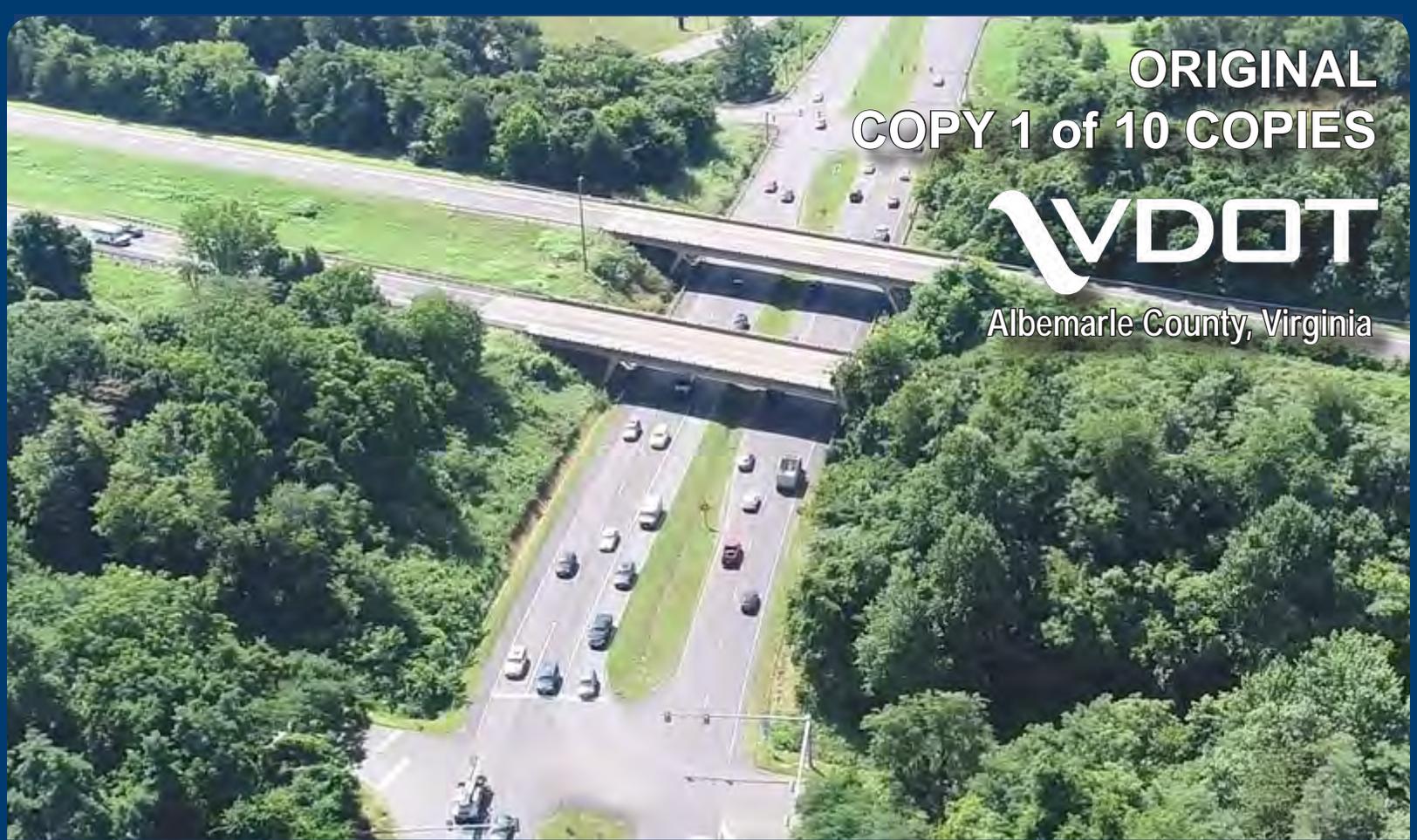


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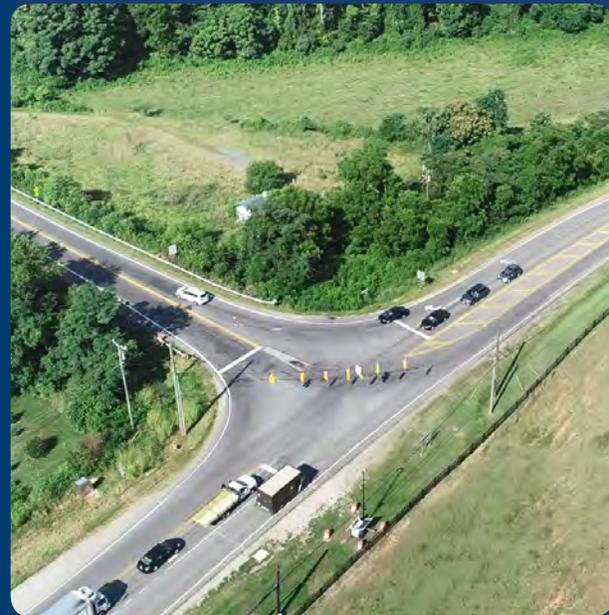


Albemarle County, Virginia



TECHNICAL PROPOSAL: VOLUME I
SUBMITTED APRIL 23, 2019

ALBEMARLE INTERSECTION BUNDLING
A DESIGN-BUILD PROJECT



UPC (State Project Nos.; Federal Project Nos.)

UPC 111814 (0250-002-956, P101, R201, C501; NHPP-002-7(051));

UPC 111727 (0029-002-959, P101, C501; HSIP-5104(269));

UPC 111813 (0029-002-955, P101, R201, C501; NHPP-002-7(050));

UPC 111730 (0250-002-954, P101, R201, C501; HSIP-002-7(049));

UPC 111733 (0020-002-953, P101, R201, C501; STP-5104(267));

UPC 109397 (9999-002-941, P101, R201, C501)

Contract ID Number: C00111814DB103

SUBMITTED BY



4.1

Letter of Submittal

April 23, 2019

Mr. Bryan W. Stevenson, P.E.
Alternative Project Delivery Division
Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219

Re: Letter of Submittal | Design-Build | Albemarle Intersection Bundling | Fauquier County, Virginia | Contract ID Number: C0011814DB103

Dear Mr. Stevenson,

Branch Civil, Inc. (Branch), as the Offeror, submits to the Virginia Department of Transportation (VDOT) this Letter of Submittal and accompanying Technical Proposal and Attachments in response to the Request for Proposal (RFP), November 27, 2018, and subsequent RFP Addendums 1-4 for the above referenced project (Project). Branch, with lead designer **Whitman, Requardt & Associates, LLP (WRA)**, proudly presents this technical proposal with an eager readiness to design and build this much needed bundle of intersection improvement and safety projects that will greatly benefit the citizens of Albemarle County, the City of Charlottesville, and the thousands of members of the travelling public passing through the area every day.

Branch|WRA is a fully integrated team with a proven track record of working together and delivering the highest levels of safety and quality on design-build projects. Through our successful work history, our team is prepared to apply our invaluable lessons learned to eliminate the learning curve on this project while providing rapid responsiveness and compliancy to VDOT. We are committed to completing final products that exceed expectations with respect to design, cost and schedule while addressing the Project's key priorities:

- **Cost** | Our project approach allows for design and construction efficiencies that reduces cost, providing VDOT with the best price for the scope of work identified in the RFP.
- **Design Concept** | To minimize impacts and improve safety throughout the project corridor, we have developed several design enhancements, the most notable of which greatly improve the Exit 124 DDI and the Route 20/649 Roundabout. Our design will minimize the phases of construction, simplifying the maintenance of traffic and reducing the number of traffic shifts required to complete the DDI. It also eliminates the need for any permanent right of way from the Virginia Outdoors Foundation on the Route 20/649 Roundabout project.
- **Project Approach** | Branch|WRA is staffing the Project with the best, brightest and most skilled team of design and construction personnel to manage the work, including the addition of Rinker Design Associates as a key design partner. Many on our team have worked together on previous design-build projects. As reiterated in our organizational chart, we are implementing several value-added positions to limit potential risk for all stakeholders. This includes: Construction Design Coordinator to better integrate the design and construction process in support of the Construction Manager and Design Manager; Traffic Management Task Force to mitigate safety and MOT risks; and a Public Relations Manager provided by Seventh Point, Inc. to support VDOT with the public relations efforts.
- **Construction of the Project** | Our construction means and methods demonstrate our ability to provide early completion, effective traffic management, environmental stewardship and a safe separation of construction activities from the traveling public. **Our team is committing to a Unique Milestone (early completion) date for each project element as shown in 4.1.7. We are also committing to a Final Completion Date of September 30, 2022 - 6 months earlier than the RFP Final Completion Date.**

4.1.1 Full legal name and address of the Offeror:

Branch Civil, Inc., located at 442 Rutherford Ave, NE, Roanoke, VA, is the legal entity who will execute the contract with VDOT.

4.1.2 Offeror's intent to enter into a contract with VDOT:

Branch Civil, Inc., if selected, will enter into a contract with VDOT for the Project in accordance with the terms of this RFP.

