs, and off-site nutrient credits are used to achieve the required pollutant removal rate, but several manufactured BMPs capture off-site runoff and therefore, they were not utilized efficiently. Additionally, BMP#5 will not be designed to treat the Ashburn Overlook Subdivision (AOS) runoff. Coordination with the AOS developer will be required. With additional pollutant removal required in these three watersheds, the potential improvements in SWM/BMPs have been re-evaluated as follows:



- Based on the drainage calculations supplied in the RFP package, several manufactured BMPs treat off-site runoff. The proposed Stormwater Management design will remove

these manufactured BMPs reducing construction costs and minimizing the need for future inspections and maintenance.



- The BMP#4 pond will remain as a dry pond. By relocating the storm sewer outfall pipes to the south, an impact to the outfall is reduced. As a result, the proposed outfall can be set at a higher elevation and the proposed permanent drainage easements for the BMP facility are reduced by 1.96 acres.



- The BMP#5 pond will be relocated to accommodate the Ashburn Overlook site layout. The pond type remains a dry pond.



- The BMP#6 pond will remain as a dry pond since this is the best fit based on the proposed site geometry. Manufactured BMPs shown in the RFP package are eliminated. Additional on-site Project runoff is conveyed to this pond to compensate for the manufactured BMPs being removed without any additional right-of-way or easements. This reduces the cost for drainage structures and eliminates the need for future inspections and maintenance of those manufactured BMPs.



- The impacts to the existing SWM facility at the Chase at Belmont Country Club were not identified in the RFP package. Temporary construction easements are required to construct the proposed roadway bridge and to adjust the existing pond grading. Due to the topographic constraint, the existing pond bottom elevation will be lowered to maintain the required Water Quality Volume from the as-built design. Also, the RFP design conveyed 100-year flood waters to the W&OD Trail. The Myers/WRA concept design allows this runoff to flow directly to the existing outfall with no impact to the W&OD Trail.

Revised SWM design concepts are shown on the *Table 4.3.9*. Ultimately, the proposed hydraulic and stormwater management design will provide peak flow reductions at many existing outfalls, eliminate new outfalls shown in the RFP package, reduce the construction and future maintenance costs for manufactured BMPs, enhance other design components by minimizing construction duration, and increase safety for users.

*Table 4.3.9 Re-evaluated Pollutant Removal Rates*

Watershed	Facility Type	RFP Requirement	Reevaluated Requirement	Remarks
Lower Goose Creek (PL14)	BMP#4	4.72	8.83	BMP#4 captures a larger impervious area.
	Manufactured BMPs	1.01	-	
Lower Goose Creek (PL16)	BMP#5	2.94	2.92	BMP#5 is relocated based on the Ashburn Overlook Subdivision. BMP#6 captures a smaller impervious area.
	BMP#6	4.9	3.40	
	Manufactured BMPs	2.28	-	
Broad Run (PL19)		None		
Off-site Nutrient Credit		14.3	14.3	
<b>Provided Removal Rate</b>		<b>30.15</b>	<b>29.45</b>	Exceeds water quality requirement

Note: The Myers/WRA Team’s design concept eliminates manufactured BMPs and exceeds the VDOT / Loudoun County design criteria requirement for pollutant removal rate of 28.82 lbs/yr.

**(f) RIGHT-OF-WAY**

The proposed right-of-way limits for the Project are shown on the Conceptual Plans in Volume II of this proposal. As requested by the RFP, any deviations from VDOT’s conceptual ROW limits have been highlighted. From approximate Sta. 52+00 to Sta. 80+50, the RFP proposed ROW limits were reduced in order to avoid relocating the sanitary force main located in the vicinity of the noise wall and to reduce the

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amount of sanitary easement that would be required to be replaced. The proposed ROW limits are greater than the RFP required minimum width of 150 feet.

In order to maintain the Project schedule, it will be important to give the earliest priority to the acquisition of parcels that typically require lengthy negotiations with landowners. The parcels given early priority for acquisition by the Myers/WRA Team include land owned by the Northern Virginia Regional Park Authority (NVRPA) – parcel 030, Luck Stone Corporation – parcel 026, and the several homeowner associations.



- The NVRPA is required to obtain approval from the U.S. National Park Service when conveying property rights. The period to obtain such consent can take up to a year. Continental Field Service (CFS), led by Paul Schray, participated in the appraisal, plat preparation and acquisition negotiations with NVRPA acquisitions on other VDOT projects including the partial acquisition of the W&OD Trail required for the I-495 Express Lanes Project. CFS recognizes that early lead time for consultation between the Design-Builder and NVRPA will be crucial to preparation of the required Uniform Standards for Federal Land Acquisition (UASFLA) appraisal and plats necessary for completion of the acquisition. A right-of-entry will be secured in the event that the acquisition process extends beyond the Project schedule requirements in order to maintain the construction dates.

*Paul Schray and Paul Martin have previously collaborated on ROW and Utility issues on the **Woodrow Wilson Bridge and VA MegaProjects** programs.*

*CFS successfully negotiated the acquisition of real property interests from NVRPA for the **I-495 Express Lanes project** that allowed the project to remain on schedule.*



- Due to the substantial real property acquisitions required from property owned by Luck Stone Corporation, the Myers/WRA Team will meet early with the landowner to explain the Project parcel impacts and acquisition needs from the property. Establishing advance contact with the landowner will assist to address potential landowner concerns during the design stage and alleviate future unforeseen issues during the ROW acquisition negotiation period.



- Early contact with each of the three impacted homeowner associations (HOA) will help ascertain the conveyance rights of the respective board of directors as detailed in the recorded land covenants for each. While title reports will produce those documents, it will be necessary to work closely with the boards or developers (if developer still has controlling authority) as each will be bound by the recorded restrictions and any proffers. CFS's past experience with the acquisition of fee and easements for storm water management ponds from homeowner association properties for VDOT projects (*Route 123 Ox Road, I-495 Express Lanes and Telegraph Road*) includes the appraisal and negotiations with the HOA boards of directors. CFS provided assistance to the boards with guidance through the VDOT legal requirements necessary for the preparation of the required board resolutions and participation in HOA meetings to effectively settle the acquisitions schedule. Working with HOA boards requires that this type of landowner must be approached early in order to complete the conveyance process within the Project schedule.

Prior to right-of-way authorization, the EQ201 right-of-way re-evaluation form will need to be completed. The Myers/WRA Team will provide VDOT any necessary information to complete this form as further discussed in *Section 4.4.1*. The timeframe is typically 15 days for this process.

Parcels will be acquired in compliance with the VDOT Right-of-Way Manual of Instructions. Landowner negotiations will be timely and complete so as to either produce an offer acceptance or refusal in an effort to maintain the Project schedule. CFS shall comply with the requirements of the manual including services

related to the title reports, appraisal and review appraisals, negotiations, settlement and condemnation. CFS shall also comply with RUMS requirements.

Utility easements required for the relocation of utility facilities will be established early for each of the impacted utility companies. After the UFI is conducted, the utilities will submit their blue line utility easement requests to the Myers/WRA Team to be incorporated into the ROW plans so that they are included in the acquisition offers presented to landowners. Upon approval of easements and blue lines, plat preparation and acquisition will begin. It is the Offeror’s intent to approach landowners only once for acquisition needs rather than having to re-approach them for additional ROW not previously identified. This will not only reduce risks to the Project schedule but also costs that would be associated with additional appraisals and negotiation activities.

WRA’s experience with Loudoun Water on VDOT relocation assignments and standalone design projects provides the Team with an excellent working relationship that facilitate discussions of potential easements required from Loudoun Water.

*Table 4.3.10 Right-of-Way / Permanent Easement Reductions*

ROW / EASEMENT	RFP IMPACT (ACRES)	MYERS/WRA IMPACT (ACRES)	REDUCTION (ACRES)	REDUCTION (%)
Right-of-Way	14.28	13.83	0.45	6
Permanent Drainage (SWM Pond)	7.63	3.87	3.76	49

**(g) UTILITY IMPACTS**

Utility impacts are shown on the roadway plan sheets contained in Volume II. Utility avoidance is a priority given that relocations impact Project cost and schedule. Consideration of features such as bridge beam lift design, stormwater drainage, and bridge foundations were key to minimizing these impacts, which help to reduce costs and improve schedule. *Table 4.3.11* summarizes the impacted utilities in the corridor. Further discussion of utility impacts and avoidance/mitigation strategies is included in *Section 4.4.2*

*Table 4.3.11 Potential Utility Impacts*

UTILITY OWNER	TYPE OF UTILITY	ANALYSIS
AT&T	Fiber Optic	Buried Fiber Optic Line in conflict with proposed storm drainage work
Comcast	CATV	Buried CATV cable on east in conflict with planned construction
Comcast	CATV	Aerial CATV cables on DVP poles in conflict with construction; expected County relocation prior to Project start
DVP	Transmission	Through planned construction means/ methods, conflicts will be avoided
DVP	Distribution	3-phase Aerial distribution poles/lines in conflict with planned construction
DVP	Distribution	3-phase distribution poles in conflict with construction; relocate poles to west of Route 659
Loudoun Water	30” Waterline	Waterline conflict, in-plan relocation
Loudoun Water	20” Waterline	Waterline conflict, in-plan relocation
Loudoun Water	8” Waterline	Waterline conflict, in-plan relocation
Verizon VA	Copper/FO Phone Cables	Buried phone cables in conflict with planned construction
Verizon VA	Copper Phone Cables	Buried phone cables in conflict with planned construction
Verizon VA	Aerial Copper/FO Cables	Aerial phone cables to be relocated with Dominion VA Power poles
Washington Gas	8” Gas Line	Gas line conflict, relocate gas to west side of Route 659 - Phase 1
Washington Gas	6” Gas Line	Gas lines conflict, relocate gas to west side of Route 659 - Phase 1

The major utility impacts that our design approach has avoided include:



• **Eliminating the need to relocate electrical transmission lines** through the design of the bridge superstructure and grade to maintain required clearances from the existing lines;



• **Eliminating the need for electrical transmission line outages** by designing bridge beams to be lifted from both ends keeping the crane booms a safe distance from the lines; and



• **Eliminating the need to relocate the sanitary sewer force main** and reduce the amount of replacement easement by the strategic design of the noise wall.

The major utility impacts that our design approach has reduced include:



• **Reducing the relocation of existing phone lines** by identification of parcels without current customers that are in in the process of redevelopment;



• **Minimizing the need to relocate water mains and gas lines** for installation of sound walls;



• **Minimizing the impacts of utility relocations** on the construction schedule by having the relocations on the east side of Belmont Ridge Road completed first.

**(h) NOISE BARRIER LOCATIONS**

The RFP plans propose a system of five separate sound barriers adjacent to the northbound lanes of Route 659 from Hay Road to approximately 400 feet north of Chesterton Street. This is Barrier System 1 located within CNE B as defined within the Final Design Noise Analysis Report (FDNAR) dated June 2014. Barrier System 1 was found to be warranted, feasible, and reasonable and was recommended for construction and concurred with by the Chief Engineer and FHWA. As a result of the roadway vertical alignment optimization described above, the roadway profile has been raised a maximum of 1.5 feet in the area of CNE B and the location of the noise barrier has been adjusted to avoid impact to the sanitary sewer force main running along the east side of Route 659. Because of these profile changes, the Myers/WRA Team will conduct further noise analysis to ensure that Virginia State Noise Abatement Policy standards will be met for the proposed construction. The optimized roadway profile and revised location will be entered into the noise model to predict noise levels for receptors in CNEs where profile changes are proposed.

*The noisewall between Sta. 52+00 and Sta. 62+50 was relocated behind the sanitary sewer force main in order to avoid relocating the line and to reduce the amount of sanitary easement that would need to be replaced.*

Impact analysis will be performed as well as Warranted, Feasible, and Reasonable analysis for Barrier System 1 and other barriers if changes to impacts require abatement analysis. The noise analysis will be in accordance with Virginia State Noise Abatement Policy, VDOT Highway Traffic Noise Impact Analysis Guidance Manual updated July 14, 2014, FHWA Highway Traffic Noise Analysis and Abatement Guidance dated December 2011, the VDOT Noise Report Development and Guidance Document dated August 27, 2014, Special Provision for Sound Barrier Walls and the Soil Design Parameters for Sound Barrier Walls, and Retaining Walls and Non-Critical Slopes. The noise analysis will include a plan and profile view of the roadway with the alignments, recommended barrier and proposed design, as well as a justification of the deviation, and the revised NADR chapter for additional noise analysis results and for the noise barrier for which modification is requested, if applicable.

Barrier System 1 as defined within the FDNAR was broken down into five separate noise barriers due to the need to provide access to the shared use path in the area. The total barrier length is approximately 3,282 feet. The barrier has a uniform height of 13 feet (measured from the top of finished grade for ground-mounted

barriers), resulting in a total surface area of 42,666 square feet. Details of the barrier are shown in *Table 4.3.12*.

Noise barriers are proposed to be ground-mounted. Several foundation options will be explored to determine the most efficient and durable design in light of the presence of the rock close to the surface in the area of the proposed barriers. Foundation design will be in accordance with VDOT policy and in coordination with VDOT.

Once utility relocations have been completed, grading at the sound barrier sites and installation of the sound barriers will be performed early in the construction process to protect the residential neighborhoods adjacent to northbound Route 659. This will provide the residential neighborhoods some shielding from construction impacts and allow them to benefit from noise abatement earlier in the process. The potential for early sound barrier construction is reflected in Proposal Schedule.

*Table 4.3.12 Noise Barrier Walls*

BARRIER/SEGMENT	HEIGHT	BEGIN STA.	END STA.	LENGTH	BARRIER TYPE	AREA
B-1	13 ft.	40+59	42+24	166 ft.	Ground-mounted	2,158 SF
B-2	13 ft.	41+62	45+96	432 ft.	Ground-mounted	5,616 SF
B-3	13 ft.	45+54	49+58	385 ft.	Ground-mounted	5,005 SF
B-4	13 ft.	49+13	68+22	1,920 ft.	Ground-mounted	24,960 SF
B-5	13 ft.	69+10	73+00	379 ft.	Ground-mounted	4,927 SF
<b>TOTALS</b>				<b>3,282 FT.</b>		<b>42,666 SF</b>

### 4.3.2 CONCEPTUAL STRUCTURAL PLANS

The Myers/WRA Team has reviewed the RFP documents, the addenda, and supporting documents, and understands the design criteria and challenges affecting the design of the bridge over the Washington and Old Dominion (W&OD) Trail. The proposed design meets the RFP requirements and no deviations to VDOT bridge standards are proposed. New bridge elements will be designed using AASHTO LRFD Bridge design Specifications, 6<sup>th</sup> Edition; and VDOT Modifications (IIM-S&B-80), as well as the Additional Foundation Criteria identified in Attachment 2.3 of the RFP. To ensure the longevity of the structure and minimize future maintenance costs, low permeability concrete will be fully utilized as well as the use of corrosion resistant reinforcement (CRR) in accordance with IIM-S&B-81. A summary of the bridge design features and benefits proposed by the Myers/WRA Team is provided in *Table 4.3.13*.

*Table 4.3.13 Bridge Design Features and Benefits*

BRIDGE DESIGN FEATURE	BENEFIT
 Increased vertical clearance to W&OD Trail	<ul style="list-style-type: none"> <li>Desired by NVRPA to meet their standard height for the bridge width; allows for shorter bridge span while maintaining the minimum elevation open area requirement</li> </ul>
   Shorter bridge length	<ul style="list-style-type: none"> <li>Reduces overall bridge cost, allows for use of a simpler concrete superstructure which reduces overall future maintenance associated with a curved, skewed steel superstructure</li> </ul>
  Tangent beams with curved deck	<ul style="list-style-type: none"> <li>Reduces complexity of framing and allows for concrete bulb-tee beams</li> </ul>
   Concrete bulb-tee superstructure	<ul style="list-style-type: none"> <li>Improves constructability and reduces construction cost by removing need for splices and structure falsework; single beam can be lifted into place by crane at each end under the existing active power line without de-energizing</li> </ul>
    MSE Wall with Spread Footing Abutment System	<ul style="list-style-type: none"> <li>Improves construction safety and reduces bridge cost by eliminating the need to drive piles near existing active high-voltage transmission line</li> </ul>

The main challenge with the bridge design was the overall bridge length for a single span structure coupled with the overhead high voltage line running along the W&OD Trail. The length as shown in the RFP precluded

the use of a precast concrete superstructure, which led the design team to investigate the possibility of shortening the structure. The RFP had set the north abutment approximately 20 feet beyond the NVRPA right-of-way line. As a result of reviewing the NVRPA trail guidelines for the W&OD Trail and meeting with NVRPA, the Myers/WRA Team became aware that NVRPA had agreed to a lower vertical clearance with

VDOT based on their longer bridge shown in the RFP Conceptual Plans to achieve the minimum effective opening area. NVRPA prefers a higher vertical clearance than the 14'-6" clearance provided in the RFP based on their design guidelines and the April 27, 2015 meeting the Team had with NVRPA. Coupled with the minimum effective opening area (Min. EOA) requirement, a vertical clearance of 16'-6" was selected to meet both a shorter structure and the preferred higher vertical clearance.

The following RFP requirements, conditions and goals are met with this proposed design:

- **Maintains the bridge substructure elements** beyond the NVRPA trail ROW per RFP requirements and the requirements of 4(f) and 6(f)
- **Provides for the Min. EOA requirements of NVRPA**, accounting for both minimum length and opening area perpendicular to the trail per NVRPA requirements as dictated by the RFP plans
- **Provides more than the minimum vertical clearance requirements to the high voltage transmission line** for both the top of deck and top of fencing. RFP Requirement – 25'-6" min. to deck, 14' min. to fence; Myers/WRA Design – 30'-6" min. to deck, 23' min to fence
- **Lightwell opening remains per the RFP** at 28'-4" between faces of parapets
- **Allows for a shorter concrete beam** which can be installed safely in proximity to the high voltage line
- **Allows for quicker bridge installation** due to reduced erection complexity by using full length prestressed concrete beams
- **Drainage from the adjacent SWM pond is rerouted** to go under the approach fill beyond the limits of the bridge structure
- Abutments are located such that the **superstructure erection equipment can operate clear of required safety distances to the DVP** high voltage transmission lines

**NVRPA input on design approaches**

- *Maintain "openness" of trail (elevation of open area) to eliminate any potential for a "tunnel effect"*
- *14.5 feet minimum vertical clearance was a concession for NVRPA, preferred minimum is 16.5 feet of vertical clearance*
- *Noted that bridge piers should be outside park property so there is no permanent 6(f) property impacts*
- *Not aware of utility relocation to the west side of Route 659 which requires additional permanent easement within NVRPA right-of-way*

**ROUTE 659 BRIDGES OVER THE W&OD TRAIL**

**General** – The new grade separation structures of Route 659 over the W&OD Trail will consist of two individually sized bridge structures separated by the required 28'-4" lightwell width, founded on a continuous MSE wall. Each structure will meet the approach roadway width as well as the VDOT's S&B office practice, Vol V, Part 2, Chapter 6 geometrics requirements. The lengths of each bridge will be shortened from that shown in the RFP to 160'-2" to minimize span length and superstructure depth. This shortening is accomplished by reworking the NVRPA trail requirement for Min. EOA using a minimum vertical clearance of 16'-6" instead of 14'-6", and moving the drainage outfall pipe from the nearby SWM pond to go through the MSE wall behind the abutment region. Bridge skew for both bridges will be at 39.5 degrees (to a common

**Bridge Design Criteria Used**

- *AASHTO LRFD Bridge Design Specifications, 6<sup>th</sup> Edition; and VDOT Modifications*
- *NVRPA Guidelines for the Development of W&OD Trail Bridge Crossings*
- *VDOT's Manual of the Structure and Bridge Division*
- *Structure and Bridge IIMs*
- *Project RFP requirements*

## Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

From: Route 642 (Hay Road)

To: Route 2150 (Gloucester Parkway)

VDOT Priority Icon Legend

Price

Schedule

Impacts

Risks

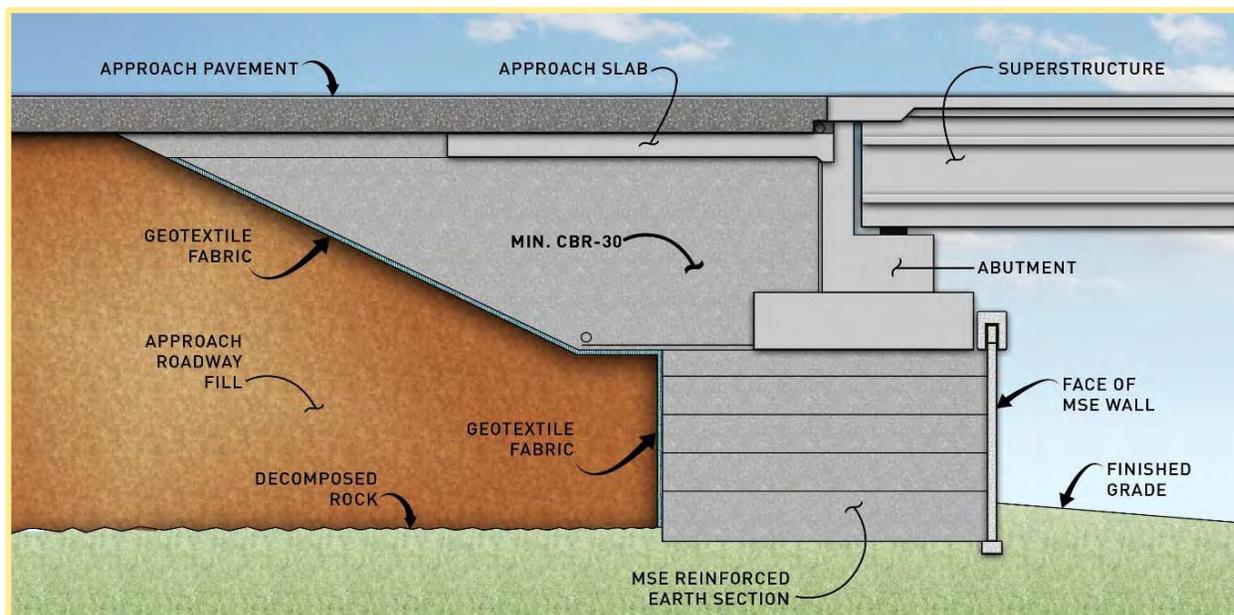
chord). Minimum clearances of 16'-6" between the W&OD Trail and the bridge, and 25'-6" between the bridge deck and DVP transmission line will be provided.

Each bridge structure is constructed in its own phase maintaining traffic on the existing roadway or previously completed stage. The only construction joint in the MSE wall that supports both bridge abutments will be in the form of a temporary wire face wall designed by the MSE wall manufacturer.

**Foundation** - The approach to the foundation design centered on developing a constructible system safely adjacent to the existing DVP high voltage transmission lines. After a thorough review of the borings, it was determined that dense bearing material lay only a few feet below the existing ground at the abutment locations. Taking advantage of this fact, the Myers/WRA Team decided upon a spread footing abutment supported by an MSE wall designed as a true MSE abutment. By going with a spread footing, the need to coordinate with DVP to de-energize their high voltage transmission line to install a deep foundation is eliminated, and allows the Myers/WRA Team to reduce the overall duration of substructure construction.

WRA has experience with this design approach and worked closely with VDOT to develop a similar solution for a project for Frederick County: *Snowden Bridge Boulevard over CSX Railroad*. The Snowden project involved a similar situation related to avoiding a nearby overhead high voltage transmission line and our experience led us to use this abutment solution here. The design of this foundation system is governed by Section 11.10 of the AASHTO design specifications, and additional guidance is provided by the FHWA publication "Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes - Volume I and II" – 2010 Edition. These documents provide specific requirements related to bridge surcharge and lateral loading, stability analysis, design bearing pressures, and detailing concepts for this style of abutment. See *Figure 4.3.1* for a graphical schematic of this abutment concept.

*Figure 4.3.1: Schematic of spread footing on MSE wall abutment*



For this location, WRA proposes to found the MSE abutment wall upon decomposed rock with a minimum of 10 kips / square foot (5 tons / square foot) service bearing capacity. The MSE wall abutment system is also proportioned to limit short and long term settlements to less than one-half inch, improving long term performance and limiting future maintenance associated with settlement. The MSE wingwalls will bear on similar material but do not require as high of a bearing capacity due to the absence of bridge bearing loads.

## Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

From: Route 642 (Hay Road)

To: Route 2150 (Gloucester Parkway)

### VDOT Priority Icon Legend

● Price

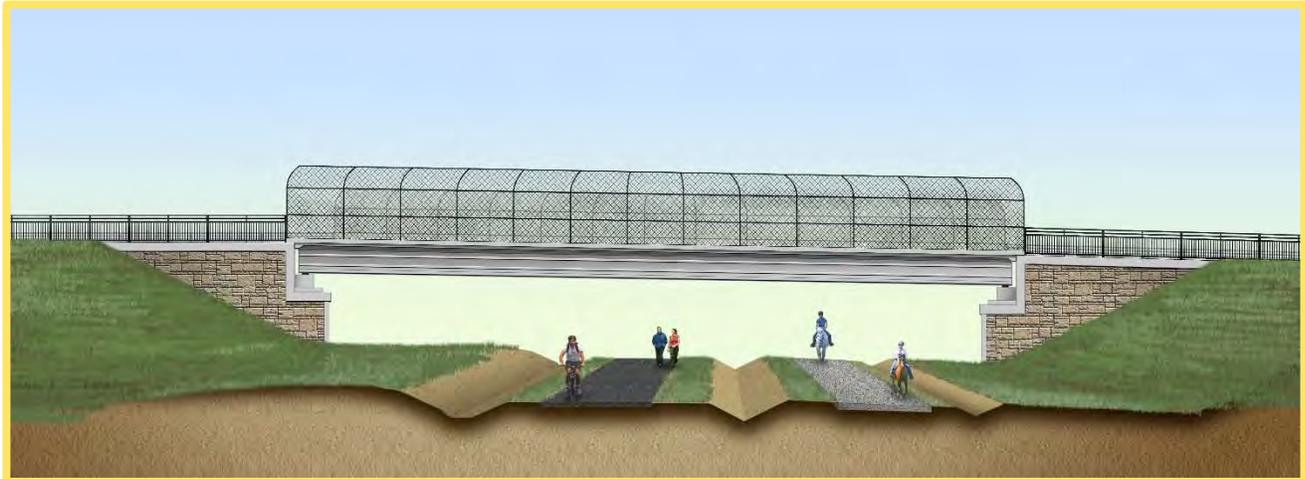
● Schedule

● Impacts

○ Risks

Aesthetics are crucial for this bridge structure due to the crossing of the W&OD Trail. An aesthetic formliner pattern and color stain coating per the RFP will be applied to the MSE walls. Other aesthetic considerations include attention to the sight lines of the coping, slip joints, abutment wingwalls, and other major visual elements in order to present a consist overall aesthetic bridge to the trail users and nearby property owners within the viewshed of the Project. See *Figure 4.3.2* for a rendering of the bridge appearance.

*Figure 4.3.2: Elevation view of proposed bridge*



**Substructure** – These dual bridges will utilize individually sized concrete abutments on spread footings. The spread footing design will be limited based on the allowable factored and service bearing pressures recommended by the FHWA publication listed on the previous page. AASHTO stability criteria for overturning, bearing, and sliding will be accounted for using spread footing design principles without the use of additional MSE reinforcing straps attached to the abutment seat as stated in VDOT’s S&B office practice, Vol V, Part 2, File 17.01-1. The spread footing will be designed using the service and strength bearing pressures recommended for use on an MSE wall abutment of 4 kips/square foot service loading and 7 kips/square foot strength loading.

Due to the skew of the bridge exceeding 30 degrees, the jointless abutment bridge system selected for this structure is the deck slab extension. Our design concept fits well within the limitations shown in VDOT’s S&B office practice, Vol V, Part 2, File 17.01-6. While VDOT has already agreed to the use of a deck slab extension on a curved bridge in this location, our superstructure uses straight elements with a curved deck and **would not require a design waiver**.

**Superstructure** – These dual bridges will use a precast concrete bulb-tee span. Based on the Team’s constructability evaluation, this selection will facilitate a faster superstructure erection without the need to de-energize the DVP high voltage transmission line. Precast concrete bulb tee beams have fewer long term maintenance issues utilizing modern high strength concrete and corrosion resistant reinforcing. They also have a simpler overall framing plan and no splices or complicated cross frames, which would be needed for the RFP proposed steel superstructure, further reducing long term maintenance concerns.

For the span length and typical section developed, the Myers/WRA Team has preliminarily identified PCBT-69 beams as suitable for this structure. This beam depth, along with the deck and bolster thickness, meets the AASHTO Table 2.5.2.6.3-1 “Traditional Minimum Depths for Constant Depth Superstructure”, which VDOT has invoked as a mandatory requirement. This superstructure depth is thinner than that proposed in the RFP which, coupled with the proposed increase in vertical clearance, will present a less visually imposing structure

## Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

From: Route 642 (Hay Road)

To: Route 2150 (Gloucester Parkway)

VDOT Priority Icon Legend

● Price

● Schedule

● Impacts

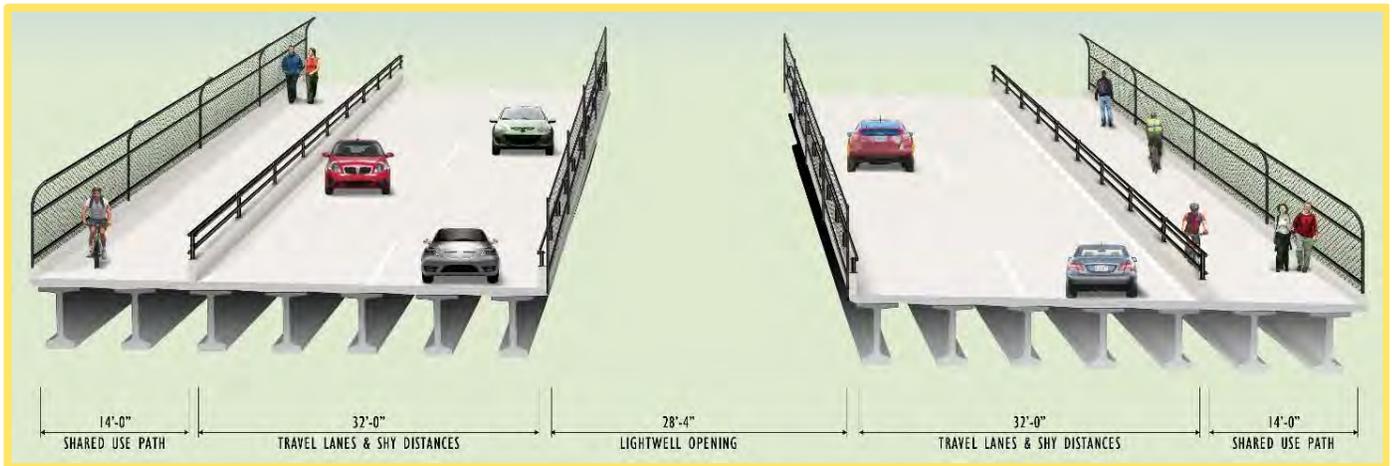
○ Risks

to the W&OD Trail user and avoid creating a “tunnel effect” which is a requirement of NVRPA for trails passing under bridges.

The Myers/WRA Team has investigated the feasibility of hauling and erecting this beam. For girder erection, the beam will be installed at night when the trail is closed. A crane located at each abutment will lift the beam from the transport truck positioned along the bridge girder alignment between the two abutments. This system keeps the lifting equipment clear of the overhead transmission line safety zones and allows for a simple lift onto the prepared abutments.

The bridge superstructure incorporates other elements necessary to provide for the multi-use trail along Route 659, along with required fencing for crossing the W&OD Trail. Required bridge aesthetic elements such as powder coated railing and vinyl coated fencing are also incorporated in this design.

*Figure 4.3.3: Proposed Typical Section*

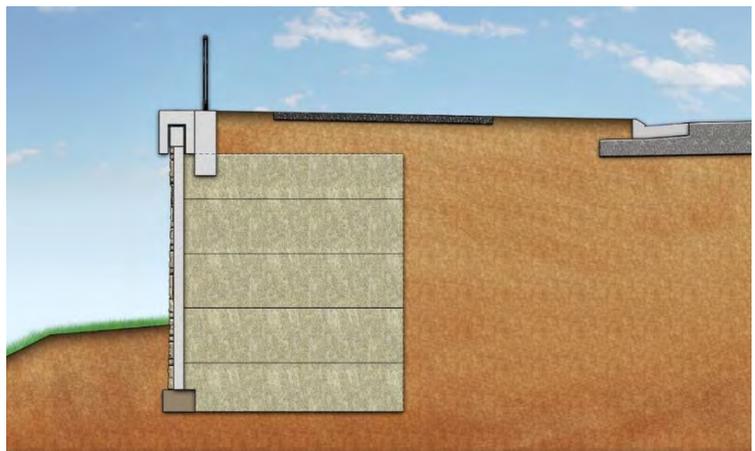


### RETAINING WALLS

The RFP Conceptual Plans showed a retaining wall along SB Belmont Ridge Road from Sta. 135+00 to Sta. 136+75. Our proposed design reduced that retaining wall by 50 feet (Sta. 135+50 to Sta. 136+75) by lowering the proposed vertical alignment through this segment as described in *Section 4.3.1*. The retaining wall height is over 15' and an MSE wall has been proposed to reduce Project costs. A typical section of this proposed retaining wall is shown in *Figure 4.3.4*.

The roadway retaining walls leading up to the bridge over the W&OD Trail were optimized as well. The long approach wall along the southwest quadrant was eliminated to make this length only what was needed for the bridge abutment wingwall. These reductions in wall lengths lower Project costs and overall construction time for the Project, and reduces future maintenance for these walls.

*Figure 4.3.4: Typical MSE wall supporting roadway and shared use path.*



## 4.4 Project Approach



## 4.4 PROJECT APPROACH

### 4.4.1 ENVIRONMENTAL MANAGEMENT

The Myers/WRA Team is committed to the successful Project completion in a manner that avoids and/or minimizes impacts to the human and natural environment, ensures full compliance with applicable laws, regulations, and contract requirements, and honors VDOT project environmental commitments. Our Team will implement the following strategies as part of our Environmental Management Plan to guide and inform all Project environmental decisions:



- Accurately identify and designate environmental resources that occur within the Project limits
- Apply our thorough understanding of applicable federal, state, and local agency regulations to avoid, minimize, and mitigate environmental impacts to the greatest extent practicable
- Incorporate Project environmental commitments within design processes, plans preparation, pre-construction planning, and construction activities
- Maintain an environmental compliance program, including standards, procedures and audits by conducting staff education, site inspections, and records maintenance
- Maintain communication with VDOT and third party stakeholders to ensure Project activities are conducted in an environmentally responsible manner

#### APPROACH TO ENVIRONMENTAL MANAGEMENT

The Myers/WRA Team’s Environmental Management Plan will define our environmental management roles and responsibilities, resources and mitigation strategies, and compliance documentation. This plan is built upon a foundation of accurately identifying resources and a thorough understanding of applicable federal, state, and local agency regulations. Our environmental team brings a wealth of design-build and design-bid-build experience working on past projects for VDOT, including several in Northern Virginia. We will use this knowledge and experience to ensure compliance with applicable laws and regulations affecting this Project. Our Team members, highlighted in *Table 4.4.1*, are recognized in the environmental community as regulatory experts who have led or participated on teams completing complex projects requiring regulatory clearances.

*Nicholas Nies, Environmental Manager, has 15 years of experience (10 years with VDOT environmental programs) leading inter-disciplinary teams on multifaceted projects securing NEPA clearances, preparing Section 4(f) Evaluation documentation, coordinating the development of complex Section 106 PAs and MOAs, conducting Section 6(f) impact analysis and coordination.*

*Table 4.4.1 Environmental Management Roles and Responsibilities*

ROLE	RESPONSIBILITIES RELATED TO ENVIRONMENTAL MANAGEMENT AND COMPLIANCE
<b>DBPM</b> <i>Tom Heil</i>	<ul style="list-style-type: none"> <li>▪ Ensure the Project compliance with laws and regulations, permits, contract requirements, and “approved for construction” plan and specifications</li> <li>▪ Ensures adequate allocation of staff to meet environmental commitments</li> </ul>
<b>DM</b> <i>John Maddox</i>	<ul style="list-style-type: none"> <li>▪ Working with the EM, ensures that the design incorporates all regulatory requirements/commitments</li> <li>▪ Ensures environmental commitments/requirements are part of the “approved for construction” plans</li> </ul>
<b>Environmental Manager</b> <i>Nicholas Nies</i>	<ul style="list-style-type: none"> <li>▪ Working with the DBPM, facilitates coordination with regulatory agencies and working with the DM, ensures that the design team is provided and incorporates environmental requirements/commitments into the plans</li> <li>▪ Tracks environmental commitments through design and construction, performs QA reviews on “approved for construction” plans, and coordinates with the environmental team throughout the Project</li> </ul>
<b>Permitting Lead</b> <i>Taylor Sprenkle</i>	<ul style="list-style-type: none"> <li>▪ Manages water quality permitting efforts, WOUS delineations, T&amp;E species studies and clearances, avoidance and minimization efforts, agency coordination, and compensatory mitigation compliance</li> <li>▪ Provides QA assurance for water quality permit application and oversight for permit field inspections</li> </ul>

VDOT Priority Icon Legend			
	Price		Schedule
	Impacts		Risks

ROLE	RESPONSIBILITIES RELATED TO ENVIRONMENTAL MANAGEMENT AND COMPLIANCE
<b>Construction</b>	<ul style="list-style-type: none"> <li>Responsible for the oversight/training of day-to-day environmental compliance staff during construction</li> </ul>
<b>Environmental Compliance</b>	<ul style="list-style-type: none"> <li>Initiates/completes periodic permit compliance inspections/ authorizes implementation of corrective measures</li> </ul>
<b>Jonathan Dearth</b>	<ul style="list-style-type: none"> <li>Audits records of permit clearances, “approved for construction” plans, selected materials, and environmental inspections</li> </ul>

Our Team has reviewed the NEPA documentation and supporting technical studies for the Project, followed by a site review for a full understanding of the environmental commitments to design and construct this Project as outlined by the environmental documents and current regulations. Furthermore, on April 27, 2015 the Myers/WRA Team met with NVRPA representatives to seek input on potential impact reduction design approaches, and to fully understand and comply with the commitment measures that have been previously agreed upon to maintain the Section 4(f) De Minimis impact finding for the Washington and Old Dominion Railroad Regional Park/Railroad Historic District, referred to as the W&OD Trail, as well as NVRPA permitting requirements. As discussed in *Section 4.3.2*, the current Myers/WRA conceptual bridge design achieves the NVRPA minimum bridge clearance over the W&OD Trail while meeting the NVRPA minimum elevation open area (EOA) and light well standards.

**Critical NVRPA Design Elements:**

- Maintain “openness” of trail (elevation of open area) to eliminate any potential for a “tunnel effect”
- 14.5 foot minimum vertical clearance was a concession for NVRPA; however, the Myers/WRA Team’s concept design provides the NVRPA preferred 16.5 feet of vertical clearance.

**EFFORTS TO AVOID/MINIMIZE IMPACTS TO ENVIRONMENTAL RESOURCES**

Our Team is experienced in navigating the environmental process with VDOT and the regulatory and resource agencies potentially involved, including the Federal Highway Administration, U.S. Army Corps of Engineers (USACE), Virginia Department of Historic Resources, Virginia Department of Environmental Quality (VDEQ), U.S. Fish and Wildlife Service, Virginia Department of Game and Inland Fisheries, Virginia Department of Conservation (VDNR) and the Northern Virginia Regional Park Authority (NVRPA). Our recent experience fulfilling environmental commitments and securing timely environmental permits from these agencies include the *Walney Road Bridge Replacement and Road Widening DB project*, the *Fall Hill Avenue Widening and I-95 Bridge Replacement DB project*. These projects are important to note since this Project will require similar environmental commitment compliance and permit approvals. As outlined in *Table 4.4.2*, our Team understands the documentation, evaluation, analysis, and coordination necessary to do the same for VDOT on this Project. Our Team will use an environmental commitments database, perform periodic monitoring of the Project to assess and document performance, and confirm that the environmental compliance commitment requirements are met. Commitment compliance will be achieved through regular communication between the Environmental Manager and roadway and utility design engineers to ensure compliance.

**On the Fall Hill Avenue Project:**

- Confirmed wetland /stream delineations.
- Completed Joint Permit Application for SPGP, VWP, and VMRC Permit.
- Agency coordination to reduce wetland and stream impacts.
- Coordinated mitigation efforts for purchasing of mitigation credits.
- Agency T&E consultation to coordinate time of year restrictions.
- Agency and stakeholder coordination to fulfill environmental commitments for Section 106 MOA for impacts to multiple Section 4(f) and Section 106 Resources.