4.1.3 Offer will remain in full force and effect for one hundred twenty (120) days:

Pursuant to Part 1, Section 8.2, Branch Civil, Inc. declares that the offer represented by the Proposal will remain in full force and effect for one hundred twenty (120) days after the date **the Letter of Submittal and Attachments are submitted to VDOT (April 23, 2019).**

4.1.4 Point of Contact for the Offeror:

Jason Hoyle, Vice President Design-Build/Major Projects
Address: 442 Rutherford Avenue, NE, Roanoke, VA 24016
Tel: 540.982.1678 | Fax: 540.982.4216
Email: jason.hoyle@branchcivil.com

4.1.5 Principal Officer for the Offeror:

Jason Hoyle, Vice President Design-Build/Major Projects
Address: 442 Rutherford Avenue, NE, Roanoke, VA 24016
Tel: 540.982.1678 | Fax: 540.982.4216
Email: jason.hoyle@branchcivil.com

4.1.6 Final Completion Date: September 30, 2022

4.1.7 Unique Milestone Dates:

UPC 111814 – **September 30, 2022** Completion Date
UPC 111727 – **October 30, 2020** Completion Date
UPC 111813 – **July 31, 2020** Completion Date
UPC 111730 – **September 30, 2022** Completion Date
UPC 111733 – **July 1, 2022** Completion Date
UPC 109397 – **October 1, 2021** Completion Date

4.1.8 Executed Proposal Payment Agreement:

An executed copy of Attachment 9.3.1 Proposal Payment Agreement form is included in Appendix, Attachment 9.3.1 Proposal Payment Agreement.

4.1.9 Certification Regarding Debarment Form:

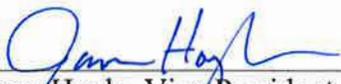
Executed copies of the Certification Regarding Debarment Forms as set forth in Part 1, Section 11.8.6 are provided in Appendix, Attachment 11.8.6 (a) and (b) Certification Regarding Debarment Forms.

4.1.10 DBE Commitment: Branch Civil, Inc. is committed to achieving nine percent (9%) DBE participation goal for the entire value of the contract.

On behalf of Branch|WRA, we appreciate the opportunity to present our technical proposal, which was developed to minimize impacts and meet all project priorities in a safe and timely manner. We look forward to your review and eagerly anticipate another successful delivery with this endeavor.

Respectfully Submitted,

Branch Civil, Inc.


Jason Hoyle, Vice President

4.2

Offeror's Qualifications

4.2 OFFEROR'S QUALIFICATIONS

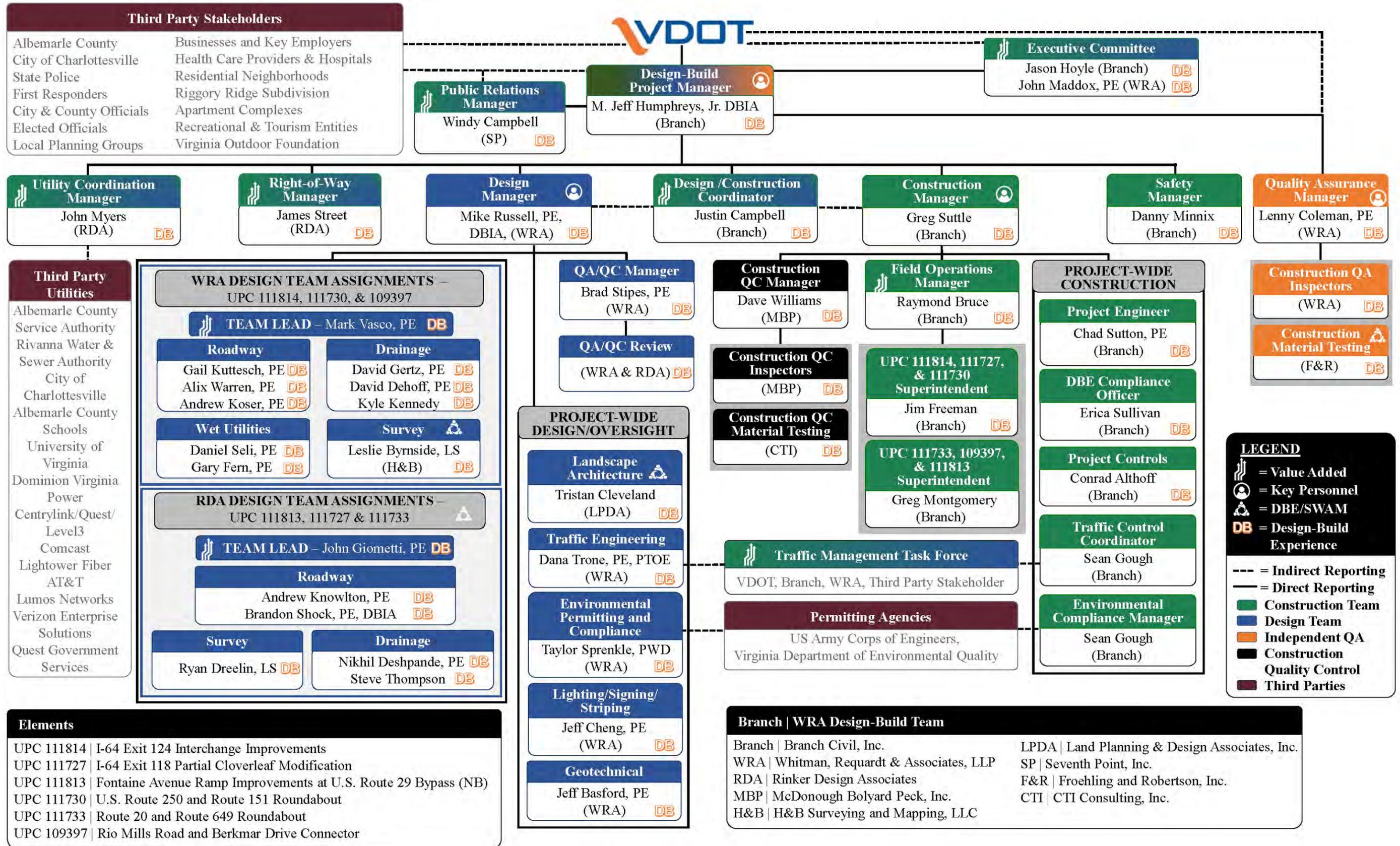
4.2.1 SOQ Confirmation

The information and statements made in our SOQ remain true and accurate in accordance with Part 1, Section 11.4.

4.2.2 Organizational Chart

Branch|WRA's Organizational Chart is presented on the following page and identifies the chain of command for each team member along with their function and reporting relationships that will be followed throughout the design and construction of the project. Please note that Tristan Cleveland has replaced Mark Lieberth who is no longer with LPDA in our Landscape Architecture role. Additionally, Chad Sutton has replaced Kellie Gilbert for the Construction Project Engineer role as Kellie is no longer with Branch.

4.2.2 Organizational Chart



4.3

Design Concept

4.3 DESIGN CONCEPT

Introduction

Branch selected WRA to lead the design for the Albemarle Intersection Bundling Design-Build (DB) project based on their extensive interchange and roundabout design experience, their expertise in delivering economical DB projects of the highest quality in Virginia, and the successful past working experience with Branch. Additionally, Rinker Design Associates (RDA) has been brought on as a major design subconsultant due to their extensive working relationship not only with WRA, but with Branch. Collectively, WRA & RDA have successfully completed design services for 11 DB projects for Branch.

Collectively, WRA & RDA have completed design services for Branch on 11 Design-Build projects

Design Manager **Mike Russell, P.E., DBIA** has led the team through a detailed review of the project’s RFP requirements, conceptual plans, and a thorough Proprietary Meeting/Alternative Technical Concept (ATC) process. Branch provided construction methodology and guidance during every step of the process. Branch|WRA’s approach to the Conceptual Design has continually been to provide results equal to or better than the RFP Concept while *Providing Increased Value by Achieving These Goals:*

- ✓ **Improving safety**
- ✓ **Reducing environmental impacts**
- ✓ **Reducing cost**
- ✓ **Simplifying construction phasing**
- ✓ **Reducing impact to the public during construction**
- ✓ **Reducing the right-of-way (ROW) impacts**
- ✓ **Reducing long-term inspection requirements and maintenance costs**
- ✓ **Exceeding public expectation**

Our proposed designs clearly meet all these goals. The Proprietary/ATC process provided ample opportunity to discuss our Design Concepts with key VDOT team members and illustrates our understanding of the project scope, constraints, risks, and stakeholder concerns. Graphical representations of the Conceptual Designs for all six project elements are provided in Volume II of the Technical Proposal and are further described on pages 10-15. Specific Design Enhancements follow in this section.

Design Enhancements – I-64 Exit 124 Diverging Diamond Interchange

Our Conceptual Design Improves the Total Network Delay (sec/veh) for the 2040 PM Peak Hour by 34.8% over the RFP Conceptual Design

The principals of route continuity, lane balance, and basic number of lanes discussed in Section 10.9.5 of the AASHTO *Green Book* are an important starting point to discuss our proposed Design Enhancements for the I-64 Exit 124 DDI. The RFP Concept forces the left eastbound Route 250 basic lane to “drop” onto eastbound I-64. Our Conceptual Design better supports these three AASHTO principals by maintaining two travel lanes without the need to change lanes. AASHTO states: *desirably, the driver, especially one unfamiliar with the route, should be provided a continuous through route on which changing lanes is not needed to continue the through route.*

Due to the lane configuration change proposed with our Conceptual Design, traffic will overall operate at a level better than the design presented in the RFP Conceptual Plans (as documented in the Traffic Technical Memorandum previously delivered to VDOT). As shown in Figure 1, the 2040 PM peak hour shows total network delay improvements of 34% with our Conceptual Design. During the combined 2040 AM and PM peak hours, our Conceptual Design will reduce the total network delay by 73 hours (or by 19%).

	RFP	Branch WRA	Difference	% Difference
2040 AM Peak Hour				
Average Intersection Delay (sec/veh)	18.4	18.8	0.4	2.2%
Average Network Delay (sec/veh)	92.0	94.1	2.1	2.3%
Total Network Delay (hour)	162.9	166.4	3.5	2.1%
Total Turning Movement Volumes (veh)	22,100	22,068	-32	-0.1%
2040 PM Peak Hour				
Average Intersection Delay (sec/veh)	24.2	18.7	-5.5	-22.7%
Average Network Delay (sec/veh)	115.0	75.0	-40.0	-34.8%
Total Network Delay (hour)	223.7	147.3	-76.4	-34.2%
Total Turning Movement Vehicles (veh)	24,380	25,075	695	2.9%
2040 AM + PM				
Average Intersection Delay (sec/veh)	42.6	37.5	-5.1	-12.0%
Average Network Delay (sec/veh)	207.0	169.1	-37.9	-18.3%
Total Network Delay (hour)	386.6	313.7	-72.9	-18.9%
Total Turning Movement Vehicles (veh)	46,480	47,143	663	1.4%

Figure 1 – Total Network Delay Comparison



Figure 2 – I-64 Exit 124 DDI

Additionally, safety of vehicular traffic will be improved with this design. Because the added lane along eastbound Route 250 will exit onto the ramp to westbound I-64 with our Conceptual Design, a forced lane change for eastbound Route 250 through traffic in the leftmost basic lane has been eliminated from the RFP Concept as shown in Figure 2. This will improve driver expectancy, reduce driver confusion, reduce the potential for last minute lane changes, and improve overall safety through the DDI.

The intersection modifications at Hansens Mountain Road will reduce the potential for drivers to inadvertently or intentionally turn left out of Hansens Mountain Road thereby

reducing the potential for crashes. The right-turn lane will reduce the potential for right-turning vehicles to impede through traffic along westbound Route 250 that has just exited the DDI and reduce the potential for rear-end crashes.

In summary, the *value-added benefits* of the design modifications include:

Enhancement	Resulting Benefit
Modified Route 250 EB Lane Configuration	<ul style="list-style-type: none"> ✓ Allows the existing auxiliary lane along eastbound Route 250 to function as it does today ✓ Allows the two Route 250 EB basic lanes from Charlottesville to travel through the DDI without a forced lane change at the EB on-ramp to I-64 ✓ Decreases the total network delay as compared to the RFP Conceptual Design (up to 34.8% reduction in average network delay in the 2040 PM Peak Hour) ✓ Improves driver expectancy
Widen Route 250 to the Median	<ul style="list-style-type: none"> ✓ Reduces project footprint and ROW requirements ✓ Removes the traffic shift across the crown on Route 250 ✓ Simplifies maintenance of traffic (MOT) and construction phasing ✓ Reduces cost
Hansens Mountain Road Pork Chop and Right Turn Lane	<ul style="list-style-type: none"> ✓ Increases Safety ✓ Decreases delays ✓ Improves driver expectancy

Design Enhancements – Route 20/649 Roundabout

The operational improvements that the proposed roundabout at Route 20/649 provides will require slight realignments of Route 649 and Route 1494 as indicated in the RFP Conceptual drawings. However, the RFP Concept requires ROW acquisition from the adjacent Virginia Outdoors Foundation (VOF) property which could easily require more than a year to resolve. As shown in Figure 3, our Conceptual Design greatly minimize impacts to VOF property and reduces the need for permanent ROW from the VOF.

A secondary benefit proposed with this concept is a minimized risk to utility impacts. The fiber optic line that runs along the shoulder of Route 20 and Route 649 along the existing prescriptive easement line with the VOF property is largely outside of the construction impacts and potentially will require only minor coordination and test pitting to avoid direct impacts.

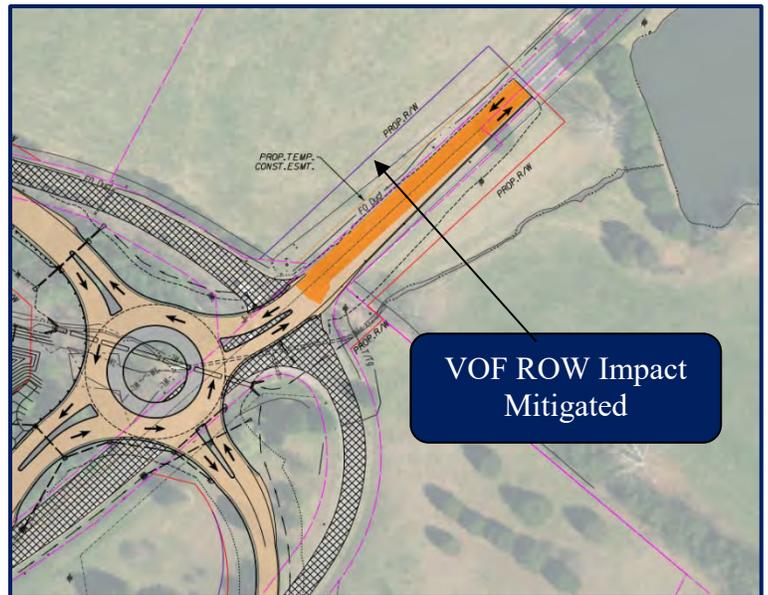


Figure 3 – Route 20/649 Roundabout

To minimize ROW impacts on the VOF property, our Conceptual Design slightly adjusts the location of the roundabout and approach angles of Route 20 such that it ties into existing conditions sooner than shown in the RFP Conceptual Plans by providing all taper transitions along the norther leg to the west.

This design results in both an overall time savings as well as the ability to have the roundabout functioning earlier during construction itself. Based on our research and conversations with the Virginia Outdoors Foundation, the time it would take to acquire ROW will be vastly reduced since temporary construction easements are approved at the local staff level of the VOF. By reducing the amount of time, it would take to acquire ROW, construction will start and end sooner allowing the Roundabout to be placed into service sooner than would be possible with the RFP Conceptual Plans.

In summary, the *value-added benefits* of the design modifications include:

Enhancement	Resulting Benefit
Modified Roundabout Geometry	<ul style="list-style-type: none"> ✓ Reduces ROW cost to the Department ✓ Significant reduction of project schedule risk ✓ Should result in increased VOF support for the project ✓ Minimizes the potential for impacts to the existing Fiber Optic line

Design Enhancements – Route 250/151 Roundabout

While not readily apparent, the Route 250/151 Roundabout is one of the more constrained projects of the bundle. We have, however, developed a Conceptual Design that provides a significant enhancement relative to the RFP Conceptual Design. Eliminating the proposed stormwater management basin through the purchase of nutrient credits provides several short- and long-term benefits to both cost and ROW impacts. More significant is the optimization of the box culvert design. By carefully reviewing the sequence of construction and maintenance of traffic requirements our Team has determined that the length of the proposed box culvert can be shortened by over 20 feet. The benefit of this design is clear since any instance where you can reduce the time you are constructing in a stream the greater the benefit to the project and the environment.

In summary, the *value-added benefits* of the design modifications include:

Enhancement	Resulting Benefit
Eliminate SWM Basin	<ul style="list-style-type: none"> ✓ Reduces construction cost ✓ Reduces long term maintenance cost ✓ Reduces right of way impacts
Optimize Box Culvert Design	<ul style="list-style-type: none"> ✓ Significantly reduces the length of the box culvert ✓ Reduces stream impacts ✓ Reduces construction time ✓ Reduces cost ✓ Facilitates MOT

Design Enhancements – Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB)

The RFP Conceptual Plans for the Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB) show ramp widening on both the east and west sides. This approach introduces a sliver fill on the heavily wooded eastern slope near the Rivanna Trail. To construct this widening as shown in the RFP plans, two phases of

construction and associated traffic shifts would be required. As shown in Figure 4, our Conceptual Design simplifies construction by proposing all ramp widening to the west, thereby eliminating major construction operations and impacts to the eastern side of the ramp. Our Concept will also include upgrades to the guardrail, installation of the cantilever sign structure, and roadside ditch improvements to address drainage and maintenance needs. Because of this design concept, the proposed MMI Atlantic fiber optic installation will not be impacted. Adjustments to the design of the gore area were required, but all design criteria are achieved. We have also eliminated the SWM basin through the purchase of nutrient credits.