Table 4.4.2 Environmental Commitments, Compliance, and Mitigation Matrix

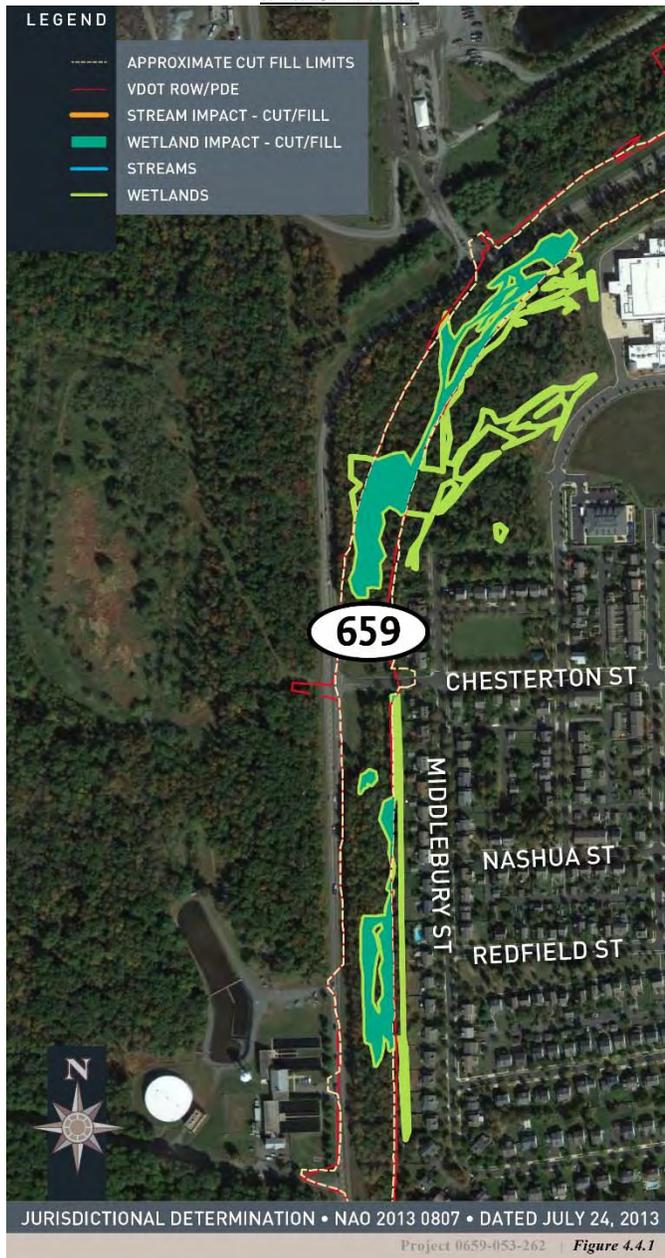
TEAM RESPONSIBILITY	VDOT RESPONSIBILITY	ENVIRONMENTAL COMMITMENTS, COMPLIANCE AND MITIGATION APPROACH
<b>NEPA Documentation and Reevaluation of CE</b>		
Adhere to RFP stipulations	Oversight	<ul style="list-style-type: none"> <li>Environmental Manager will communicate regularly with the DM, and perform regular quality plan reviews to ensure the design team incorporates all environmental commitments and requirements into the final design and remains focused on identifying additional minimization throughout the design and construction process.</li> </ul>
<b>NEPA Reevaluation(s) &amp; Environmental Certification</b>		
Provide VDOT with documentation for Project clearances.	VDOT will prepare EQ201, EQ200, and EQ103	<ul style="list-style-type: none"> <li>Avoid Project scope and footprint changes to eliminate or substantially reduce additional studies</li> <li>Identify design changes accurately and timely to VDOT to complete additional NEPA documentation and avoid delays</li> <li>Ensure the design carries out environmental commitments and provide documentation of completion to VDOT</li> <li>Monitor environmental compliance, permitting and mitigation requirements for environmental issues on a Permit Tracking Database</li> </ul>
<b>Water Quality Permits</b>		
Secure environmental permits. 	Oversight and retain copies of all Project permitting documentation	<ul style="list-style-type: none"> <li>Primary goal is to avoid and minimize wetland and stream resource impacts to greatest practicable extent</li> <li>Complete wetland delineations and stream assessments; secure preliminary jurisdictional determination (JD) of waters of the U.S. from USACE</li> <li>Secure a Joint Permit for up to approximately 6 acres of wetland impacts (<i>RFP indicated 0.75 acres</i>) and 900 linear feet of stream impacts (<i>RFP indicated 521 LF</i>) that may result from the projects minimized design</li> <li>Mitigate unavoidable impacts as part of the permitting process in accordance with 33 CFR Part 332 and in consultation with the USACE and VDEQ</li> </ul>
<b>Section 4(f), Section 6(f), and Section 106 Resources</b>		
Fulfill the commitments for the W&OD Trail, which is a Section 4(f), Section 6(f), and Section 106 Resource 	Oversight	<ul style="list-style-type: none"> <li>Following NTP, develop and coordinate with VDOT, (1) a communication plan that highlights key points of contact and review/comment timelines for RFP commitments and NEPA documentation, (2) initiate communication with key third party stakeholders to gain consensus acceptance of the communication plans, and (3) within 10 working days, develop and implement a regular coordination schedule with NVRPA; Obtain license(s) from NVRPA for temporary construction easements</li> <li>Construct (1) shared use paths on both sides of Route 659 to provide direct connections to the W&amp;OD Trail and (2) a 20-space parking area with path access to the W&amp;OD Trail</li> <li>Design and construct the Route 659 bridge over the W&amp;OD Trail with a minimum of 16.5' vertical clearance (<i>increase from RFP/NEPA documentation minimum fourteen and one half (14.5) feet requirement – this is a betterment, and desired by NVRPA</i>) above the W&amp;OD Trail</li> <li>Coordinate the relocation of the utility pipe crossing of the W&amp;OD Trail (this item appears to not have been previously coordinated with NVRPA, DCR, VDOT, and FHWA)</li> <li>Ensure protective measures are incorporated into final design, specifically (1) coordinate temporary construction easements within the W&amp;OD Trail with NVRPA, (2) avoid use of parklands for all other project activities, (3) maintain continuity of trail traffic during construction, and (4) restore parkland to NVRPA specifications prior to construction completion</li> </ul>
<b>Hazardous Materials</b>		
Compliance / HAZ MAT commitments	Oversight	<ul style="list-style-type: none"> <li>Perform Phase I Environmental Site Assessment as necessary, prior to acquisition of any new right-of-way or permanent easements</li> <li>Manage solid waste, hazardous waste, and hazardous materials in accordance with applicable federal, state, and local environmental regulations, including VDOT Road and Bridge Specifications</li> <li>Prepare and implement spill prevention, control, and countermeasure plan prior to start of construction</li> </ul>
<b>Threatened and Endangered Species (T&amp;E)</b>		
Perform current T&E record search, studies, and assessments to include within permit.	Oversight	<ul style="list-style-type: none"> <li>Coordinate T&amp;E during permit acquisition to avoid delays in identifying any potential new species</li> <li>Follow FHWA and USFWS Northern Long Eared Bat (federally listed May 2015) guidelines (programmatic agreement) for clearance</li> <li>T&amp;E documentation will be provided to VDOT prior to the Project being released for construction</li> </ul>
<b>Air</b>		
Adhere to current NEPA and RFP document requirements	Oversight	<ul style="list-style-type: none"> <li>Ensure reasonable precautions are taken to limit the emissions of VOC, NOx, and particulate matter</li> <li>Adhere to VDEQ construction open burning restrictions; cutback asphalt restrictions; fugitive dust precautions; and special provision for VOC emissions control areas</li> <li>Perform construction activities in accordance with VDOT's Road and Bridge Specifications</li> </ul>
<b>Noise</b>		
Provide noise mitigation per NEPA and RFP documentation. 	Oversight	<ul style="list-style-type: none"> <li>Provide noise mitigation as outlined in RFP and supporting documentation</li> <li>Adhere to Virginia State Noise Abatement Policy, VDOT Highway Traffic Noise Impact Analysis Guidance Manual, FHWA Highway Traffic Noise Analysis and Abatement Guidance, the VDOT Noise Report Development and Guidance Document, Special Provision for Sound Barrier Walls and the Soil Design Parameters for Sound Barrier Walls, Retaining Walls and Non-Critical Slopes</li> <li>Finalize noise abatement designs and include noise barrier wall designs once the road design is approved</li> <li>Solicit public input from affected property owners and renters (receptors benefited by the proposed barrier wall)</li> <li>Incorporate sound walls approved through public input into the final road design construction plans</li> </ul>
<b>Erosion and Sediment Control &amp; Stormwater Management</b>		
Compliance with E&S Control & SWM commitments per NEPA and RFP.	Oversight	<ul style="list-style-type: none"> <li>Provide in accordance with VDOT requirements and the Virginia E&amp;SC Handbook and Regulations</li> <li>Comply with Virginia Stormwater Management Program (VSMP) and the Stormwater Pollution Prevention Plans (SWPPP)</li> </ul>

**ENVIRONMENTAL CONDITIONS/AREAS OF CONCERN**

The Myers/WRA Team conducted a field investigation and reviewed publicly available information to identify natural resources that may be affected by the Project. Publicly available wetland delineations identified wetlands and streams within the proposed Project study area. These wetland delineations have been confirmed by the USACE and have currently valid Jurisdictional Determinations (Approved JD NAO-2013-2359 dated February 4, 2014 and Preliminary JD NAO-2013-0807 dated July 24, 2013). The waters of the U.S. (including wetlands) that were previously identified in the July 24, 2013 JD are depicted on *Figure 4.4.1*. These limits of additional wetlands clearly exceed the VDOT Project estimates and will result in additional impacts, permitting requirements, effort, time, and compensatory mitigation.



*Figure 4.4.1 Jurisdictional Wetlands and Streams*



The VDOT NEPA and RFP documentation estimated impacts to approximately 521 linear feet (LF) of stream and 0.75 acres of jurisdictional wetlands. Application of the information outlined in the JDs listed above would result in an increase of impacts to approximately 900 LF of stream and six acres of wetlands. These impacts are in addition to the potential impacts associated with the defined areas for SWM pond 5 and SWM pond 6, as described in the supporting documentation. Estimated compensation for the Project would include approximately 12.2 wetland credits and 1,000 stream credits. Credits will be purchased through an approved wetland and stream mitigation bank located within the HUC 8 digit watershed, or through other applicable means, if not available within the watershed.

Impact estimates based on information provided in the RFP indicated the Project would require an SPGP and VWP General Permit from the USACE and DEQ, or an Individual Permit (IP) depending upon the design location of SWM pond 5 and SWM pond 6. Impact estimates based on the publicly available JDs mentioned above would require Individual Permits (IPs) from both the USACE and DEQ. Securing IPs from each agency will increase the timeframe for obtaining a permit from approximately four-five months (SPGP/VWP) to approximately 12-18 months (IP) as a result of increased regulatory review and scrutiny of the Project. The increased impacts associated with these recognized jurisdictional areas will directly affect the overall cost and timeframe for obtaining a permit, and significantly increases the complexity and timeline of permitting, avoidance and minimization efforts, and the amount of compensation required. The Myers/WRA Team presented this information to VDOT during the

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From: Route 642 (Hay Road)

To: Route 2150 (Gloucester Parkway)

### VDOT Priority Icon Legend

● Price

● Schedule

● Impacts

○ Risks

Team's proprietary meeting. At this point, we can only conclude that the VDOT RFP conceptual plan design is viable and a permit will be issued by VMRC, USACE, and DEQ.

Due to the prescribed VDOT right-of-way shown on the RFP conceptual plans, the Myers/WRA Team has limited ability to address avoidance and minimization efforts to either avoid and/or minimize the amount of wetland impacts associated with the Project's design. Because of the prescribed right-of-way, we believe the risk of permitting and ultimately obtaining a permit for the Project lies not with the Design-Builder but with the Department. Our Team will assist VDOT with risk mitigation for permitting the Project by developing and implementing avoidance and minimization within the limits of the VDOT RFP conceptual plan ROW that will focus on the following:



- Adjustment of SWM ponds to avoid wetlands and/or minimize footprint in jurisdictional areas.

- Where jurisdictional impacts are unavoidable, work with VDOT to tighten cut and fill slopes and minimize potential impacts to the jurisdictionally determined waters of the U.S. to maximum extent practicable.
- Where applicable, maintain hydrologic connection between jurisdictional features with conveyance structures to avoid isolation.

Based on the additional wetland and stream impacts and the relocation of a utility pipe on NVRPA property that appears to not have been previously coordinated, the Myers/WRA Team assumes that additional environmental analysis, coordination and clearances may be necessary. This effort will require coordination with VDOT and FHWA to determine whether this new information requires a NEPA Reevaluation or additional NEPA documentation. As these efforts have the potential to impact the Project schedule and cost, the Myers/WRA Team will work closely with VDOT to minimize overall Project risk.

Communication between the Myers/WRA Team and VDOT regarding the JDs listed above and their implications to the Project were outlined during the proprietary meeting on April 13, 2015 and via email on May 20, 2015. The Myers/WRA Team requested via the May 20, 2015 email that VDOT provide clarification on how this supplemental data should be used, if at all, during the preparation of our Technical and Cost Proposals. VDOT issued Addendum #3 on June 5, 2015 which attempted to provide more clarity on this and other issues. Accordingly, the Myers/WRA Team will prepare a responsible bid that anticipates the additional Project wetland and stream impacts; however, we continue to caution the Department that because of the prescribed right-of-way, obtaining a joint permit for the Project may not be possible.

### SCHEDULE INTEGRATION

The Myers/WRA Team has incorporated environmental commitments, compliance, mitigation, and acquisition of the water quality permits into the proposal schedule with milestone dates and requisite hold points. These schedule milestone dates and hold points assume that any regulatory issues that may arise are dealt with quickly and efficiently. Our Environmental Manager, along with requisite VDOT personnel, will participate in design meetings to provide updates for environmental milestones and ensure the environmental commitments are incorporated into the Project. The Proposal Schedule has been developed with consideration of commitment compliance, permit acquisition, E&S phasing, and SWM implementation.

 *The Myers/WRA Team of environmental specialists will work hand-in-hand with VDOT to minimize any potential permitting risks and apply requisite resources, as **WRA is doing for VDOT on the reconfigured US 460 project**, to deliver this project to our collective stakeholders on-time and with minimal risk.*

### 4.4.2 UTILITIES

Existing utilities, both private and public, present risks associated with additional Project costs and potential impacts to the Project schedule. Utility owners with facilities identified along the Project include AT&T,

VDOT Priority Icon Legend			
	Price		Schedule
	Impacts		Risks

Comcast, Dominion VA Power (DVP) Transmission & Distribution, Loudoun Water, Verizon Virginia, and Washington Gas.

**APPROACH TO UTILITY COORDINATION, ADJUSTMENTS, AND RELOCATIONS**

The Myers/WRA Team uses an active approach to the utility coordination and relocation process with an emphasis on hands-on utility coordination that will continue throughout the life of the Project. This is the most effective method for keeping the utility companies focused and cooperating towards the shared goal of timely and cost effective relocations. Coordination work is performed in a systematic manner based on the policies and procedures set forth in the VDOT Utility Manual (UM). Of equal importance is accurate and complete recordkeeping and the timely posting of utility information in the VDOT RUMS system, so that the Department’s tracking of utility relocation data can proceed unhindered. The Myers/WRA Team approach to utility coordination, adjustments, and relocations includes seven proven strategies:



**1. Providing experienced utility coordination experts –**

WRA has more than 20 years of utility relocation experience with VDOT projects including utility coordination efforts on both design-build and design-bid-build projects. The Myers/WRA Team has prior experience performing utility coordination, design, and contractor assisted utility relocations with the utility companies identified within the Project corridor. Members of the Myers/WRA utility team (Dan Seli, Paul Martin, and Mike O’Neill) have strong working relationships with the utility companies, cultivated from working together on successful projects.

Dan Seli will lead the Myers/WRA Team utility relocation design effort, with utility coordination support from Paul Martin, while Mike O’Neill will lead the construction utility coordination efforts. Mr. Seli has led more than 140 utility relocation efforts for VDOT. On *Walney Road*, Mr. Seli coordinated with DVP, Verizon, Washington Gas, Comcast, Level 3, FiberLight, and other communications facilities while Mike O’Neill coordinated field relocation efforts and worked closely with Level 3, FiberLight, and Washington Gas to identify and implement strategies and construction means and methods to keep the bridge construction moving while the utility companies waited on back-logged special fiber cables or performed gas line redesigns. Mr. Seli also has experience designing relocation of water and sanitary sewer facilities for Loudoun Water on numerous in-plan VDOT projects. Paul Martin has more than 11 years of VDOT utility coordination experience and for the past 16 months has been embedded in the VDOT Fredericksburg District Utilities Office performing utility coordination on more than 20 different VDOT projects. Mr. Martin has coordinated with DVP transmission line tower relocations and circuit outages on the *Capital Beltway*; relocating DVP, Verizon, and Comcast lines into a common trench along *Backlick Road in Newington*; and with Washington Gas, Fairfax Water, and Plantation Pipeline relocating pipe systems along *Telegraph Road in Alexandria*.



*On Walney Road, unavoidable utility relocation delays (beyond Myers control) have negatively affected the schedule; however, frequent communication with the utility companies, led by the Myers/WRA Team, allowed the Team to identify, assess, and resolve issues/generate solutions to maintain the project schedule.*



**2. Coordinating early to clearly define impacts and responsibility–**

Early and concentrated coordination efforts are a high priority for the Myers/WRA Team. The Myers/WRA Team has held preliminary coordination meetings with each of the identified utilities during preparation of this proposal and has identified the known utility facilities within the Project footprint based on the information contained in the RFP, utility company records, Miss Utility of Virginia records, and

*Early and direct utility coordination proved worthwhile on VDOT’s Salem Church Road project in the Fredericksburg District where WRA was able to obtain information from Verizon that an existing line could be abandoned instead of completing a costly relocation utility easement acquisition.*

## Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

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To: Route 2150 (Gloucester Parkway)

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	Impacts		Risks

comprehensive site visits by our utility coordination staff. Preliminary UT-9 forms have been completed for each of the Project’s utilities.

Through individual utility coordination discussions, the Myers/WRA Team has obtained additional information from the utilities regarding their general approach to possible relocations; betterment plans they are considering; initial thoughts on prior rights; and identification of relocations that should be considered for mitigation through the design process.

Known Project utility impacts are listed in the Utility Matrix (*Figure 4.3.11*). Relocation cost estimates were developed using historical data and utility company’s estimates. This matrix has proven to be an effective tool for clearing utility conflicts on other Myers’ design-build projects. The incorporation of betterments in the utility relocations have been part of the discussions held with the utility companies’ from the beginning of this coordination process. The utility’s need for future facilities has been discussed along with clear definitions of what constitutes a betterment (VDOT UM). Discussions with Loudoun Water revealed their interest for waterline betterments throughout the corridor within a separate utility easement. Cost determination for the utility relocations follow the policies set forth in the VDOT UM. The Myers/WRA Team is utilizing the VDOT UT-9 form for the calculation of utility relocation estimate prorates as it is an effective tool and familiar to utility companies.

*Following the award of the **Middle Ground Boulevard Design-Build project**, Myers worked with the City of Newport News and the Hampton Roads Sanitation District on significant betterments to accommodate future growth in the area including force main, gravity sewer upgrades and pump station upgrades.*



**3. Avoiding and minimizing utility impacts to the greatest extent feasible** – The Myers/WRA Team is focused on avoiding or minimizing impacts to the existing utilities as a basic tenet of the utility relocation process. As an example, the Team plans to eliminate potential impacts on electric transmission lines associated with bridge construction. Through detailed design and construction planning of cranes for placement of bridge beams, the contractor’s equipment will be outside of the power line equipment exclusion area.

*On the **US Route 1 Widening Project at Harrison Road in Spotsylvania**, WRA worked with VDOT to redesign storm drainage to avoid conflict with sanitary sewer line and eliminate the need to relocate the line. This redesign saved schedule, cost, and mitigated significant traffic delays associated with the relocation.*



**4. Facilitating progress and supporting utilities through enabling work** – The Myers/WRA Team will assist the utilities in maintaining their schedule by partnering with the utility owners to complete work efficiently. The Team is prepared to assist the utility companies with clearing/grubbing, access roads/laydown areas, and installing conduits, encasement pipes, and other items for them to reduce utility workloads. This will help expedite relocation work and control the relocation schedule. Options will be explored during the UFI meeting and vetted throughout the design and P&E process. This approach has been beneficial to the Myers/WRA Team on the *Walney Road Design-Build project* where Myers facilitated utility company relocations by constructing entrances and ready mix truck wash out areas.



**5. Sequencing construction to minimize risk associated with relocations** – Certain utility relocations must be performed in a specified order, such as utility pole relocations. Utility relocations for Route 659 will begin with DVP Distribution placing new poles and aerial lines out of conflict in the critical Segments C & D. Comcast and Verizon line relocations will follow, then the removal of the original in-conflict poles. The Myers/WRA utility coordination team will work with the utilities in advance to coordinate their crew scheduling so that time is not wasted in accomplishing these relocations. This approach has been successfully implemented on the *Walney Road project* to streamline pole relocations.



**6. Monitoring progress and reacting to potential delays** – The Myers/WRA Team will communicate regularly with the utility companies, maintain a utility tracking matrix, update RUMS, and provide bi-weekly progress updates to the VDOT Utility Manager, the DBPM, DM and CM. Following submission, our Team will review the utilities P&E package for accuracy, completeness and compliance with the VDOT’s UM. A copy of the P&Es and checklist covering required items will be provided to the VDOT Utility Manager for approval. Following VDOT P&E acceptance and Myers authorization of relocation to the utilities, relocation work can begin. During construction, WRA will monitor progress utilizing UT-7 daily reports, provide updates to the DBPM and CM regarding potential schedule impacts, and assist Myers and the utilities in defining recovery strategies, if needed. Potential delays will be identified and resolved expeditiously. Any potential delays will be conveyed to VDOT and, through Myers/VDOT/utility company partnering, resolved at the lowest possible level of each organization.

*On the BRAC Backlick Road project, careful monitoring and coordination between the contractor and the utilities helped to identify a delay early on and allowed the team to mitigate schedule delays through adjusting the sequence of the contractor’s work.*



**7. Concurrently relocating utilities and constructing the roadway (on opposite sides) -** Having the ability to concurrently perform utility relocations and proceed with construction is a fundamental strategy for successful Myers/WRA DB projects. On this Project, the relocation of a small number of existing power poles on the eastern side of the existing roadway is a priority. Performing these relocations at the beginning allows road construction on the east to proceed as relocation work on the western side of the roadway is concluded. This strategy is being successfully used by WRA on the *Fall Hill Avenue DB project*.

#### UTILITY CONFLICTS AND SOLUTIONS

The Myers/WRA Team has identified potential utility impacts. (Section 4.3.1) and critical utility impact relocations (Table 4.4.3) by thoroughly reviewing the existing utility facilities against the preliminary project plans. A summary of the utility conflict areas and solutions is provided below:



**Power poles and underground gas along the east side of Route 659** - Relocating the DVP distribution poles and Washington Gas lines from the east side of Route 659 to the west is critical to the construction schedule. Power pole relocation can be accelerated by having DVP phase their work into separate work orders, even if this means the addition of temporary poles. This allows for the critical east side work to be completed before the west side work is started. Similarly, Washington Gas relocation will be prioritized so the facilities currently on the east side are relocated prior to starting west side work.



**Utilities at the bridge over the W&OD Trail** - Special attention will be paid to the existing utilities in the bridge foundation area. Following Stage I bridge foundation design approval, a series of test pits will be dug to assess suspected utility conflicts. During the pre-UFI meetings special emphasis will be placed on utilities in conflict with the bridge for early relocation. Utilities with probable conflicts in the bridge area are DVP distribution lines, Verizon, AT&T Fiber Optic Lines, Washington Gas lines, and Loudoun Water.



**Loudoun Water sanitary sewer force main** – The Myers/WRA Team analyzed the sanitary force main plans provided by Loudoun Water to identify potential conflicts. The design conflicts with the force main from Sta. 52+00 to Sta. 62+50 along the eastern side of Route 659. In order to avoid the conflict with the recently constructed sanitary line, the team adjusted the proposed noise wall from Sta. 51+86 to Sta. 62+64 and plans to place the noise wall on a partial retaining wall (Sta. 62+64 to Sta. 67+75 and Sta. 69+10 to Sta. 73+00). The proposed ROW was also adjusted to reduce the amount of permanent sanitary sewer easement to be acquired while complying with Loudoun Water easement requests.



**Transmission lines at the bridge over the W&OD Trail** - A combination of design and construction means and methods will be developed to ensure planned bridge construction avoid relocations or outages for the DVP transmission lines. The bridge has been designed to maintain the required 25.5 foot clearance from the roadway to the lowest conductor. Also, the bridge beam construction picks will be conducted so that crane booms maintain the required 20 foot clearance from the nearest conductors to construction equipment.



**Loudoun Water betterment of water main –**

During meetings with WRA, Loudoun Water representatives have confirmed their interest with in-plan relocations of their facilities and an overall betterment of the water main on Route 659 from the current 20”/30” lines to a new 36” line. As the water main relocations are on the Project critical path, Myers/WRA will work closely with Loudoun Water following Notice of Intent to Award to scope and negotiate the requested betterment. This approach is just another example of the proactive efforts to minimize relocation and schedule risk. This strategy of dealing with betterment requests early was successfully implemented by WRA on the *Fall Hill Avenue project*.

*Figure 4.4.2 Bridge Means and Methods Avoid Three DVP Transmission Lines, Possible Outages, and Relocations*



**SCHEDULE MITIGATION STRATEGIES**

Utilities Lead, Dan Seli, with coordination support from Paul Martin, will proactively manage the utility coordination/design effort. In construction, Dan will work closely with Mike O’Neill (Myers senior field engineer) to assist utility companies and their contractors with efficient and effective utility relocations. Action items, enforced by a utility matrix and tracking sheet, will be discussed at bi-weekly utility coordination meetings between the Myers/WRA Team, utility owners, and VDOT during design and construction. Relocation design and construction schedule, long lead items (including delivery of special fiber optic lines, utility splicing and customer notifications), and internal utility company coordination between their design/construction team will be the Team’s focus.

Potential issues with relocations exceeding the prescribed UFI schedule will be flagged, mitigation measures identified and remediation measures implemented to maintain the relocation schedule. If tasks are not completed as planned, they will be flagged for more intensive coordination to maintain or recover schedule.

The Myers/WRA Team will partner with the utility companies and VDOT regarding any delay or lack of progress and assist in defining a recovery strategy. If necessary, Myers is prepared to assist with relocations to expedite progress. Partnering with the utility companies to provide clearing, install conduit systems, encasement pipes, and other items avoids introducing another contractor into the work area and puts control of the relocation schedule into the Team’s hands. Encouraging different utility companies to use a shared contractor approach will also expedite relocations and the placement of underground conduits by eliminating unnecessary double excavations of the same area and minimizing the risk of damage to facilities.

*Dan Seli and Mike O’Neill successfully designed and oversaw construction on the Myers/WRA Walney Road DB project where a joint utility duct bank relocation for FiberLight, Level 3, and Verizon Business (despite fiber back-order issues and government, client splicing delays), streamlined the relocation process.*

*Mike O’Neill expedited clearing /grubbing, E&SC, and staging area stabilization to help Woodlawn, LLC (FiberLight contractor) to work through an exceptionally harsh winter season. This and other efforts have helped to minimize schedule delays.*

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Price



Schedule



Impacts



Risks

The following strategies were implemented on the *Walney Road project* to meet constrained utility relocation schedule and will be used by the Myers/WRA Team, along with lessons learned, on the Route 659 Project:

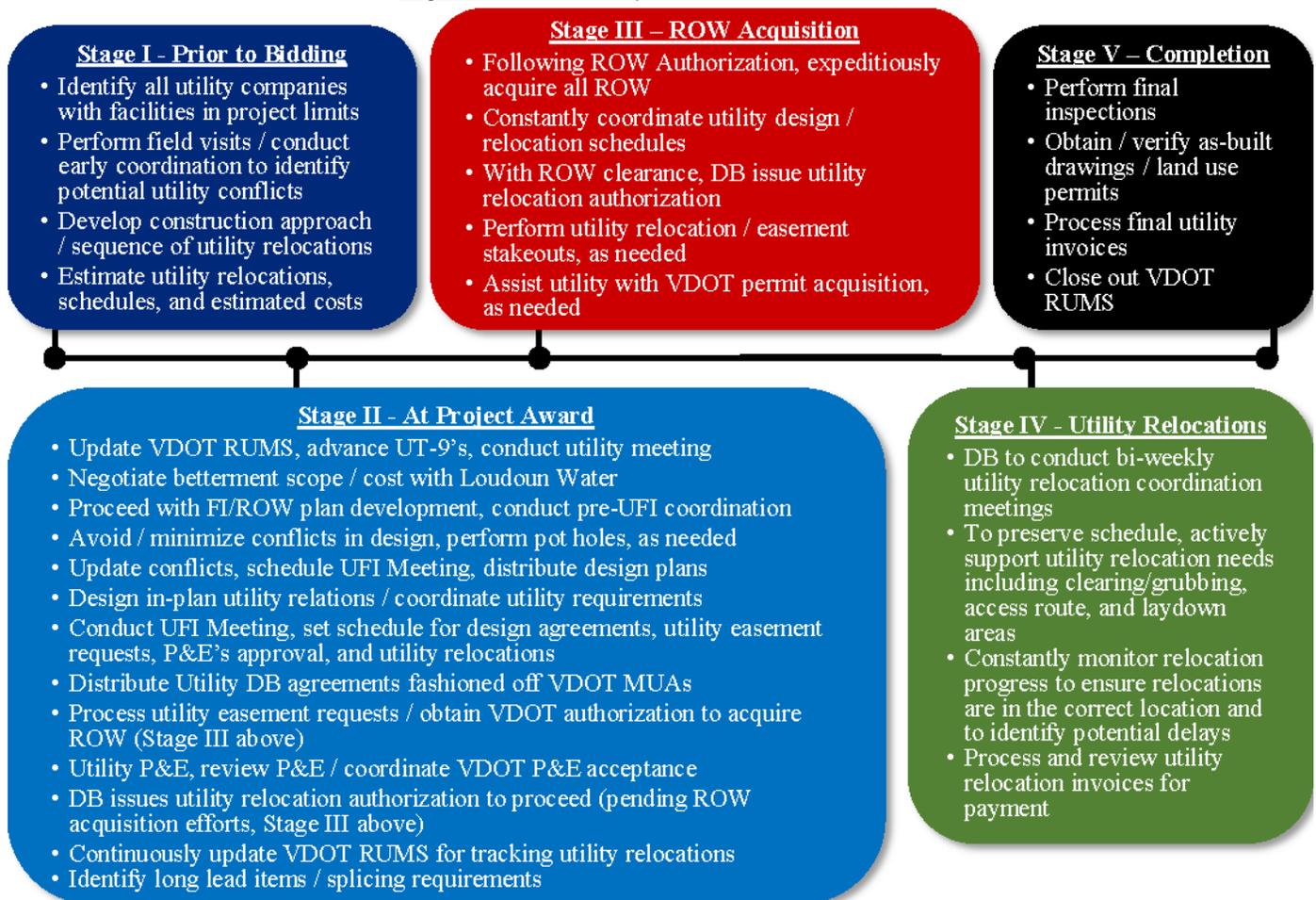
- Extensive communication with utilities, their engineers, and contractors. An example is holding individual pre-UF1 meetings to discuss the Project, utility conflicts, schedule, and Project constraints;
- Conduct bi-weekly conferences with the utilities, their engineers, and contractors, to ensure progress is being maintained and quickly resolving design and schedule issues before they become critical;
- Develop, maintain and share Project-wide mapping with the utilities that tracks utility relocation design, easement acquisition, and construction status; and
- Assign Myers/WRA design /construction coordinators that will work together with the utilities throughout the Projects design and relocation. Dan Seli and Mike O’Neill have collaborated on for the *Walney Road project* and will continue their efforts for Myers/WRA on this Project.

The risk associated with discovering unexpected or unknown utilities has been diminished by completing a comprehensive utility investigation during the preparation of this proposal. Prior to commencing construction, the work area will be swept for signs of any unmarked utilities.

### INTEGRATED PROJECT SEQUENCING

The utility coordination tasks display (*Figure 4.4.3*) shows the integrated interdependencies between utility coordination, design, and construction for a DB project. By ensuring these relationships are properly accounted for in the Project schedule, risk can be managed and mitigation measures instituted.

*Figure 4.4.3 - Utility Coordination Tasks*



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The Utility Schedule Overview, shown in *Table 4.4.3*, breaks down the expected design and construction durations for each utility. These estimated durations may change during the design phase as a result of coordination with the utility companies as described in the utility coordination tasks display.

*Table 4.4.3 Utility Schedule Overview*

UTILITY	HAY ROAD TO CHESTERTON STREET	CHESTERTON STREET TO PORTSMOUTH BOULEVARD	PORTSMOUTH BOULEVARD TO BRIDGE/W&OD TRAIL	BRIDGE/W&OD TRAIL	BRIDGE/W&OD TRAIL TO GLOUCESTER PARKWAY
<b>AT&amp;T</b>	No Conflicts	No Conflicts	No Conflicts	1940 LF FO cable 90 Days Design 90 Days Construct	No Conflicts
<b>Comcast</b>	1078 LF FO cable 1078 LF Coax cable 90 Days Design 30 Days Construct	No Conflicts	No Conflicts	No Conflicts	4 poles with 2 Coax cables already scheduled to be relocated with adjacent project
<b>DVP Distribution</b>	8 poles with 1 3-phase circuit 90 Days Design 30 Days Construct	3 Poles with 1 3-Phase Circuit 1170 LF buried 3-phase circuit and a transformer 90 Days Design 60 Days Construct	10 Poles with 1 3-Phase Circuit 3 Poles with 2 3-Phase Circuits 90 Days Design 60 Days Construct	3 Poles with 1 3-Phase Circuit 90 Days Design 30 Days Construct	9 poles with 1 3-Phase Circuit 90 Days Design 60 Days Construct
<b>DVP-Transmission</b>	No Conflicts	No Conflicts	No Conflicts	2 towers with 2 aerial circuits DVP will want to review crane plans for safety but outages not needed. DVP review 1 month	No Conflicts
<b>Loudoun Water Sanitary Sewer</b>	No Conflicts	No Conflicts	No Conflicts	No Conflicts	No Conflicts
<b>Loudoun Water Potable Water</b>	143 LF 8" Water Main 1313 LF 30" Water Main 2152 LF 20" Water Main 60 Days Design 90 Days Construct	1200 LF 20" Water Main 30 Days Design 60 Days Construct	2475 LF 20" Water Main 45 Days Design 60 Days Construct	337 LF 20" Water Main 30 Days Design 45 Days Construct	150 LF 8" Water Main 1052 LF 20" Water Main 45 Days Design 90 Days Construct
<b>Verizon Virginia</b>	1151 LF Copper cable 1820 LF FO cable 90 Days Design 60 Days Construct	443 LF Copper cable 560 LF FO cable 90 Days Design 20 Days Construct	1668 LF Copper cable 90 Days Design 20 Days Construct	404 LF Copper cable 90 Days Design 5 Days Construct	13 poles Copper and FO cable 90 Days Design 60 Days Construct
<b>Washington Gas</b>	749 LF 8" Gas Main 60 Days Design 20 Days Construct	1182 LF 8" Gas Main 60 Days Design 20 Days Construct	179 LF 3" Gas Main 2356 LF 8" Gas Main 60 Days Design 40 Days Construct	500 LF 8" Gas Main 60 Days Design 20 Days Construct	730 LF 8" Gas Main 458 LF 6" Gas Main 60 Days Design 25 Days Construct

### 4.4.3 GEOTECHNICAL

Myers has intimate thorough working knowledge of the challenges presented by the geotechnical conditions of the area. Myers currently has three active projects within a one mile radius of the Project with very similar geotechnical conditions. Current projects include the widening a 0.8 mile section of Belmont Ridge Road approximately 1 mile south of the proposed Project where significant amounts of both mass and trench rock needed to be excavated to complete the widening. The Myers/WRA Team intends to use this knowledge of the area and lessons learned gained from these projects to successfully mitigate the challenges posed by rock and unsuitable soils on this Project.

#### GEOTECHNICAL APPROACH

The Myers/WRA Team has reviewed the Belmont Ridge Geotechnical Data Report (GDR) and are familiar with the geological conditions in the area. The GDR identified shallow surface deposits overlying diabase and hornfels bedrock of the Culpeper Basin. Subsurface data from the GDR was plotted against the proposed roadway profile to identify geotechnical risks and mitigation strategies.

Our Team's proven approach to geotechnical analysis and investigation is a multi-step process and was implemented on the *Walney Road project*:

The **first step** includes a review and evaluation of available data and information regarding the Project area and subsurface soils including mapping (aerial, geologic USGS Soil Survey, and historical), the adjacent Luck Stone quarry, geotechnical borings, laboratory data and potential nearby soil borrow sources. Understanding historical and existing available information will assist our geotechnical investigation campaign and help to identify site risks / physical constraints and develop strategies to manage and mitigate these risks.

VDOT has provided 130 geotechnical borings of varying depths along the proposed widening alignment; approximately 90% of the borings outlined by Chapter 3 of the VDOT Manual of Instruction (MOI). During the **second step** of the process, the Myers/WRA Team will develop and implement a geotechnical investigation campaign based on Chapter 3 of Materials Division MOI and perform supplemental exploration, investigation and testing in support of the design level GDR. These supplemental borings will primarily be located along the retaining walls on the Project. Our subsurface exploration approach will consist of several exploration methods including, but not limited to, soil borings with Standard Penetration Test (SPT) analysis, rock borings and geophysical seismic refraction surveying to better identify the depths of the rock that will be encountered on the Project.

The **third step** of the process will be to use the available geotechnical information (existing VDOT data and additional subsurface exploration) to evaluate the soils parameters, perform engineering analyses and provide the geotechnical recommendations. This step will address geotechnical aspects of the Project as it pertains to foundations for bridges, noise walls, drainage structures, retaining walls and earthwork for roadway subgrade and SWM. The geotechnical recommendations will address axial/lateral capacities, settlement, and global/external stability.

The **fourth step** of the process is to ensure that geotechnical design concepts are implemented during construction, as WRA will serve as the Geotechnical Engineer (GE) of Record and will work alongside QC testing services and the QC Manager to ensure geotechnical design concepts and solutions are properly implemented in the field. Further, the GE, will provide requisite inspections/certifications as stipulated by the QA/QC plan and the VDOT manual. The GE will collaborate with the CM and QAM to ensure that work progresses only after quality certification/assurance checks have been completed, logged and accepted by the QAM.

**GEOTECHNICAL RISKS AND CHALLENGES**

The geotechnical risks which are anticipated on this Project, based on the conditions described in the Geotechnical Data Report (GDR), have the potential to impact quality, schedule, cost, and safety. The main risks have been identified by the Myers/WRA Team as **rock excavation, unsuitable subgrade soils, settlement, existing slopes, and existing structures**. Each of these risks was analyzed jointly by our geotechnical engineers with our design and construction team to develop the mitigation strategies summarized in Table 4.4.4 as part of the design and construction of the Route 659 reconstruction.

Table 4.4.4 Geotechnical Risks

RISK DESCRIPTION	IMPACT	MITIGATION STRATEGY
Rock Excavation 	Schedule, Cost	<ul style="list-style-type: none"> <li>Adjust profile to reduce amount of rock excavation required by 50% (RFP = 30,000 CY / Myers/WRA = 15,000 CY)</li> <li>Use open drainage system to reduce trench rock that will be encountered</li> <li>Rip and hoe ram rock as needed to protect existing structures and utilities</li> </ul>
Unsuitable Subgrade Soil 	Schedule, Cost	<ul style="list-style-type: none"> <li>Perform additional design-level subsurface exploration</li> <li>Confirm areas where unsuitable materials are anticipated to be present</li> <li>Remove or condition unsuitable soils less than 3’ below the bottom of pavement</li> <li>Undercut soils at stations 55, 101, 132 &amp; 135 up to 2.5’ below existing grade</li> </ul>
Settlement 	Quality, Schedule	<ul style="list-style-type: none"> <li>Construct MSE wall and monitor settlement to gauge when settlement is complete</li> <li>Install pipe work prior to wall construction</li> </ul>
Existing Slopes 	Safety	<ul style="list-style-type: none"> <li>Provide proper compaction and slope geometry</li> <li>Perform stability analysis on impacted slopes</li> </ul>
Existing Structures 	Safety, Quality	<ul style="list-style-type: none"> <li>Monitor settlement during construction</li> <li>Use temporary MSE walls to maintain existing travel lanes</li> </ul>

**Rock Removal**

Review of the GDR with respect to the planned construction indicated rock removal to be the most prevalent geotechnical risk to both the construction cost and construction schedule. The first step in mitigating against rock is by designing to avoid rock excavation where possible. The Myers/WRA Team has already identified areas where adjustments to the roadway profile and storm sewer can be made to reduce the amount of rock excavation on the Project. This effort will continue post-award as further geotechnical information is gathered, and the design is progressed. Although a concentrated effort will be made to design around rock, rock removal will be required in some areas to reach subgrade elevation for the road, to install the realigned water main which parallels much of the Project, and for some of the storm drainage installation.

Rock excavation is required to reach the planned road grade particularly along the northbound lane between Sta. 66+00 and Sta. 73+00. Rock was encountered approximately four feet below grade in this area of the Project. Cut depths are on the order of 6 feet, therefore roughly two feet of rock needs to be removed to reach subgrade elevations. Approximately 15,000 CY of rock is

*Myers’ current project on Route 659, approximately 1 mile south of this Project, has more than 100,000 CY of rock removal including 2,000 LF of trench rock*

estimated to be excavated to reach subgrade elevation on this Project. The complexity of this rock excavation lies in the two distinct rock types on the Project and the thin overburden layer. The two rock types are hornfels and diabase. Diabase rock is heterogonous and hard; typically not rippable. Hornfels are more heterogeneous and softer and typically can be ripped with a large dozer and ripper. The soil borings obtained to date indicated the presence of both hornfels and diabase along the alignment, but their extents are not clearly defined. Rock coring was performed in the vicinity of the bridge, but cores were not obtained in many other locations along the alignment. Inspection of the bedding plans and diabase intrusions on the adjacent quarry indicate that when a diabase intrusion is encountered it will be for a significant extent along the alignment before switching

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○ Risks

back to the hornfels. To determine the best excavation method we will perform a seismic refraction survey in the vicinity of the utility trench and in cut areas for the roadway. This will measure the wave speed of the underlying soil and bedrock. High wave speeds indicate harder materials, which in turn relates to ripability. As much of the rock material as possible will be removed by blasting under the supervision of a blasting consultant, as required by the RFP.

Where rock is encountered close to the existing roadway or adjacent to existing utilities and structures, hoe ramming and/or ripping will be used to remove the rock. The proximity of existing structures and overburden depths will be considered when contemplating blasting and the design of the blast. In areas where blasting is determined to be the most efficient means of rock removal, blasts will be performed in relatively small sections such that the adjacent overburden or blasting mats can be used to cover the blast area providing additional confining pressure and prevent fly rock. Blasting will be performed under the supervision of the blasting consultant as required by the RFP.