As part of our Proprietary/ATC discussions, VDOT confirmed that a full 10' useable shoulder (and increase of one foot over the exiting conditions) and guardrail improvements south of the ramp would be required along Route 29. The RFP Conceptual Plans appear to depict 4' of shoulder widening behind the proposed guardrail. We believe this could introduce a "sliver fill" that ultimately impacts the box culvert under Route 29. Our Conceptual Design utilizes 9' posts to eliminate the widening behind the guardrail and therefore eliminates the "sliver fill" and impacts to the box culvert.

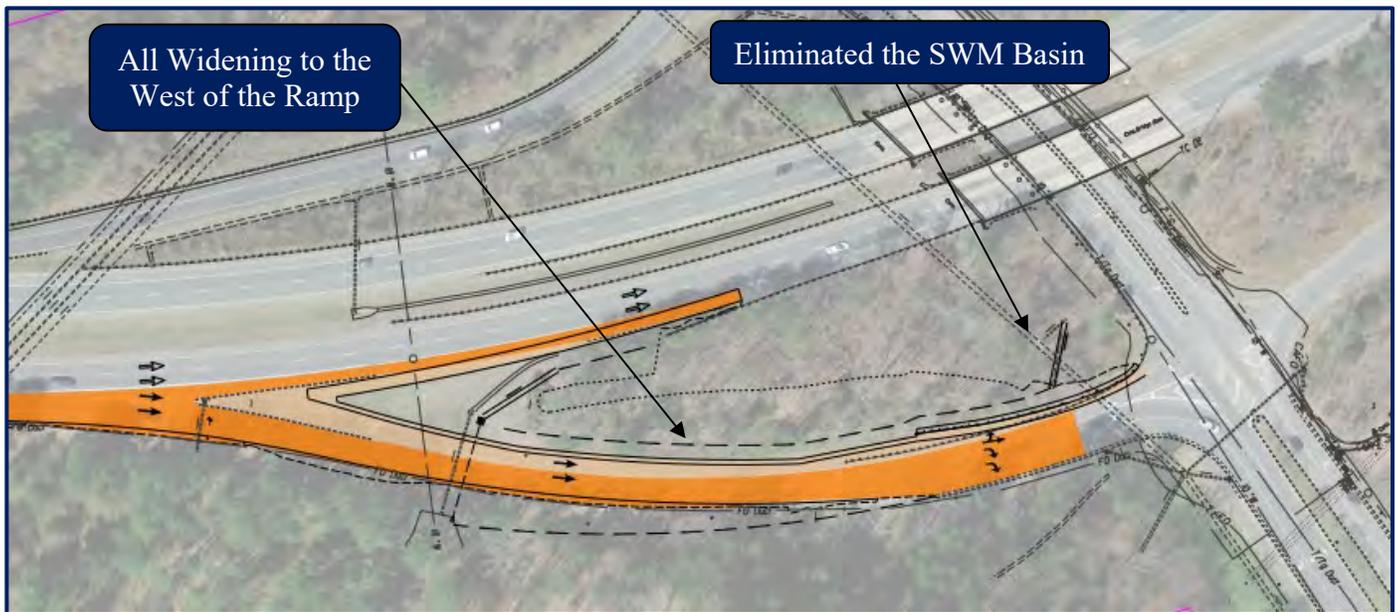


Figure 4 – NB 29 Exit Ramp to Fontaine Avenue

In summary, the *value-added benefits* of the design modifications include:

Enhancement	Resulting Benefit
Widen Ramp to the Inside	<ul style="list-style-type: none"> ✓ Limits majority of construction to one side of the ramp ✓ Eliminates any sliver fills ✓ Eliminates impacts to utilities (MMI Atlantic Fiber) ✓ Reduces cost ✓ Reduces construction time ✓ Reduces impact to the travelling public ✓ Preserves the heavily wooded slope east of the ramp
Eliminate SWM Basin	<ul style="list-style-type: none"> ✓ Reduce construction cost ✓ Reduce long term maintenance cost

4.3.1 Conceptual Roadway Plans

The Conceptual Roadway Plans provided in Volume II of our submittal meet or exceed the RFP, VDOT, and AASHTO requirements for the project.

(a.) General Geometry including Horizontal Curve Data and Associated Design Speeds, the Number and Widths of Lanes and Shoulders

All Projects

- ✓ The design geometry for each roadway design element is provided in Table 1. Our Conceptual Design meets or exceeds these criteria required by the RFP and no design exceptions or design waivers other than those already identified in the RFP are required.

(b.) Horizontal Alignments

All Projects

- ✓ Volume II of this Technical Proposal provides a graphical representation of the horizontal alignments along with all associated curve data, design speeds, superelevation, etc. As noted earlier, this information is also summarized in Table 1 for each of the six project elements. In general, all the horizontal alignments depicted are like those represented in the RFP Conceptual Design with a few noted modifications:

UPC 111814 (I-64 Exit 124 DDI)

- ✓ The I-64 Exit 124 DDI horizontal alignments shown for Route 250 have been improved as noted earlier to allow the “through” lanes on EB Route 250 to be able to consistently traverse the interchange without a force lane change. This improvement also eliminates any issue with a lane crossing the crown line and provides most of the widening to the median rather than to the outside of the existing lanes as shown in the RFP Conceptual Plans.

UPC 111733 (Route 20/649 Roundabout)

- ✓ The Route 20/649 Roundabout horizontal alignments have been adjusted to accommodate the minor shift to the location of the roundabout as described earlier in this section. These adjustments slightly alter the angle of the approach legs but are all well within the permitted horizontal curvature requirements for a roundabout. The benefit of this adjustment is to significantly reduce the ROW impact to the VOF property, avoid existing utilities just north of the roundabout, and simplify construction for an earlier completion.

UPC 111730 (Route 250/151 Roundabout)

- ✓ The Route 250/151 Roundabout horizontal alignments have been adjusted to accommodate a minor shift along the Route 250 legs of the roundabout. This shift in horizontal alignment was necessary to allow traffic along Route 250 to remain in its existing location while constructing the final travel lanes of the roundabout approaches.

(c.) Maximum Grades for All Segments and Connectors

All Projects

- ✓ The maximum grades for all the roadways in each of the six project elements are summarized in Table 1 and are in accordance with the requirements of the RFP. The vertical alignments for each roadway are generally the same as those shown in the RFP Conceptual Plans with minor adjustments as required to accommodate the horizontal alignment adjustments noted above.

(d.) Typical Sections of the Roadway Segments to include Ramps, Roundabouts, Retaining Walls, and Bridge Structures.

All Projects

- ✓ The typical sections for all the roadways in each of the six projects elements are provided in Volume II of this Technical Proposal. These typical sections are identical to those provided in the RFP Conceptual Plans with a few noted modifications.

UPC 111814 (I-64 Exit 124 DDI)

- ✓ The typical section for the Route 250 portion of the I-64 Exit 124 DDI has been refined to depict widening to the median rather than the outside as noted earlier. This minimizes the “footprint” of the project and reduces impacts to the travelling public by maintaining traffic in its current location as much as possible. Additionally, due to the RFP requirements to widen the shoulder along Route 250, a retaining wall has been introduced to minimize the grading required between Route 250 and the I-64 WB on-ramp.

UPC 111813 (NB US 29 Ramp to Fontaine Ave.)

- ✓ The typical section for the Route 29 Ramp to Fontaine Avenue has also been refined to reflect all the necessary widening to take place to the left (or west) of the existing ramp to avoid impacting the densely wooded slope to the right (or east) of the ramp.

UPC 111733 (Route 20/649 Roundabout.)

- ✓ The typical section for the Route 20/649 Roundabout was revised to utilize the existing shoulder along the northern leg of Route 20. This eliminates the need for a permanent ROW acquisition from the Virginia Outdoors Foundation property in the NW quadrant of the roundabout.

Branch Design-Build Team Conceptual Design Geometric Criteria

VDOT Project UPC	Roadway	Functional Classification	Design Speed (MPH)	Shoulder/C&G Type	Number of Lanes - Width of Lanes	Total Shoulder Width	Paved Shoulder Width	RFP Maximum Grade	RFP Conceptual Plan Maximum Grade	Branch WRA Design Maximum Grades
UPC 111814	I-64	GS-5	70	Shoulder	2 - 12'	12'(RT) / 8'(LT)	10'(RT) - 4'(LT)	4%	Existing	Existing
	Route 250	GS-5 / GS-6	50	Shoulder/CG-2, CG-6 & CG-7	2 - 12'	10'(RT) / 8'(LT)	8'(RT) - 4'(LT)	7%	2.83%	2.82%
	Ramp A	GS-R	25 (Inside DDI)	CG-2, CG-6	2 - 12'	10'(RT) / 6'(LT)	8'(RT) - 4'(LT)	7%	2.02%	1.84%
	Ramp B	GS-R	35 Min. / 25 Int.	CG-2, CG-6	1 - 16' ² - 12'	10'(RT) / 6'(LT)	8'(RT) - 4'(LT)	6%/7%	2.28%	2.48%
	Ramp C	GS-R	25 (Inside DDI)	CG-2, CG-6	3 - 12'	10'(RT) / 6'(LT)	8'(RT) - 4'(LT)	7%	2.56%	2.64%
	Ramp D	GS-R	35 Min. / 25 Int.	CG-2, CG-6	1 - 16' ² - 12'	10'(RT) / 6'(LT)	8'(RT) - 4'(LT)	6%/7%	4.20%	2.88%
	FR-179	GS-8 / GS-4	45	Shoulder	2 - 11'	8' (6' if Rural)	1'	9%	3.88%	Existing
	Route 1107	GS-8	30	Shoulder	2 - 10'	8'	1'	8%	2.00%	Existing
UPC 111727	I-64	GS-5	70	Shoulder	2 - 12'	12'(RT) / 8'(LT)	10'(RT) - 4'(LT)	4%	2.00%	2.00%
	Route 29	GS-5	60	Shoulder	2 - 12'	10'(RT) / 8'(LT)	8'(RT) - 4'(LT)	6%	0.90%	0.90%
	Ramp	GS-R	25 / 30 (Remaining)	Shoulder	1 - 16' ² - 12'	10'(RT) / 6'(LT)	8'(RT) - 4'(LT)	7%	4.20%	4.20%
	Loop	GS-R	30	Shoulder	1 - 16'	10'(RT) / 6'(LT)	8'(RT) - 4'(LT)	7%	Existing	Existing
UPC 111813	Route 29	GS-5	60	Shoulder	2 - 12'	12'(RT) / 8'(LT)	10'(RT) - 4'(LT)	4%	2.30%	2.30%
	Ramp	GS-R	30	Shoulder/CG-6	1 - 12' ² - 12'	10'(RT) / 6'(LT)	8'(RT) - 4'(LT)	7%	0.64%	0.96%
	Fontaine Ave.	GS-5	40	Shoulder/CG-6	1 - 12'	10'	8'	8%	Existing	Existing
UPC 111730	Route 250	GS-2	60	Shoulder	1 - 12'	10'	8'	4%	4.00%	4.00%
	Route 121	GS-2	60	Shoulder	1 - 12'	10'	8'	4%	3.60%	3.60%
UPC 111733	Route 20 (South/North of Route 649)	GS-2 / GS-3	50	Shoulder	2 - 12'	10' (GS-2) / 8' (GS-3)	8' (GS-2) / 1' (GS-3)	5% (GS-2) / 7% (GS-3)	3.00%/3.87%	3.00%/3.87%
	Route 649	GS-3	50	Shoulder	2 - 12'	8'	1'	7%	3.30%	3.30%
	Route 1494	GS-4	25	Shoulder	2 - 9'	2'	1'	15%	10.98%	11.50%
UPC 109397	Rio Mills/Berkmar Connector	GS-8	30 (ULS)	CG-6	2 - 11'	8'	1'	15%	7.46%	7.46%
	Existing Rio Mills Road (North)	GS-4		Shoulder	2 - 10'	5'	1'	10%	N/A	N/A
	Existing Rio Mills Road (South)	GS-4		Shoulder	2 - 10'	5'	1'	10%	N/A	N/A
	Berkmar Drive	GS-7	40	CG-6	2 - 11'	N/A	N/A	10%	N/A	N/A

Table 1

(e.) Conceptual Hydraulic and Stormwater Management Design

As with all other required elements for conceptual design, the plans in Volume II detail our proposed conceptual drainage and stormwater management design. A combination of culverts, storm sewer, and roadside ditches will convey runoff from the various project element sites towards stormwater BMPs, and/or ultimately to adequate natural channels. Hydraulic facilities will be designed in accordance with the RFP requirements including the VDOT Drainage Manual and associated design guidelines. Our conceptual drainage design conveys post development runoff to existing channels by way of existing and proposed permanent drainage easements. As anticipated in the RFP Conceptual Plans, drainage easements are required and are detailed on the conceptual plans provided in Volume II of our proposal.

Where possible, stormwater BMPs were eliminated through the planned purchase of nutrient credits and conveyance to an adequate channel in accordance with the Technical requirements of the Virginia Department of Environmental Quality criteria for Stormwater Management. Most notable of this is the elimination of the SWM basins planned for the Route 250/151 Roundabout and the Route 29 Ramp to Fontaine Ave. Our Conceptual Design eliminates these basins **eliminating long-term maintenance cost to the Department.**

(f.) Proposed ROW Limits

Branch|WRA Conceptual Designs minimizes ROW impacts where possible while still meeting the operational requirements of the RFP. The Conceptual Designs for each project element depicted in Volume II of this Technical Proposal confirms that the proposed ROW limits are wholly contained either within existing ROW, or the proposed ROW limits shown on the RFP Conceptual Plans.

***Our Conceptual Design
Eliminates All of the
Proposed Right of Way and
Easement Impacts for the
I-64 Exit 124 DDI***

Our Conceptual Design for the I-64 Exit 124 DDI Interchange results in significant reductions in the ROW required for the project. In fact, all 19,558 SF of proposed right of way is eliminated with our design. This is primarily due to providing the widening of Route 250 to the median rather than the outside of the existing lanes. Similarly, all proposed permanent and temporary easements shown on the RFP Conceptual Plans have been eliminated as well.

The permanent ROW impact to the VOF property in the NW quadrant of the Route 20/649 Roundabout has been significantly reduced (by 14,596 SF) while containing all other roadway features within the ROW shown on the RFP Conceptual Plans. A temporary construction easement will still be required from this property. Several other minor improvements were made to the fee take ROW where possible and are reflected in our technical plans on parcels 031, 033, and 034.

As shown on our Conceptual Design Plans, the proposed right of way impact to parcel 023 on the Route 250/151 Roundabout has been reduced by 11,481 SF as compared to the RFP Conceptual Design. This reduction is directly associated with the removal of the stormwater BMP facility through the purchase of nutrient credits. We are showing an increase in permanent drainage easement and temporary construction easements; however, it is clear from developing our MOT plan that a minimum of 10,000 SF of temporary construction easement would have been needed for the RFP Conceptual Design.

The proposed ROW for all other project elements is identical to that required by the RFP Conceptual Plans. The RFP recognizes that permanent and temporary easements beyond those depicted in the RFP plans may be required. The construction phasing enhancements realized with our proposed design concept minimize the amount of temporary construction easements needed for the project. Where necessary, our design incorporates the use of temporary “wire walls” and other mechanically stabilized earth construction techniques to minimize the amount of easement needed as much as practicable. Specifically, these methods are used on the Route 250/151 Roundabout project element.

Graphical representations of the proposed ROW required for our proposed design as they compare to the ROW requirements are included in Volume II of this proposal. A summary of the total differences in the ROW and easement areas (except utility easements) combined for each project element are shown in the table below.

VDOT UPC	Item	RFP Conceptual Design	Branch WRA Conceptual Design
UPC 111814 (I-64 Exit 124 DDI)	ROW	19,558 SF	0 SF
	Permanent Easement	428 SF	0 SF
	Temporary Construction Easement	1,106 SF	0 SF
UPC 111730 (Route 250/151 Roundabout)	ROW	77,298 SF	65,817 SF
	Permanent Easement	0 SF	7,191 SF
	Temporary Construction Easement	1,562* SF	3,093 SF
UPC 111733 (Route 20/649 Roundabout)	ROW	112,728 SF	98,132 SF
	Permanent Easement	15,893 SF	15,893 SF
	Temporary Construction Easement	1,558 SF	2,840 SF

**A minimum of 10,000 SF of Temporary Construction Easement (not shown on the RFP Plans) is anticipated for the RFP Conceptual Design to properly maintain traffic during construction.*