*Myers will use lessons learned from their **Stonewall Energy project** where more than 65,000 CY of material was successfully blasted within 50-75' of a 30" gas main while maintaining a Peak Particle Velocity less than 1.25.*

With this Project being a borrow job, rock generated from blasting and ripping operations will be reused as fill in the tall embankments approaching the bridge. It may be necessary to crush excavated rock to meet specifications. Myers has crushed 260,000 CY of rock to be used for structural fill on its current *Stonewall Energy projects* within the last year.

### Unsuitable Soils

Unsuitable soils are those with USCS classifications of CH, MH, OH and OL as well as those which exhibit swell index of five percent or greater. Unsuitable soils were identified at a few locations along the proposed Route 659 widening alignment. The means and methods for removing unsuitable soils will be dependent upon the quantity, severity and potential schedule impacts of each location. Unsuitable soft soils were identified infrequently and are located under areas to receive fill. At the locations noted on *Table 4.4.5*, unsuitable soils will be removed prior to placing fill and where they are located within three feet of the bottom of the pavement section as per the GDR requirements. Additionally, unsuitable soils will be removed where encountered within two feet of bedding of minor structures.

*Table 4.4.5 Unsuitable Soils Mitigation*

LOCATION	MITIGATION STRATEGY
Station 55+00	Undercut 2.5' prior to Fill
Station 101+00	Undercut 2' prior to Fill
Station 132+00	Undercut 1' prior to Fill
Station 136+00	Undercut 2'

Excavated site soils will include unsuitable soils removed in preparation of the subgrade. It is anticipated that these soils will generally not be suitable for re-use in compacted highway embankments due to their organic content.

During the design phase of the Project, a geotechnical investigation will be completed that will further identify areas where unsuitable soils will be encountered. This information will be used to update the Unsuitable Soils Plan. The plan identifies areas where unsuitable soils are most likely to be encountered, if the soils are in a cut or fill section, methods to be used for field identification of unsuitable soils and various means and methods to be implemented to mitigate the soils. The plan will be reviewed during preparatory inspection meetings for earthwork and embankment operations and distributed and reviewed with QA/QC inspectors and construction field managers. Aligning to an Unsuitable Soils Plan with our Team's Geotechnical Engineer and VDOT prior to encountering unsuitable soils will minimize potential schedule impacts.

### Settlement

Soft or weak soils in localized areas will be encountered on the Project and increase the risk of settlement. Settlement of roadway embankments occurs when foundation soils compress under embankment loads which can create dips and bumps in the roadway and cracks in structures. Based on the Team's proposed vertical

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alignment, most of the shallow soils are suitable to support the proposed fill and the proposed roadway section. Soil deposits are relatively thin along the Project and are generally less than 10 feet in thickness. Insignificant settlement (less than  $\frac{3}{4}$  of an inch) is expected due to embankment loading and large settlements are not anticipated.

A true MSE wall abutment is proposed for the bridge structure on the Project where the bridge abutment is supported by the MSE wall. This abutment support system eliminates the need for noisy pile driving operations or the need for time consuming rock socketed drilled shafts. Settlement of the bridge abutments will be controlled through strict gradation requirements on the MSE backfill. A uniformly graded aggregate backfill will be used because of its narrow range of relative density and its high modulus. The MSE walls supporting the abutments will be founded on incompressible material. The Myers/WRA Team proposes a three to five foot deep undercut to remove overburden soil and found the wall on incompressible soils which have a bearing capacity on the order of five tsf. During the undercutting operation WRA's Geotechnical Engineer will assess the subgrade as it is exposed and verify the necessary overburden soils are removed and the wall is founded on incompressible material.

*Myers has implemented monitoring of MSE walls on several projects such as the **Airport Connector Road Design Build project in Richmond, VA.***

*WRA has designed similar systems for **Snowden Boulevard project in Winchester, VA and Towlsten Rd over Rocky Run in Great Falls, VA***

### Structures and Existing Slopes

In addition to the bridge, there are other structures proposed on the Project to be evaluated including the culvert pipe crossing under the MSE walls near Sta. 121+00 and the MSE walls by the bridges and the storage facility. When defining the bottom of the MSE wall elevations and designing the internal components of the wall leading to the bridge, the existing side slopes and existing roadway structure will be considered. The bottom of the MSE walls will be lowered to an elevation which develops a minimum global factor of safety of at least 1.5. Embedding the wall increases the bearing resistance the soils can provide as well as reduces the driving force on a failure surface extending through the toe slopes.

In the area of the existing SWM pond (northeast of the bridges) the bearing capacity of the soils within the existing earthen dam structure will be analyzed closely when determining bottom of wall elevations for this section. Soil borings will be necessary through the dam to determine if a clay core is present and if remedial measures are necessary to obtain the required bearing resistance for the proposed wall.

It is critical to maintain traffic through the vicinity of the W&OD Trail, where the bridges will be constructed adjacent to live traffic during construction. Construction in this area where the proposed alignment closely follows the existing road poses challenges when a grade change is needed for the final alignment. A temporary wire-faced retaining wall will be constructed down the center of the alignment to retain the embankment and wall backfill during the staged construction approach in order to accommodate the vertical grade change and keep the backfill out of active travel lanes. Extra layers of geosynthetic reinforcement will be placed with the embankment and wire forms will be used to maintain the face. Once the first phase of the bridge is constructed, the wire face wall will be buried as fill and the opposing MSE wall is built. The permanent MSE walls on the outside of the proposed roadway will be constructed to their final configuration once construction has begun.

*Myers recently constructed a temporary wire wall on the southbound side of the **I-95 Express Toll Lanes project in Maryland to retain fill along a stream and maintain traffic.***

#### 4.4.4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

##### APPROACH TO QA/QC

The Myers/WRA Team believes that quality is a partnership between design and construction staff, QC inspection technicians, the independent QAM and QA staff, and VDOT - driven by the goal of exceeding VDOT's project quality requirements. To accomplish this goal, the quality team will prepare, present, obtain approval of, and adjust the Route 659 QA/QC Plan which will be based on the VDOT's Minimum Requirements for QA and QC on Design-Build and PPTA Projects, January 2012. The QA/QC Plan will not only include roles, responsibilities, authorities, and organizational structure; it will provide for mechanisms to address and report nonconforming (NCR) workmanship, materials, and/or equipment and auditing and recovery plans (AR) to control and repair deficient items. The Myers/WRA Team provides this sound approach as it has been used by Myers to develop, execute, and adjust seven individual QA/QC plans for successful VDOT design-build projects. With each successful design-build project, Myers quality, design, and construction teams have gathered additional experience and lessons learned to improve the effectiveness of the next QA/QC Plan. The Myers/WRA Team will provide a well-structured, easily audited plan that minimizes the need to expand VDOT's contract administration efforts.

Our Project-specific approach to quality management is focused on continuous improvement and ensuring that levels of the design and construction team obtain, understand, implement, monitor, and document quality procedures. Specific Route 659 Project commitments that have been built based upon previous lessons learned include:

- The QA/QC plan will include clear provisions for identifying, notifying, and tracking potential non-conforming work, materials, or equipment and administering a quality assurance auditing and nonconformance recovery plan (AR).
- The QA plan will clearly stipulate that the QAM does not report to production forces, has the authority to initiate work stoppages, and will communicate daily with the CM and the lead inspector to monitor and track safe conveyance of W&OD Trail users through the bridge work zone, utility relocations, and MOT risks.
- The Design QA/QC plan will include cross-disciplinary constructability reviews and coordination among the DM, CM, and the ROW, Utility and PR Managers; ensuring that utility easements are able to accommodate the required construction equipment and possible stakeholder inconveniences due to utility relocations are discussed, vetted, and conveyed at the "Pardon Our Dust" meeting.
- The construction QC Plan will require assigning qualified, VDOT certified, and design-build experienced QC inspection technicians and also requires QCM and QC staff to attend weekly construction meetings. This will help the QC team plan for the work in advance, determine testing frequencies and requirements, and have on-hand the correct quality checklist for the planned work.
- The construction QC Plan will require performing pre-inspection on items using the intermediate inspection checklists. Once the CM is satisfied the work meets the contract requirements, the official QC inspections can be scheduled and conducted, checklists completed in an expedited manner, and quality records can be uploaded to the Project's SharePoint records system.

##### **VDOT Recognition of Myers' Quality of Work:**

*"The VDOT Lynchburg District PM Team was impressed with the quality of work performed by Myers ...Myers also took their time to ensure they were doing things correctly and safely even when unexpected issues arose."*  
VDOT Tye River DB PM.

##### STAFFING PLAN

The Myers/WRA quality team, overseen by the DBPM, is composed of the QAM, QA inspectors/laboratory, DM, Design QA/QC Manager, CM, QCM, and QC inspectors/laboratory. This team is focused on implementing the Project's VDOT approved QA/QC plan to ensure (1) the Project's quality meets the contract

VDOT Priority Icon Legend			
	Price		Schedule
	Impacts		Risks

requirements, (2) that work and materials perform in the manner for which they are intended, and (3) that quality management records, materials notebook, and documentation are accurate and complete. The roles and responsibilities of the Myers/WRA quality team members are described in *Table 4.4.6* below.

*Table 4.4.6 – Quality Team Roles and Responsibilities*

<b>TEAM MEMBER</b>	<b>ROLE AND RESPONSIBILITY</b>
<i>DBPM:</i> <b>Tom Heil</b>	Responsible for the overall project design, construction quality management, and contract administration for the Project; partners with VDOT to resolve issues and avoid disputes
<i>QAM:</i> <b>Brian Henschel</b>	Reports to Mr. Heil and VDOT and is completely independent of construction operations/production; responsible for QA inspection/testing of materials used and work performed on the Project, oversight of the construction QC program, develop, implement, and adjust the Project’s QA/QC Plan, maintain materials notebook, and punch list
<i>Lead QA Inspector:</i> <b>Lindsay Booher</b>	Reports to Mr. Henschel and manages a team of qualified/VDOT certified QA inspectors to execute the QA program; works closely with Mr. Hamid to verify QC staff qualifications and verify QC activities conform to the contract, QC program, and “approved for construction” plans
<i>QA Inspection Technicians:</i>	Report to Mr. Booher, completely independent from production, execute QA program, and maintain authority/responsibility to initiate actions to prevent nonconforming work
<b>TEAM MEMBER</b>	<b>DESIGN QA/QC ROLE AND RESPONSIBILITY</b>
<i>DM:</i> <b>John Maddox</b>	Reports to Mr. Heil and is responsible for coordinating individual design disciplines (including design subconsultants), and ensuring the overall Project design is in conformance with the contract; Mr. Maddox will develop the Design QA/QC Plan, and will present the QA/QC Plan to VDOT with Mr. Henschel, and perform QA on design documents prior to signing/sealing
<i>Design QA/QC Manager:</i> <b>Mark Vasco</b>	Reports to Mr. Maddox and oversees the independent design QC processes to ensure adherence to the Design QA/QC Plan and the QA/QC Plan; assigns/manages independent QC technical reviewers and ensures that Design QA/QC Plan reviews are completed
<i>QC Reviewers</i>	Report to Mr. Vasco, are completely independent of the design, and ensure that the design is complete, the design adheres to contract requirements, and meet the Project’s intent
<i>QA Reviewers</i>	Report to Mr. Maddox, verify the QC review, and evaluate whether the designer assessed the problem appropriately, applied the correct analysis, and was completed by qualified staff
<i>Interdisciplinary Reviewers</i>	Senior professionals from each discipline will review the work of other disciplines to ensure that potential conflicts are identified and resolved
<b>TEAM MEMBER</b>	<b>CONSTRUCTION QC ROLE AND RESPONSIBILITY</b>
<i>CM:</i> <b>Ivan Saer</b>	Reports to Mr. Heil and is on-site full-time for the duration of construction; manages the construction process, include QC activities, to ensure the materials used and work performed meets contract requirements and the “approved for construction” plans; Mr. Saer will communicate daily with Mr. Henschel to manage bridge, utility, MOT, other Project risks.
<i>QCM:</i> <b>Wamiq Hamid</b>	Reports to Mr. Saer, is responsible for QC inspection and inspectors, and ensure that QC program requirements are completed in accordance with the QA/QC Plan and the contract
<i>Construction Team:</i> <b>Superintendents</b>	Reports to Mr. Saer, support detailed operation planning/production, and are empowered to stop or slow down production to quickly correct any defects that may arise; frequently consult with the QCM and QC inspectors to coordinate inspection/testing for witness and hold points
<i>QC Inspectors:</i> <b>DMY</b>	Report to Mr. Hamid and are dedicated, full-time QC roadway and bridge inspectors that conduct required QC inspections/tests and report results/issues, if any, to Mr. Hamid, Mr. Saer, and Mr. Henschel

The approved QA/QC Plan will provide additional roles and responsibilities of these quality staff, resumes to support their experience, and copies of certifications attesting to their ability to perform quality inspections and/or testing. As the design progresses, the QA/QC plan will be adjusted prior to and/or coincident with construction preparatory meetings to include the number and type of QA and QC inspectors and technicians that the Myers/WRA Team will commit to the Project.

**DESIGN QA/QC**

Design Quality Management is led by John Maddox (DM), with support from Mark Vasco (Design QA/QC Manager) and integrates the entire design management team. The Myers/WRA Team’s approach to design QA/QC involves collaboration between the design, construction, and quality teams. This approach will minimize the likelihood of expanding VDOT’s contract administration efforts by addressing design and/or design issues that may arise during construction before they become schedule critical. As an example, the Design QA/QC Plan requires peer quality control reviews and quality assurance verifications concurrent with the construction team’s FI/RW constructability plan review. Following this three phased independent review, comments are provided to the DM for resolution prior to submitting to VDOT and third party stakeholders for acceptance. The following provide salient examples of our Design QA/QC Plan requirements to assist VDOT with minimizing administrative costs:

*The Myers/WRA Team performs cross-discipline peer reviews using VDOT’s LD-436 checklists and constructability reviews with comments incorporated into the design plan before submission to VDOT. This ensures that potential conflicts have been identified and resolved, thus reducing VDOT’s plan review efforts.*

- **Plan submittals** – Our team will ensure submittals are complete, correct, and timely. We will provide an organized and indexed set of design calculations, including design criteria and assumptions. The DM, QAM, and DBPM will sign-off on their acceptance prior to submitting documents to VDOT for review and approval (See Figure 4.4.5), with a goal of first-submission approval.
- **Design changes/modifications** – Minimize changes and design conflicts by thorough field visits, scope validation investigations, detailed knowledge of RFP requirements, and VDOT standards and specifications. Careful coordination and regular bi-weekly meetings between design and construction staff with a system of cross-discipline constructability reviews leads to a design with a work plan in mind. Myers/WRA will maintain a system to track construction revisions/update as-built documents.
- **Non-compliances during construction, requiring review and approval of corrective design solutions due to non-conforming materials or work** – Systematic indoctrination of the QA/QC process with an ingrained culture of quality will minimize non-compliances, reducing construction phase design effort. When non-compliances do occur, our Team will promptly and appropriately address the non-conforming work and document the occurrence with a paper trail that is easy for VDOT to follow.

*Figure 4.4.4 Design QA/QC Reviews and Certifications*



**DESIGN QA/QC ELEMENT – BRIDGES OVER THE W&OD TRAIL**

Three unique elements affecting the bridge design over the W&OD Trail are 1) the geotechnical design for the true MSE abutment system, 2) the geometric requirements for the bridge opening by the NVRPA trail guidelines, and 3) constructability of the bridge underneath energized DVP high voltage transmission lines. Developing a bridge solution that accommodates these three unique aspects while meeting the RFP and VDOT Structure and Bridge design requirements will require comprehensive inter-discipline reviews making the

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### VDOT Priority Icon Legend

 Price	 Schedule
 Impacts	 Risks

QA/QC of this element critical. For this Project, the Stage 1 Bridge Report is deemed a critical document to be reviewed and accepted by stakeholders on the Project, both internal to the Myers/WRA Team and to external entities such as VDOT, Dominion Virginia Power (DVP) and NVRPA. These reviews include early coordination with roadway design to ensure the bridge geometry meets NVRPA clearance and minimum opening criteria. Next, a geotechnical coordination is performed to ensure all design requirements of the true MSE abutment system are met and are thoroughly documented and explained in the Geotechnical Report prior in its submission. Additionally, a utility and constructability review is performed to ensure the bridge concept meets Myers constructability methods and safety clearances from the DVP transmission lines.

For this Project, the Stage 1 bridge report and associated plans will act as the main document to communicate to VDOT, DVP and NVRPA the bridge geometry and associated impacts. This Stage 1 Bridge Report will be comprehensive enough to get the needed concept level approvals from VDOT, DVP, and NVRPA at an early phase of Project development and eliminate any surprises later in the design phase which would cause delay and extra efforts by VDOT's reviewing staff. Additional sketches and client specific calculations will be presented to show how the proposed bridge meets the DVP minimum clearances and NVRPA minimum effective openness area requirements to facilitate quick and complete reviews. Any impacts to maintenance of traffic for VDOT, power operations for DVP, and trail user impacts for NVRPA will be presented in this report. WRA's bridge group will generate the Stage 1 Bridge Report document and perform its QA/QC process, send out for inter-departmental comments, then submit to the external stakeholders. The design team will offer to these external stakeholders a design review meeting to answer any questions and address concerns early on in the design process. These comments will be collected, processed, and the document updated to meet the needs of parties before being sent to VDOT.

The bridge element design QA/QC begins with a detailed QA Plan, coordinated with the QAM and submitted with the overall Project QA/QC Plan. This Plan includes the elements that will receive formal QA/QC, such as the Stage 1 Bridge Report, design calculations, final plans, and other documents, and specifically identifies both the design QC and QA reviewers, including resumes to support their qualifications. Within each element, a QA checklist/form is generated to document when the design element is completed by the designer, then accepted by the QC reviewer, QA reviewer, and finally the DM. VDOT checklists from the Structure and Bridge Office Practice are identified and filled out as part of the element's document review. These will be reviewed with the design plans where the QC reviewer will check bridge geometry, design information recorded on the plans, and final details such as rebar schedules and quantities. Once completed, the QA reviewer will verify that the report, calculations, and/or plans are in conformance with VDOT policies and practices, and meets RFP requirements. Following DM acceptance, the QA/QC procedures and protocols will be assessed by the QAM to ensure the Design QA/QC plan requirements were followed and upon satisfactory compliance accept the submittal by signing the Release of Deliverable form. The final step in the Design QA/QC plan process is for the DBPM to verify that the Release of Deliverable form includes appropriate signatures and if acceptable, will provide his signature and authorize submission to VDOT.

The Myers/WRA Team will identify a single point of contact to receive and catalog VDOT comments, distribute to the team, and manage the collection of responses. Any changes to the plans resulting from VDOT comments will receive a second round of QA/QC review with the controlling document being the particular set of VDOT comments to ensure they have been addressed. Informal discussions with the document reviewers at VDOT may be requested to ensure the Myers/WRA Team and VDOT are clear about the comments and proposed responses prior to a formal re-submission to eliminate the need for multiple review cycles to obtain final approval of the work product.

**CONSTRUCTION QA/QC**

Our Construction QC program will be implemented in accordance with VDOT’s QA/QC Guidance and the QA/QC Plan. Construction will be carried out in accordance with the RFP requirements with minimum VDOT intervention through:

- Incorporating QA/QC procedures and protocols into design and construction planning efforts;
- Providing a well-structured, complete Project QA/QC Plan which has been tested and successfully used on VDOT design-build projects with similar quality team staff, specifically the proposed DBPM, DM, CM, QAM;
- Extensive experience with this same scope of work, including multiple MOT phases, phased bridge and roadway construction, crucial geotechnical coordination, critical pedestrian traffic considerations;
- Set processes for inspections, testing and test reporting, materials documentation, diaries and checklists, safety and environmental monitoring; and
- Using a team with experience working together, including VDOT and their participation within the process. This approach reduces surprises, increases transparency, fosters collaboration, and increases trust that construction will be in accordance with the contract, with minimal VDOT intervention.

*The Myers/WRA Team is focused on meeting VDOT’s seven Rs of construction, installing the **right material**, in the **right way**, at the **right time**, in the **right location**, in the **right quantity**, verified with the **right documentation**, resulting in the **right payment**.*

Myers’ philosophy of **Safe Production Done Right** uses a Production System approach (Table 4.4.7) that incorporates Quality, Safety, and Production into comprehensive operation planning. The planning process promotes inclusion where the construction team, QC staff, safety manager, and field managers collectively review and provide feedback into operation plans. Quality and safety related tasks associated with each operation are identified and tracked, and an operation does not begin until each item has been addressed.

*The Myers Team Production System approach focuses on collectively planning for and creating a safe, delay-free work area and empowers employees to stop or slow down production to quickly correct any defects that surface.*

*Table 4.4.7 Myers Construction QC Approach*

PRODUCTION SYSTEM PRINCIPLES	BENEFITS TO THE PROJECT
Get quality right the first time by building it into our operational plans and <b>empowering employees to stop or slow down production to quickly correct any defects that surface</b>	<ul style="list-style-type: none"> <li>✓ Quality planned into operations</li> <li>✓ Controlled production that minimizes safety/schedule risks</li> <li>✓ Prompt resolution of any quality issues that may arise</li> <li>✓ Minimized warranty issues</li> </ul>
Collectively plan for and create safe, delay-free work areas	<ul style="list-style-type: none"> <li>✓ Reduced safety and schedule risks</li> </ul>
Ensure continuous improvement and continual learning by standardizing operations, making them transparent, and relentlessly examining them for further improvements	<ul style="list-style-type: none"> <li>✓ Consistent quality construction</li> <li>✓ Transparent communication</li> </ul>
Respect our extended network of subcontractors and suppliers by challenging them and helping them improve	<ul style="list-style-type: none"> <li>✓ Extension of quality and safety practices to subcontractors</li> </ul>

Myers’ proven construction quality control is evidenced by the successful completion of the *Richmond Airport Connector Road* (2011) and *Route 29 NBL Bridge over the Tye River* (2012). Since completion, there have been no significant warranty issues for either of these projects. Myers has received and resolved three NCRs on the *Middle Ground Blvd. Extension* project. The approved QA/QC Plan processes were used to ensure the NCRs were resolved efficiently and accurately. Myers has received zero NCRs on the *Walney Road DB*

project and Rolling Road project. Our construction team will promptly address any quality concerns while building strong working relationships with QC and QA staff.

### CONSTRUCTION QA/QC ELEMENT – BRIDGE ABUTMENT CONSTRUCTION

Our Team has identified the construction of the bridge abutments as the most critical construction element where heightened QA and QC awareness and planning will be required due to the confluence of diverse construction challenges associated with this element, including:

- **Maintaining construction quality and schedule while maintaining vehicular traffic in an adjacent lane and pedestrian traffic on the W&OD Trail.** Safety is paramount to any quality management plan, and construction quality will be based around vehicular and pedestrian safety. This same Myers/WRA Team is currently producing quality work on a multi-MOT phase design-build project with pedestrian traffic and bridge construction on the *Walney Road DB project*.
- **Careful coordination needed with the Geotechnical Engineer (GE),** including foundation investigation and reporting by the GE, approval of the suitable bearing material by the GE and the QA staff prior to the true MSE abutment system construction, and maintaining required confinement between construction phases including installation and maintaining of a wire wall between Phase 1 and Phase 2.
- **Phased Bridge Construction** allows the northbound abutments and portion of the MSE wall to be constructed first partially supported by a wire wall, followed by the southbound abutments and remainder of the MSE wall after traffic is switched. Phased construction requires careful quality management and coordination with the Design Manager to ensure an integrated final product.
- **Unique Abutment Design** featuring spread footings supported by confined backfill behind the MSE walls eliminated a deep foundation. Due to the critical nature of this element, the QC Plan will stipulate inspection and testing frequencies that will exceed VDOT’s minimum standards. Further, the Myers/WRA Team will provide an experienced quality team, including inspectors, with a history of collaboration. This design and construction planning will require careful coordination between the quality team and VDOT to ensure that this innovative approach meets contract requirements.

*WRA successfully provided GE and QA services on the George Mason University Campus Connector DB project.*

To achieve the highest degree of quality on the bridge abutment element, incorporating the above considerations, the specific QA/QC procedures to be implemented must include:

- Continuous coordination between the design, construction, and quality team members, including VDOT. Performing constructability reviews at design milestones, and implementing a continuous feedback loop of lessons learned during Phase I to improve the construction process for Phase II;
- Preparatory and pre-activity meetings within the baseline schedule, during which the Myers/WRA Team will discuss at minimum: safety to W&OD Trail users, MOT, QC and QA inspection and testing frequencies, and sources of materials and material certification requirements.
- Complete inspections and testing that meet the QA/QC Plan requirements with specific standard diary and checklist formats and frequencies to ensure thorough monitoring of the work. For the abutments, this would include MSE wall construction, select backfill, and concrete and reinforcing steel placement.
- Shop inspections retained by VDOT, including girders, bridge railing and other off-site inspection requirements.
- Materials documentation and certification, including the QAM issuing tracking numbers for required items. The Plan will include review and approval of material sources on Form C-25, and issuing a final TL-131 by the QAM to certify materials used on the Project.
- A specific Quality Assurance Auditing and Nonconformance Recovery Plan that quickly addresses quality concerns so that the final product meets or exceed VDOT expectations.

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VDOT Priority Icon Legend			
	Price		Schedule
	Impacts		Risks

Operational planning is followed by reviewing implementation, in this case for the abutment construction. Myers’ process to Act, Improve, and Repeat will be utilized for each of these challenges to meet goals and strive to improve performance as described in *Table 4.4.8*. Before Action Reviews, Mid Action Reviews, and After Action Reviews are used to ensure operations are quality compliant.

*Table 4.4.8 - Effective Operational Reviews*

BEFORE ACTION REVIEW	MID ACTION REVIEWS	AFTER ACTION REVIEWS
Preparatory	Intermediate	Final
<ul style="list-style-type: none"> <li>● Held prior to planned operation</li> <li>● Clearly communicates quality, safety, and production goals to everyone connected to the work operation</li> <li>● Gains alignment and identifies responsibility for quality production</li> </ul>	<ul style="list-style-type: none"> <li>● Held early for critical operations</li> <li>● Involves stakeholders to address concerns regarding quality, safety, and schedule</li> <li>● Confirms crew and equipment are the right size and type for the abutment</li> </ul>	<ul style="list-style-type: none"> <li>● Held upon completion of operation</li> <li>● Reviews quality challenges encountered and resolution reached to improve future operations</li> <li>● Results documented and incorporated into QA/QC Plan refinement</li> </ul>

## 4.5 Construction of Project



## 4.5 CONSTRUCTION OF PROJECT

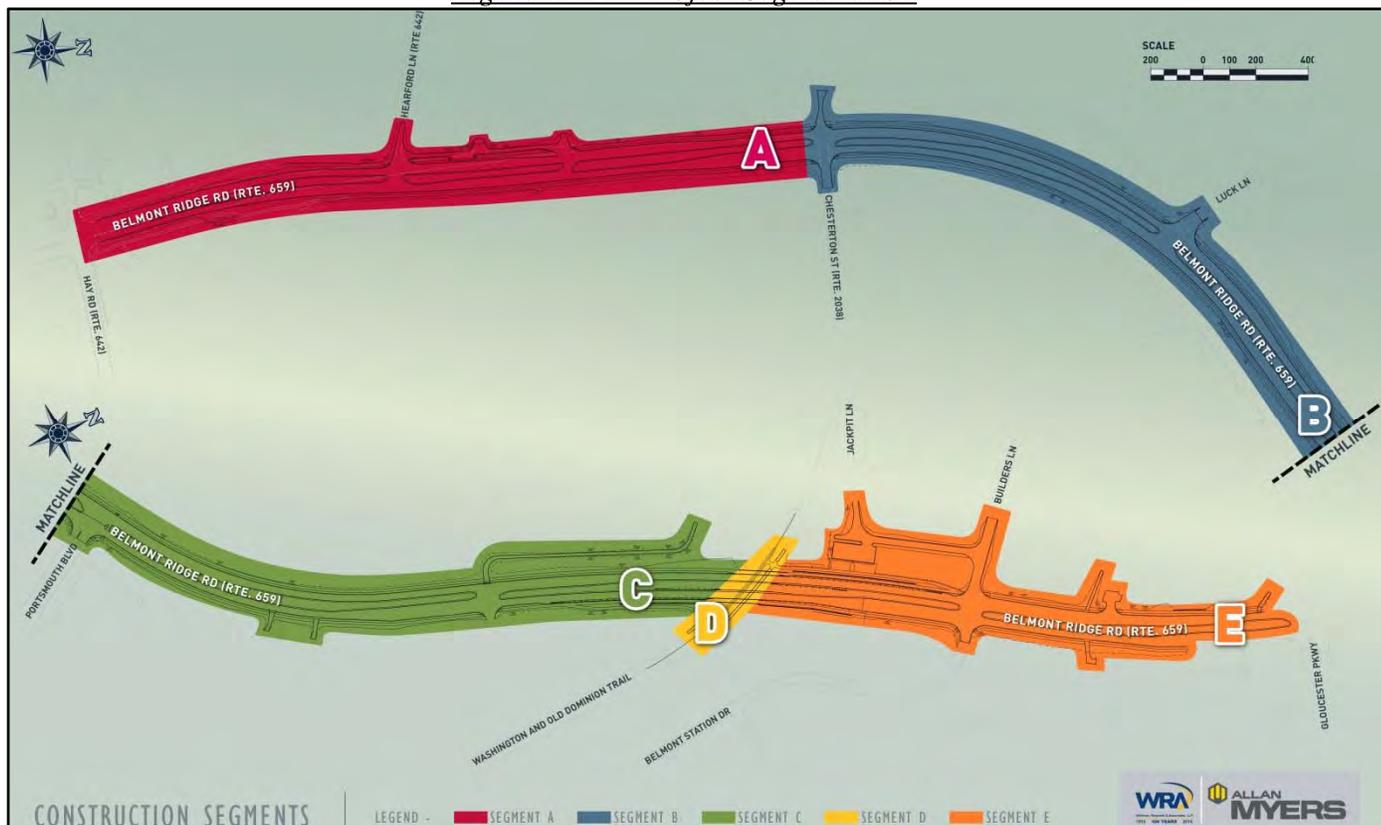
### 4.5.1 SEQUENCE OF CONSTRUCTION

#### APPROACH TO CONSTRUCTION PHASING

The Myers/WRA Team’s approach to construction phasing and sequencing is focused on minimizing the overall duration of construction, providing schedule flexibility, minimizing impacts to the public, and limiting the temporary measures required for construction. By optimizing the roadway profile and taking into account the vertical and horizontal alignment of the existing roadway, a significant portion of the new roadway can be built while maintaining traffic in the existing travel lanes with limited temporary pavement and support of excavation between phases. Utilizing the existing roadway and limiting traffic pattern changes during construction provides a more predictable drive for the traveling public. Continuous access will be maintained to both residential and commercial properties, with particular sensitivity to maintaining access for emergency vehicles, pedestrians, cyclists, residents, and local businesses.

The Myers/WRA Team has separated the Project into five segments as shown on *Figure 4.5.1*. The Project is divided so construction activities can be performed independently from the adjacent segments. We anticipate completing the work in a sequence that minimizes traffic shifts, extending them throughout the Project limits; however, traffic shifts can be implemented separately in some segments, if necessary. Phasing construction independently in each of these segments minimizes the potential delays to the overall construction of the Project if one segment experiences unexpected delays (such as right-of-way, permitting, or utility relocation issues) which could postpone a critical traffic shift on the other segments.

*Figure 4.5.1 – Project Segmentation*



Each segment of the Project has also been broken down further to facilitate detailed planning and scheduling by the construction team. These breakdown areas are reflected in the proposal schedule and narrative in *Section 4.7*.

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VDOT Priority Icon Legend			
	Price		Schedule
	Impacts		Risks

The proposal schedule incorporates safety considerations, anticipated geotechnical challenges, environmental conditions, right-of-way acquisition, site preparation (including utility relocations), stakeholder coordination and government approvals. *Table 4.5.1* summarizes the major Project activities and milestones that are reflected in the proposal schedule.

*Table 4.5.1 Schedule Overview*

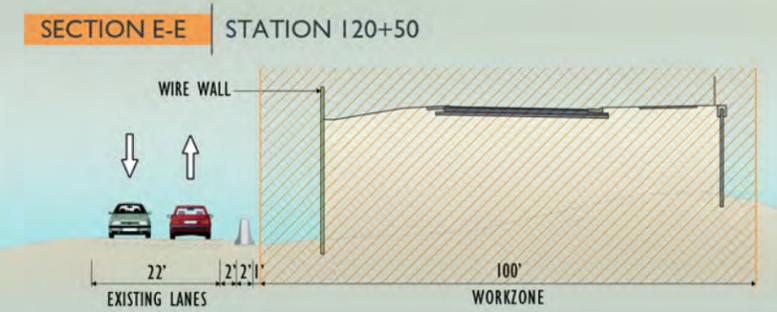
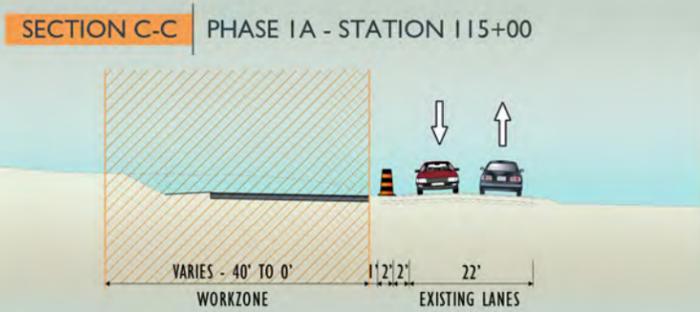
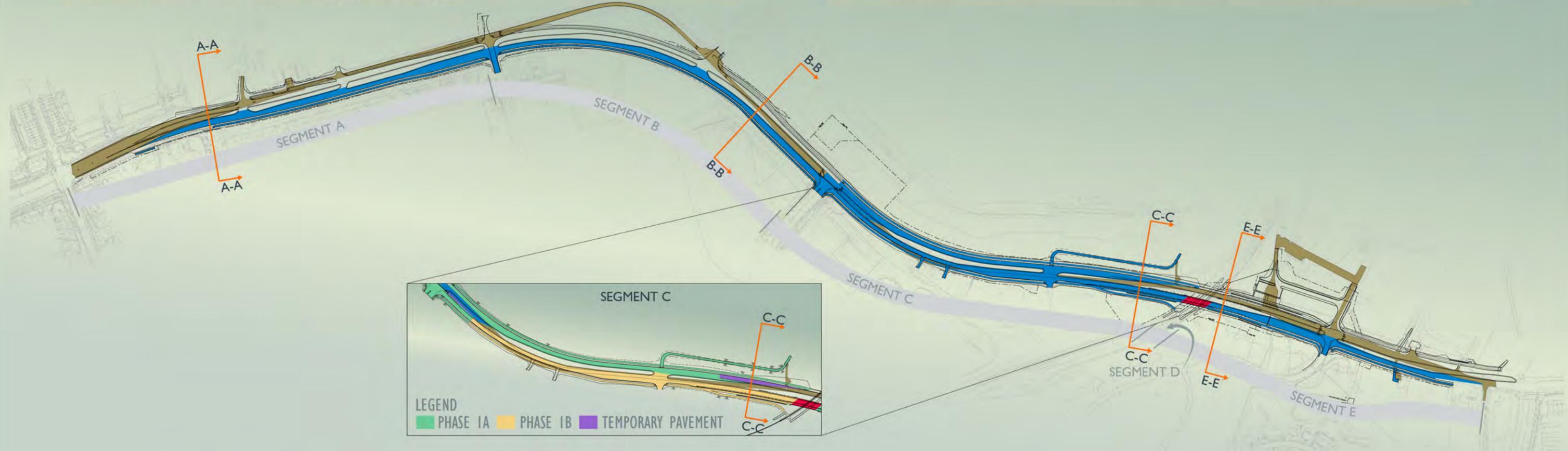
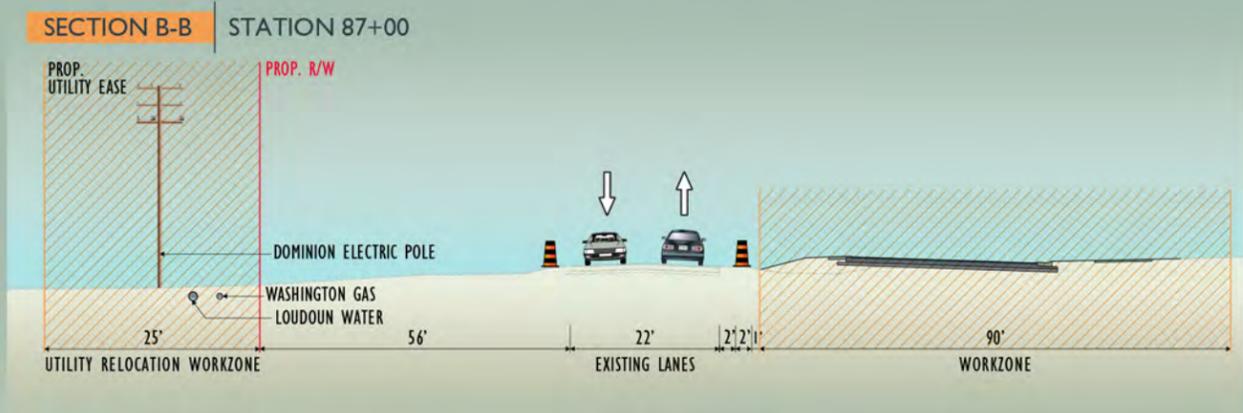
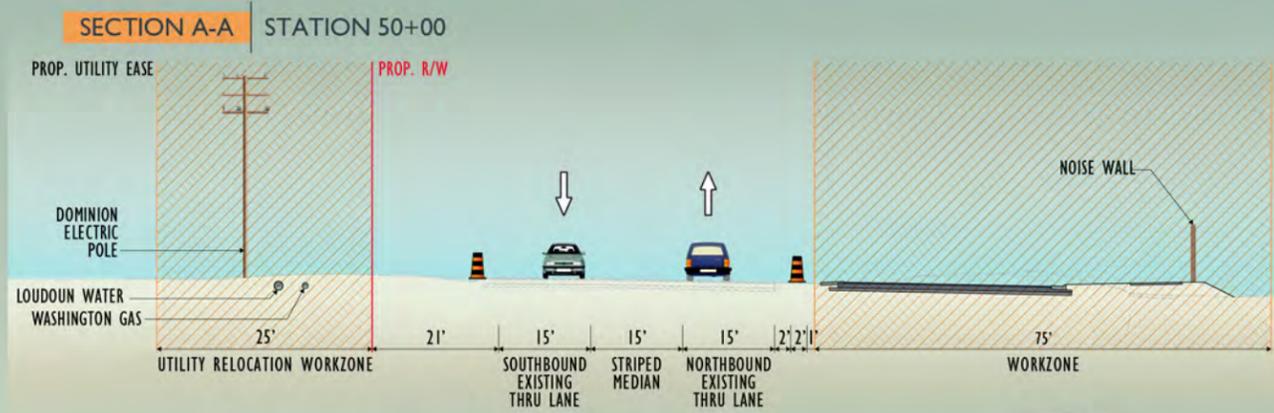
<b>ACTIVITY/MILESTONE</b>	<b>SCHEDULE</b>
Notice to Proceed	Oct 2015
FI/ROW plans	May 2016
Environmental permits	Nov 2015 – Sept 2016
ROW Package A acquisition	May 2016 – Dec 2016
ROW Package B acquisition	May 2016 – Nov 2016
Approved for Construction (AFC) plans	Sept 2016
Commence construction	Dec 2016
Utility relocations	Nov 2016 – May 2017
Switch traffic to new northbound lanes	Apr. 2018
Interim milestone	Dec. 17, 2018
Final completion	Apr. 30, 2019

**SEQUENCE OF ACTIVITIES**

Construction will begin with the relocation of conflicting utilities beginning at the north end of the corridor and proceeding to the south. This approach allows for utilities in the most time-sensitive portion of the Project, Segment C, to be relocated as early as possible. Clearing and installation of erosion controls and MOT measures will take place in other areas without conflicting utilities, preparing the way for simultaneous road construction, thereby reducing schedule dependence on the utility relocations. Water and sewer relocations will be self-performed to minimize potential for delays.

The majority of the Project will be completed in two stages; the northbound lanes followed by the southbound lanes. Segment C, however will require that the southbound lanes be built first as the proposed alignment crosses the existing roadway. Segment C, Phase 1A, will construct the proposed southbound lanes from Portsmouth Boulevard to the W&OD Trail and will include temporary pavement to connect the existing travel lanes. Once completed, existing traffic will move to the new pavement, freeing space to build the northbound lanes in Segment C, Phase 1B. Construction will be scheduled to allow for traffic to be shifted onto the new northbound travel lanes throughout the Project to allow for construction of the southbound lanes. Temporary pavement can be placed to transition traffic to/from the existing alignment at the ends of segments A, B and C so that construction can continue as scheduled, should unforeseen issues delay work in any of the segments. Intersections and driveways will be constructed in phases and with the input and concurrence of the stakeholders. The profile has been optimized so that most cross street approaches will require only milling and overlay with the exception of Belmont Station Drive where the grade differential will require temporary closure of this roadway at Route 659. This short-term closure involves a detour only 1.25 miles long and will impact fewer than 100 vehicles in each of the peak periods.

The proposed sequence of construction for each segment is described below and presented in *Figure 4.5.2* (Phase 1) and *Figure 4.5.3* (Phase 2). The SOC for the W&OD Trail is presented in *Figure 4.5.4*.