(g.) Proposed Utility Impacts

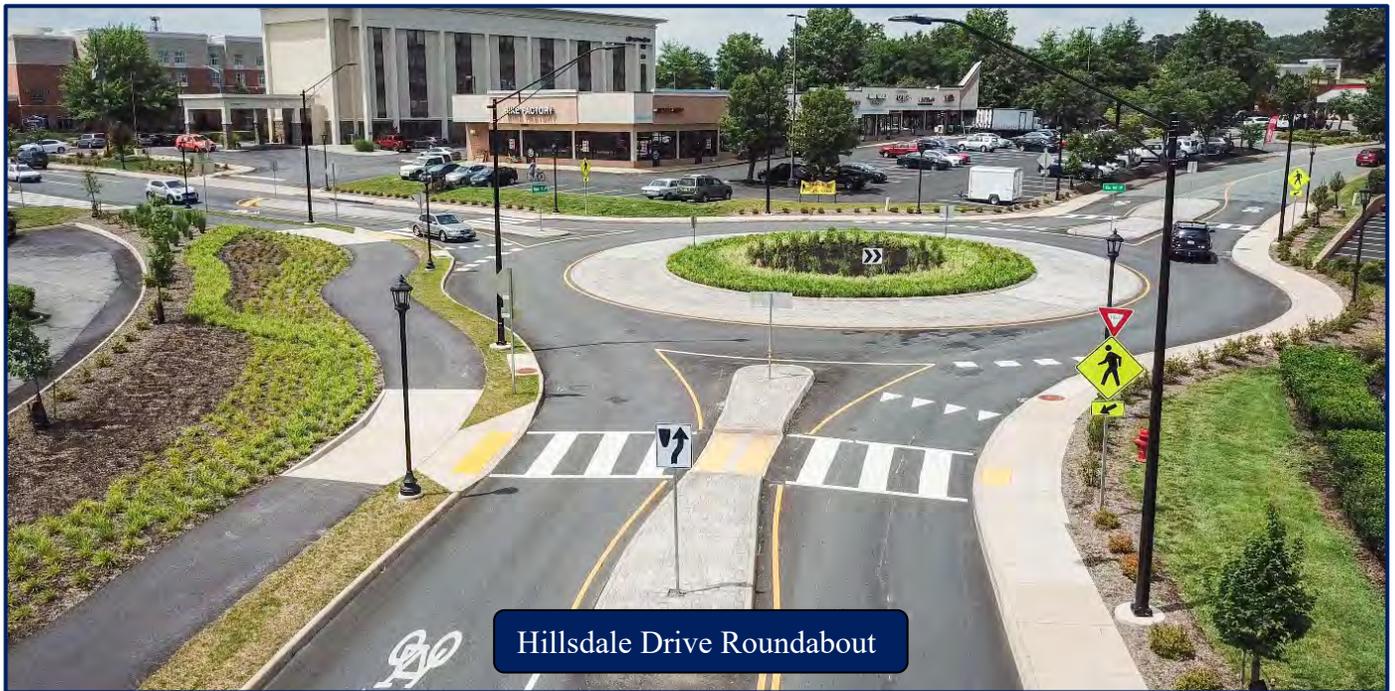
Branch|WRA’s conceptual design includes a definitive effort to minimize utility impacts to the extent practicable. Our proposed drainage design (most notably on the DDI project element) was adjusted to reduce impacts to the numerous utilities through the interchange. Utility impacts on the remaining project elements were minimal as shown on the RFP Conceptual Plans. The Route 250/151 Roundabout experiences several impacts to private utilities and will be adjusted as part of the project. Additional details related to the anticipated utility impacts are provided in Section 4.4.2 for the Project Approach to Utility Relocations.

(h.) Signage for I-64 Exit 124 Interchange Improvements Element

The Conceptual Roadway Plans provided in Volume II depict a graphical representation of the proposed signage for the I-64 Exit 124 Interchange Improvements (Diverging Diamond). Our traffic engineers have determined the most efficient signage layout that meets the RFP requirements while also striving to minimize long term maintenance cost to the Department.

(i.) Other Key Project Features

Landscaping: In accordance with the Section 2.8 of the RFP Technical Requirements landscaping features will be provided for both the Route 250/151 and the Route 20/649 roundabouts as well as the Rio Mills Road Extension. Our Landscape Architecture partner, LPDA is very familiar with the landscape requirements having designed all of the landscaping for the Route 29 Solutions DB Project, specifically including the Berkmar Drive Extension on the eastern end of the Rio Mills Road Extension.



Lighting: As required by Section 2.9.6 of the RFP Technical Requirements, lighting is proposed for both the Route 250/151 Roundabout, and the I-64 Exit 125 DDI and is depicted on our Conceptual Plans provided in Volume II of this Technical Proposal. All lighting will be in accordance with to the latest IES RP-8 and VDOT’s Traffic Engineering Design Manual, Guides and Informational Instructions and constructed in accordance with the 2016 VDOT Road and Bridge specifications, the 2016 VDOT Road and Bridge Standards and the requirements of the National Electric Code (NEC).

4.4

Project Approach

4.4 PROJECT APPROACH

4.4.1 Environmental Management

Branch|WRA will follow a similar environmental approach for all the Albemarle Intersection Bundling elements. Our Team recognizes that securing environmental permits during the design phase and maintaining compliance with environmental permits during the construction phase are both critical to maintaining the project schedule and reducing overall risk. Our Conceptual Designs were developed using an integrated approach that linked the designers, environmental staff, and construction experts to ensure that our designs will facilitate the permitting process. This integrated approach has allowed us to develop solutions that minimize impacts and to identify required permits and environmental commitments.

Our project schedule accounts for the timeframes required to acquire all permits. Both the DBPM and Design Manager will integrate into the environmental management team with a focus on anticipating and mitigating potential delays. During final designs, our environmental staff will continue to collaborate with the designers and the Design/Construction Coordinator (DCC) to identify and minimize impacts. By working with the DCC, all construction means and methods are considered when preparing permit applications. The following will be performed to ensure that environmental resource impacts have been documented, minimized, and are cleared by the regulatory agencies and that environmental commitments are met during construction.

Identify and Update Environmental Resources: Upon Notice to Proceed (NTP), environmental resource locations within the element corridors will be refined based on our designs. Field work and technical services will be conducted as necessary and may include wetland delineations, stream assessments, water quality studies, and threatened and endangered species reviews that will be utilized for water quality permitting and environmental compliance monitoring. Should these refinements identify unanticipated or unknown resources, the preliminary designs will be modified to support avoidance and/or minimization opportunities.

Cultural Resources: As stated in the RFP, VDOT, in consultation with the Virginia State Historic Preservation Officer (VA SHPO), has determined that there are no historic properties present or affected by the I-64 Exit 118 Partial Cloverleaf Modification (VDOT effect determination 04/12/2018), the NB US 29 Ramp to Fontaine Avenue Ramp (VDOT effect determination 04/10/2018), and the Rio Mills Road Extension (DHR concurrence dated August 14, 2018). as proposed in the RFP Conceptual Plans.

Branch|WRA's Conceptual Designs are contained within the RFP Conceptual Design footprint; therefore, cultural resources are not expected to impact the I-64 Exit 118, NB US 29 Ramp to Fontaine Avenue, or Rio Mills Road Extension project schedules. Since there will be no changes during final design that will alter the project footprint outside that shown in the RFP Conceptual Plans, our Team will not need to coordinate with VDOT and the VA SHPO to determine if additional cultural resources studies are needed.

On August 2, 2018, VA SHPO determined the U.S. Route 250/151 Roundabout would have No Effect on historic properties in the Area of Potential Effect (APE). Additionally, on August 22, 2018, VA SHPO determined the I-64 Exit 124 Interchange Improvements would have No Effect on historic properties in the APE. Since our proposed designs for the Route 250 Roundabout and Exit 124 are entirely within the APEs of the cultural resources investigations, it is anticipated that VA SHPO's No Effect determinations will remain valid.

On August 22, 2019, VA SHPO issued a conditional No Adverse Effect determination for the Route 20/649 Roundabout. As stated in the RFP, Branch|WRA will provide the VDOT Project Manager with Preliminary Plans (60%) for submission to VDHR and consulting parties for their review and comment to ensure that the proposed design remains consistent with the character of the Southwest Mountains Rural Historic District (VDHR No. 002-1832). Branch|WRA will allow 45 calendars days to accommodate this review.

VDHR’s Virginia Cultural Resource Information System (V-CRIS) was queried on March 5, 2019 to determine if any new resources had been identified since VA SHPO correspondence. No new resources were identified.

Section 4(f) Resources: Per the RFP, there are no 4(f) resources for I-64 Exit 124, I-64 Exit 118, and the NB US Route 29 Bypass Ramp to Fontaine Ave projects. Additionally, 4(f) does not apply to Rio Mills Road Extension, because it is state-funded. The Route 250/151 Roundabout has a de minimus impact of 1.29 acres to the Greenwood-Afton Rural Historic District (VDHR#002-5075) dated August 15, 2018. The Route 20/649 Roundabout has a de minimus impact of 2.0 acres to the Southwest Mountains Rural Historic District (VDHR#002-1832) dated December 19, 2018. The Branch|WRA Conceptual Design does not change any right-of-way (ROW) or easements as shown on the RFP Conceptual Plans, therefore our Team will not need to complete any additional studies necessary to support VDOT’s completion and re-evaluation of the 4(f) de minimus impact finding.



Hazardous Materials Management and Studies: According to the RFP Information Package, I-64 Exit 118, NB US Route 29 Bypass Ramp to Fontaine Ave., Rio Mills Road Extension, Route 250/151 Roundabout, and Route 20/649 Roundabout elements should not adversely impact the environment from a hazardous materials point of view. For I-64 Exit 118 and NB US Route 29 Ramp to Fontaine Ave., no new ROW is being acquired and no stormwater management facilities are being constructed that could potentially intercept contaminated soil or groundwater; therefore, no additional hazardous materials investigations are proposed.

Based on I-64 Exit 124 Conceptual Design, construction in the southern terminus will not extend to a depth of 30 feet into groundwater. Therefore, additional Phase II work will not be needed to determine concentrations of groundwater contaminants.

Per the RFP, Branch|WRA will not acquire new ROW until Phase I ESAs have been completed. A Spill Prevention, Control, and Countermeasure Plan will be prepared prior to construction of any element. Branch|WRA will also perform asbestos inspections on all structures and/or materials not already tested and will follow appropriate abatement protocols in accordance with contract special provisions.

VDEQ’s Virginia Environmental Geographic Information Services (VEGIS) “What’s in my backyard” application was queried on March 5, 2019 to determine if new hazardous resources had been identified. No new resources were identified within the element areas.

Secure the Virginia Dept. of Environmental Quality (VDEQ) Virginia Stormwater Management Program (VSMP): Starting at NTP, Branch|WRA will design Erosion and Sediment (E&S) Control and Stormwater Management Plans to meet Virginia Stormwater Management Program's regulatory requirements. Our Team will consult with VDOT to discuss our permitting approaches for the maintenance of traffic (MOT), grading and drainage advanced work packages, and will submit permit applications to VDOT to secure Virginia Pollutant Discharge Elimination System (VPDES) permits. Based on our previous Design-Build experience, we anticipate receiving the VPDES permits within 45 days of each final permit application submittal.

Coordinate with Agencies for Threatened and Endangered (T&E) Species: As stated in the RFP, VDOT has performed preliminary database reviews and coordinated with resource agencies on threatened and endangered species that may be affected by the Albemarle Intersection Bundling elements. Through this coordination, it was determined that Exit 118 will have no adverse effect on T&E species.

Previous resource agency coordination for NB US Route 29 Ramp to Fontaine Ave., Rio Mills Road Extension, Route 250/151 Roundabout, I-64 Exit 124, and Route 20/649 Roundabout indicates that northern long-eared bat (*Myotis septentrionalis*) may be affected, but not likely adversely affected by any of the elements. Branch|WRA will rely upon the findings of the 1/5/2016 Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions for Fontaine Ave., Route 350 Roundabout, Exit 124, and Route 20 Roundabout. Branch|WRA will follow VDGIF's Guidance Document on Best Management Practices for Conservation of Little Brown Bats and Tri-Colored Bats (Approved February 16, 2016) for Rio Mills.

Previous agency coordination detailed in the RFP indicates that green floater (*Lasmigona subviridis*) may be affected by Exit 124 and will require additional coordination with federal and state agencies. Additionally, previous agency coordination indicates that loggerhead shrike (*Lanius ludovicianus*) may be affected by the Route 20 Roundabout and will require additional coordination with federal and state agencies. Branch|WRA Team will conduct further threatened and endangered species coordination for all listed species during the water quality permitting process.

On March 5, 2019, IPaC, WERMS, VAFWIS, and DCR-DNH were queried to determine if new threatened or endangered species occurrences had been documented in the element areas. No new species were identified.

Conduct Avoidance and Minimization: Because of the minimal impacts to wetlands and streams, opportunities for cost-effective avoidance and minimization in the design phases are minimal. Branch|WRA will minimize impacts to downstream water quality during construction phases by adhering to strict erosion and sediment control and stormwater management measures.

Environmental Document: The following elements have existing PCEs:

- I-64 Exit 118 Cloverleaf Modifications, dated July 9, 2018
- Fontaine Ave. Ramp Improvements at US Route 29 Bypass (NB), dated July 18, 2018
- Route 250/151 Roundabout, dated August 20, 2018
- I-64 Exit 124 Interchange Improvements, dated September 6, 2018
- Route 20/649 Roundabout, dated August 28, 2018

Each has an existing EQ-200 (Document Reevaluation for PSE Authorization) and EQ-103 (Environmental Certification). Once Branch|WRA completes designs for these elements, VDOT will determine if the plans are consistent with the scopes of the previously prepared NEPA documents. If VDOT determines that the previous NEPA decisions are still valid, ROW authorization will be requested from FHWA. VDOT will also update and finalize EQ-200s and EQ-103s for each element prior to construction commencement.

Branch|WRA designs stay within the established basic element concepts, so NEPA re-evaluations are not anticipated.

Rio Mills, a state-funded element, has an existing Preliminary Environmental Inventory (PEI) dated July 23, 2018 and an EQ-103 dated September 25, 2018. No further State Environmental Review Process (SERP) studies are anticipated.

Secure Water Quality Permits:

Branch|WRA will conduct wetland delineations, perform stream assessments, complete permit applications, and secure Preliminary Jurisdictional Determinations (PJDs) from the U.S. Army Corps of Engineers (USACE), as necessary, for all Albemarle Intersection Bundling elements.

Based on preliminary information provided in the RFP, the I-64 Exit 118 and Rio Mills Road Extension elements will not require water quality permits. The NB US 29 Ramp to Fontaine Ave., the Route 250/151 Roundabout, I-64 Exit 124 Interchange, and Route 20/649 Roundabout elements will likely qualify as Nationwide Permit 23s (Approved Categorical Exclusions). No streams proposed for impact have a drainage area larger than 5 square miles; therefore, permits from VMRC are not anticipated. Additionally, Branch|WRA will hold Pre-application Meetings with regulatory agencies to discuss scope and identify any agency concerns early in the process.

Branch|WRA will provide compensatory mitigation, as required, and adhere to any special provisions and permit conditions stipulated by regulatory agencies. Additionally, Branch|WRA will notify the VDOT project manager and regulatory permitting agencies in writing 14 days prior to beginning work in jurisdictional areas covered by water quality permits and at the completion of work in jurisdictional areas covered by water quality permits.

Environmental Compliance:

Branch|WRA understands the importance of maintaining environmental compliance throughout all phases of construction and has qualified staff currently assisting with environmental compliance for various VDOT construction projects in the Culpeper District. Our organizational structure includes an Environmental Compliance Manager (ECM) who will be assigned to each element. The CEM will report directly to the DBPM and will have the authority to stop work. *This structure has recently helped us to receive a 5/5 score for Environmental Compliance on the I-95 Safety Improvement project DB Performance Evaluation.*



Prior to the start of construction, the ECM will coordinate with the Culpeper District’s National Pollutant Discharge Elimination System (NPDES) Coordinator and the District’s Environmental Compliance Inspector (ECI). The District’s NPDES Coordinator (under Location and Design) is responsible for conducting VPDES General Construction Permit inspections (e.g., E&S and stormwater controls). The District’s ECI (in VDOT’s Environmental Division) is responsible for any incidents involving sediment release into Waters of the U.S., chemical release, concrete/grout release into Waters of the U.S., T&E species compliance, and/or cultural resources compliance. It is expected that the District’s NPDES Coordinator and ECI will conduct routine compliance inspections in addition to the inspections being conducted by the ECM and supporting staff.

At project initiation, the ECM will coordinate with the District's NPDES coordinator and ECI to develop communication, reporting, and inspection protocols that will outline procedures to follow for conducting routine inspections and what to do if an environmental incident occurs.

Prior to construction, the ECM will conduct environmental compliance training with all construction staff to review all relevant permit conditions, to introduce the District NPDES coordinator and ECI, and to advise staff of any issues or construction activities that may affect environmental compliance. The District NPDES coordinator and ECI will be invited to participate in this training. The Team will take a proactive approach to environmental compliance to identify potential issues and mitigate those issues before they become violations.

4.4.2 Utilities

Branch|WRA will follow the *VDOT Utility Relocation Manual* to perform the utility coordination on this project but will also take full advantage of the design-build process to begin utility coordination as early as possible for this time-sensitive project bundle. In fact, our team's utility coordination started with the issuance of the RFP. We have contacted each utility company to confirm exactly what utilities exist in each of the project element footprints.

We have further evaluated each utility's impact and risk to the project cost and schedule if a relocation can't be avoided through a design modification and created a matrix of those potential impacts. Once this utility impact matrix was completed our utility staff worked closely with the roadway, drainage, and traffic engineers preparing the Conceptual Designs and eliminated as many of the conflicts as possible. Finally, we have already completed preliminary UT9's for each utility and computed the cost sharing prorate for purposes of computing project cost.