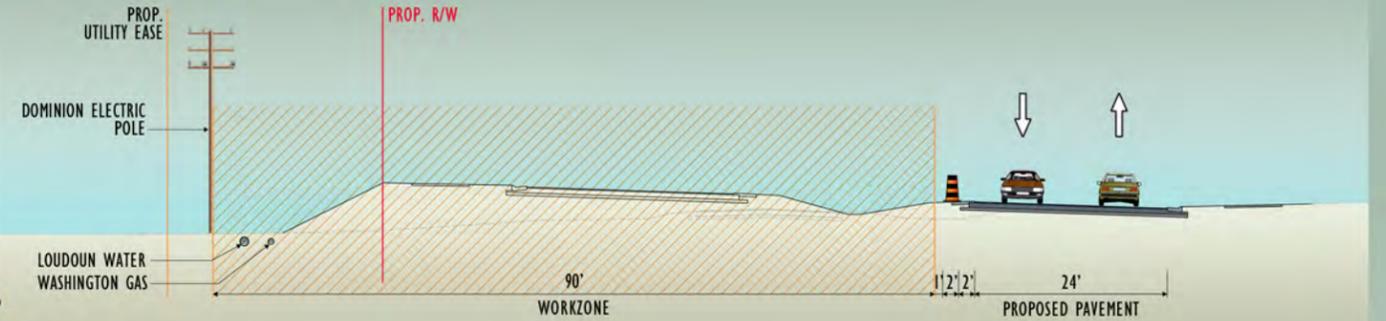




**SECTION A-A** STATION 50+00



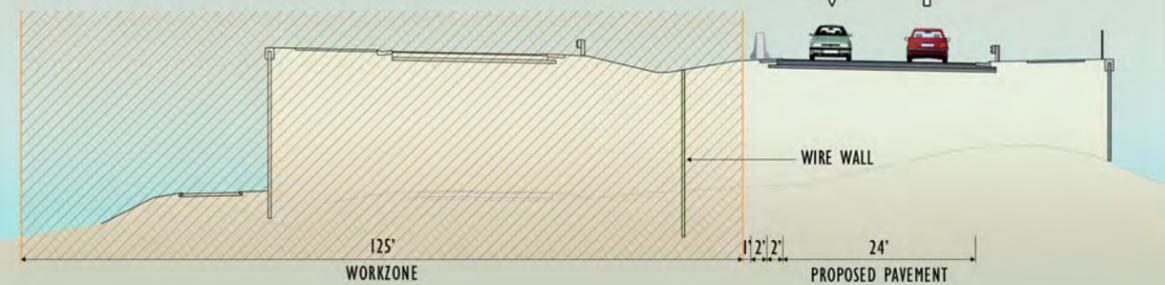
**SECTION B-B** STATION 87+00



**SECTION C-C** PHASE 2 - STATION 115+00

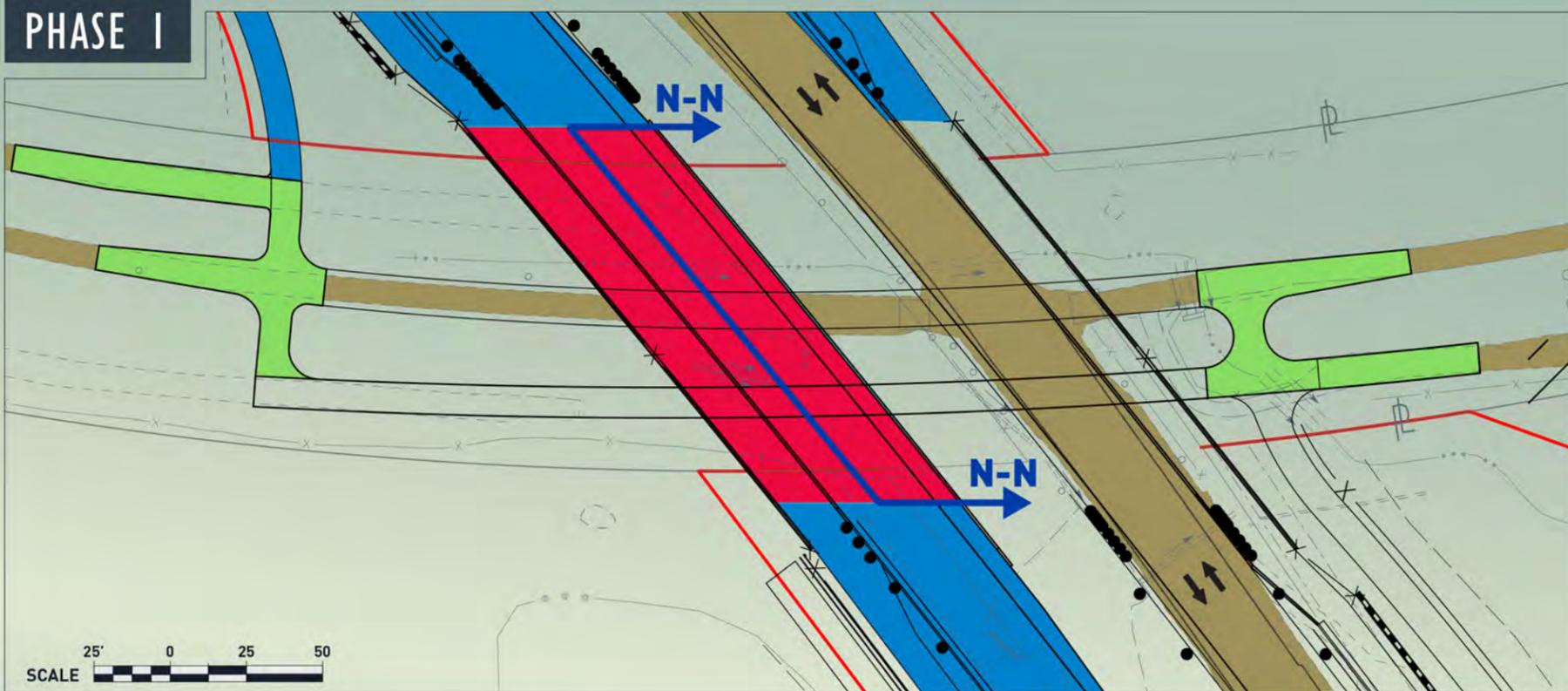


**SECTION E-E** STATION 120+50

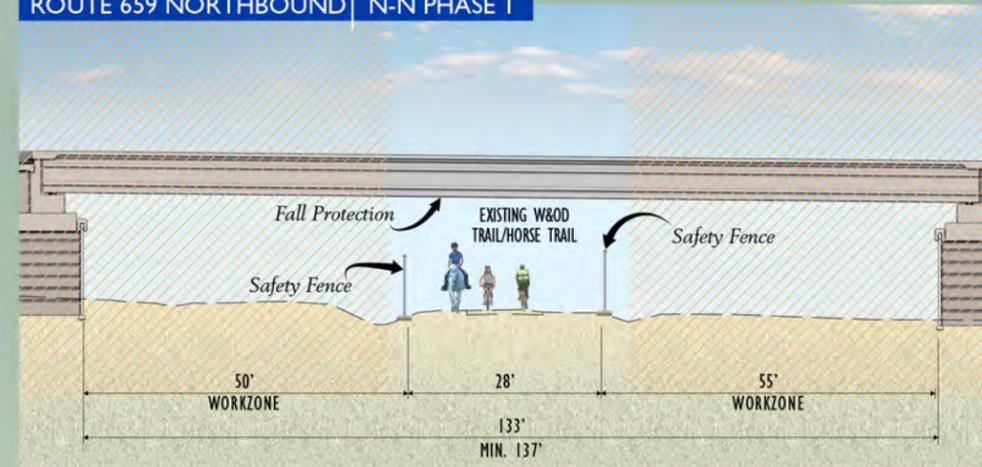


LEGEND -  EXISTING ROADWAY  PHASE 1  PHASE 2  
 PHASE 1 BRIDGE CONSTRUCTION  PHASE 2 BRIDGE CONSTRUCTION

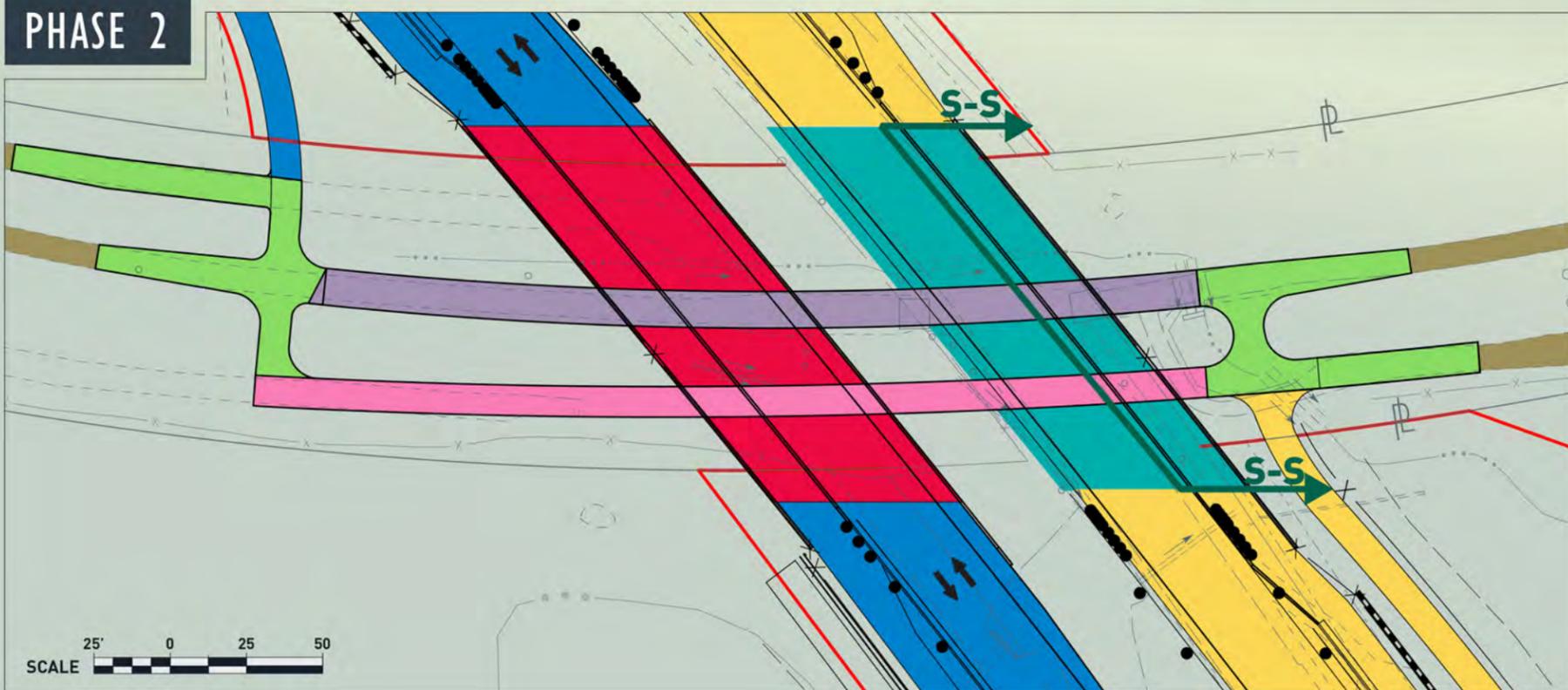
## PHASE 1



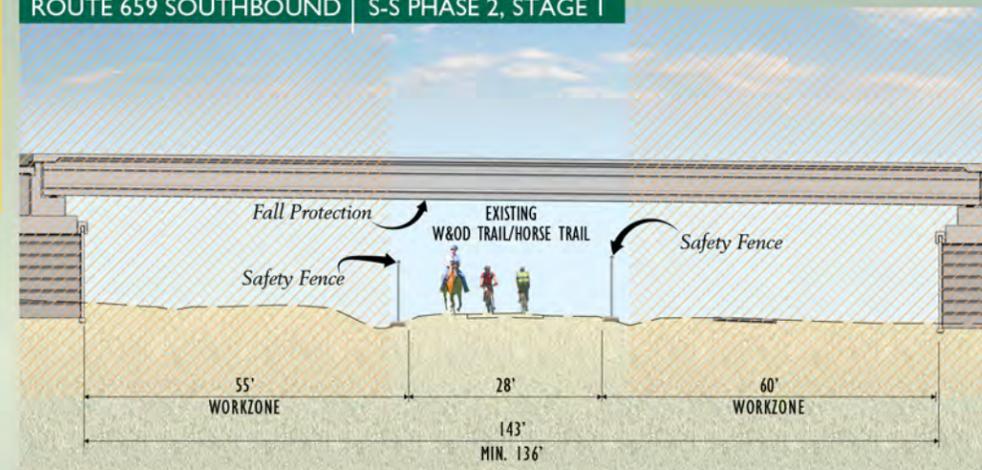
### ROUTE 659 NORTHBOUND | N-N PHASE 1



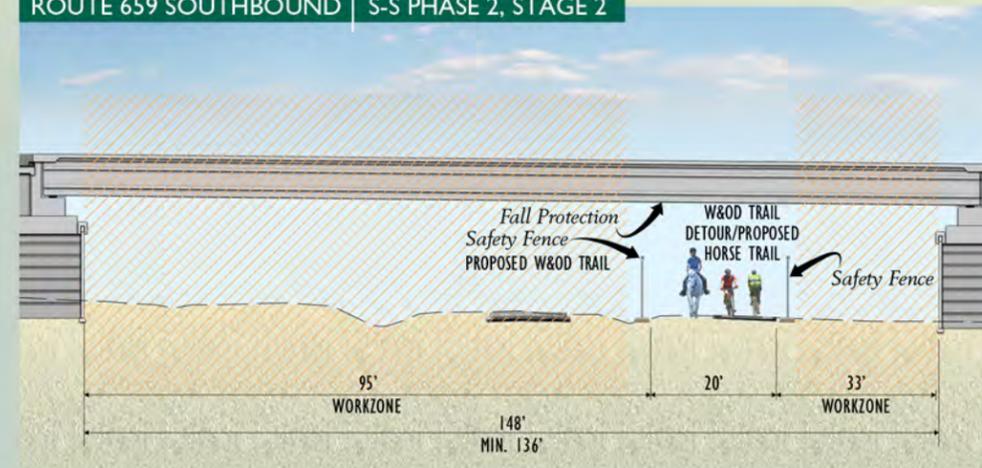
## PHASE 2



### ROUTE 659 SOUTHBOUND | S-S PHASE 2, STAGE 1



### ROUTE 659 SOUTHBOUND | S-S PHASE 2, STAGE 2



- LEGEND
- EXISTING ROADWAY/TRAIL
  - BRIDGE CONSTRUCTION PHASE 1
  - BRIDGE CONSTRUCTION PHASE 2
  - ROUTE 659 PHASE 1
  - ROUTE 659 PHASE 2
  - TRAIL PHASE 1
  - TRAIL PHASE 2 STAGE 1
  - TRAIL PHASE 2 STAGE 2

MAINTENANCE OF TRAFFIC - W&OD

## Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

From: Route 642 (Hay Road)

To: Route 2150 (Gloucester Parkway)

### VDOT Priority Icon Legend

● Price

● Schedule

● Impacts

○ Risks

### SEQUENCE OF CONSTRUCTION

#### Segment A – Hay Road to Chesterton Road

- Phase 1 includes relocating utilities to the west side of the roadway, installing the proposed noise wall along the east side of the roadway, and constructing the proposed northbound (NB) lanes and SUP from the start of the Project to Chesterton Road.
- Phase 2 includes shifting traffic to the new NB lanes (single lane in each direction) and constructing the proposed southbound (SB) lanes and SUP from the beginning of the Project to Chesterton Road. The access road/parking improvements at Loudoun County Sanitation Authority will be constructed in this phase.

#### Segment B – Chesterton Road to Portsmouth Boulevard

- Phase 1 will relocate the utilities to the west side of the roadway, install the proposed noise wall along the east side of the roadway (Chesterton Rd. to Sta. 73+00), and construct the proposed NB lanes and SUP from Chesterton Road to Portsmouth Boulevard. The work includes temporary pavement in the proposed median north of Chesterton Road to maintain the SB left turn lane at this intersection.
- Phase 2 includes milling and/or paving of Chesterton Road, as necessary, and shifting traffic to the new NB lanes (single lane in each direction). The proposed SB lanes and SUP will be constructed from Chesterton Road to Portsmouth Boulevard.

#### Segment C – Portsmouth Boulevard to W&OD Trail

- Phase 1A will relocate utilities to the west side of the roadway, construct the proposed NB lanes and SUP from Portsmouth Boulevard to Sta. 96+50 (including temporary pavement in the proposed median), and construct the proposed SB lanes and SUP from Sta. 94+00 to Sta. 113+00.
- Phase 1B will place temporary pavement to tie the existing roadway into the new SB lanes west of Sta. 113+00 in order to shift traffic to the new SB lanes (single lane in each direction). The proposed NB lanes and SUP will be constructed from Sta. 96+50 to the proposed NB bridge abutment, including the SUP connector to the W&OD Trail. Temporary wire-wall will be installed to retain the fill material required on the approach to the bridge abutment.
- Phase 2 will be coordinated with work on the NB bridge over the W&OD Trail. Traffic will be shifted to the new NB lanes (single lane in each direction) and the proposed SB lanes and SUP will be constructed from Sta. 113+00 to the proposed SB bridge abutment.

#### Segment D – W&OD Trail Crossing

- Phase 1 consists of building the MSE retaining walls for the proposed NB bridge; constructing abutments for the NB bridge; working at night to set beams, diaphragms and catch protection for the NB bridge; and placing the deck, approach slabs, parapet and fencing on the NB bridge. Work on the trail includes relocating utilities along and across the trail and tying in the new ramps with the existing W&OD bike/pedestrian and equestrian trails, including the new connectors between these trails.
- Phase 2 will be coordinated with work in Segments C & E. Traffic will be shifted onto the new NB bridge (single lane in each direction). Construction will include the MSE retaining walls for the proposed SB bridge; abutments for the SB bridge; working at night to set beams, diaphragms, and catch protection for the SB bridge; and placing the deck, approach slabs, parapet and fencing on the SB bridge. Trail improvements include constructing the new equestrian trail under the new bridge. After roadway traffic is shifted to the new bridge, Trail traffic will be diverted to the new equestrian trail so the new bike/pedestrian trail can be constructed under the bridge.

#### Segment E – W&OD Trail to Gloucester Parkway

- Phase 1 will relocate utilities to the west side of the roadway, install the detour to close Belmont Station Drive, and construct the proposed NB lanes and SUP from the proposed NB bridge abutment

## Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

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to the end of the Project. A temporary wire-wall will be installed to retain the fill material required on the approach to the bridge abutment.

- Phase 2 will be coordinated with work on the NB Bridge over the W&OD Trail and the adjacent County project. Temporary pavement will be placed from Sta. 136+00 to Gloucester Parkway, as necessary, so that traffic can be shifted to the new NB lanes (single lane in each direction) and Belmont Station Drive will be reopened. The new SB lanes and remaining SUP will be constructed from the proposed SB bridge abutment to the end of the Project. Phase 2 also includes the improvements to Builders Lane and constructing the connecting road between Builders Lane and Jack Pit Lane and the new trail parking lot including the SUP connector to the W&OD Trail.

### KEYS TO SUCCESS

 **Minimizing traffic pattern changes:** The work has been planned to involve only one significant traffic shift to maintain a more predictable drive for the traveling public. The Myers/WRA Team intends to maintain existing traffic conditions on most of the corridor throughout construction.

 **Timely utility relocations:** To minimize the impacts of potential utility relocation delays, the Myers/WRA Team anticipates performing much of the roadway work simultaneously with the utility relocations. To facilitate this simultaneous work, the utilities on the west side of the corridor will be relocated while most of the road work will be done east of the existing roadway.

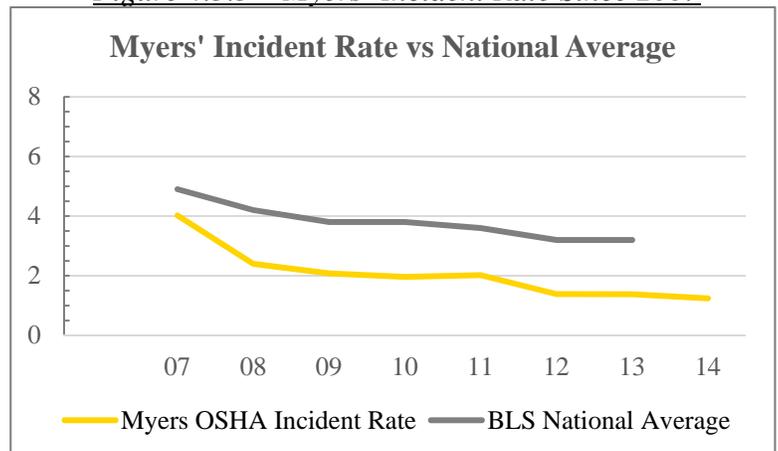
  **Optimizing the profile:** Rock has been encountered very close to the proposed roadway grade. Myers' experience on our current Route 659 project has revealed that much of the rock excavation requires blasting which can be costly, time consuming, and requires additional safety precautions. To minimize rock excavation on the Project, the profile was planned to reduce the depths of cuts but with consideration of the fill required at the approaches to the proposed bridges. The proposal schedule has included time for rock removal.

   **Reduced impacts at intersections:** A second goal for optimizing the profile was to minimize the grade changes at the intersections, making it easier to maintain traffic across the work zone when performing the widening of the main line on either side of the intersection. Grade differentials at most intersections were reduced enough to require only milling and resurfacing on the cross streets instead of full depth reconstruction allowing full access to these streets to be maintained throughout construction.

### SAFETY AND OPERATIONS

At Myers, safety is an inseparable element of each construction operation. This focus on safety includes the traveling public, construction personnel, inspection staff, VDOT personnel, and any other individuals that enter the work zone. Myers' Home Safe Tonight initiative is a commitment, both personal and organizational, to create an existence absent of incident and injury. It is a mindset intolerant of any level, frequency, or severity of injury. Since the implementation of Home Safe Tonight in 2008, Myers has reduced its recordable incident rate by 70% to a Best in Class rate of 1.24 as shown in *Figure 4.5.5*.

*Figure 4.5.5 – Myers' Incident Rate Since 2007*



\* "Heavy and Civil Engineering Construction" classification. Source = BLS.gov

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The Myers/WRA Team has evaluated potential construction impacts to vehicular, pedestrian and bicycle traffic and has developed a SOC and design with public safety in mind while maintaining the existing level of service throughout construction. Vehicular impacts are reduced by reducing the number of lane shifts and crossovers. The Myers/WRA design allows for a significant portion of the new roadway to be built while maintaining the existing roadway, limiting traffic disruptions and total duration in an alternate alignment. Particular attention was given to ensuring safe operation and access along the W&OD Trail throughout construction. Additionally, a Project-specific Health and Safety Plan that addresses and mitigates vehicular and pedestrian safety has been developed. Integral to this proactive approach to risk assessment is an operation-specific Job Hazard Analysis which will be completed during the planning stages for each work operation.

### GEOTECHNICAL CONSTRAINTS

Geotechnical constraints, including unsuitable soils and rock, have been accounted for in the sequence of construction and schedule. Considerations for soil remediation will include mechanical drying, installation of geotextile fabrics, lime stabilization, soil cement, and removal and replacement with suitable material. Considerations for rock excavation include ripping and blasting to proposed subgrade. Other important aspects of optimizing the earthwork operations include:

- Providing a ready-to-use Unsuitable Soils Plan in our Preliminary and Final GDR
- Developing detailed cut-fill maps to sequence material between segments, areas, and stages
- Identifying areas impacted by rock and associated mitigation strategies for each location
- Creating GPS models for use on both hand held rovers and heavy equipment to maximize efficiency

### ENVIRONMENTAL IMPACTS

Construction will commence when regulatory permits and approvals are obtained, and the AFC Plans address NEPA environmental commitments. The environmental commitments database (ECD) will help to assure compliance. As the Project will require permits for the unavoidable impacts to Jurisdictional Waters (including wetlands), the proposal schedule includes environmental activities to obtain the Joint Permit Application Approval from VMRC, USACE and DEQ. Related activities are included with early and active pre-application agency coordination for obtaining a jurisdictional determination of wetlands that will guide the avoidance and minimization design process. Additionally, a VSMP certification that includes an erosion sediment control plan, a stormwater management plan and the Stormwater Pollution Prevention Plan (SWPPP) with sheets, is included in the schedule. Obtaining these permit approvals, clearing right-of-way, and gaining AFC Plan approvals, will allow construction to commence.

### RIGHT-OF-WAY ACQUISITION

Right-of-way acquisition is on the critical path. To mitigate potential ROW acquisition risk, the schedule and sequence of construction were developed to streamline the acquisition effort including the following specific ROW activities:

-  ROW activities will be performed in two packages in order to clear critical path parcels first. Package A, east side of the existing roadway, includes the majority of the roadway and approvals. Package B, west side, includes the utility corridor and is the most critical to the schedule.
- Early initiation of title searches, ESAs, survey and other pre-acquisition activities such that survey and title work begins 17 days following distribution of property owner notification letters which immediately follows NTP;
- Pre-UFI/UFI work will be advanced so it occurs prior to the FI/ROW submittal. Accordingly, utility relocation and associated easements will be included within the ROW submittal;

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- Appraisals will be initiated with submission of the FI/ROW plans and furnished within 60 days prior to Notice to Commence ROW. If the 60-day period is exceeded, then individual appraisals will be refreshed prior to submitting the appraisal for review and approval by VDOT.

### STAGING AND STORAGE AREAS

Providing project staging and storage areas near the work zones keeps Project costs down, improves safety and reduces traffic impacts from work vehicles hauling materials to/from off-site locations. We have identified several potential staging/storage locations within the Project corridor including unused portions of parcels 014, 019, 021, 025, 026 and 031. Myers will work with the parcel owners, Loudoun County Sanitation Authority (014 & 019), Belmont Forest Homeowners Association (021), and Luck Stone Corporation (025, 026 & 031), as necessary, to secure sites that are appropriate for our needs and do not interfere with the owners' use of the parcels. Other considerations for site selection include the current use/zoning of the parcel; any clearing and grading requirements; ability to access the site as well as the ability to secure the site; potential environmental impacts and permitting requirements; and the ability to screen the site from sensitive areas such as personal residences and the W&OD Trail. The Myers/WRA Project field office and storage yard will likely be located on a Luck Stone parcel as we have a history of working with them; their site is centrally located on the Project; the property is already being used for similar activities; and Luck Stone will likely be a material supplier for the Project.

### PUBLIC INVOLVEMENT/STAKEHOLDER COORDINATION AND GOVERNMENT APPROVALS

The Myers/WRA Team will communicate with stakeholders and government entities continuously and transparently throughout the design and construction of the Project. Feedback on the design concept will be requested through over-the-shoulder reviews and direct meetings to streamline approvals with key Project stakeholders such as VDOT, Loudoun County, NVRPA, and DCR. This open and transparent communication will provide the opportunity to identify and discuss potential schedule impacts as a team, and align to an approach that supports the Project goals while ensuring the schedule is met. A highly-effective public outreach effort will proactively anticipate and address community issues that may impact the Project schedule. The public involvement and stakeholder coordination will be led by the DBPM and PRM, with input from other key staff as necessary. This communications effort will be closely coordinated with VDOT.

### 4.5.2 TRANSPORTATION MANAGEMENT PLAN (TMP)

Route 659 is a key north/south corridor through Loudoun County connecting Route 7 to the Dulles Toll Road and serves as primary local access to several neighborhoods and commercial properties, including the Luck Stone Quarry and the Loudoun County Water Treatment facility. The Myers/WRA Team understands the importance of this route and has developed a Maintenance of Traffic (MOT) plan to safely and effectively handle traffic during construction. We will perform our work in accordance with the RFP, the current FHWA Manual on Uniform Traffic Control Devices (MUTCD), and the Virginia Work Area Protection Manual (VWAPM).

The TMP will be designed in accordance with VDOT's Instructional and Informational Memorandum (IIM) No. LD-241. The Project is classified as a Type B, Category III meaning that the Project is anticipated to have a *moderate* level of construction activity with the primary traffic impact limited to the roadway containing the work zone. The major components of a TMP for Type B projects include Temporary Traffic Control Plans, a Public Communications Plan, and a Transportation Operations Plan.

### MAINTENANCE OF TRAFFIC

As described in *Section 4.5.1*, the Project will be constructed in two phases. The majority of the proposed improvements in both phases can be completed while maintaining the existing traffic pattern of a single 11' wide travel lane in each direction with the existing turn lanes maintained as needed.

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 Price	 Schedule
 Impacts	 Risks

The impacts to traffic in Phase 1 of the Project will be minimal. The existing traffic pattern will be maintained while the utilities are relocated to the west side of the roadway throughout the Project. The noise walls at the south end of the Project and the improvements along the east side of the existing roadway, including the new northbound bridge over the W&OD Trail, will also be constructed while maintaining traffic in the existing pattern. The proposed alignment crosses the existing roadway in Segment C so it is necessary to build the SB lanes first then shift traffic to these improvements in order to construct the NB lanes in this segment. *Figure 4.5.2* shows the work to be performed in Phase 1 and includes a typical section showing the proposed traffic pattern in each segment.

Maintaining a single through lane in each direction, traffic will be shifted onto the new northbound lanes for construction of Phase 2. The schedule has been developed to shift the traffic throughout the length of the Project; however, temporary pavement can be placed to allow traffic to be shifted independently in segments A and B, if necessary. Turn lanes will be provided on Route 659 during Phase 2 construction at intersections and driveways where necessary. The proposed traffic configuration for Phase 2 is presented in *Figure 4.5.3*.

### CONSTRUCTION IMPACTS

Temporary lane or shoulder closures may be employed during off-peak hours for some work activities, such as drainage pipe installation, utilities crossing the road, or paving existing roadways. These activities will be limited to the hours and conditions presented by VDOT NRO in Section 2.10.2 of the RFP document.

Although there are no bike lanes or sidewalks on Route 659, pedestrians and cyclists will be accommodated as much as possible during construction. This includes matching the existing conditions of a shoulder to maintain safety for pedestrians along one side of the roadway and providing the minimum lane width as required by RFP so that cyclists and motorists can share the road. The east side shared use path will be completed in Phase 1 providing for pedestrian and cyclist accommodations in Phase 2 that exceed the existing conditions.

Access to the W&OD Trail will be maintained at all times during construction and the trail will remain open during normal operating hours (dawn to dusk). Construction activities will be monitored to ensure that the trail grade crossing remains safe throughout Phase 1. This includes ensuring that the existing traffic control devices remain in good working order and that adequate sight distance is maintained for motorists and trail users. During Phase 2 construction, traffic will be shifted onto the new NB bridge so trail traffic will no longer be in conflict with vehicular traffic on 659.

The proposed profile of the new northbound lanes is more than a foot above the existing elevation of Belmont Station Drive. To ensure safe and efficient construction of this intersection the Myers/WRA Team proposes closing Belmont Station Drive at Route 659 for Phase 1 construction of Segment E. This closure will be only a minor inconvenience for a few residents of The Chase at Belmont as the detour is only 1.25 miles long and turning volumes at the intersection are very low in both peak periods. Response times from emergency services will not be significantly impacted as this neighborhood is served by Ashburn Volunteer Fire & Rescue Station 6 which accesses the neighborhood from Gloucester Parkway. Students in this neighborhood are assigned to Newton-Lee Elementary School and Trailside Middle School both on Gloucester Parkway so public school transportation will not be impacted by this closure.

## Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

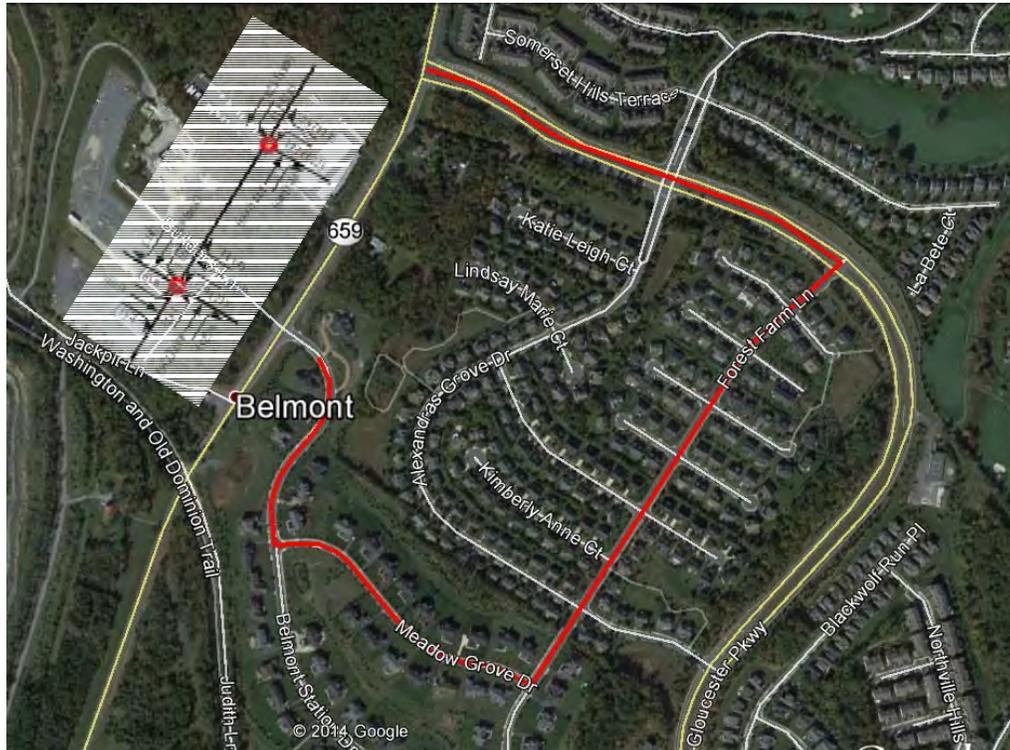
From: Route 642 (Hay Road)

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*Figure 4.5.6 - Belmont Station Drive Detour*



### STAKEHOLDER IMPACTS AND PUBLIC INVOLVEMENT

The Project presents an opportunity for VDOT and its Project partners to communicate and mitigate impacts to the traveling public and major Project stakeholders. A variety of stakeholders will be impacted by the Project requiring a highly-effective public outreach program. The Myers/WRA Team's efforts focus on continuous outreach and collaboration. The Myers/WRA Team will remain mindful of the local environment and work collaboratively with VDOT to amend and update any plans as needed. To ensure that stakeholders remain fully informed throughout the Project, we are fully committed to maintaining a constant flow of communication to reach the following goals:

1. Effectively engage the community in the design and construction of the Project to minimize negative impacts and maximize positive outcomes by:
  - Increasing the number of residents and motorists who have a greater understanding of the Project through a robust communications plan including stakeholder meetings, the Project website, social media alerts and email notifications;
  - Creating a trust level with the key stakeholders through a transparent and open environment of information sharing; and
  - Offering two-way communications channels such as a monitored Project email account and phone number,
2. Maintaining a successful partnership and communication between VDOT, Loudoun County, and the greater community by:
  - Committing to formal and informal information sharing with Project partners and stakeholders; and
  - Ensuring that stakeholders have or can access information regarding the Project easily and quickly.
3. Proactively manage Project risk by anticipating and addressing community issues that may impact the project schedule by:

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 Impacts	 Risks

- Anticipating challenges and working together to reach a successful solution;
- Promoting open and transparent communication protocols and practices; and
- Providing multiple opportunities for community input and track input for trends and key messages.

Our approach to public information and communication is dependent upon close coordination with VDOT, proactive and transparent communication with stakeholders, and consistent and timely public engagement. To ensure that stakeholders remain fully informed throughout the Project, our Team will be committed to maintaining a constant flow of communication to meet the goals listed above.

The Myers/WRA Team's outreach leaders, Tom Heil, P.E. (DBPM) and Shannon Moody (PR Manager), will closely coordinate with VDOT's Northern Virginia District throughout the Project to deliver accurate and consistent messages to stakeholders and ensure stakeholder needs inquiries are addressed immediately and satisfactorily. A database of these inquiries will be maintained and available to VDOT as requested. The Myers Team's approach has proven to be successful on many public projects, notably the *Walney Road Widening* and *Middle Ground Boulevard design-build projects*, both led by Shannon Moody.

*Myers' in-house Public Relations Manager, Shannon Moody, working closely with VDOT, will develop and implement a public outreach effort similar to our other successful and current DB projects*

There are several areas of specific stakeholder concerns on this Project. This is a highly traveled corridor through a dense residential area. While the community is generally supportive of the Project, the construction period will impact the residents and motorists. Early and frequent communications with residents and motorists regarding their access, noise mitigation, and commute time impact concerns will be key to a successful project. Though impact to the W&OD Trail will be limited, communication with Trail users will also be a priority to ensure awareness and safety. The Team will use stakeholder meetings, the Project website, and direct email communications as the central tools for communicating with the community. A formal "Pardon Our Dust" meeting will be held prior to construction. In addition, some of the major Project stakeholders such as Loudoun County, the NVRPA, Friends of the W&OD Trail, and Loudoun County Ashburn District Supervisor Ralph Buona offer newsletters and websites where information regarding the Project can also be shared. During construction, the Myers/WRA Team will provide content and notifications to VDOT for traffic alerts. An emergency contact list will also be provided to VDOT in case of work zone accidents or other emergencies.

Utility relocation and bridge work at the W&OD Trail will impact the users of "the skinniest park in Virginia." With over two million visits per year, the W&OD is a well-used facility. Though only 100-foot wide, the Trail is one of the longest parks with 45 miles of paved trail for walking, running, bicycling and skating and 32 miles of adjacent gravel trail for horseback riding. The Myers/WRA Team will work closely with the NVRPA and the Friends of the W&OD Trail beginning in the design phase to communicate each phase of the Project, significant Project milestones and any potential impacts. This open line of communication will also help the Team understand any W&OD Trail concerns and make mitigation plans accordingly.

For the Project, the Myers/WRA Team has identified many of the key stakeholders in the Project area in order to best address their needs for communication and outreach through the Project. The tools and tactics to communicate with these stakeholders and partners may vary in frequency and/or method. *Table 4.5.2* outlines the key Project stakeholders, the impacts they will experience, and the communications approach for each. Each stakeholder is unique and requires a unique plan to ensure the Project communications goals are reached.

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- Risks

*Table 4.5.2 Stakeholder Coordination Approach*

STAKEHOLDER	IMPACTS	COMMUNICATION STRATEGIES	BENEFITS
<b>VDOT</b>	Travel delays	<ul style="list-style-type: none"> <li>• Weekly coordination meetings</li> <li>• Notification of traffic impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity to provide input</li> <li>• Supply current information to public and elected officials</li> <li>• Consistent and timely public information</li> </ul>
<b>Loudoun County</b> <i>Loudoun County Public Affairs and Comm.</i>	Travel delays Construction effects	<ul style="list-style-type: none"> <li>• Cooperatively addressing impacts to local businesses and property owners</li> <li>• Coordination through pre-construction and construction</li> </ul>	<ul style="list-style-type: none"> <li>• Supply current information to public</li> <li>• Consistent and timely public information</li> <li>• Awareness of Project schedule and milestones</li> </ul>
<b>Loudoun County</b> <i>Loudoun Water &amp; Sewer Works</i> <i>Loudoun County Parks and Recreation</i> <i>Loudoun County Transportation and Capital Infrastructure</i>	Utility relocation requirements Construction requirements	<ul style="list-style-type: none"> <li>• Planned and advance coordination and notification of utility relocations and construction activities</li> <li>• Monthly coordination meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid delays</li> <li>• Minimize negative impacts</li> </ul>
<b>Loudoun County schools</b> <i>Newton-Lee Elementary</i> <i>Trailside Middle</i> <i>Belmont Station Elementary</i>	Construction effects and travel delays Access and noise	<ul style="list-style-type: none"> <li>• “Pardon Our Dust” mtg</li> <li>• Informative website, social media content</li> <li>• Stakeholder outreach mtgs</li> </ul>	<ul style="list-style-type: none"> <li>• Construction schedule</li> <li>• Increased awareness of lane closures and traffic impacts</li> </ul>
<b>First responders:</b> <i>Loudoun County Police, Fire, and EMS</i>	Access and timing Public safety Incident management	<ul style="list-style-type: none"> <li>• Incident Response mtgs</li> <li>• Forums</li> <li>• Incident Management Guidebook including contact information for key personnel</li> <li>• Notifications and coordination of changes in traffic patterns</li> </ul>	<ul style="list-style-type: none"> <li>• Timely incident response</li> <li>• Responder understanding of construction limitations</li> <li>• Accurate contact information in case of emergency</li> <li>• Consistent public safety</li> </ul>
<b>NVRPA</b>	Utility relocation requirements Construction requirements	<ul style="list-style-type: none"> <li>• Planned and advance coordination and notification of utility relocations and construction activities</li> <li>• Monthly coordination mtg</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity to provide input</li> <li>• Construction schedule awareness</li> <li>• Increase awareness of trail impacts</li> </ul>
<b>Environmental agencies</b> <i>FHWA</i> <i>USACE</i> <i>VDHR</i> <i>VDEQ</i> <i>US Fish &amp; Wildlife</i> <i>VDGIF</i> <i>VDCR</i>	Utility relocation requirements Construction requirements	<ul style="list-style-type: none"> <li>• Planned and advance coordination and notification of utility relocations and construction activities</li> <li>• Coordination meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity to provide input</li> <li>• Construction schedule awareness</li> <li>• Increase awareness of construction impacts</li> </ul>
<b>Metropolitan Washington Airport Authority</b>	Travel delays	<ul style="list-style-type: none"> <li>• VDOT 511 content</li> <li>• Stakeholder outreach mtgs</li> <li>• Informative website, social media content</li> </ul>	<ul style="list-style-type: none"> <li>• Coordination limits impacts</li> <li>• Increased awareness of traffic impacts</li> </ul>

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STAKEHOLDER	IMPACTS	COMMUNICATION STRATEGIES	BENEFITS
<b>Elected officials:</b> <i>Ashburn District                      Supervisor Ralph Buona                      Delegate Tag Gleason                      Senator Dick Black</i>	Awareness of pre-construction and construction activities and issues	<ul style="list-style-type: none"> <li>• “Pardon Our Dust” mtg</li> <li>• Informative website, social media content</li> <li>• Stakeholder outreach mtgs</li> </ul>	<ul style="list-style-type: none"> <li>• Timely impact notification</li> <li>• Community awareness of progress and timeline</li> <li>• Consistent public information</li> </ul>
<b>Property owners and HOAs including:</b> <i>Belmont Community Association                      Belmont Forest Community Association                      Belmont Ridge HOA</i>	Construction effects and travel delays Access and noise ROW impacts	<ul style="list-style-type: none"> <li>• “Pardon Our Dust” mtg</li> <li>• Informative website, social media content</li> <li>• Stakeholder outreach mtgs</li> </ul>	<ul style="list-style-type: none"> <li>• Construction schedule</li> <li>• Increased awareness of lane closures and traffic impacts</li> </ul>
<b>Local businesses, including the Luck Stone Leesburg Plant</b>	Construction effects and travel delays Access and noise	<ul style="list-style-type: none"> <li>• “Pardon Our Dust” mtg</li> <li>• Informative website, social media content</li> <li>• Stakeholder outreach mtgs</li> </ul>	<ul style="list-style-type: none"> <li>• Construction schedule</li> <li>• Increased awareness of lane closures and traffic impacts</li> </ul>
<b>Motorists                      Cyclists                      Pedestrians</b>	Commute timing/ driving comfort	<ul style="list-style-type: none"> <li>• VDOT 511</li> <li>• “Pardon Our Dust” mtg</li> <li>• Informative website, social media content</li> <li>• Stakeholder outreach meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of impacts ahead of time</li> <li>• Understanding of direct construction impacts for each individual stakeholder</li> <li>• Community awareness of construction progress</li> </ul>
<b>Pedestrians/users of the W&amp;OD Trail – including the Friends of the W&amp;OD Trail</b>	Awareness of pre-construction and construction activities and issues	<ul style="list-style-type: none"> <li>• “Pardon Our Dust” mtg</li> <li>• Informative website, social media content</li> <li>• Stakeholder outreach mtgs</li> </ul>	<ul style="list-style-type: none"> <li>• Construction schedule awareness</li> <li>• Increased awareness of trail impacts</li> </ul>
<b>Utility Owners</b> <i>DVP Transmission                      DVP Distribution                      Loudoun Co Water                      Washington Gas                      Comcast                      AT&amp;T</i>	Utility relocation requirements	<ul style="list-style-type: none"> <li>• Monthly coordination meetings</li> <li>• Stakeholder outreach mtgs</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid delays</li> <li>• Minimize relocations</li> </ul>
<b>Concurrent construction projects</b> <i>Route 7/Belmont Ridge interchange (Loudoun)                      Ashburn Overlook, LLC                      Route 50 Widening</i>	Information sharing and coordination	<ul style="list-style-type: none"> <li>• Monthly/weekly coordination meetings</li> <li>• MOU established if necessary</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid delays</li> <li>• Create network</li> </ul>

**4.6**  
**Disadvantaged**  
**Business**  
**Enterprises (DBE)**



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From: Route 642 (Hay Road)

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### 4.6 DISADVANTAGED BUSINESS ENTERPRISES

#### COMMITMENT TO DBE PARTICIPATION GOAL

The Myers/WRA Team is committed to achieving the thirteen percent (13%) DBE participation goal for the entire value of the contract. The following outlines the procedures to achieve this goal for design and construction.

#### DBE SUBCONTRACTING

Myers and WRA consistently meets or exceeds the DBE participation goals on our Projects. In selecting subconsultants and subcontractors, the Myers/WRA Team will select qualified and skilled DBE firms to achieve the project goal. A summary of the Team's DBE subcontracting approach is provided below specifying the means of soliciting DBE firms during the pre-construction phase. The Myers/WRA Team DBE Coordinator will be responsible for assisting our estimating department in the solicitation of DBE firms and the compliance to the DBE goals and standards set forth by the Commonwealth.

*On the **Middle Ground Boulevard project**, Myers exceeded the requirement of 9% with 11.4% DBE participation.*

*On the **Rolling Road project**, Myers is exceeding the requirement of 14% with over 16% DBE participation.*

**Overview** – To facilitate achieving the DBE goal for the Project, the Myers/WRA Team will:

- Determine items which may be subcontracted and quantify based on estimated dollar amounts
- Identify a pool of VDOT certified DBE subcontractors/suppliers
- Validate the qualifications and assess the expertise of certified DBE subcontractors/suppliers to determine if they are capable of performing the scopes of work identified in the contract
- Encourage and assist certified and capable DBE subcontractors/suppliers to complete the Team's subcontractor pre-qualification process if they are not already prequalified through previous projects
- Solicit price/scope quotes from certified and capable DBE subcontractors/ suppliers
- Document the DBE solicitation process for Good Faith purposes including communication tools such as phone, fax, email, visits and pre-bid solicitation meetings

The project's lead estimator, in cooperation with the DBE Coordinator, is responsible for:

- Ensuring that DBE participation is solicited, recorded and documented in accordance with DBE compliance and utilization policies and procedures
- Investigating contract provisions to identify requirements to satisfy municipal, county, state or federal obligations, including training and reporting
- Ensuring the Team's commitment to proactively utilizing certified DBEs and to using reasonable efforts to meet or exceed mandated DBE requirements is upheld

**DBE Solicitation** – The Myers/WRA estimating team solicits price/scope quotes from certified and capable DBE subcontractors/suppliers while determining pre-qualification status. Certified and capable DBE subcontractors/suppliers have been identified through searching DBE directory web sites, attending project pre-bid meeting, and mass advertisements. The following elements will be included in the solicitation, or in any advertisement placed as a general solicitation to DBEs:

- The company name, address, telephone number, fax number and email address
- The project location and a description of the work for which the bid is being solicited
- Our FTP site for subcontractors to view plans and specifications
- The name of the lead estimator and DBE coordinator who will to answer questions about the Project
- How to respond to the solicitation
- The date, time, and location where bids are to be submitted

**4.7  
Proposal  
Schedule**



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### 4.7 PROPOSAL SCHEDULE

#### 4.7.1 PROPOSAL SCHEDULE

The Proposal Schedule is attached as *Exhibit 4.7.1* following this narrative. Included in this submission is a CD which contains a backup file (.XER) of the Proposal Schedule. The schedule was created using Primavera v6.2.1. The scheduling settings used in Primavera along with a list of Acronym Definitions used in the schedule are provided in the Schedule Settings & Acronyms portion of the following schedule narrative.

#### 4.7.2 PROPOSAL SCHEDULE NARRATIVE

The Myers/WRA Team has thoroughly evaluated the Project RFP documents, performed multiple site visits of the existing 659 corridor, attended pre-proposal meetings, and performed internal brainstorming sessions to fully assess the associated design, right-of-way impacts, utility relocations, construction, geotechnical constraints and environmental challenges. While performing these activities, special attention was paid to the VDOT stated schedule milestones included in Section 2.3 The project milestones have been setup to support the Myers/WRA Team’s commitment to deliver the Project in accordance with the RFP specified **Interim Milestone of December 17<sup>th</sup>, 2018** and **Final Completion date of April 30<sup>th</sup>, 2019**. The following (*Table 4.7.1*) expands upon *Section 4.5.1* of the Technical Proposal and supports our commitment to an on-time project completion.

*Table 4.7.1 – Project Milestones*

Key Project Milestone	Schedule
Quality Assurance/Quality Control Plan approval	December 2015
Permit acquisition	September 2016
Receive ROW clearance – Package B	November 2016
Commence utility relocations	November 2016
Notice to commence construction	December 2016
Stage 2 Bridge Plan/notice to commence bridge construction	December 2016
Switch traffic to NB bridge/commence construction SB bridge	April 2018
Interim Milestone – open new lanes to traffic	December 17, 2018
Final project completion	April 30, 2019

#### SEQUENCE OF WORK

To achieve the project milestones, the Myers/WRA Team will place additional emphasis on pre-construction elements that pose the highest schedule risk to the Project. At a high level, post-notice to proceed, the priorities are with activities that support ROW acquisition and utility relocations. The Myers/WRA Team has decided to break the ROW acquisition into two packages, Packages A and B, which correspond to the east side and west side of the proposed roadway respectively. This strategy is due to the fact that fewer parcels need to be coordinated on the west side of the roadway, allowing for an earlier start of utility relocations than if we had to wait for the ROW on the entire project to clear. Both ROW and utility relocations are on the longest path of the Project.

The Project is divided into five segments (as shown in *Figure 4.7.1*), as well as into northbound and southbound to provide smaller manageable areas, meet the traffic requirements, and to provide the greatest flexibility in scheduling. Focusing on the goal of providing on time delivery, construction activities in general prioritize Segment C and Segment D (bridges over W&OD Trail) as longest path. The existing roadway alignment when compared to the proposed generally lends itself to constructing the proposed northbound lanes of the project first. Once the proposed northbound lanes are completed, traffic would then be switched onto these lanes while the proposed southbound lanes are constructed. The only exception to this is in Segment

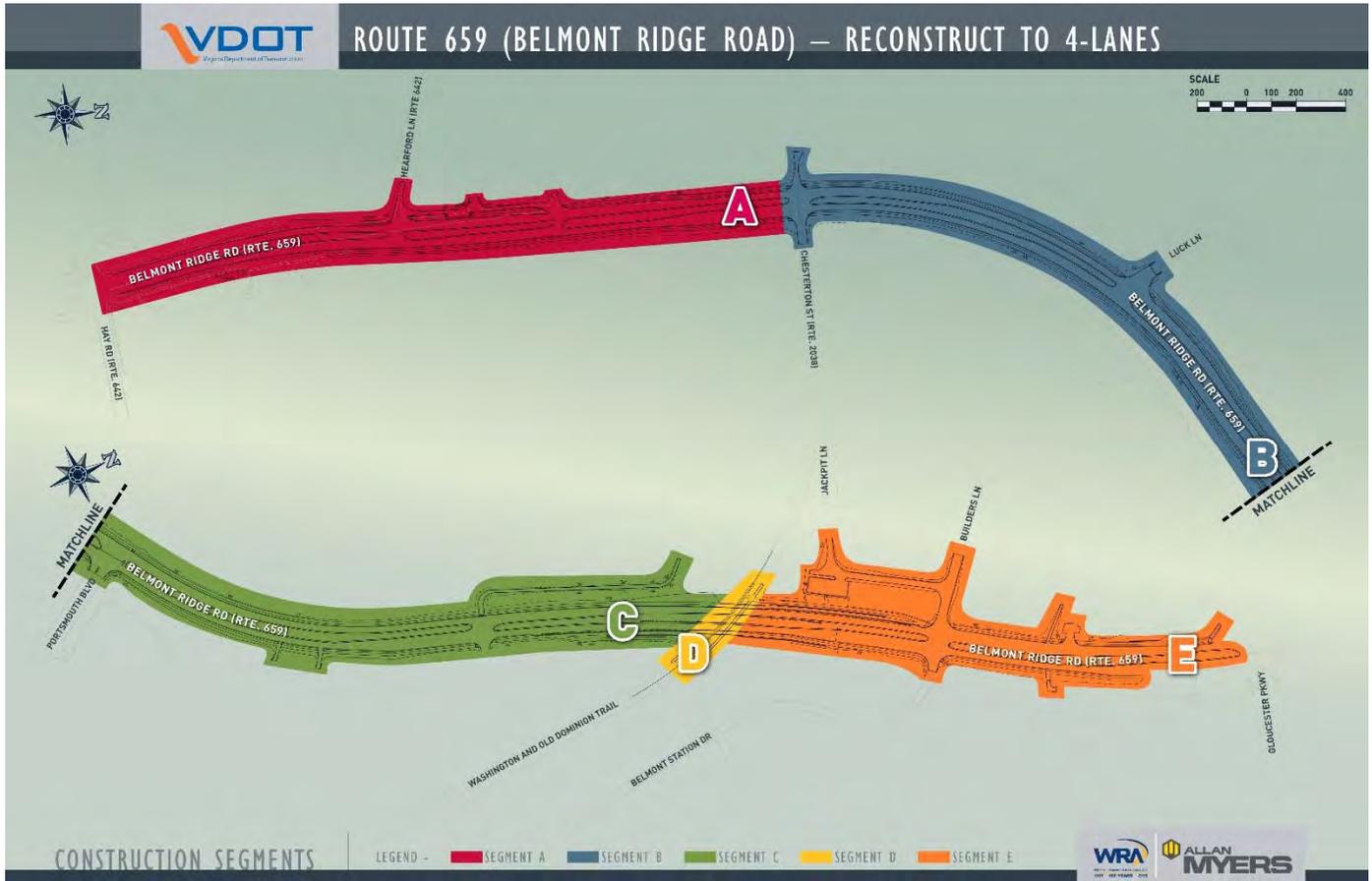
## Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes

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C, where the existing roadway falls within the limits of the proposed northbound lanes over the majority of the Segment. Because of this, Segment C was broken down further than the other segments such that Phase 1 of Segment C is the construction of the proposed southbound lanes outside of the existing roadway, Phase 1A is the construction of the proposed northbound lanes, and Phase 2 is the completion of the southbound lanes. Phases 1 and 1A of Segment C are on the longest path because of this additional phasing within this segment and the need to coordinate traffic switches in this segment with the bridge construction.

Figure 4.7.1 – Segments of the Project



### WORK BREAKDOWN STRUCTURE

The Proposal Schedule is organized using a hierarchical Work Breakdown Structure (WBS) and is broken down by major scopes of work as shown below. For preconstruction scope areas, the WBS further details major work efforts. For construction, the WBS is broken down by geographical segmentation as described in Section 4.5.1. The segmentation was strategically chosen to provide manageable work areas as well as maximum flexibility with phasing and maintenance of traffic considerations.

### PROJECT MILESTONES

The Project Milestones section includes key points in the project schedule that will be the basis of high-level schedule monitoring.

### PROJECT ADMINISTRATION

The Project Administration section includes activities related to the overall management of the Project. Subsections of this WBS are:

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- **Project Supervision:** Project staffing installments are included in this section.
- **Project Startup:** Mobilization activities are included here.
- **Management Submittals:** This section includes activities related to project management submittals such as the Project Specific Safety Plan, Right-of-Way Acquisition, Relocation Plan, etc.
- **Quality Assurance/Quality Control (QA/QC):** This section tracks the submission of the QA/QC Plan and contractually required hold points, specifically preparatory meetings for each major scope of work and required QA/QC plan approval in advance of submission of design packages.
- **Project Closeout:** This section currently includes punchlist and demobilization items, but will later be used to track any identified project closeout activities.

### SCOPE VALIDATION PERIOD

The Scope Validation Period is 120 days and the schedule section includes activities related to scope validation investigations, submittals and negotiations (if necessary).

### PUBLIC INVOLVEMENT

The Public Involvement section includes activities related to the Project’s interaction with the public, specifically the “Pardon Our Dust” meeting, other key stakeholder meetings and noise wall confirmation.

### DESIGN

The design section includes activities related to the design efforts needed to commence construction understanding that modifications to the Interchange Modification Report is not required. Subsections of this WBS are:

- **General Design Efforts:** This section includes design support activities such as reviewing final contract requirements, finalizing any optimization alternatives and assessing additional data requirements that need to be obtained through additional field investigations, borings and evaluations.
- **Design Survey:** This section includes activities related to obtaining additional data through field survey and investigations as noted in Part 2 – Addendum No. 2, Section 2.5.
- **Geotechnical:** This section includes activities related to performing additional soil borings, laboratory analyses geotechnical analysis and design.
- **FI/RW Plans:** This section includes activities related to the preparation, submission and approval of the FI/RW Plans. Initial FI/RW plans submissions include draft drainage and SWM reports.
- **Bridge Design:** This section includes activities related to the preparation, submission and approval of the Approved for Construction (AFC) Structural plans.
- **Roadway Design:** This section includes activities related to the preparation, submission and approval of the Approved for Construction (AFC) Roadway plans. Final roadway plans submissions with include final drainage and SWM reports and confirmation of purchase of offsite nutrient credit offsets.

### PERMITTING/ENVIRONMENTAL

The Permitting/Environmental section includes activities related to the efforts needed to obtain necessary environmental permits for the Project. Subsections of this WBS are:

- **VPDES Permitting:** This section includes activities related to securing the DEQ VPDES Construction Permit.
- **SWPPP Permitting:** This section includes preparation and approval of the SWPPP.
- **Individual Wetlands Permit:** This section includes activities related to the preparation, submission and approval of the Individual Wetlands Permit. This will include wetland delineations, avoidance and minimization studies, verification of time of year restrictions, if any, and coordination with the permitting agencies. This section includes activities for agency public notice, draft permit issuance for review by the WRA/Myers Team and procurement of requisite wetland and stream credits.

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### RIGHT-OF-WAY

The Right-of-Way section includes activities related to the efforts needed to acquire ROW and temporary utility and construction easements required to commence construction of the Project. The acquisition of ROW is separated into two packages, east and west sides of the roadway, such that identified affected parcels are addressed within these two packages. Subsections of this WBS are:

- Site Assessments/Survey/Research: This section includes activities related to site investigations and research for parcels potentially affected by the Project. Since the WRA/Myers Team has taken efforts to reduce ROW impacts, most parcels just need confirmation that they will not be affected.
- Right-of-Way Acquisition – Package A (east side of Belmont Ridge Road): This section includes activities related to the acquisition of parcels on the east side of the proposed roadway including appraisals, negotiations, and ROW clearance.
- Right-of-Way Acquisition – Package B (west side of Belmont Ridge Road): This section includes activities related to the acquisition of parcels on the west side of the proposed roadway including appraisals, negotiations, and ROW clearance.

### UTILITIES

The Utilities section includes activities related to the efforts needed to relocate utilities in conflict with the final design. Subsections of this WBS are:

- Utility Coordination/Planning: This section includes activities related to early coordination and issuance of Utility Master Agreements.
- Plan and Estimates: This section includes activities related to development and approval of Plan and Estimates and final Utility Assemblies. The Utility Assembly Package includes the Plan and Estimate as well as applicable easement and cost information.
- Utility Relocations: This section includes activities related to the physical relocation of utilities.

### PROCUREMENT

The Procurement section includes activities related to the efforts related to relationships between the WRA/Myers Team and its vendors and subcontractors. Subsections of this WBS are:

- Vendor Procurement: This section includes activities related to procurement of material vendors and subcontractors needed to construct the approved design.
- Construction Submittals: This section includes tracking pre-construction working drawings, shop drawings and girder erection plans.
- Fabrication: This section includes activities related to the lead times of major materials.

### CONSTRUCTION

The Construction section includes activities related to the efforts needed to construct the approved design. This WBS section is broken down by geographical segmentation as shown below. Subsections of this WBS are:

- Segment A: (Beginning of Project to Sta. 68+00)
  - General
  - Mainline Rte 659 NB
  - Mainline Rte 659 SB
  - Tie-in to Existing
- Segment B: (Sta 68+00 to 92+50)
  - General
  - Mainline Rte 659 NB

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- Mainline Rte 659 SB
- Chesterton St.
- Segment C: (Sta 92+50 to 118+31.42)
  - General
  - Mainline Rte 659 NB
  - Mainline Rte 659 SB
  - Portsmouth Blvd.
- Segment D: (Sta 118+31.42 to Sta 119+91.59)
  - General
  - Mainline Rte 659 NB – B-671
    - Substructure
    - Superstructure
  - Mainline Rte 659 SB – B-670
    - Substructure
    - Superstructure
  - W&OD Trail
- Segment E: (Sta 119+91.59 to end of Project)
  - General
  - Mainline Rte 659 NB
  - Mainline Rte 659 SB
  - Belmont Station Drive
  - Builder’s Lane, Jackpit and Parking Lot

### CRITICAL PATH

The critical path, as represented by the Project Schedule, includes the following activities in order of progression from Notice to Proceed (October 16, 2015) through Project Final Completion (April 30, 2019) and is as follows:

- Notice to Proceed
- Review/comment FI/RW Plans
- Receive ROW clearance – Package B
- Utility relocation
- Construction – Segment C Southbound Phase 1
- Construction – Segment C Northbound
- Construction – Segment D Southbound Lanes over W&OD Trail
- Surface asphalt
- Final pavement markings

In addition to the full project schedule provided, we have included a print out of the summary longest path layout. (Following the project schedule at the back of this section).

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### MEANS AND METHODS

The durations in the Project Schedule were calculated based on estimated quantities known at the time of proposal as well as historical average productions experienced on similar projects. As design progresses and quantities are finalized, the construction schedule will be reviewed and monitored. Any major modifications to the design or design quantities will be reviewed with VDOT and reflected in potential revisions to the project schedule.

#### MSE ABUTMENT

A true MSE abutment is proposed for the bridge structure on this Project where the abutment is supported by the MSE wall. This eliminates the need for driven pile or drilled shaft foundations and reduces schedule. The schedule advantage comes not only from eliminating the time it takes to install the pile, but also potential power outages that may be needed on the Dominion Transmission lines in order to encroach upon the clear zone to safely install these foundation elements. The coordination of power outages on the transmission lines requires over a year's notice, and is restricted to only the spring and fall seasons when power demands are typically lower. By selecting this type of abutment, a high risk element of the schedule was able to be deleted.

#### OPEN DRAINAGE SYSTEM

Using an open drainage system in medians, as well as between Sta 78+00 to 92+00, greatly reduces the amount of pipe installation required. In addition to the pipe installation, it also avoids additional time that would be required to address trench rock for the pipe installation in that area.

#### UNDERCUT AT ABUTMENTS

In order to eliminate a settlement waiting period at the bridge abutments, overburdened soil that could be subject to compression will be undercut and replaced with incompressible soils. This will eliminate the need to monitor settlement prior to constructed bridge elements which would impact activities already located on the longest path.

### SCHEDULE ASSUMPTIONS

To properly manage the Project Schedule, it is important to understand the scope of the work and interdisciplinary dependencies for proper management. In addition, it is important to understand the technical capabilities of the schedule management software. Care has been given to the setup of the Primavera schedule to ease future schedule management and to properly account for schedule risks to reduce potential impacts.

#### CALENDARS

Project-specific calendars have been set up in Primavera to represent various restrictions and assumptions that must be applied to the project activities.

- Primary Calendars:
  - C00076244DB76 – Standard Five-Day Calendar:
    - This calendar allows for work five days per week except standard state holidays.
    - It is assigned all preconstruction activities that are not dependent on weather and would be primarily performed in an office.
  - C00076244DB76 – Five-Day Construction Calendar:
    - This calendar allows for work five days per week with the exception of standard state holidays. It also accounts for normal weather patterns that would affect field activities, such as precipitation histories.
    - It is assigned to field activities that may be affected by weather or precipitation events.
  - C00076244DB76 – Standard Base Paving Calendar:

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- This calendar allows for work five days per week with the exception of standard state holidays. In addition to accounting for normal weather patterns, as shown in the “Five Day Construction” calendar, it also prohibits work from taking place from December 1<sup>st</sup> each year to March 1<sup>st</sup> of the following year.
- It is assigned to base and intermediate paving activities that may be affected by temperatures in order to be installed per specification.
- C00076244DB76 – Standard Surface Paving Calendar:
  - This calendar allows work five days per week with the exception of state holidays. In addition to accounting for normal weather patterns, as shown in the “Five Day Construction” calendar, it also prohibits work from taking place from November 20<sup>th</sup> each year to March 20<sup>th</sup> of the following year.
  - It is assigned to surface paving activities that may be affected by temperatures in order to be installed per specification.
- C00076244DB76 – Seven Day Calendar:
  - This calendar allows for work seven days per week.
  - It is assigned to cure activities and any activity whose duration is based on calendar days.

### CONSISTENCY OF ACTIVITY NAMES AND IDs

Care has been taken to maintain consistency throughout the Project Schedule in terms of each activity’s name and ID. Each Activity ID is ten digits. The first six digits of the Activity ID mirror the WBS code in which the activity is located. Likewise, activities of similar type are named consistently. For example, activities for installing asphalt are named “Place Base Stone” throughout the schedule rather than “Install Base Stone” in one location or “Place Base Stone” in another. In addition, activities that are duplicative in multiple areas of the Project have a suffix for the specific location or detail that is applicable. For example, there are numerous activities in the project schedule for “Place Base Stone”. To avoid confusion about the scope of each activity, each of those activities is labeled with the segment location as well as the specific directional designation, i.e. “Place Base Stone – Seg. A SB”.

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### SCHEDULE ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

AC or A/C	Address Comments	QA/QC	Quality Assurance/Quality Control
AFC	Approved for Construction	RA or R/A	Review and Approve
BMP	Best Management Practices	RAS	River Analysis System
CD	Calendar Days	RC or R/C	Review and Comment
DB	Design Builder	ROW	Right-of-way
Ex.	Existing	RR	Railroad
F/R	Form and Reinforce	S/C/D	Schedule, Conduct & Document
F/R/P	Form, Reinforce & Pour	Seg. A	Segment A
FDNAR	Final Design Noise Analysis Report	Seg. B	Segment B
FHWA	Federal Highway Administration	Seg. C	Segment C
FI/RW	Field Inspection/Right-of-Way	Seg. D	Segment D
MOT	Maintenance of Traffic	Seg. E	Segment E
MUA	Master Utility Agreement	SFA	Submit for Approval
NADR	Noise Abatement Decision Report	SFC	Submit for Comment
NTP	Notice to Proceed	SFR	Submit for Review
OTSR	Over-the-shoulder Review	SFI	Submit for Information
P&E	Plans & Estimates	SUE	Subsurface Utility Exploration
PM	Project Manager	VDOT	Virginia Department of Transportation
		W&OD	Washington & Old Dominion

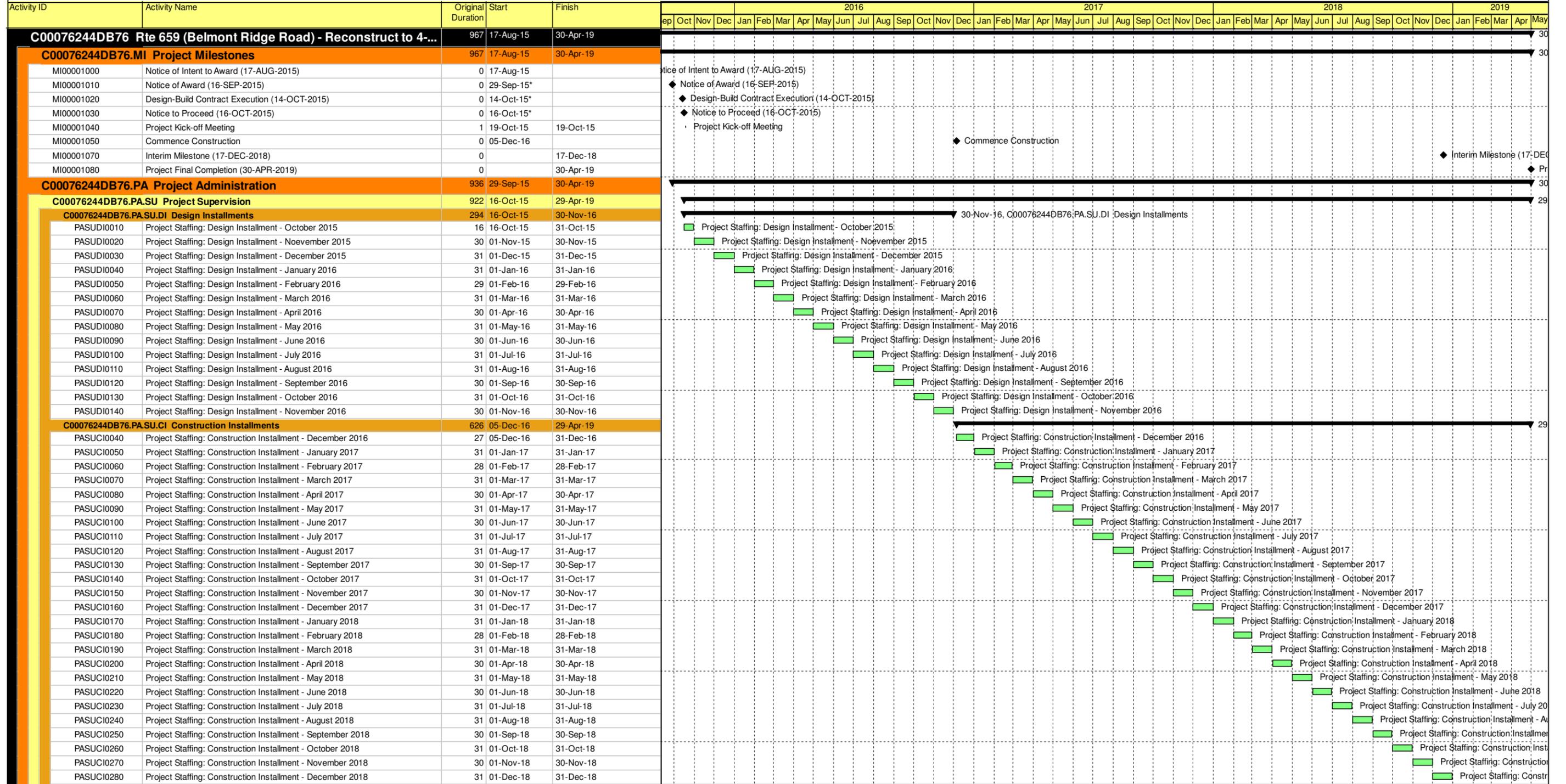
Activity ID	Activity Name	Original Duration	Start	Finish	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	
MI00001030	Notice to Proceed (16-OCT-2015)	0	16-Oct-15*		◆ Notice to Proceed (16-OCT-2015)																																
MI00001040	Project Kick-off Meeting	1	19-Oct-15	19-Oct-15	Project Kick-off Meeting																																
DNDS001000	Prepare Site Investigation Notification Letters	10	20-Oct-15	02-Nov-15	■ Prepare Site Investigation Notification Letters																																
SV00001030	Conduct Existing Drainage Systmes Video Inspection	60	03-Nov-15	04-Feb-16	■ Conduct Existing Drainage Systmes Video Inspection																																
SV00001040	SFA Inspection Report / Vdeo of Existing Drainage Systems...	1	05-Feb-16	05-Feb-16	SFA Inspection Report / Vdeo of Existing Drainage Systems (VDOT)																																
SV00001050	VDOT Provides Direction of Existing Drainage System Actions	21	06-Feb-16	26-Feb-16	■ VDOT Provides Direction of Existing Drainage System Actions																																
DNFR001020	A/C FI/RW Plans (Myers Team)	10	29-Feb-16	11-Mar-16	■ A/C FI/RW Plans (Myers Team)																																
DNFR001030	SFC FI/RW Plans (VDOT)	1	14-Mar-16	14-Mar-16	SFC FI/RW Plans (VDOT)																																
DNFR001040	R/C FI/RW Plans	21	15-Mar-16	04-Apr-16	■ R/C FI/RW Plans																																
RWSA001040	Prepare / Submit Environmental Clearance for all Properties...	20	05-Apr-16	02-May-16	■ Prepare / Submit Environmental Clearance for all Properties to be Acquired (Hold Point)																																
RWSA001050	Mail Probable Take Notification to Property Owners - Entire ...	5	03-May-16	09-May-16	■ Mail Probable Take Notification to Property Owners - Entire Project																																
RWSA001060	Receive Responses from Property Owners - Entire Project	7	10-May-16	16-May-16	■ Receive Responses from Property Owners - Entire Project																																
RWPAB01000	Develop Appraisals (Myers Team) - Package B	30	17-May-16	15-Jun-16	■ Develop Appraisals (Myers Team) - Package B																																
RWPAB01010	Independent Appraisal Reviews (Myers Team) - Package B	14	16-Jun-16	29-Jun-16	■ Independent Appraisal Reviews (Myers Team) - Package B																																
RWPAB01020	SFA Appraisals (RUMS) - Package B	1	30-Jun-16	30-Jun-16	SFA Appraisals (RUMS) - Package B																																
RWPAB01030	R/A Appraisals (VDOT) - Package B	21	01-Jul-16	21-Jul-16	■ R/A Appraisals (VDOT) - Package B																																
RWPAB01040	VDOT Approves Appraisals - Package B	14	22-Jul-16	04-Aug-16	■ VDOT Approves Appraisals - Package B																																
RWPAB01050	Present Offer Packages - Package B	7	05-Aug-16	11-Aug-16	■ Present Offer Packages - Package B																																
RWPAB01060	Initial Offer Negotiation Period - Package B	30	12-Aug-16	10-Sep-16	■ Initial Offer Negotiation Period - Package B																																
RWPAB01070	Submit Justification Letters - Package B	7	11-Sep-16	17-Sep-16	■ Submit Justification Letters - Package B																																
RWPAB01080	R/A Justification Letters - Package B	21	18-Sep-16	08-Oct-16	■ R/A Justification Letters - Package B																																
RWPAB01090	SFA Acceptance/Refusal Package - Package B	7	09-Oct-16	15-Oct-16	■ SFA Acceptance/Refusal Package - Package B																																
RWPAB01100	R/A Acceptance/Refusal Package - Package B	21	16-Oct-16	05-Nov-16	■ R/A Acceptance/Refusal Package - Package B																																
RWPAB01110	Receive ROW Clearance - Package B	7	06-Nov-16	12-Nov-16	■ Receive ROW Clearance - Package B																																
UTPE001030	Provide Utility Notification to Proceed (DVP)	5	14-Nov-16	18-Nov-16	■ Provide Utility Notification to Proceed (DVP)																																
UTPE001070	Provide Utility Notification to Proceed (Verizon)	5	14-Nov-16	18-Nov-16	■ Provide Utility Notification to Proceed (Verizon)																																
UTPE001110	Provide Utility Notification to Proceed (Comcast)	5	14-Nov-16	18-Nov-16	■ Provide Utility Notification to Proceed (Comcast)																																
UTPE001150	Provide Utility Notification to Proceed (Washington Gas)	5	14-Nov-16	18-Nov-16	■ Provide Utility Notification to Proceed (Washington Gas)																																
UTPE001190	Provide Utility Notification to Proceed (AT&T Fiber)	5	14-Nov-16	18-Nov-16	■ Provide Utility Notification to Proceed (AT&T Fiber)																																
UTPE001230	Provide Utility Notification to Proceed (LC Water)	5	14-Nov-16	18-Nov-16	■ Provide Utility Notification to Proceed (LC Water)																																
PAQAPM1000	S/C/D - Preparatory Meeting - Utilities	1	21-Nov-16	21-Nov-16	S/C/D - Preparatory Meeting - Utilities																																
UTUR001000	Relocate DVP	60	22-Nov-16	23-Feb-17	■ Relocate DVP																																
UTUR001010	Relocate Verizon	40	24-Feb-17	20-Apr-17	■ Relocate Verizon																																
UTUR001020	Relocate Comcast	20	21-Apr-17	18-May-17	■ Relocate Comcast																																
CNCS100020	Excavation / Widening - Seg. C SB - Ph 1	30	19-May-17	06-Jul-17	■ Excavation / Widening - Seg. C SB - Ph 1																																
CNCS100030	Install Storm Drainage - Seg. C SB - Ph 1	13	07-Jul-17	26-Jul-17	■ Install Storm Drainage - Seg. C SB - Ph 1																																
CNCS100040	Finegrade Subgrade - Seg. C SB - Ph 1	6	27-Jul-17	04-Aug-17	■ Finegrade Subgrade - Seg. C SB - Ph 1																																
CNCS100050	Place Base Stone - Seg. C SB - Ph 1	4	07-Aug-17	10-Aug-17	■ Place Base Stone - Seg. C SB - Ph 1																																
CNCS100060	Install Underdrain - Seg. C SB - Ph 1	4	14-Aug-17	17-Aug-17	■ Install Underdrain - Seg. C SB - Ph 1																																
CNCS100070	Place Open Graded Drainage Layer - Seg. C SB - Ph 1	2	18-Aug-17	21-Aug-17	■ Place Open Graded Drainage Layer - Seg. C SB - Ph 1																																
CNCS100080	Install Curb and Gutter - Seg. C SB - Ph 1	15	22-Aug-17	14-Sep-17	■ Install Curb and Gutter - Seg. C SB - Ph 1																																
CNCS100090	Place Base & Intermediate Asphalt - Seg. C SB - Ph 1	6	18-Sep-17	25-Sep-17	■ Place Base & Intermediate Asphalt - Seg. C SB - Ph 1																																
CNCS100100	Switch Traffic to SB Lanes	2	26-Sep-17	27-Sep-17	■ Switch Traffic to SB Lanes																																
CNCN00010	Demo Ex. Pavement - Seg. C NB	3	27-Sep-17	03-Oct-17	■ Demo Ex. Pavement - Seg. C NB																																
CNCN00020	Excavation / Widening - Seg. C NB	30	03-Oct-17	28-Nov-17	■ Excavation / Widening - Seg. C NB																																
CNCN00030	Install Storm Drainage - Seg. C NB	21	28-Nov-17	10-Jan-18	■ Install Storm Drainage - Seg. C NB																																
CNCN00040	Finegrade Subgrade - Seg. C NB	7	10-Jan-18	25-Jan-18	■ Finegrade Subgrade - Seg. C NB																																

■ Remaining Level of Effort   
 ■ Actual Work   
 ■ Critical Remaining Work   
 ▼ Summary  
■ Actual Level of Effort   
 ■ Remaining Work   
 ◆ Milestone



Bid Schedule

Data Date: 17-Aug-15



█ Remaining Level of Effort   
 █ Actual Work   
 █ Critical Remaining Work   
  Summary  
█ Actual Level of Effort   
  Remaining Work   
 ◆ Milestone









Bid Schedule

Data Date: 17-Aug-15



Activity ID	Activity Name	Original Duration	Start	Finish	2016												2017												2018												2019											
					ep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May															
DNDS001020	A/C Prepare Site Investigation Notification Letters	2	10-Nov-15	11-Nov-15																																																
DNDS001030	Distribute Site Investigation Notification Letters (Hold Point)	15	12-Nov-15	26-Nov-15																																																
DNDS001040	Recover Survey Control	5	30-Nov-15	04-Dec-15																																																
DNDS001050	Supplemental Field Survey	30	07-Dec-15	25-Jan-16																																																
DNDS001060	Topo Verification (SWM Basins, Roadway Tie-ins)	30	07-Dec-15	25-Jan-16																																																
DNDS001070	Supplemental Utility Designation/Location	15	07-Dec-15	04-Jan-16																																																
DNDS001080	Computer Work and DTM Preparation	20	26-Jan-16	22-Feb-16																																																
<b>C00076244DB76.DN.GE Geotechnical</b>		<b>220</b>	<b>16-Oct-15</b>	<b>18-Aug-16</b>																																																
DNGE001000	Prepare Soil Boring Plan	10	16-Oct-15	29-Oct-15																																																
DNGE001010	R/C Soil Boring Plan (VDOT)	21	30-Oct-15	19-Nov-15																																																
DNGE001020	A/C Soil Boring Plan	1	20-Nov-15	20-Nov-15																																																
DNGE001030	Perform Soil Borings	40	30-Nov-15	01-Feb-16																																																
DNGE001040	Perform Lab Work	20	02-Feb-16	29-Feb-16																																																
DNGE001050	Prepare Draft Geotechnical Report & Recommendations	30	02-Feb-16	14-Mar-16																																																
DNGE001060	SFR Draft Geotechnical Report & Recommendations (Myers Team)	3	15-Mar-16	17-Mar-16																																																
DNGE001070	A/C Draft Geotechnical Report & Recommendations (Myers Team)	5	18-Mar-16	24-Mar-16																																																
DNGE001080	SFC Draft Geotechnical Report & Recommendations (VDOT) (Hold Point)	1	25-Mar-16	25-Mar-16																																																
DNGE001090	R/C Draft Geotechnical Report & Recommendations	21	26-Mar-16	15-Apr-16																																																
DNGE001100	Advance to Final Geotechnical Report & Recommendations	10	18-Apr-16	29-Apr-16																																																
DNGE001110	SFR Final Geotechnical Report & Recommendations (Myers Team)	3	02-May-16	04-May-16																																																
DNGE001120	A/C Final Geotechnical Report & Recommendations (Myers Team)	5	05-May-16	11-May-16																																																
DNGE001130	SFC Final Geotechnical Report & Recommendations (VDOT)	1	29-Jun-16	29-Jun-16																																																
DNGE001140	R/C Final Geotechnical Report & Recommendations	21	30-Jun-16	20-Jul-16																																																
DNGE001150	A/C Final Geotechnical Report & Recommendations	5	21-Jul-16	27-Jul-16																																																
DNGE001160	R/A Final Geotechnical Report & Recommendations	21	28-Jul-16	17-Aug-16																																																
DNGE001170	Final Geotechnical Report & Recommendations Approval (Hold Point)	1	18-Aug-16	18-Aug-16																																																
<b>C00076244DB76.DN.FR FI/RW Plans</b>		<b>155</b>	<b>20-Oct-15</b>	<b>23-May-16</b>																																																
DNFR001000	Prepare FI/RW Plans	60	20-Oct-15	21-Jan-16																																																
DNFR001010	SFC FI/RW Plans (Myers Team)	5	22-Jan-16	28-Jan-16																																																
DNFR001020	A/C FI/RW Plans (Myers Team)	10	29-Feb-16	11-Mar-16																																																
DNFR001030	SFC FI/RW Plans (VDOT)	1	14-Mar-16	14-Mar-16																																																
DNFR001040	R/C FI/RW Plans	21	15-Mar-16	04-Apr-16																																																
DNFR001050	A/C FI/RW Plans (Myers Team)	5	05-Apr-16	11-Apr-16																																																
DNFR001060	R/A FI/RW Plans & RW 300/301 Approval (VDOT)	21	12-Apr-16	02-May-16																																																
DNFR001070	RW Plan Approval (VDOT)	5	03-May-16	09-May-16																																																
DNFR001080	RW 300/301 Approval (VDOT)	5	10-May-16	16-May-16																																																
DNFR001090	Notice to Commence ROW Acquisition (VDOT)	5	17-May-16	23-May-16																																																
<b>C00076244DB76.DN.BR Bridge Design</b>		<b>295</b>	<b>20-Oct-15</b>	<b>05-Dec-16</b>																																																
<b>C00076244DB76.DN.BR.A Stage I Bridge Plans</b>		<b>155</b>	<b>20-Oct-15</b>	<b>23-May-16</b>																																																
DNBR001000	Prepare Stage I - Bridge Plans	80	20-Oct-15	18-Feb-16																																																
DNBR001010	SFC Stage I - Bridge Plans (Myers Team)	5	19-Feb-16	25-Feb-16																																																
DNBR001020	A/C Stage I - Bridge Plans (Myers Team)	10	26-Feb-16	10-Mar-16																																																
DNBR001030	SFC Stage I - Bridge Plans (VDOT)	1	11-Mar-16	11-Mar-16																																																
DNBR001040	R/C Stage I - Bridge Plans	21	12-Mar-16	01-Apr-16																																																
DNBR001050	A/C Stage I - Bridge Plans (Myers Team)	20	04-Apr-16	29-Apr-16																																																
DNBR001060	R/A Stage I - Bridge Plans	21	30-Apr-16	20-May-16																																																
DNBR001070	Stage I - Bridge Plans Approved (VDOT)	1	23-May-16	23-May-16																																																
<b>C00076244DB76.DN.BR.B Stage II Bridge Plans</b>		<b>156</b>	<b>02-May-16</b>	<b>05-Dec-16</b>																																																
DNBRB01000	Advance Stage II - Bridge Plans	30	02-May-16	13-Jun-16																																																
DNBRB01010	SFC Stage II - Bridge Plans (Myers Team)	5	30-Jun-16	07-Jul-16																																																
DNBRB01020	A/C Stage II - Bridge Plans (Myers Team)	10	08-Jul-16	21-Jul-16																																																
DNBRB01030	SFC Stage II - Bridge Plans (VDOT)	1	22-Jul-16	22-Jul-16																																																
DNBRB01040	R/C Stage II - Bridge Plans	21	23-Jul-16	12-Aug-16																																																
DNBRB01050	A/C Stage II - Bridge Plans (Myers Team)	15	15-Aug-16	02-Sep-16																																																

█ Remaining Level of Effort   
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█ Actual Level of Effort   
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 ◆ Milestone







Bid Schedule

Data Date: 17-Aug-15



Activity ID	Activity Name	Original Duration	Start	Finish	2016												2017												2018												2019					
					ep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May									
<b>C00076244DB76.UT.UR Utility Relocations</b>		128	22-Nov-16	18-May-17																																										
UTUR001000	Relocate DVP	60	22-Nov-16	23-Feb-17																																										
UTUR001010	Relocate Verizon	40	24-Feb-17	20-Apr-17																																										
UTUR001020	Relocate Comcast	20	21-Apr-17	18-May-17																																										
UTUR001030	Relocate Washington Gas	60	22-Nov-16	23-Feb-17																																										
UTUR001040	Relocate AT&T Fiber	40	22-Nov-16	26-Jan-17																																										
UTUR001050	Relocate LC Water	80	13-Jan-17	04-May-17																																										
<b>C00076244DB76.PR Procurement</b>		198	09-Sep-16	13-Jun-17																																										
<b>C00076244DB76.PR.VP Vendor Procurement</b>		31	09-Sep-16	21-Oct-16																																										
PRVP001000	Procure E&S Package Vendors	10	09-Sep-16	22-Sep-16																																										
PRVP001010	Procure MOT Package Vendors	20	09-Sep-16	06-Oct-16																																										
PRVP001020	Procure Bridge Material Vendors	20	26-Sep-16	21-Oct-16																																										
PRVP001030	Procure Sound Wall Vendors	20	23-Sep-16	20-Oct-16																																										
PRVP001050	Procure Signalization Package Vendors	20	09-Sep-16	06-Oct-16																																										
<b>C00076244DB76.PR.CS Construction Submittals</b>		57	29-Sep-16	16-Dec-16																																										
PRCS001000	Prepare Girder Shop Drawings	20	24-Oct-16	18-Nov-16																																										
PRCS001010	SFA Girder Shop Drawings	5	21-Nov-16	25-Nov-16																																										
PRCS001020	R/A Girder Shop Drawings	21	25-Nov-16	16-Dec-16																																										
PRCS001100	Prepare Sound Wall Shop Drawings	20	21-Oct-16	17-Nov-16																																										
PRCS001110	SFA Sound Wall Shop Drawings	5	18-Nov-16	24-Nov-16																																										
PRCS001120	R/A Sound Wall Shop Drawings	21	24-Nov-16	15-Dec-16																																										
PRCS001200	Prepare MSE Wall Shop Drawings	20	24-Oct-16	18-Nov-16																																										
PRCS001210	SFA MSE Wall Shop Drawings	5	21-Nov-16	25-Nov-16																																										
PRCS001220	R/A MSE Wall Shop Drawings	21	25-Nov-16	16-Dec-16																																										
PRCS001330	Prepare Bridge Overhang Support Shop Drawings	20	24-Oct-16	18-Nov-16																																										
PRCS001340	SFA Bridge Overhang Support Shop Drawings	5	21-Nov-16	25-Nov-16																																										
PRCS001350	R/A Bridge Overhang Support Shop Drawings	21	25-Nov-16	16-Dec-16																																										
PRCS001400	Prepare Girder Erection Plan	20	29-Sep-16	26-Oct-16																																										
PRCS001410	SFA Girder Erection Plan	5	27-Oct-16	02-Nov-16																																										
PRCS001420	R/A Girder Erection Plan	21	02-Nov-16	23-Nov-16																																										
PRCS001500	Prepare Signal Shop Drawings	20	07-Oct-16	03-Nov-16																																										
PRCS001510	SFA Signal Shop Drawings	5	04-Nov-16	10-Nov-16																																										
PRCS001520	R/A Signal Shop Drawings (VDOT)	21	10-Nov-16	01-Dec-16																																										
<b>C00076244DB76.PR.FB Fabrication</b>		184	29-Sep-16	13-Jun-17																																										
PRFB001000	Fab & Deliver Bridge Girders B-671	120	16-Dec-16	13-Jun-17																																										
PRFB001010	Fab & Deliver Bridge Girders B-670	120	19-Dec-16	02-Jun-17																																										
PRFB001020	Fab & Deliver Substructure Rebar B-671	30	29-Sep-16	09-Nov-16																																										
PRFB001030	Fab & Deliver Substructure Rebar B-670	30	29-Sep-16	09-Nov-16																																										
PRFB001040	Fab & Deliver Superstructure Rebar B-671	90	29-Sep-16	01-Feb-17																																										
PRFB001050	Fab & Deliver Superstructure Rebar B-670	90	29-Sep-16	01-Feb-17																																										
PRFB001100	Fab & Deliver Sound Wall Post and Panels	90	16-Dec-16	20-Apr-17																																										
PRFB001200	Fab & Deliver MSE Wall Panels	60	19-Dec-16	10-Mar-17																																										
PRFB001500	Fab & Deliver Signalization Materials	90	02-Dec-16	06-Apr-17																																										
<b>C00076244DB76.CN Construction</b>		616	05-Dec-16	15-Apr-19																																										
<b>C00076244DB76.CN.A Segment A (Begin Project to Sta 68+00)</b>		603	05-Dec-16	27-Mar-19																																										
<b>C00076244DB76.CN.A.G General</b>		603	05-Dec-16	27-Mar-19																																										
CNAG00010	Initial MOT - Seg. A	3	05-Dec-16	07-Dec-16																																										
CNAG00020	Clearing - Seg. A	8	08-Dec-16	21-Dec-16																																										
CNAG00030	Erosion Controls - Seg. A	5	22-Dec-16	09-Jan-17																																										
CNAG00040	Switch Traffic - Seg. A	3	18-Jul-17	20-Jul-17																																										
CNAG00050	Respread Topsoil - Seg. A	7	13-Dec-17	02-Jan-18																																										
CNAG00060	Permanent Seeding - Seg. A	2	08-Jan-18	09-Jan-18																																										
CNAG00070	Surface Asphalt - Seg. A	4	20-Mar-19	25-Mar-19																																										

█ Remaining Level of Effort   
 █ Actual Work   
 █ Critical Remaining Work   
  Summary  
█ Actual Level of Effort   
 █ Remaining Work   
 ◆ Milestone











**Appendix 4.1.7  
Proposal Payment  
Agreement**



**ATTACHMENT 9.3.1**  
**PROPOSAL PAYMENT AGREEMENT**

**THIS PROPOSAL PAYMENT AGREEMENT** (this “Agreement”) is made and entered into as of this 17th day of June, 2015, by and between the Virginia Department of Transportation (“VDOT”), and Allan Myers VA, Inc. (“Offeror”).

**WITNESSETH:**

**WHEREAS**, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”) pursuant to VDOT’s **May 29, 2014** Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the **Route 659 (Belmont Ridge Road) – Reconstruct to 4-Lanes, Project No. 0659-053-262** (“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 [*written number*] and 00/100 Dollars (\$[*numerical*].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: \_\_\_\_\_

ALLAN MYERS VA, INC.

By:  \_\_\_\_\_

Name: Aaron T. Myers

Title: Vice President/General Manager

**Appendix 4.1.8  
Certification Regarding  
Debarment Forms**



**ATTACHMENT NO. 11.8.6(a)**

**CERTIFICATION REGARDING DEBARMENT  
PRIMARY COVERED TRANSACTIONS**

**Project: 0659-053-262**

**Contract ID: C00076244DB76**

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.

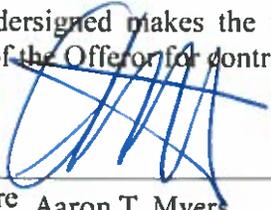
b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under 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 form.

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 Aaron T. Myers

6/1/2015  
Date

Vice President/General Manager  
Title

ALLAN MYERS VA, INC.  
Name of Firm

**ATTACHMENT NO. 3.2.7(b)**

**CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS**

Project No.: 0659-053-262

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 form.

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

<u><i>Paul Adams</i></u>	<u>5-12-15</u>	<u>RIGHT OF WAY PROGRAM MANAGER</u>
Signature	Date	Title

CONTINENTAL ACQUISITION SERVICES, INC.  
Name of Firm

**ATTACHMENT NO. 11.8.6(b)**

**CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS**

**Project: 0659-053-262**

**Contract ID: C00076244DB76**

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 form.

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.

	5/13/2015	President and CEO
Signature	Date	Title

DMY Engineering Consultants Inc.

Name of Firm

ATTACHMENT NO. 3.2.7(b)

**CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS**

Project No.: 0659-053-262

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 form.

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.

*m. j. [unclear]*                      5-26-15                      Principal Engineer  
Signature                      Date                      Title

Engineering + Materials Technologies, Inc. (EMTech)  
Name of Firm

**ATTACHMENT NO. 11.8.6(b)**

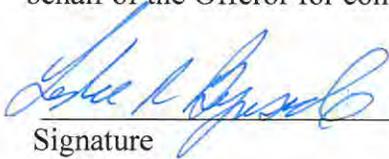
**CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS**

**Project: 0659-053-262**

**Contract ID: C00076244DB76**

- 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 form.

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

May 13, 2015

Date

Vice President

Title

H&B Surveying and Mapping, LLC

Name of Firm

**ATTACHMENT NO. 3.2.7(b)**

**CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS**

Project No.: 0659-053-262

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 form.

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.

D. Campbell      5/19/15      CFO  
Signature                  Date                                  Title  
Mountain Empire Acquisitions, LLC  
Name of Firm

ATTACHMENT NO. 3.2.7(b)

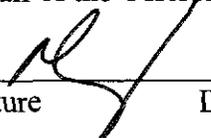
**CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS**

Project No.: 0659-053-262

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 form.

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 6-1-15 Title Owner/Managing Member

Property Title & Escrow LLC  
Name of Firm \_\_\_\_\_

**ATTACHMENT NO. 11.8.6(b)**

**CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS**

**Project: 0659-053-262**

**Contract ID: C00076244DB76**

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 form.

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

5/5/2015  
Date

Senior Vice President  
Title

Whitman, Requardt & Associates, LLP  
Name of Firm



**Allan Myers**  
12500 Fair Lakes Circle  
Suite 150  
Fairfax, VA 22033  
703-502-7500



**Whitman, Requardt & Associates, LLP**  
3701 Pender Drive  
Suite 450  
Fairfax, VA 22030  
703-293-9717





# Technical Proposal Volume II

A DESIGN-BUILD PROJECT

## Route 659 (Belmont Ridge Road) Reconstruct to 4-Lanes

From: Route 642 (Hay Road)  
To: Route 2150 (Gloucester Parkway)

*Loudoun County, Virginia*

State Project No.: 0659-053-262, R204, C504,  
B670, B671

Contract ID No.: C00076244DB76

Date: June 17, 2015



End Project: Route 2150  
(Gloucester Parkway)

Begin Project:  
Route 642  
(Hay Road)

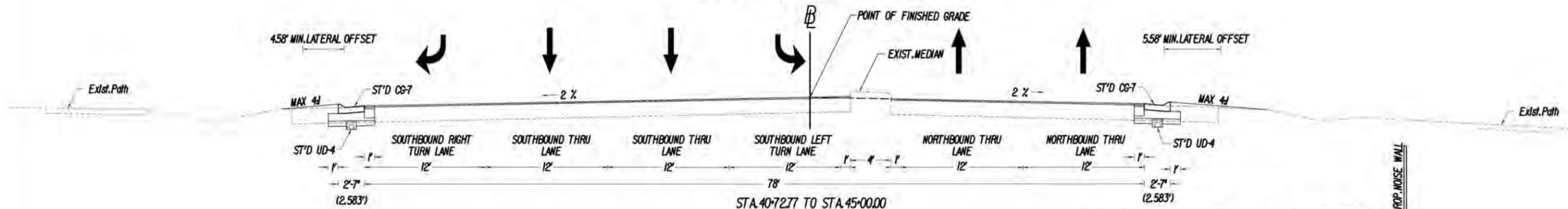
**4.3.1.1  
Conceptual  
Roadway Plans**

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	659	0659-053-262 RW-204,C-504	1

# TYPICAL SECTIONS

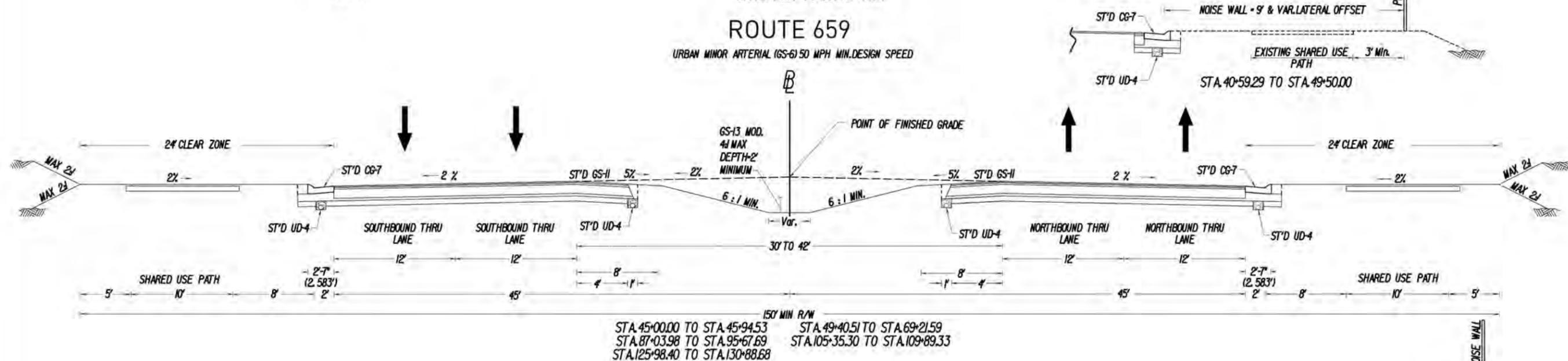
## ROUTE 659

URBAN MINOR ARTERIAL (GS-6) 50 MPH MIN. DESIGN SPEED



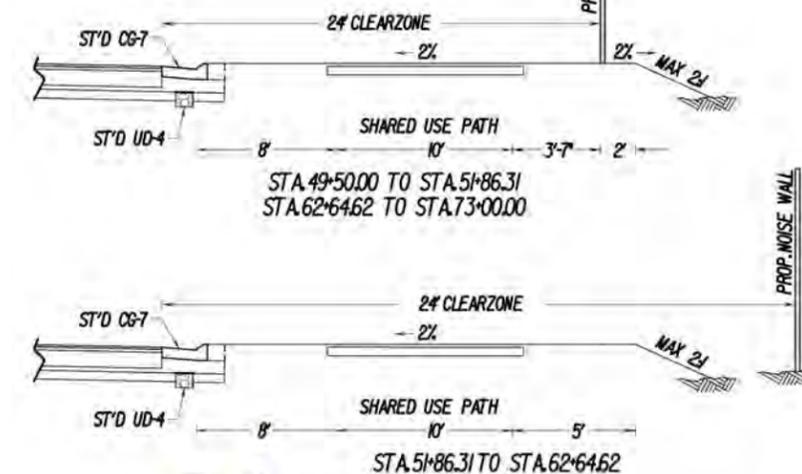
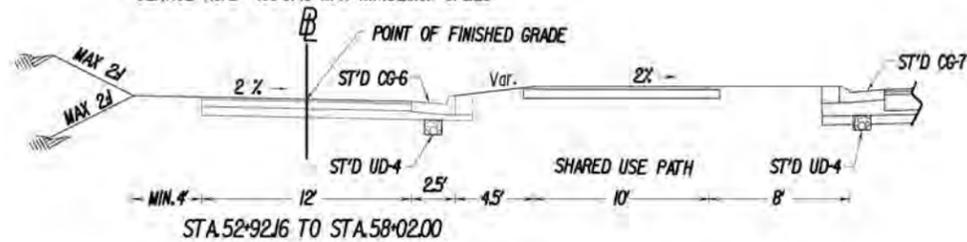
## ROUTE 659

URBAN MINOR ARTERIAL (GS-6) 50 MPH MIN. DESIGN SPEED



## SERVICE ROAD

SERVICE ROAD (GS-9) 15 MPH MIN. DESIGN SPEED

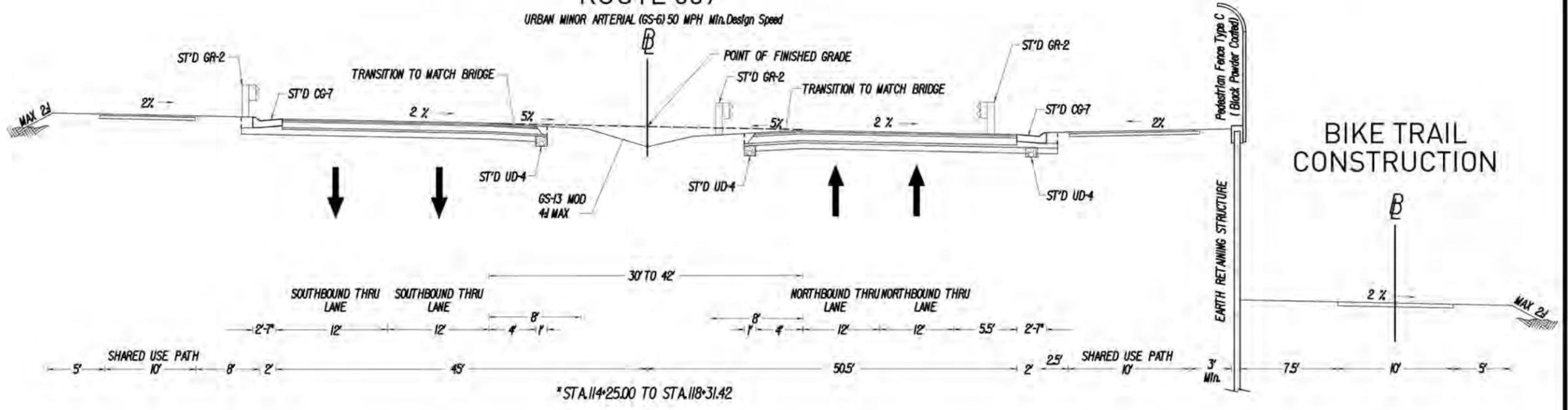


REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	659	0659-053-262 RW-204,C-504	2

# TYPICAL SECTIONS

## ROUTE 659

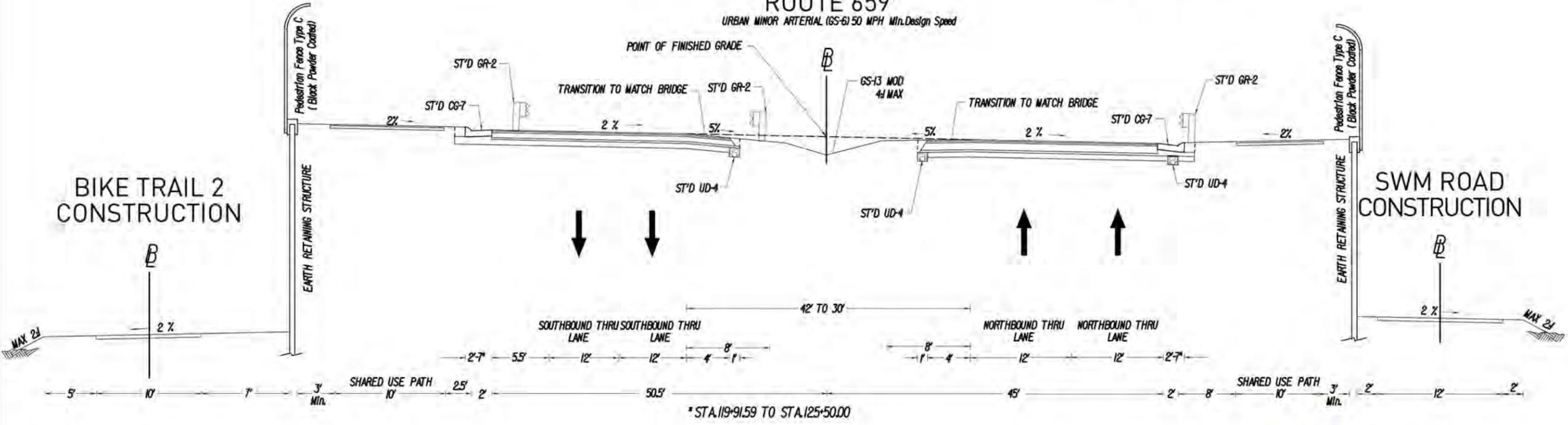
URBAN MINOR ARTERIAL (GS-6) 50 MPH Min. Design Speed



\* BRIDGE STATIONS:  
STA. 118+31.42 TO 119+91.59

## ROUTE 659

URBAN MINOR ARTERIAL (GS-6) 50 MPH Min. Design Speed

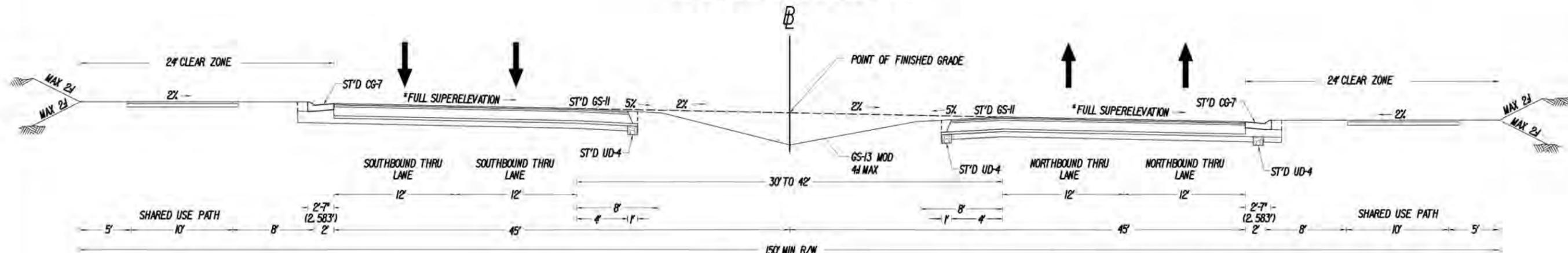


REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
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# TYPICAL SECTIONS

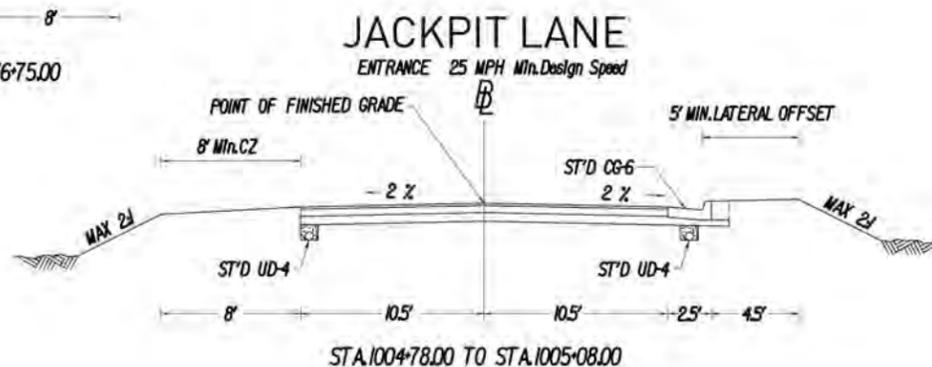
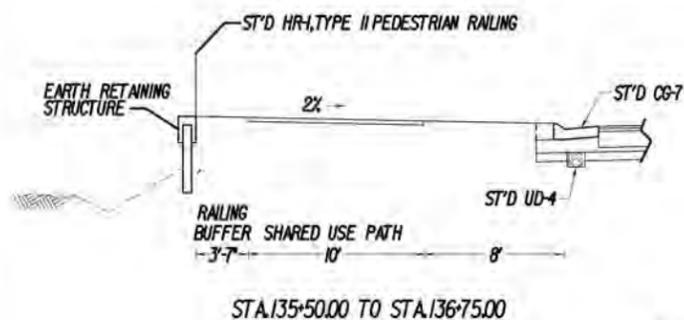
## ROUTE 659

URBAN MINOR ARTERIAL (GS-6) 50 MPH MIN. DESIGN SPEED



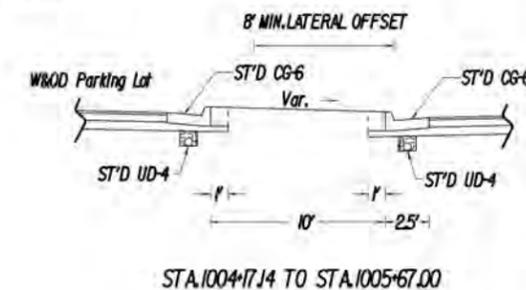
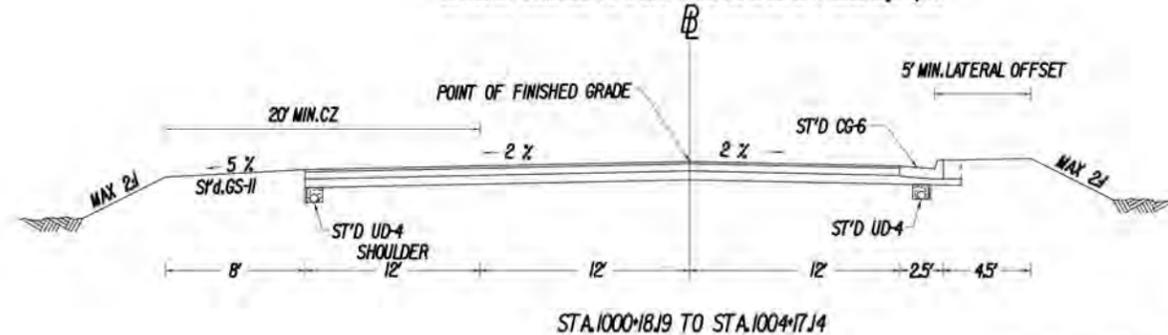
150' MIN R/W  
 STA. 45+94.53 TO STA. 49+40.51  
 STA. 62+21.59 TO STA. 87+03.98  
 STA. 95+67.69 TO STA. 105+35.30  
 STA. 109+89.33 TO STA. 125+50.00  
 STA. 130+88.68 TO STA. 139+00.00

\* FOR SUPERELEVATION INFORMATION,  
 REFER TO PROFILE SHEETS

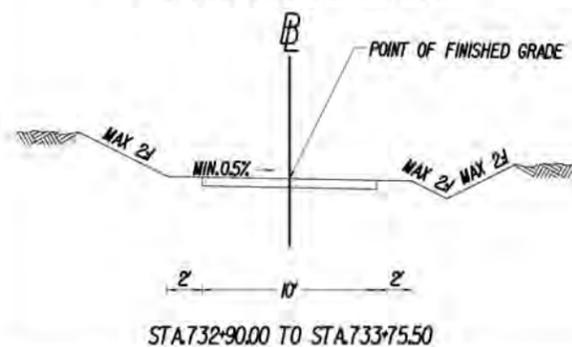


## JACKPIT CONNECTOR

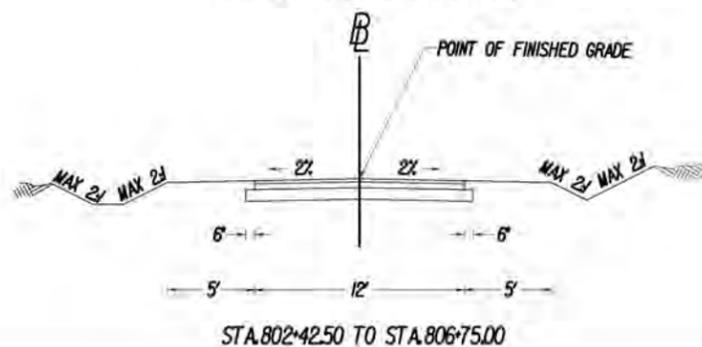
ENTRANCE DESIGNED TO URBAN LOCAL (GS-8) 35 MPH Min. Design Speed



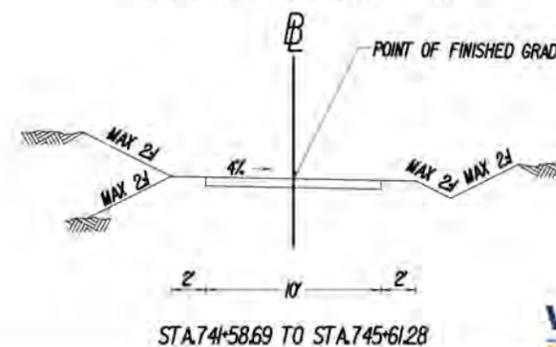
## HORSE TRAIL 1 CONSTRUCTION



## W&OD TRAIL 1 CONSTRUCTION



## HORSE TRAIL 2 CONSTRUCTION

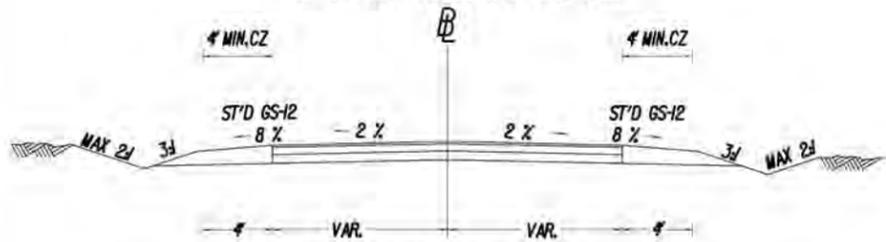


REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
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# TYPICAL SECTIONS

## HEARFORD LANE

RURAL LOCAL (GS-4) 30 MPH Min. Design Speed

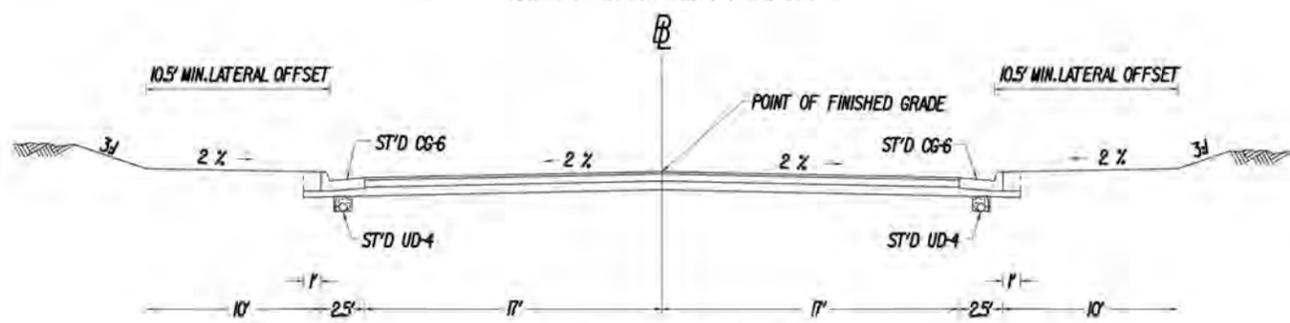


STA.200+51.00 TO STA.202+25.00

For Clearzone See AASHTO Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT < 400)

## CHESTERTON STREET

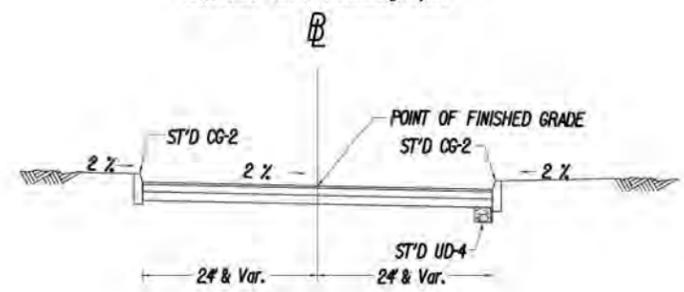
RURAL LOCAL (GS-8) 30 MPH Min. Design Speed



STA.400+51.50 TO STA.401+74.00

## LUCK LANE

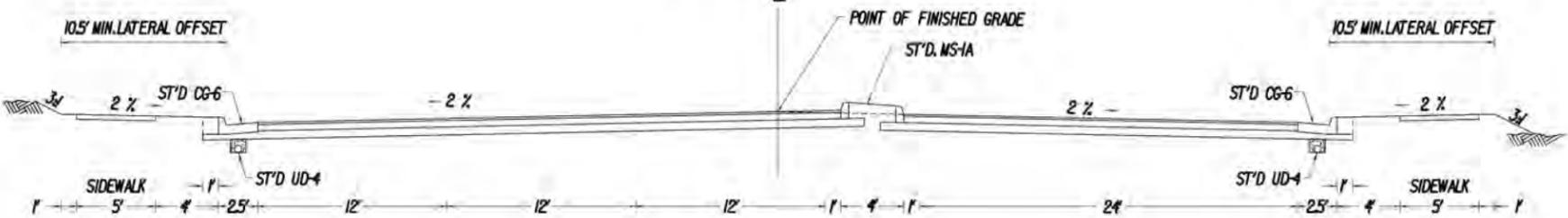
ENTRANCE 15 MPH Min. Design Speed



STA.500+49.50 TO STA.501+59.62

## PORTSMOUTH BOULEVARD

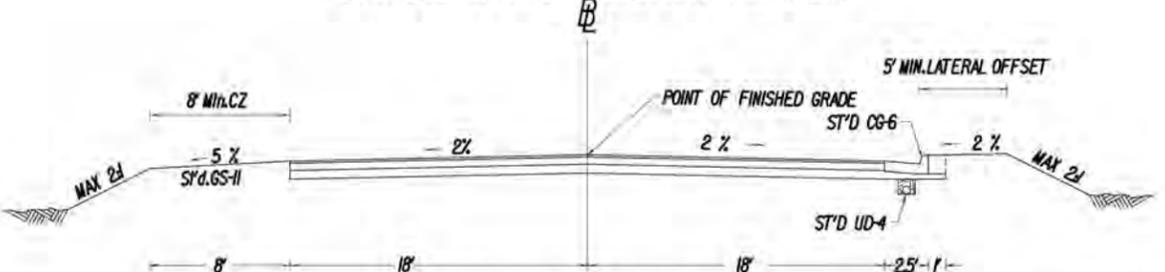
URBAN COLLECTOR (GS-7) 35 MPH Min. Design Speed



STA.600+51.00 TO STA.601+09.00

## BUILDERS LANE

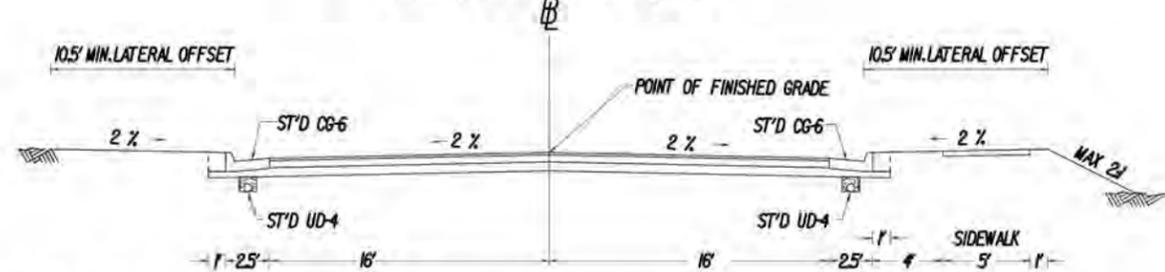
ENTRANCE DESIGNED TO URBAN LOCAL (GS-8) 35 MPH Min. Design Speed



STA.1100+50.00 TO STA.1102+78.77

## BELMONT STATION DRIVE

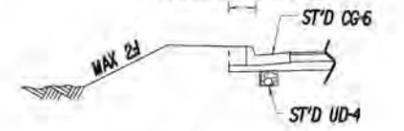
URBAN LOCAL (GS-8) 30 MPH Min. Design Speed



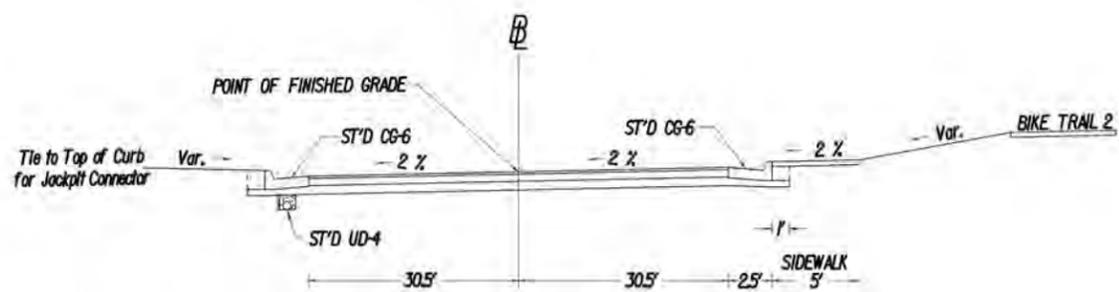
STA.1200+51.00 TO STA.1201+35.00

## W&OD PARKING LOT

ENTRANCE DESIGNED TO URBAN LOCAL (GS-8) 20 MPH Min. Design Speed  
BEYOND JACKPIT CONNECTOR  
5' MIN. LATERAL OFFSET



STA.1102+78.77 TO STA.1103+63.00



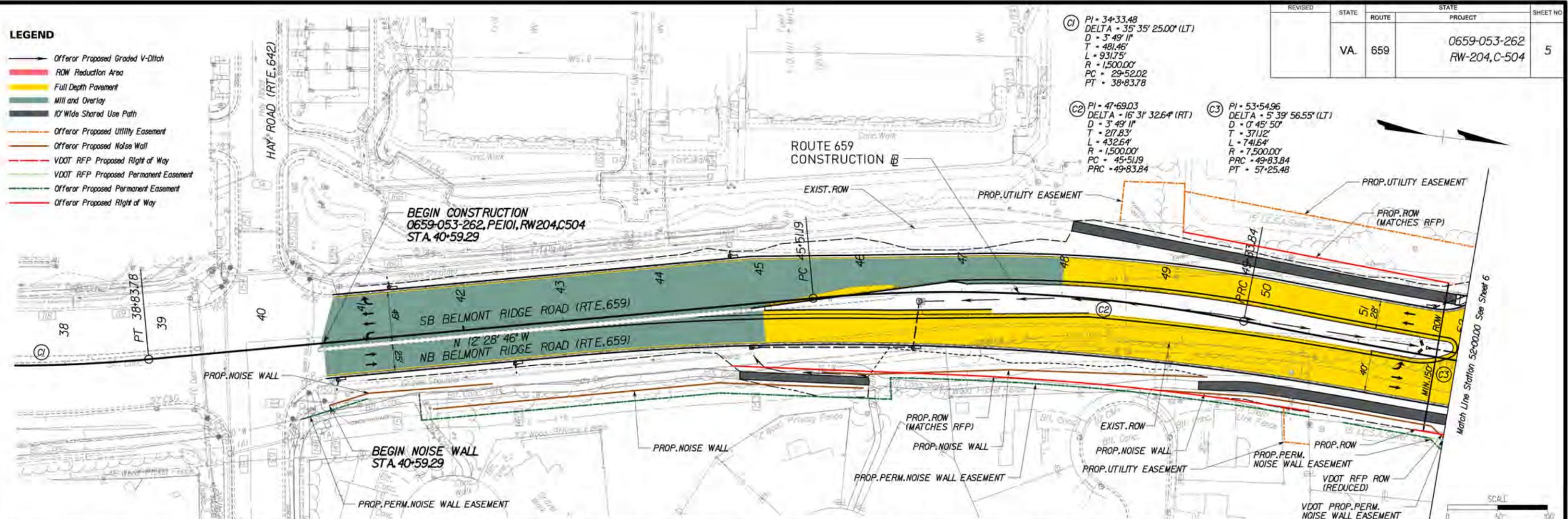
STA.720+00.00 TO STA.721+63.50



REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO
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**LEGEND**

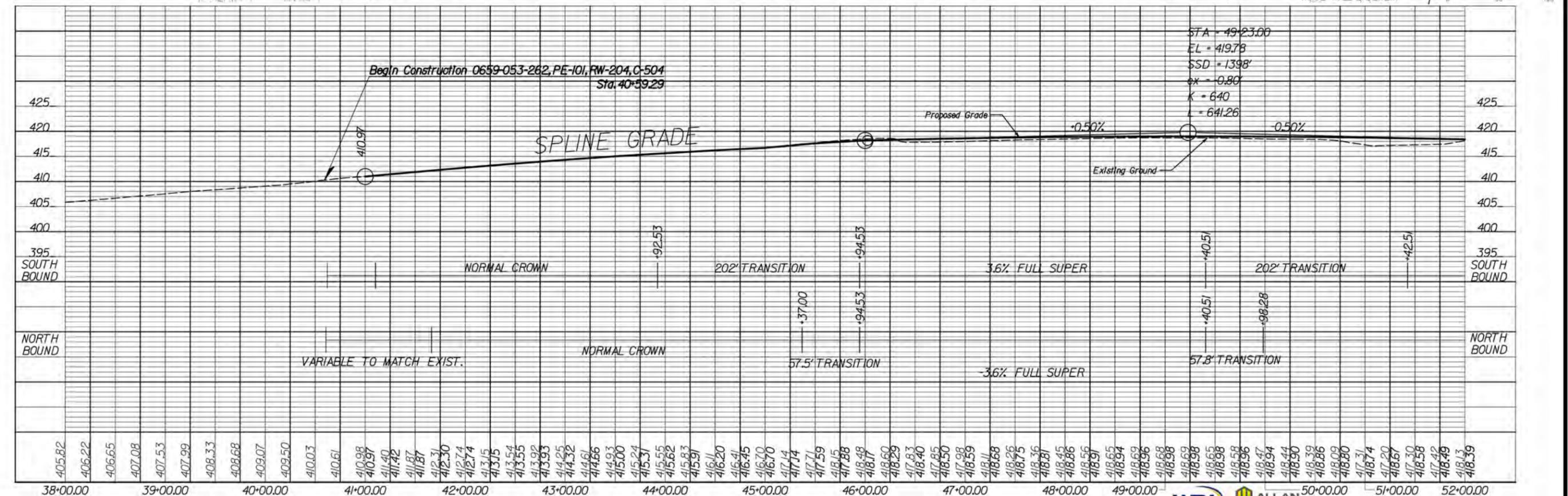
- Offeror Proposed Graded V-Ditch
- ROW Reduction Area
- Full Depth Pavement
- Mill and Overlay
- 10' Wide Shared Use Path
- Offeror Proposed Utility Easement
- Offeror Proposed Noise Wall
- VDOT RFP Proposed Right of Way
- VDOT RFP Proposed Permanent Easement
- Offeror Proposed Permanent Easement
- Offeror Proposed Right of Way



(C1) PI = 34+33.48  
DELTA = 35° 35' 25.00" (LT)  
D = 3' 49" 11"  
T = 481.46'  
L = 931.75'  
R = 1,500.00'  
PC = 29+52.02  
PT = 38+83.78

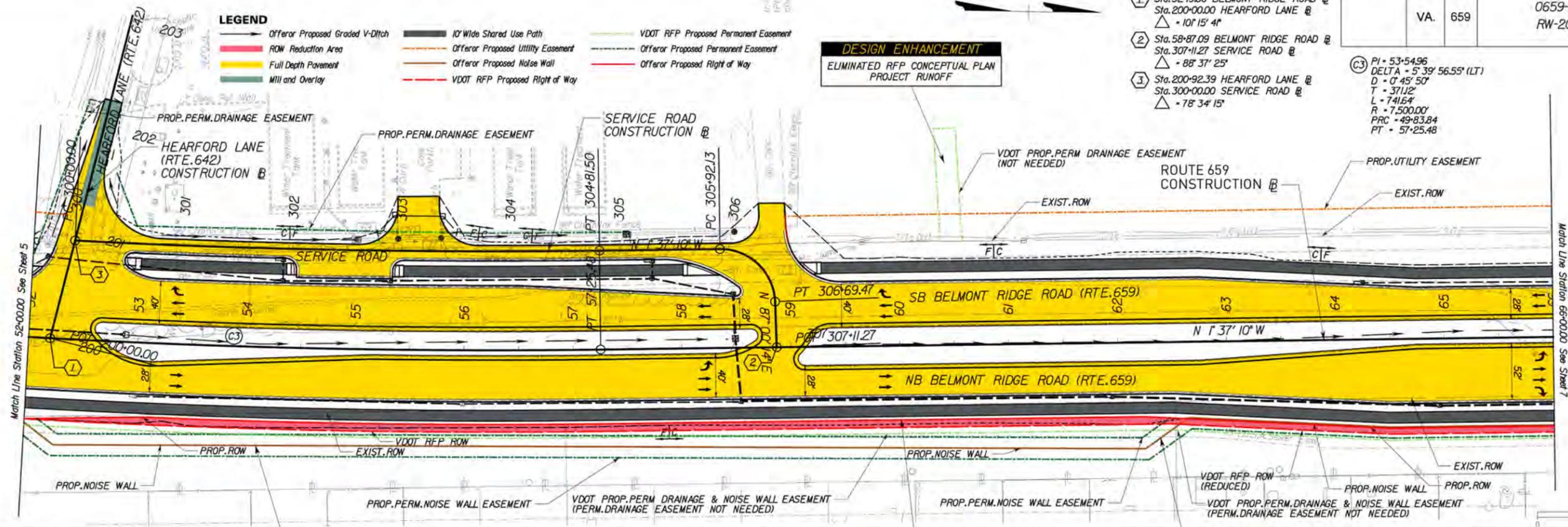
(C2) PI = 47+69.03  
DELTA = 16° 31' 32.64" (RT)  
D = 3' 49" 11"  
T = 217.83'  
L = 432.64'  
R = 1,500.00'  
PC = 45+51.19  
PRC = 49+83.84

(C3) PI = 53+54.96  
DELTA = 5° 39' 56.55" (LT)  
D = 0' 45" 50"  
T = 371.12'  
L = 741.64'  
R = 7,500.00'  
PRC = 49+83.84  
PT = 57+25.48



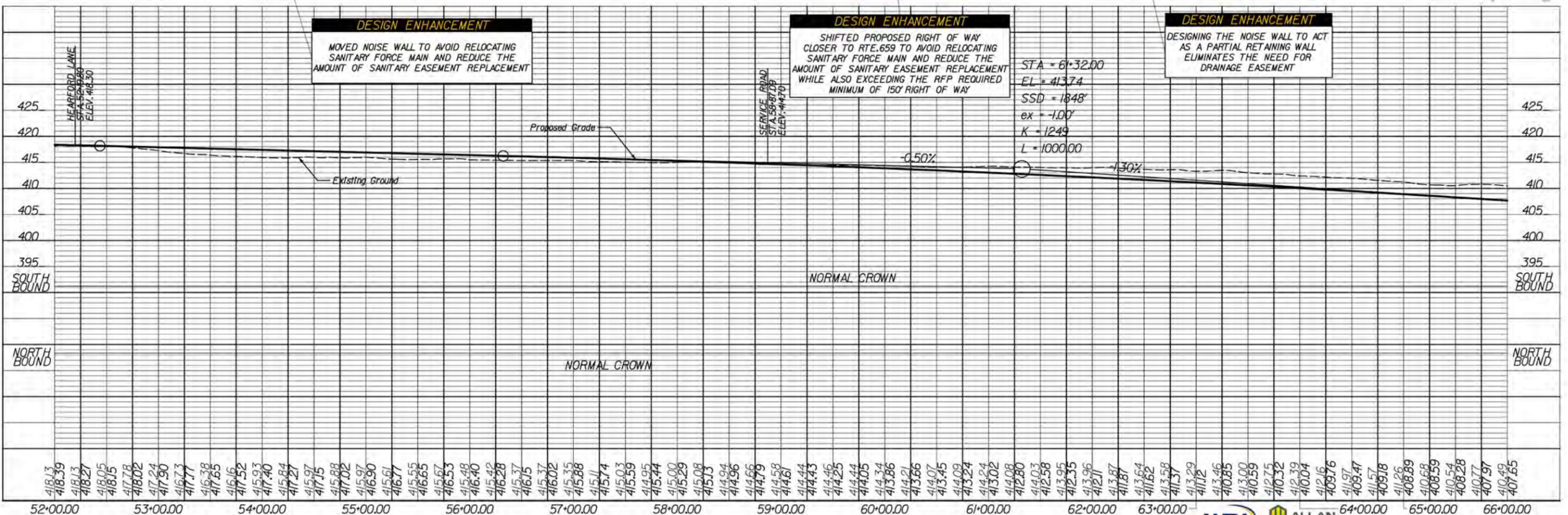
6/18/2015

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO
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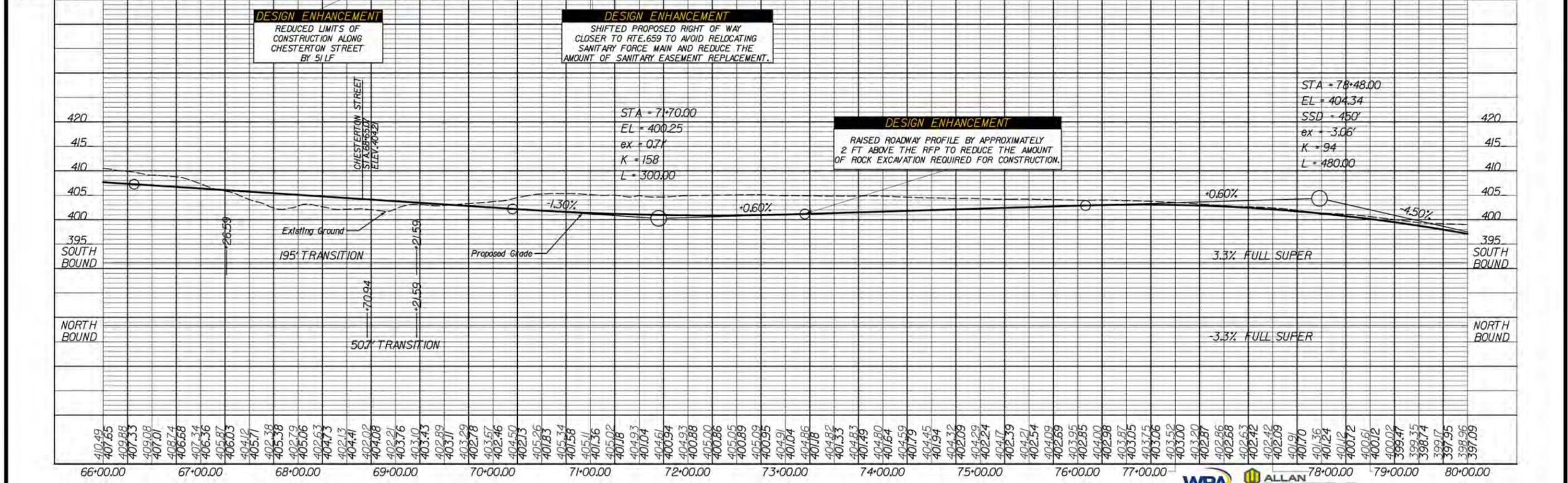
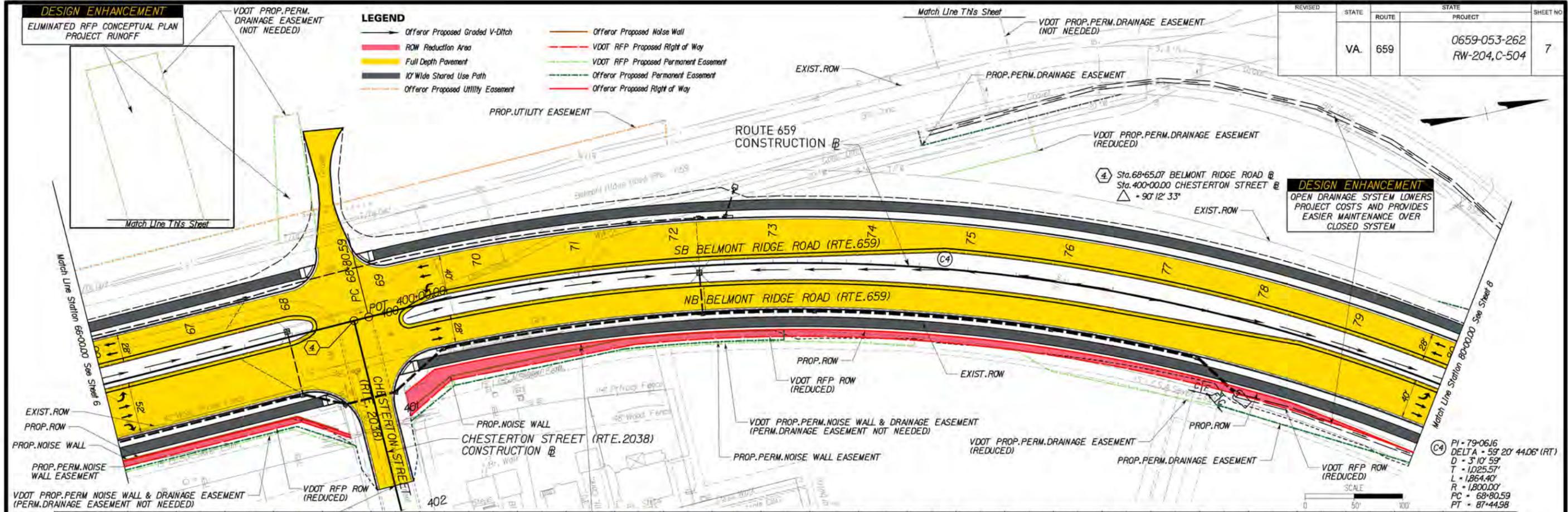
- ① Sta. 52+19.80 BELMONT RIDGE ROAD @ Sta. 200+00.00 HEARFORD LANE @ - 10' 15' 4"
- ② Sta. 58+87.09 BELMONT RIDGE ROAD @ Sta. 307+11.27 SERVICE ROAD @ - 88' 37' 25"
- ③ Sta. 200+92.39 HEARFORD LANE @ Sta. 300+00.00 SERVICE ROAD @ - 78' 34' 15"

③ PI = 53+54.96  
DELTA = 5° 39' 56.55" (LT)  
D = 0' 45' 50"  
T = 37112'  
L = 74164'  
R = 7,500.00'  
PRC = 49-83.84  
PT = 57+25.48



52+00.00	53+00.00	54+00.00	55+00.00	56+00.00	57+00.00	58+00.00	59+00.00	60+00.00	61+00.00	62+00.00	63+00.00	64+00.00	65+00.00	66+00.00
418.39	418.27	418.05	417.78	417.24	416.73	416.38	416.15	415.88	415.58	415.29	415.03	414.79	414.58	414.37
418.13	418.05	417.90	417.77	417.52	417.33	417.16	417.02	416.88	416.70	416.55	416.40	416.26	416.12	415.97
417.88	417.78	417.65	417.51	417.37	417.24	417.11	416.97	416.84	416.71	416.58	416.45	416.32	416.19	416.06
417.78	417.68	417.55	417.41	417.27	417.14	417.01	416.87	416.74	416.61	416.48	416.35	416.22	416.09	415.96
417.68	417.58	417.45	417.31	417.17	417.04	416.91	416.77	416.64	416.51	416.38	416.25	416.12	415.99	415.86
417.58	417.48	417.35	417.21	417.07	416.94	416.81	416.67	416.54	416.41	416.28	416.15	416.02	415.89	415.76
417.48	417.38	417.25	417.11	416.97	416.84	416.71	416.57	416.44	416.31	416.18	416.05	415.92	415.79	415.66
417.38	417.28	417.15	417.01	416.87	416.74	416.61	416.47	416.34	416.21	416.08	415.95	415.82	415.69	415.56
417.28	417.18	417.05	416.91	416.77	416.64	416.51	416.37	416.24	416.11	415.98	415.85	415.72	415.59	415.46
417.18	417.08	416.95	416.81	416.67	416.54	416.41	416.27	416.14	416.01	415.88	415.75	415.62	415.49	415.36
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416.98	416.88	416.75	416.61	416.47	416.34	416.21	416.07	415.94	415.81	415.68	415.55	415.42	415.29	415.16
416.88	416.78	416.65	416.51	416.37	416.24	416.11	415.97	415.84	415.71	415.58	415.45	415.32	415.19	415.06
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415.18	415.08	414.95	414.81	414.67	414.54	414.41	414.27	414.14	414.01	413.88	413.75	413.62	413.49	413.36
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414.08	413.98	413.85	413.71	413.57	413.44	413.31	413.17	413.04	412.91	412.78	412.65	412.52	412.39	412.26
413.98	413.88	413.75	413.61	413.47	413.34	413.21	413.07	412.94	412.81	412.68	412.55	412.42	412.29	412.16
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413.58	413.48	413.35	413.21	413.07	412.94	412.81	412.67	412.54	412.41	412.28	412.15	412.02	411.89	411.76
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413.38	413.28	413.15	413.01	412.87	412.74	412.61	412.47	412.34	412.21	412.08	411.95	411.82	411.69	411.56
413.28	413.18	413.05	412.91	412.77	412.64	412.51	412.37	412.24	412.11	411.98	411.85	411.72	411.59	411.46
413.18	413.08	412.95	412.81	412.67	412.54	412.41	412.27	412.14	412.01	411.88	411.75	411.62	411.49	411.36
413.08	412.98	412.85	412.71	412.57	412.44	412.31	412.17	412.04	411.91	411.78	411.65	411.52	411.39	411.26
412.98	412.88	412.75	412.61	412.47	412.34	412.21	412.07	411.94	411.81	411.68	411.55	411.42	411.29	411.16
412.88	412.78	412.65	412.51	412.37	412.24	412.11	411.97	411.84	411.71	411.58	411.45	411.32	411.19	411.06
412.78	412.68	412.55	412.41	412.27	412.14	412.01	411.87	411.74	411.61	411.48	411.35	411.22	411.09	410.96
412.68	412.58	412.45	412.31	412.17	412.04	411.91	411.77	411.64	411.51	411.38	411.25	411.12	410.99	410.86
412.58	412.48	412.35	412.21	412.07	411.94	411.81	411.67	411.54	411.41	411.28	411.15	411.02	410.89	410.76
412.48	412.38	412.25	412.11	411.97	411.84	411.71	411.57	411.44	411.31	411.18	411.05	410.92	410.79	410.66
412.38	412.28	412.15	412.0											

REVISED	STATE	ROUTE	STATE	PROJECT	SHEET NO
	VA.	659		0659-053-262 RW-204,C-504	7



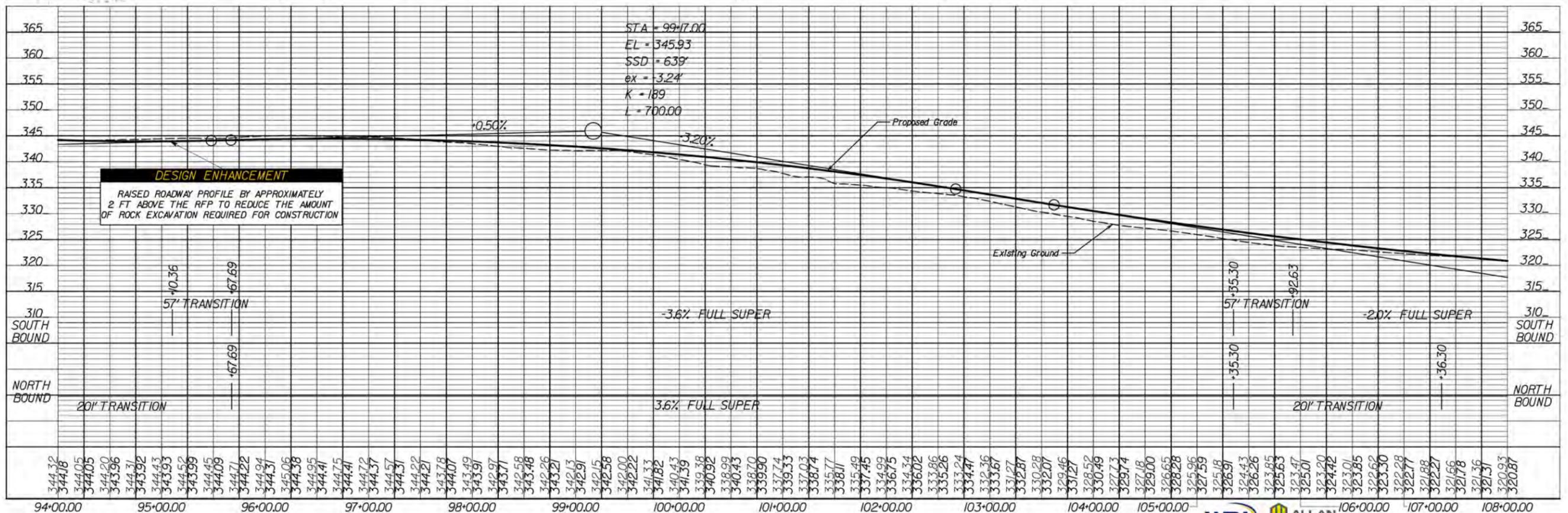
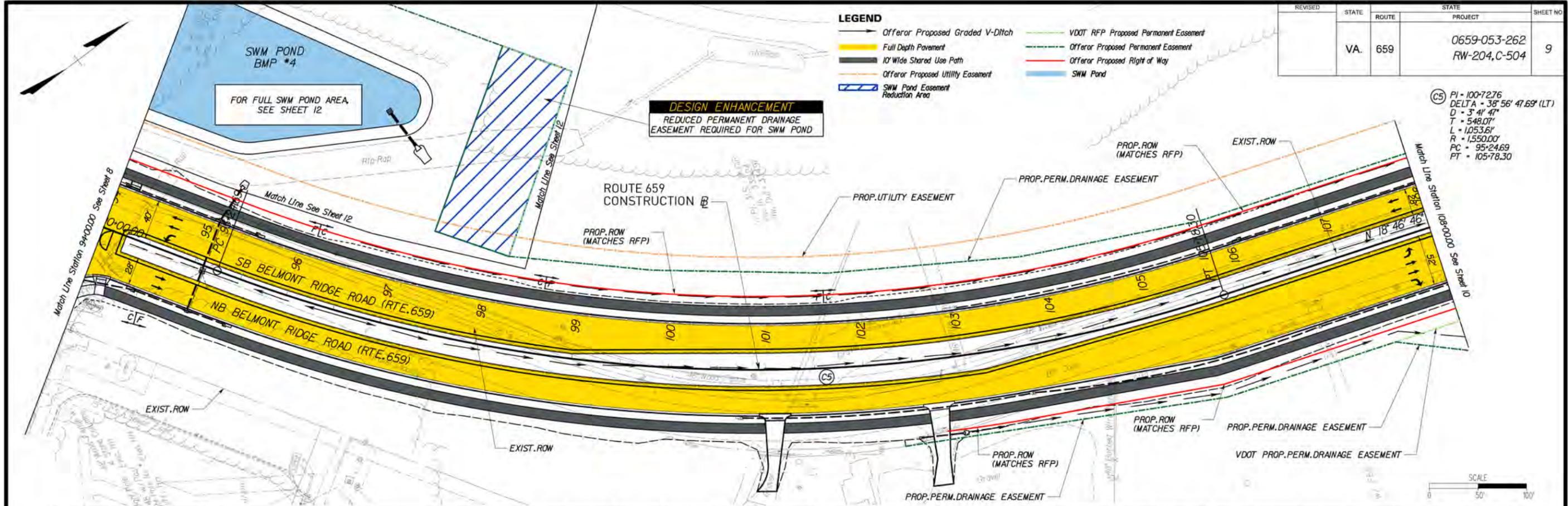
6/18/2015



REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO
	VA.	659	0659-053-262 RW-204,C-504	9

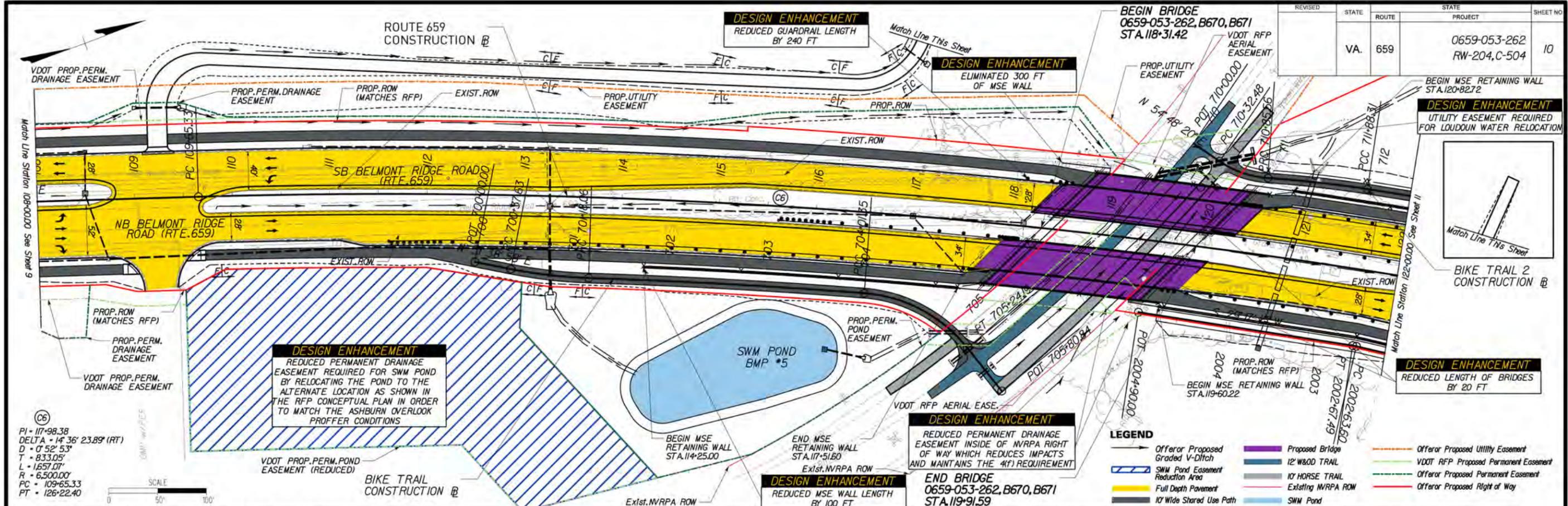
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DELTA = 38° 56' 47.69" (LT)  
D = 3' 41' 47"  
T = 548.07'  
L = 1053.61'  
R = 1550.00'  
PC = 95+24.69  
PT = 105+78.30

- LEGEND**
- Offerrer Proposed Graded V-Ditch
  - Full Depth Pavement
  - 10' Wide Shared Use Path
  - Offerrer Proposed Utility Easement
  - SWM Pond Easement Reduction Area
  - VDOT RFP Proposed Permanent Easement
  - Offerrer Proposed Permanent Easement
  - Offerrer Proposed Right of Way
  - SWM Pond

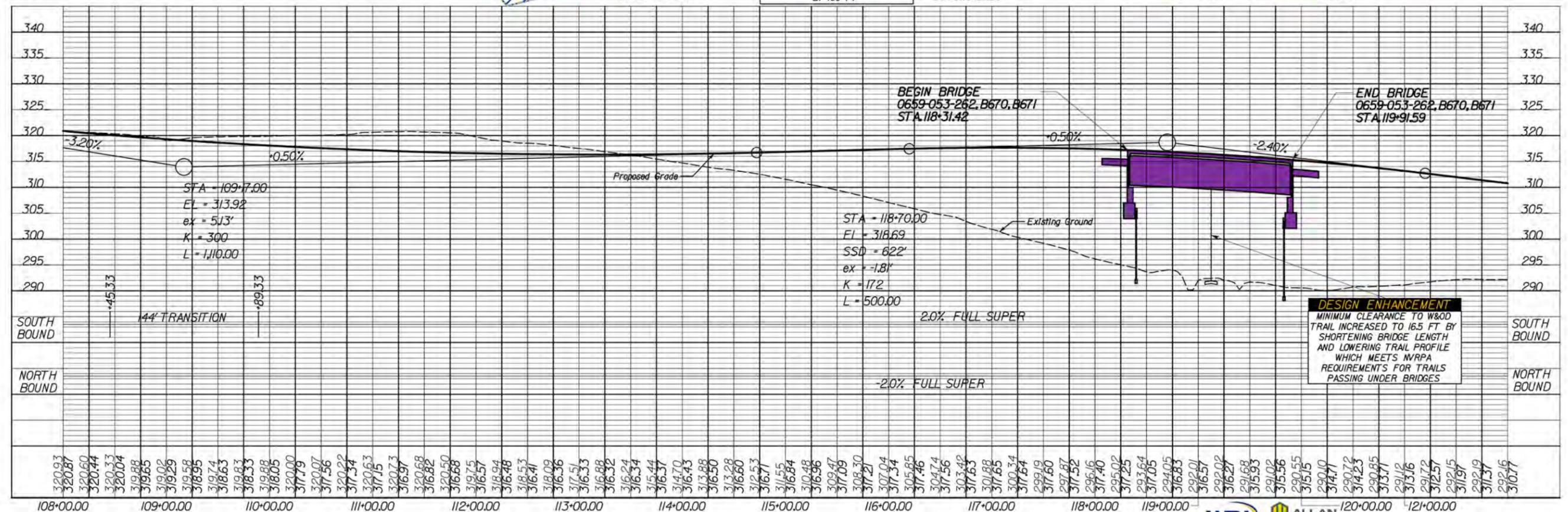
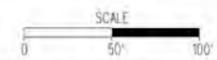


6/18/2015

REVISED	STATE	ROUTE	STATE	PROJECT	SHEET NO
	VA.	659		0659-053-262 RW-204,C-504	10

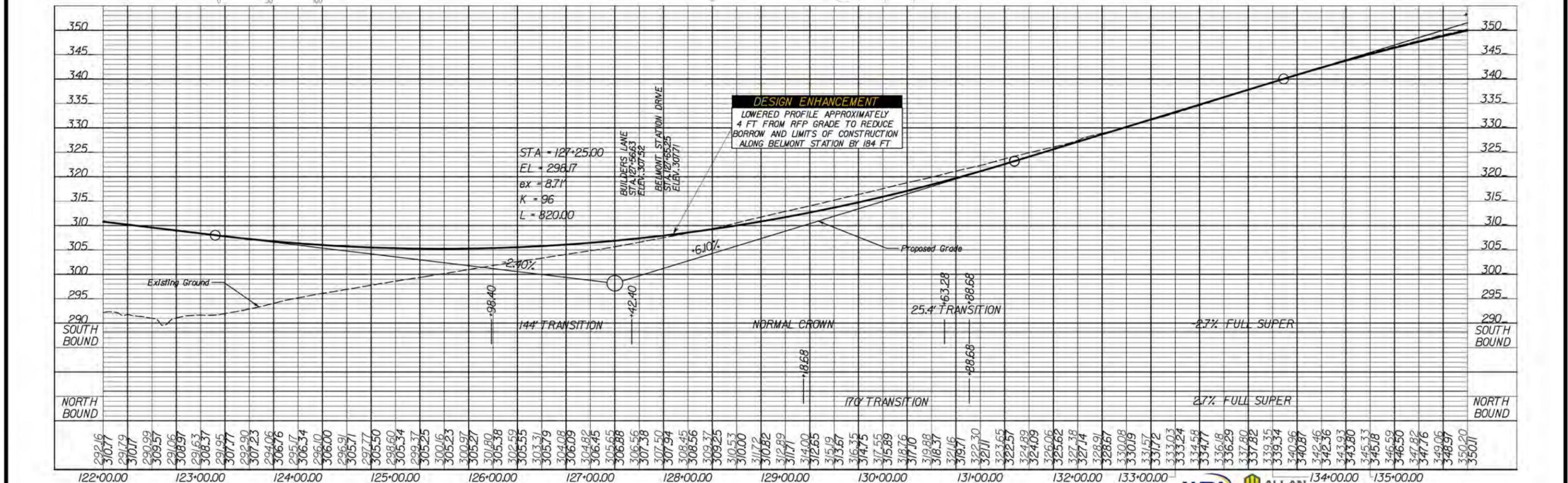
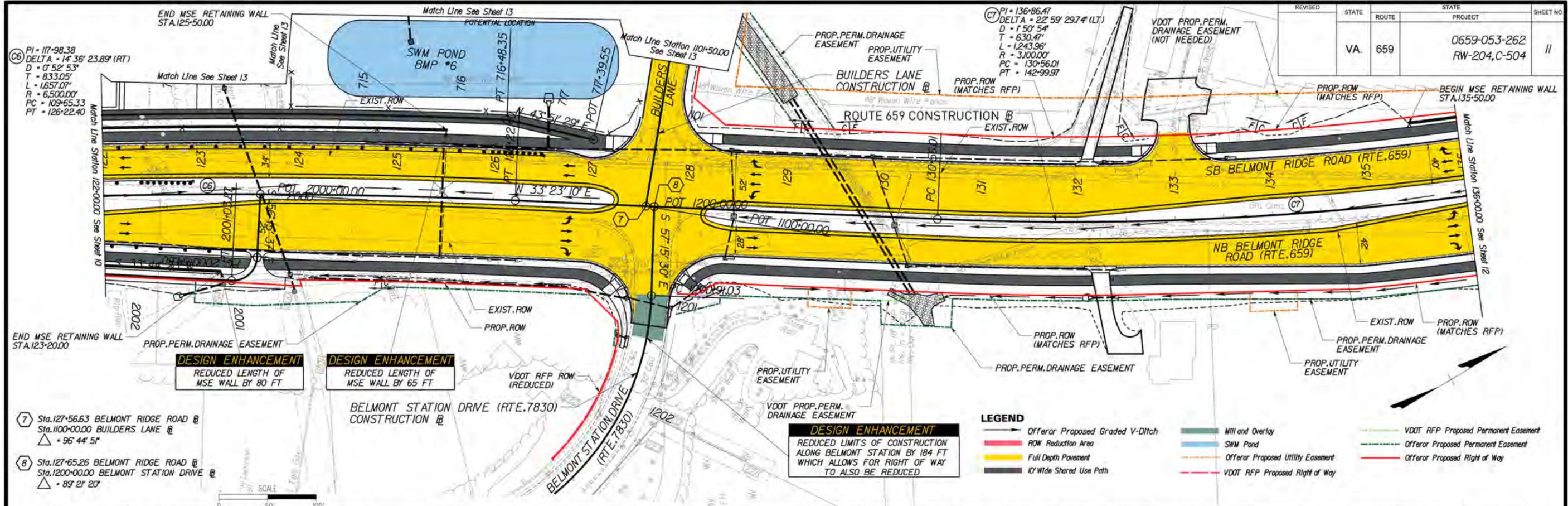


PI = 117+98.38  
DELTA = 14° 36' 23.89" (RT)  
D = 0' 52' 53"  
T = 833.05'  
L = 1657.07'  
R = 6500.00'  
PC = 109+65.33  
PT = 126+22.40



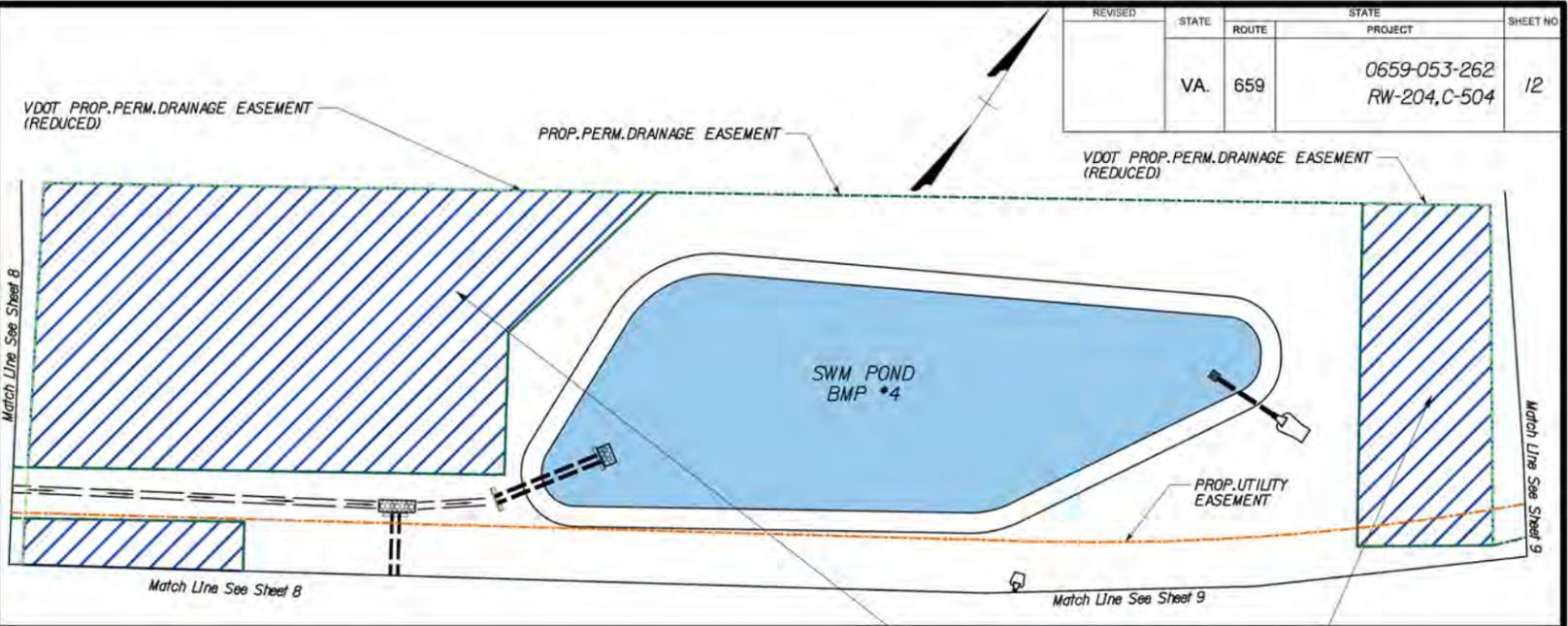
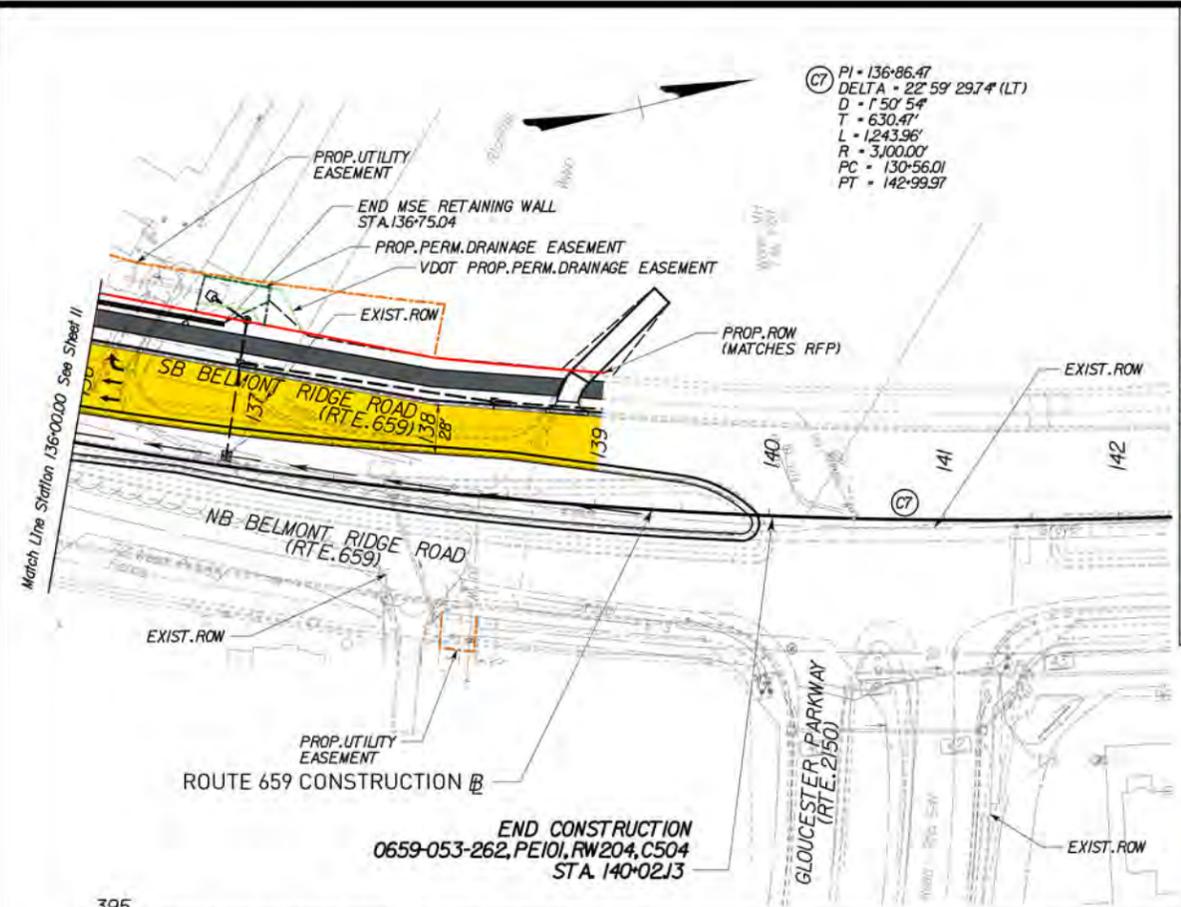
6/11/2015

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO
	VA.	659	0659-053-262 RW-204,C-504	11



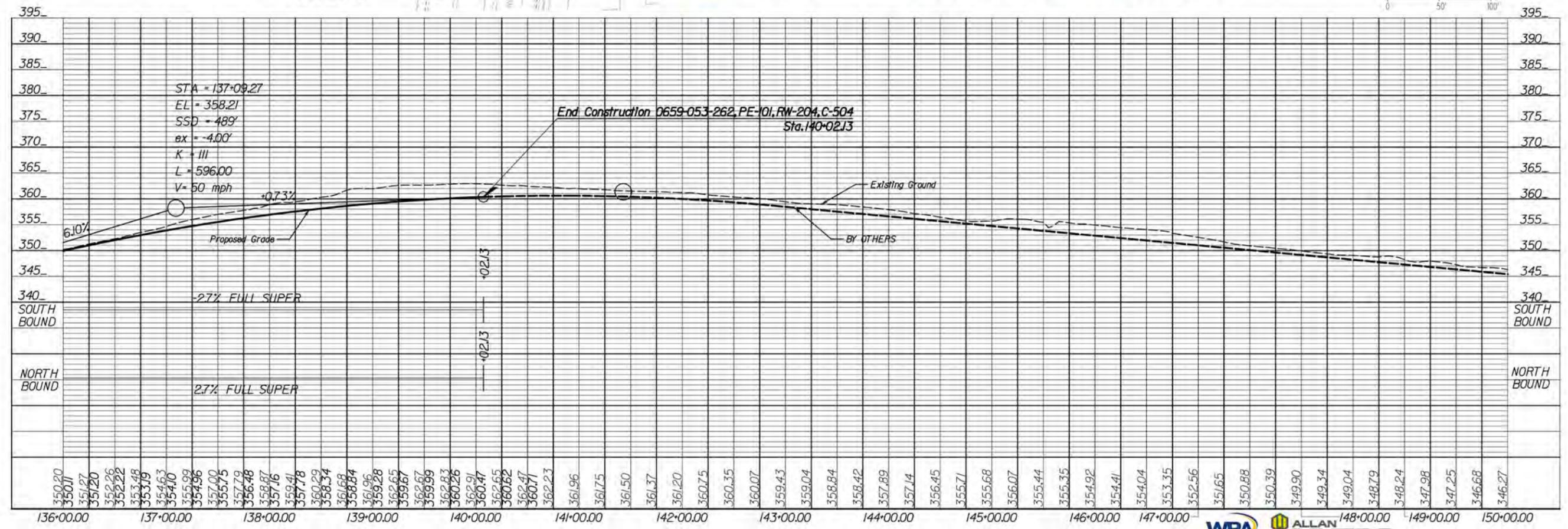
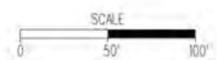
6/11/2015

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO
	VA.	659	0659-053-262 RW-204,C-504	12



**DESIGN ENHANCEMENT**  
REDUCED PERMANENT DRAINAGE EASEMENT REQUIRED FOR SWM POND

- LEGEND**
- Offeror Proposed Graded V-Ditch
  - 10' Wide Shared Use Path
  - VDOT RFP Proposed Permanent Easement
  - Offeror Proposed Permanent Easement
  - Offeror Proposed Utility Easement
  - Offeror Proposed Right of Way
  - SWM Pond Easement Reduction Area
  - SWM Pond
  - Full Depth Pavement



6/18/2015

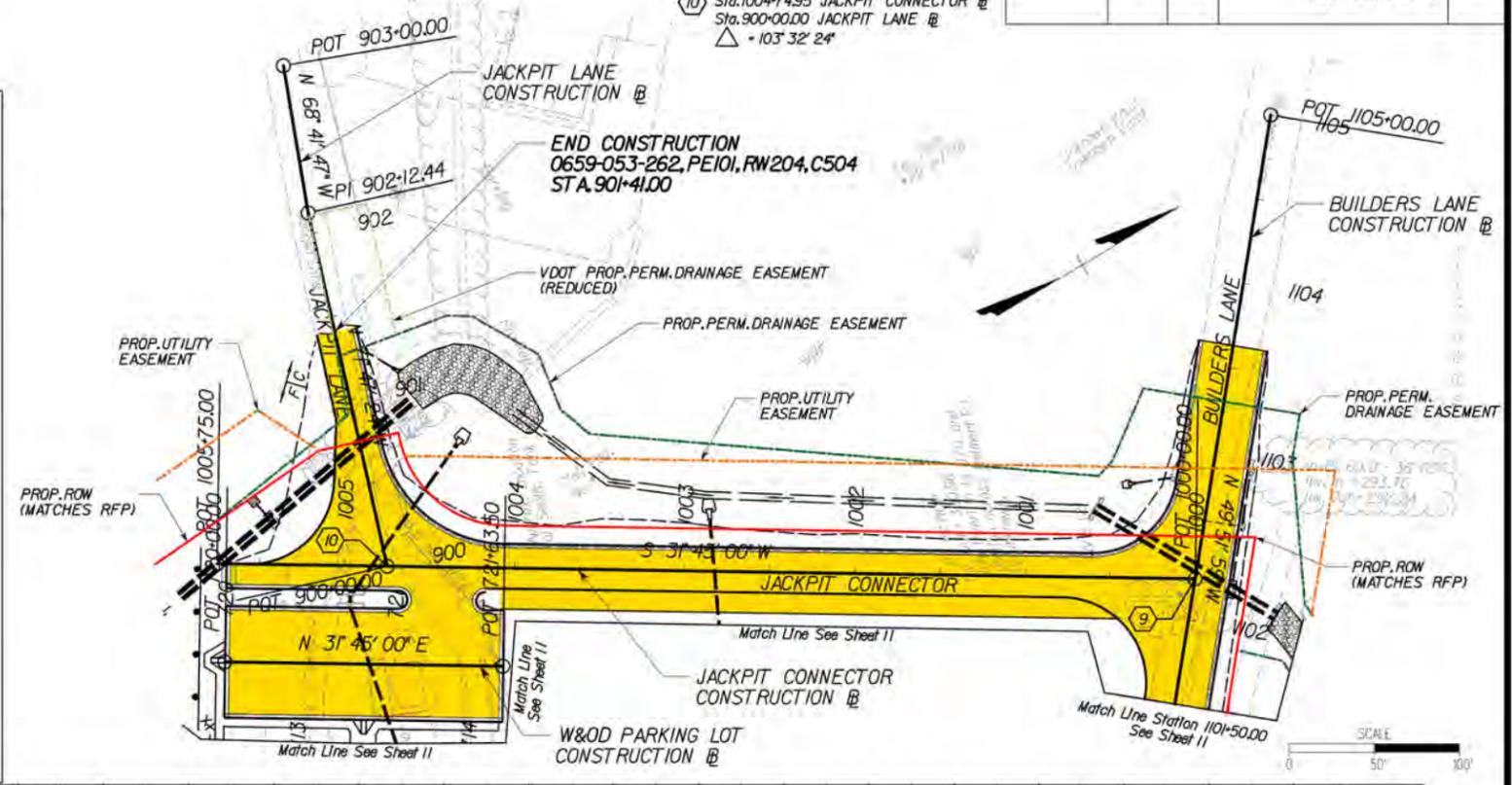
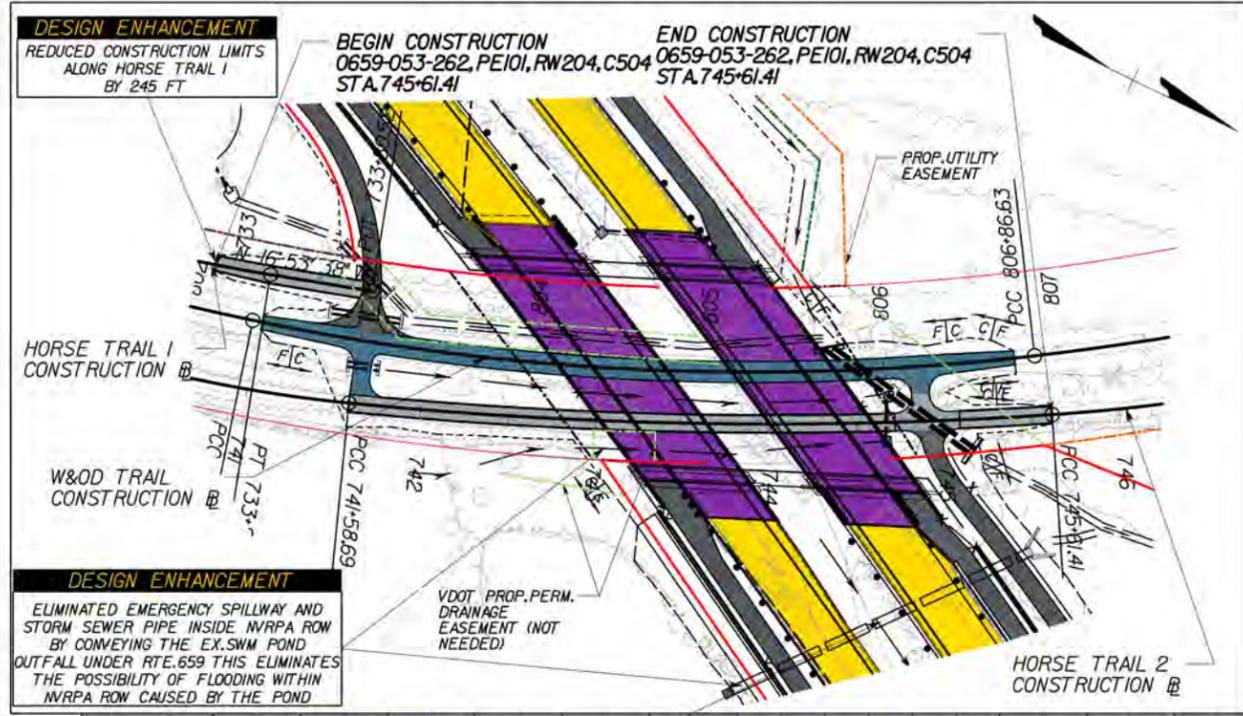
REVISION	STATE	ROUTE	STATE	PROJECT	SHEET NO
	VA.	659		0659-053-262 RW-204,C-504	13

**LEGEND**

- Offeror Proposed Graded V-Ditch
- Full Depth Pavement
- 10' Wide Shared Use Path
- Proposed Bridge
- 12' W&OD TRAIL
- 10' HORSE TRAIL
- Offeror Proposed Utility Easement
- VDOT RFP Proposed Permanent Easement
- Offeror Proposed Permanent Easement
- Offeror Proposed Right of Way
- Existing NVRPA ROW

- 9 Sta. 1102+24.40 BUILDERS LANE @ Sta. 1000+00.00 JACKPIT CONNECTOR @  $\Delta = 81^{\circ} 36' 59''$
- 10 Sta. 1004+74.95 JACKPIT CONNECTOR @ Sta. 900+00.00 JACKPIT LANE @  $\Delta = 103^{\circ} 32' 24''$

## W&OD TRAIL INSET

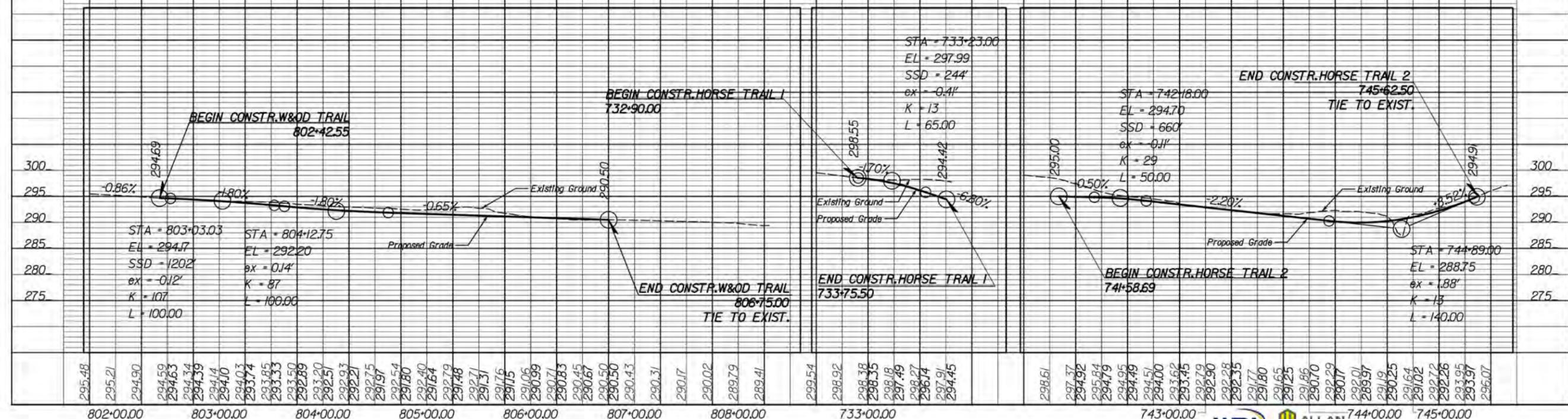


**DESIGN ENHANCEMENT**  
STORM SEWER PIPE DESIGN FOR 100-YEAR STORM EVENT

## W&OD TRAIL

## HORSE TRAIL 1

## HORSE TRAIL 2



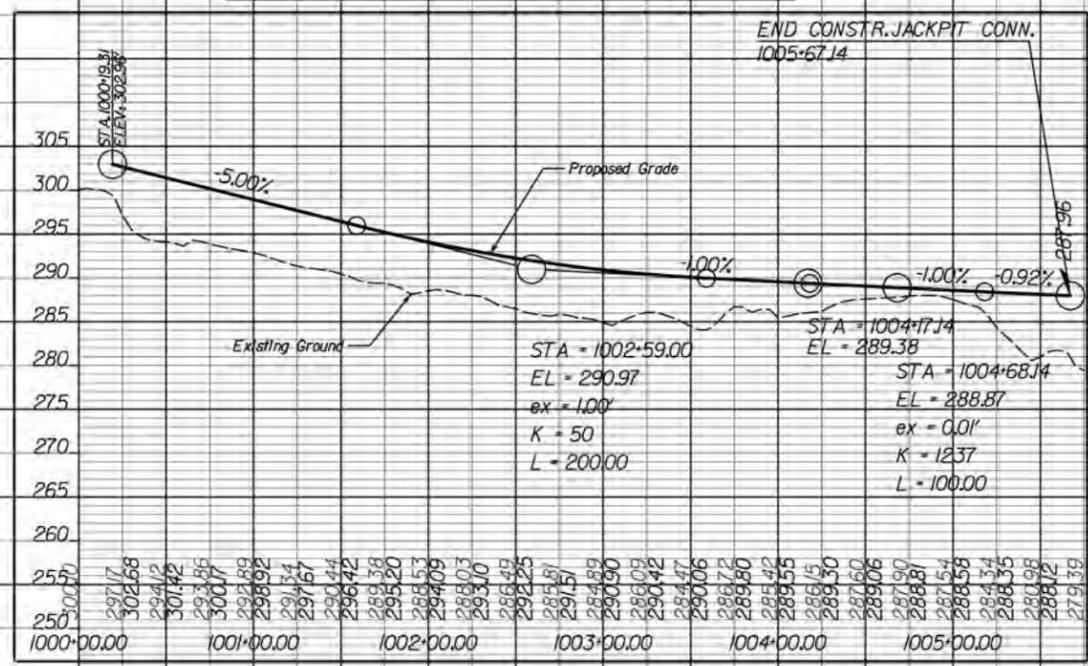
6/11/2015



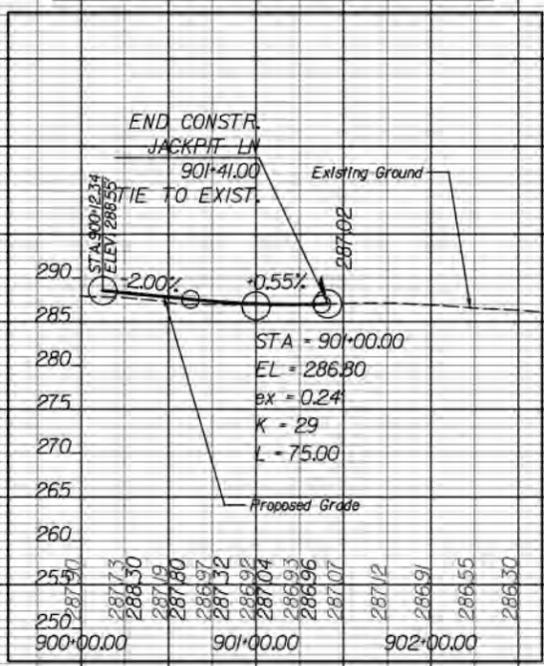
REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO
	VA.	659	0659-053-262 RW-204,C-504	15

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

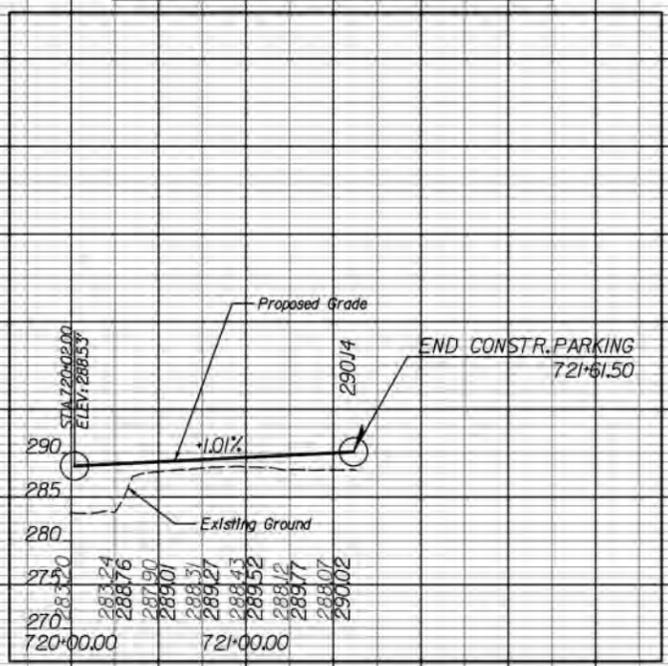
### JACKPIT CONNECTOR



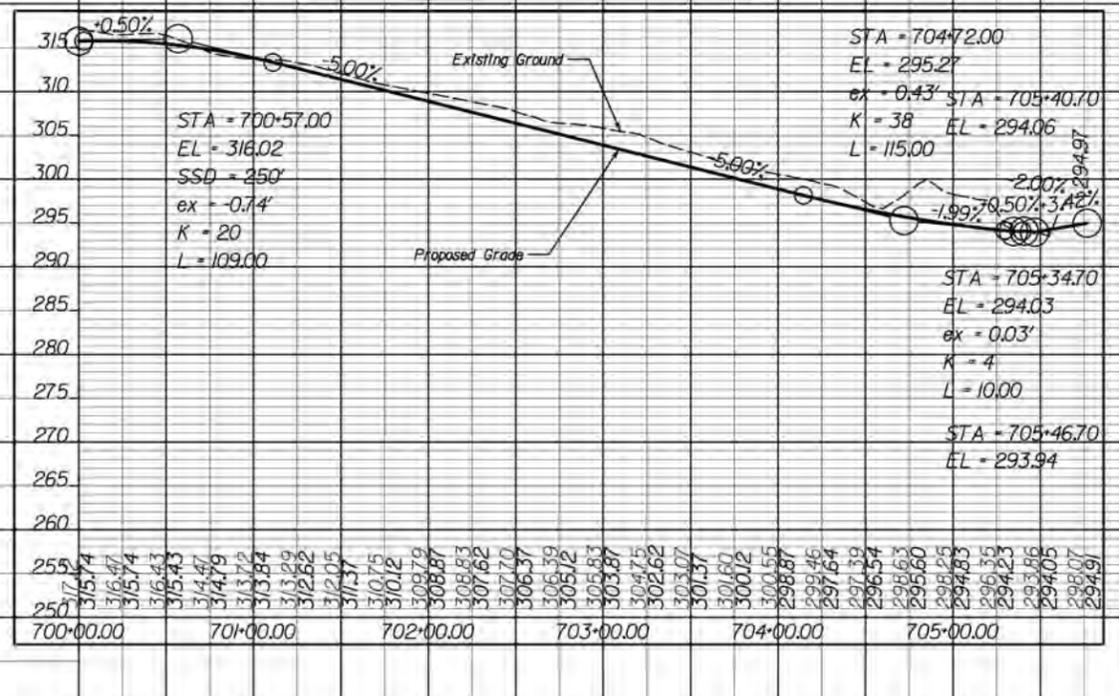
### JACKPIT LANE



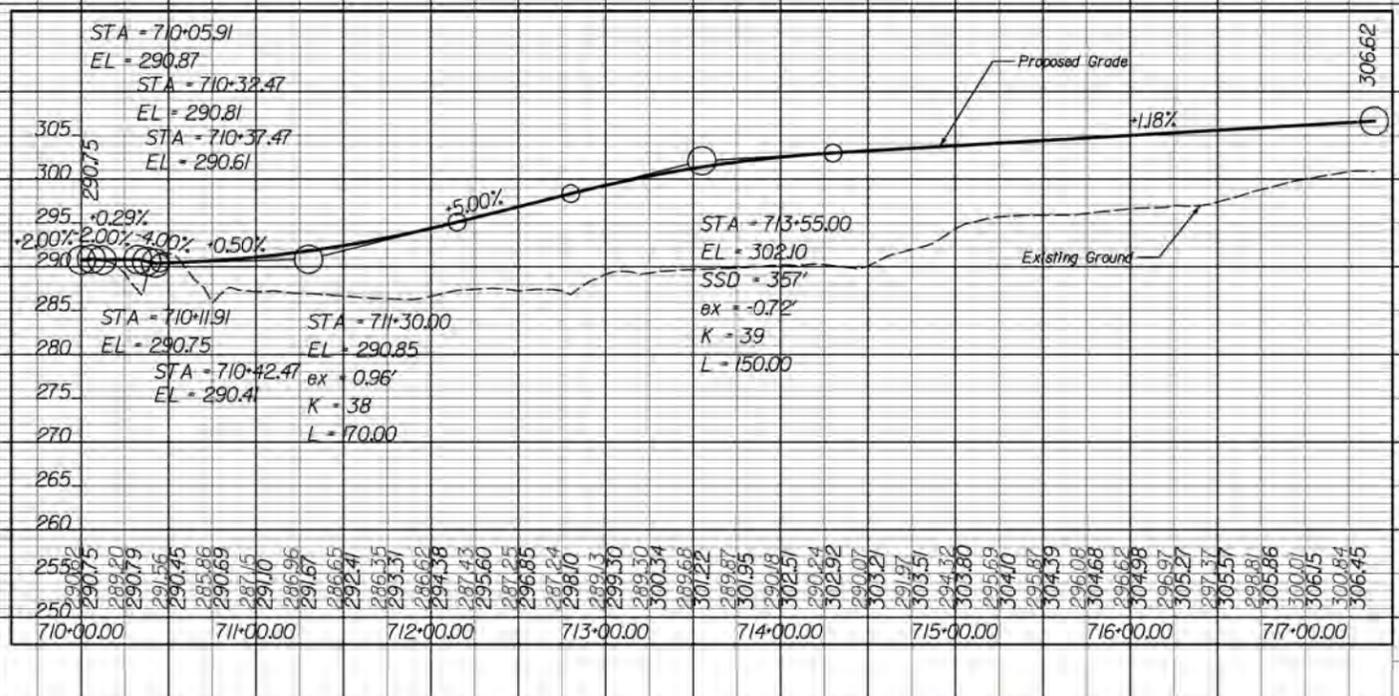
### W&OD PARKING



### BIKE TRAIL



### BIKE TRAIL 2



**4.3.1.2  
Conceptual  
Structural Plans**

STATE	FEDERAL AID	STATE	SHEET
ROUTE	PROJECT	ROUTE	PROJECT
VA.	STP-053-9 (1)	659	0659-053-262, B670, B671
NBIS Number:	00000000028403 00000000028404	UPC No.	76244
Federal Oversight Code:	N/A	FHWA Construction and Scour Code:	X981-SN

**DESIGN EXCEPTION(S):**

None.

**GENERAL NOTES:**

The original approved sheet, including original signatures, is filed in the VDOT Central Office. Any misuse of electronic files, including scanned signatures is illegal. Violators will be prosecuted to the full extent of the applicable laws.

Widths: 10' barrier, 32'-0" roadway, 10' barrier, 14'-0" shared-use path, 1'-0" fence. Width is 48'-8" out-to-out of rails Northbound and Southbound.

Span layout: 152 ft. prestressed concrete Bul-T single span,

Capacity: HL-93 loading.

Drainage area:

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2007.

Design: AASHTO LRFD Bridge Design Specifications, 6th Edition, 2012; and VDOT Modifications.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2008.

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

Design loading includes 20 psf allowance for construction tolerances and construction methods.

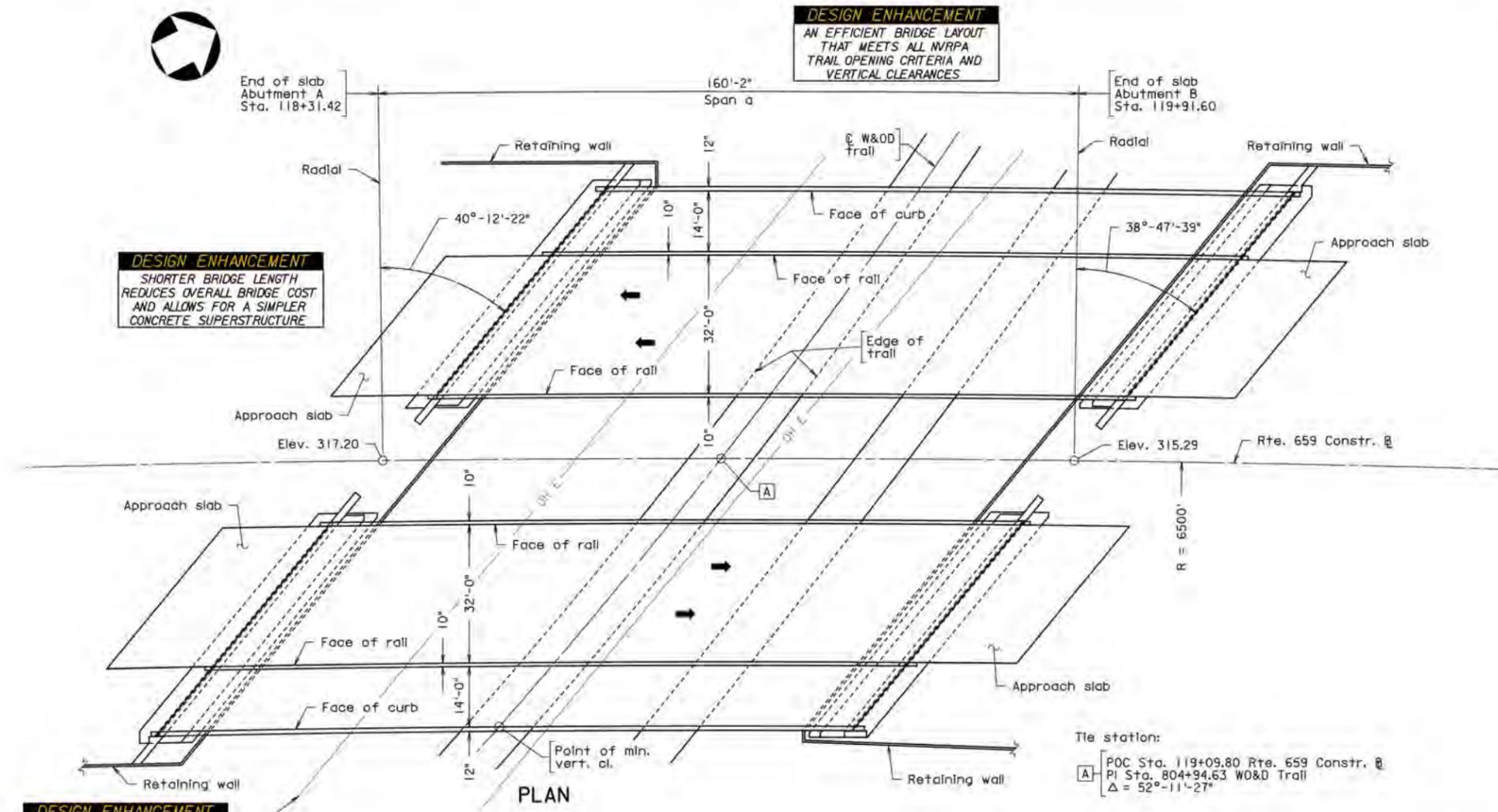
Design loading includes 15 psf allowance for future wearing surface.

Concrete in superstructure including sidewalks, rails, and terminal walls shall be Class A4; in substructure, Class A3.

Prestressed concrete in beams shall be Class A5 having a minimum compressive cylinder strength at 28 days equal to 10,000 psi and a minimum compressive cylinder strength at time of release of strands equal to 8000 psi.

Footings for abutments shall bear on mechanically stabilized earth backfill placed in accordance with the attached special provisions. Footings for abutments have been designed for a factored bearing pressure of 7 ksf and a service pressure of 4 ksf.

MSE wall footings shall bear on decomposed rock with a minimum service bearing pressure of 10 ksf.

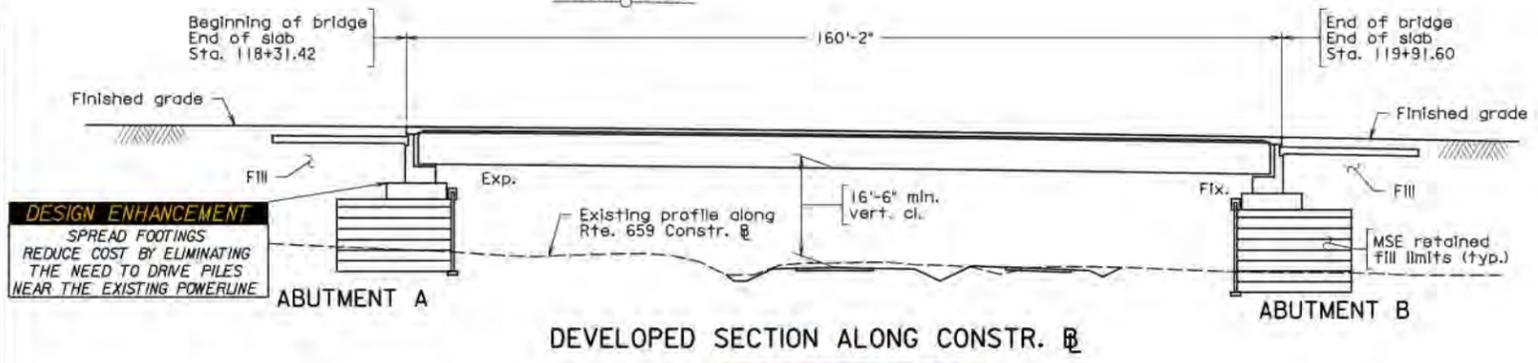


**DESIGN ENHANCEMENT**  
SHORTER BRIDGE LENGTH REDUCES OVERALL BRIDGE COST AND ALLOWS FOR A SIMPLER CONCRETE SUPERSTRUCTURE

**DESIGN ENHANCEMENT**  
AN EFFICIENT BRIDGE LAYOUT THAT MEETS ALL NVRPA TRAIL OPENING CRITERIA AND VERTICAL CLEARANCES

**DESIGN ENHANCEMENT**  
CONCRETE BEAMS AND SPREAD FOOTING CAN BE INSTALLED WITHOUT DE-ENERGIZING THE POWERLINE

**DESIGN ENHANCEMENT**  
MSE ABUTMENT WALL DESIGNED FOR BRIDGE LOADING



**DESIGN ENHANCEMENT**  
SPREAD FOOTINGS REDUCE COST BY ELIMINATING THE NEED TO DRIVE PILES NEAR THE EXISTING POWERLINE

**DESIGN ENHANCEMENT**  
INCREASED VERTICAL CLEARANCE OVER W&OD TRAIL TO ACHIEVE A SHORTER BRIDGE LENGTH WHILE MEETING THE MINIMUM EOA

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
VDOT PROJECT MANAGER
DISTRICT CONSTRUCTION MANAGER
WHITMAN REINHOLDT & ASSOCIATES RICHMOND, VA STRUCTURAL ENGINEER
PLANS BY:
COORDINATED:
SUPERVISED:
DESIGNED:
DRAWN:
CHECKED:

**PRELIMINARY PLANS**  
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
REVISIONS		
For Table of Revisions, see Sheet 3.		

**VDOT**  
COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
PROPOSED BRIDGE ON  
RTE. 659 (BELMONT RIDGE ROAD) OVER  
WASHINGTON & OLD DOMINION TRAIL  
LOUDOUN CO. - 1.3 MI. S RTE. 7  
PROJ. 0659-053-262, B670, B671

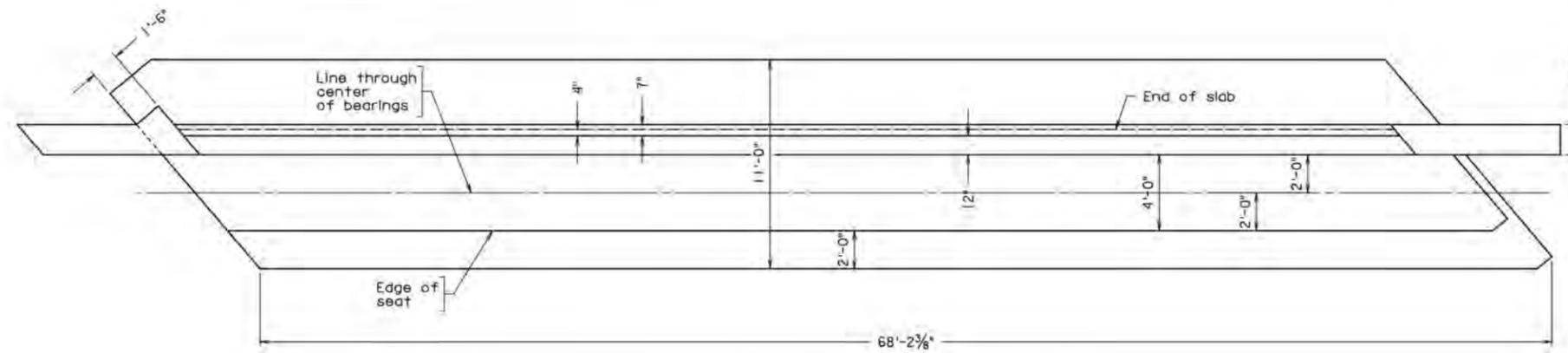
Recommended for Approval: \_\_\_\_\_  
Allan Myers Date

Approved: \_\_\_\_\_  
Chief Engineer Date

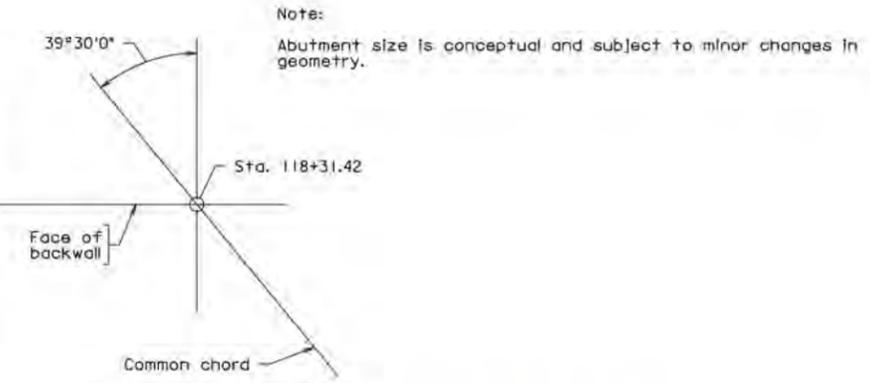
Date: \_\_\_\_\_ © 2015, Commonwealth of Virginia. 286-11

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

STATE	FEDERAL AID	STATE	SHEET
ROUTE	PROJECT	ROUTE	NO.
VA.		659	17
		0659-053-262, B670, B671	

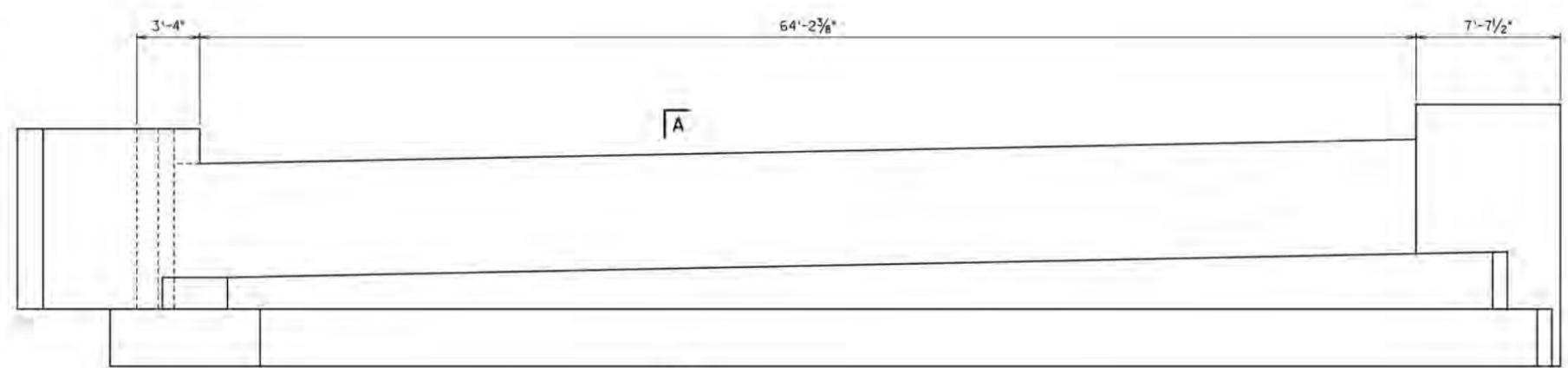


**PLAN**  
(Abutment A Northbound shown, other abutments similar.)

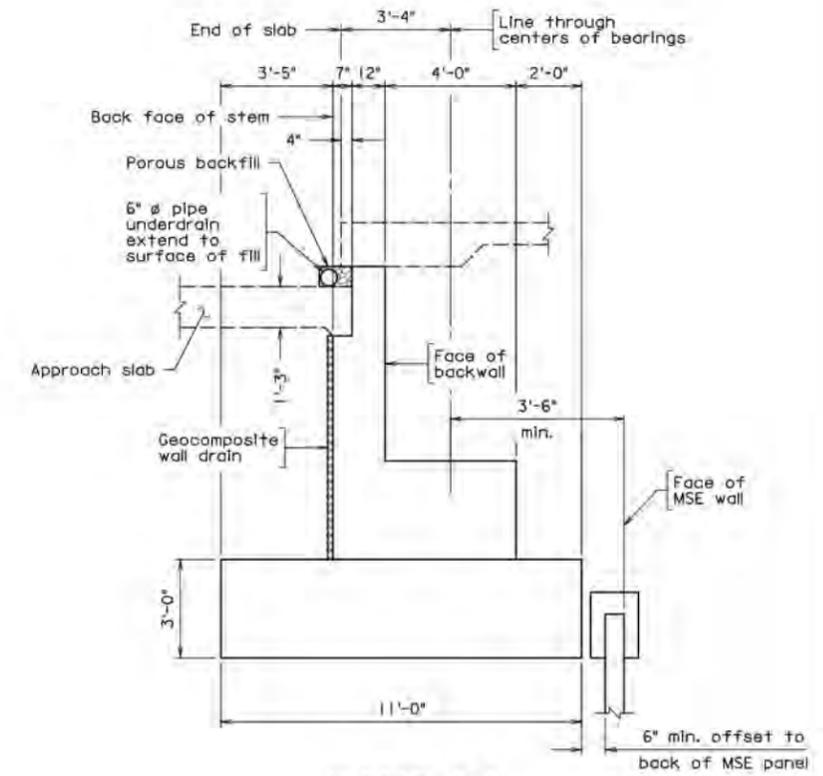


**DESIGN ENHANCEMENT**  
DECK SLAB EXTENSION  
ABUTMENT TYPE  
ELIMINATES JOINTS  
REDUCING FUTURE MAINTENANCE

**DESIGN ENHANCEMENT**  
THE ELIMINATION OF  
PILES REDUCES COST  
AND OVERALL CONSTRUCTION  
DURATION



**ELEVATION**  
(Abutment A Northbound shown, other abutments similar.)



**SECTION A-A**  
Scale: 3/8" = 1'-0"

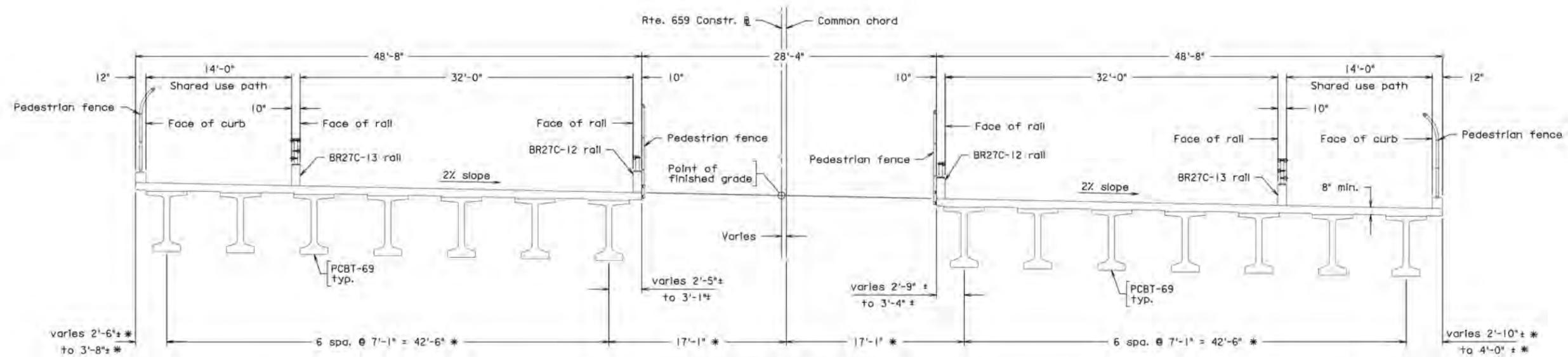
**PRELIMINARY PLANS**  
THESE PLANS NOT TO BE USED  
FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION		
STRUCTURE AND BRIDGE DIVISION		
<b>ABUTMENT</b>		
No.	Description	Date
Revisions		

H:\NDB6601\A\201001\Bridges\Technical\Proposed\Abutment.dgn

STATE	ROUTE	FEDERAL AID	PROJECT	STATE	ROUTE	PROJECT	SHEET NO.
VA.				659	0659-053-262, B670, B671		18

Notes:  
 \* Dimension measured perpendicular to common chord.  
 All other dimensions are radial to the baseline.



TRANSVERSE SECTION

**DESIGN ENHANCEMENT**  
 CONCRETE SUPERSTRUCTURE  
 REDUCES MAINTENANCE COSTS  
 BY ELIMINATING SPLICES, COMPLEX  
 CROSS FRAMES, AND FALSEWORK

**DESIGN ENHANCEMENT**  
 CONCRETE SUPERSTRUCTURE  
 REDUCES COMPLEXITY OF  
 FRAMING IN A SKEWED, CURVED  
 BRIDGE STRUCTURE

**DESIGN ENHANCEMENT**  
 TANGENT BEAMS WITH A CURVED  
 DECK ALLOW FOR THE USE OF  
 A DECK SLAB EXTENSION WITHOUT  
 THE NEED OF A DESIGN WAIVER

**PRELIMINARY PLANS**  
 THESE PLANS NOT TO BE USED  
 FOR CONSTRUCTION

			COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION	
			STRUCTURE AND BRIDGE DIVISION	
			<b>TRANSVERSE SECTION</b>	
No.	Description	Date		
Revisions				
<b>WRA</b>		<b>ALLAN MYERS</b>		
Project 0659-053-262   Page 75				

WHITMAN REINHOLDT & ASSOCIATES  
 RICHMOND, VA  
 STRUCTURAL ENGINEER

Scale: 3/16" = 1'-0" unless otherwise noted.

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