With almost a century of combined experience in utility relocation coordination on VDOT projects, our Team intimately understands VDOT utility policies and procedures and often lead and assist the utility companies through the process. This extra effort helps to ensure the engineering of the P&Es is delivered on schedule. We have seen on many recent projects that the utility company's resources are often understaffed and stretched to complete multiple projects in a short time frame. It's for this reason we assist where possible so that the project benefits. For example, we often provide potential relocation routes, help develop relocation plans and, in many cases, help write the package documents for the companies to save time and help them meet the project schedule. ***These efforts and sound relationships with the utility companies in the area were instrumental in coordinating and relocating all of the utilities on the award-winning Route 29 Solutions Design-Build Project where RDA let the overall utility coordination and WRA designed all of the wet utility relocations on the project.***

During the construction of any roadway project, discovering unknown utilities is not uncommon. Our Team's extensive experience helps us to quickly determine the type of facility, probable owner, and provide alternate solutions to minimize response time and limit the risk to the project schedule and budget.

Continuous communication with the utility companies has proven to be a necessity to ensure progress continues as planned. We will keep the utility companies updated regularly and consult them constantly as the design is advanced to ensure that we have the most cost-effective solutions to known utility problems. We take pride in finding unforeseen problems and quickly developing solutions. We will use our knowledge and experience of the utility construction methodologies to assist the utility companies to further ensure the project's successful delivery.

Identification of Utilities in Conflict with Design (and the potential mitigations/relocations):

Our Team reviewed the bundle of projects in accordance with the VDOT Utility Policies and designated which utilities appear to be in conflict and developed preliminary pro-rates for pricing.

UPC 109397 | RIO MILLS ROAD EXTENSION

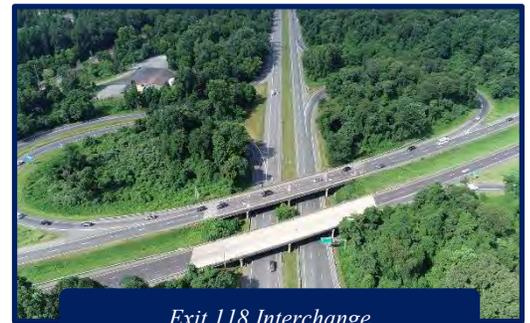
This project is very familiar to our utility and roadway design staff. Both WRA and RDA were part of the Route 29 Solutions Berkmar Drive Extension Design-Build at the eastern terminus of the project. This project does not impact a large amount of utilities. All power facilities are clear of conflict all together.

- **CENTURYLINK:** There is a 1,200-pair copper line that was adjusted for the initial construction of Berkmar Drive Extension. A line of this size is no longer needed and will be replaced with a 50-pair copper line. There is also a 25-pair copper line running the opposite side of Rio Mills Road that will likely need to be adjusted due to cut in this area. We will perform test holes on these lines as soon as possible after NTP to confirm if the lines can be protected or mitigated through design to avoid relocations.
- **COMCAST:** There is an underground line in the same cut area that will be located by test holes to determine if it can be avoided with the proposed cuts.

UPC 111727 | EXIT 118 PARTIAL CLOVERLEAF MODIFICATIONS

Currently there appears to be no existing utilities in conflict with the proposed roadway work.

- **MMI Atlantic:** This company is planning to install fiber along the corridor and was contacted and notified of the proposed project. They stated they did not intend to install their cable until later this year. Once the project begins, we can have closer coordination with them to ensure any cable they install in this area is not in conflict with the proposed roadway.

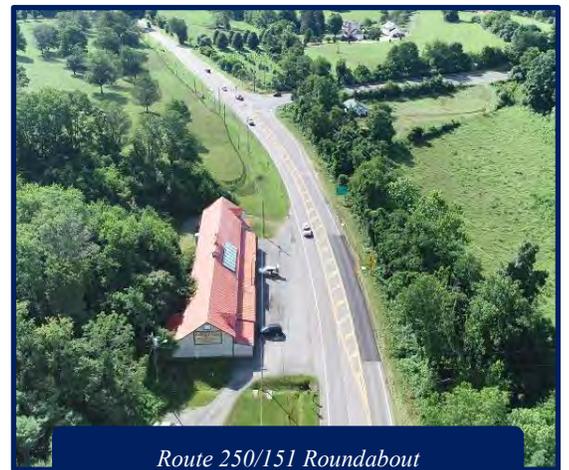


Exit 118 Interchange

UPC 111730 | US ROUTE 250 AND ROUTE 151 ROUNDABOUT

This project has moderately-high utility impacts for a smaller-scale project in a rural area. With some of the aerial facilities in direct conflict with the proposed travel lanes, mitigation will not be an option. Additionally, the proposed quad box culvert will create a conflict with underground facilities along Route 151.

- **VERIZON:** This local phone carrier has a pole line running the left side of the proposed project limits. Multiple carriers are attached to these poles so relocating them early is critical to the scheduling of the subsequent relocations to these poles. Verizon also has a medium-sized bundle of copper and fiber aerial along Route 250 that transitions to an underground line along Route 151. Six poles appear to conflict with cut slopes and the travel lanes. The underground bundle along Route 151 will need to be relocated due to the construction of the proposed box culvert.
- **LUMOS:** A buried fiber line on Route 151 will also conflict with the proposed box culvert. The line then crosses at the intersection with Route 250 and joins into an aerial fiber parallel to Route 250 for the full length of the project. Several of these poles are in cut slopes or the proposed travel lanes and will require relocation. The potential for pole transfers will be evaluated, but the amount of shift in the line makes this alternative unlikely



Route 250/151 Roundabout

- **LIGHTOWER:** Aerial facilities, including a 144-strand fiber optic cable run the length of the project. As with the Lumos line, we will attempt to transfer the line when the pole locations are determined, with relocation of the line as a more probable solution.
- **CENTURYLINK:** A underground 48-strand fiber optic cable that is owned by CenturyLink runs the length of the project is in conflict and requires relocation.
- **DOMINION ENERGY:** A three-phase pole line runs along the EB lanes of Route 250. While most of these poles are safely out of the way, the poles on either side of the intersection must be relocated to allow for the box culvert construction and grading.

UPC 111733 | ROUTE 20 AND ROUTE 649 ROUNDABOUT

This roundabout project has only moderate utility impacts, but conflicts with the existing utility poles cannot be avoided.

- **CENTURYLINK:** Two poles carrying both copper and fiber lines will conflict with the proposed project. CenturyLink has reported they would go back with a 100-pair copper and a 96-strand fiber optic line. An underground 50-pair underground copper line extends beyond the current utility designation limits and must to be relocated.
- **AT&T:** Fiber optic facilities within the cut areas will need to be located via a test hole and further evaluated. We are hopeful the line will be deep enough to be mitigated during construction. This is because AT&T is historically more expensive than most companies to relocate and have often been known to require extended durations for relocations.



Route 20/649 Roundabout

UPC 111813 | FONTAINE AVE. RAMP IMPROVEMENTS AT US ROUTE 29 BYPASS NB

- **CENTURYLINK:** A copper line conflicted with the proposed stormwater management (SWM) basin location located between the ramp and Route 29. However, in working with the drainage engineers this basin has been eliminated and therefore the line is no longer in conflict.
- **MMI Atlantic:** As with the I-64 Exit 118 project, MMI is planning to install fiber along the Route 29 corridor. They were contacted and notified of the proposed project. They stated they did not intend to install their cable until later this year.

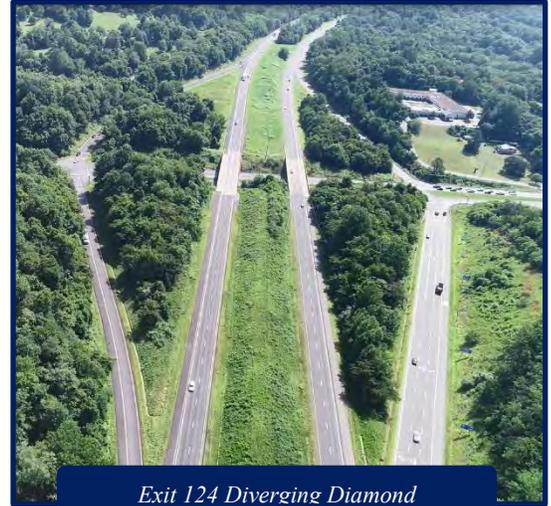


NB US Route 29 Ramp at Fontaine Avenue

All Utility Conflicts on The Fontaine Ave. Ramp Project were Eliminated by Design Modifications and Enhancements

UPC 111814 | I-64 EXIT 124 INTERCHANGE IMPROVEMENTS

The project with the most significant utility impacts of the bundle is the proposed DDI at I-64 Exit 124. Most facilities in the project area will conflict with the grading work and will need to be relocated. While the costs will be the responsibility of the utility companies, the high quantity of impacts will require extensive coordination to ensure the relocations progress on schedule.



Exit 124 Diverging Diamond

- **DOMINION ENERGY:** Six power poles conflict with the project carrying a vast array of different size lines, including three-phase, single-phase, and secondary lines.
- **CENTURYLINK:** There are major facilities in conflict along this corridor, including a major ductbank running along the right side of the road that carries 1,200-, 600-, and two 100-pair copper lines, along with 24-strand and 144-strand fiber optic lines. They also have a 200-pair copper line and a 24-strand fiber optic line along the left side of the road at the beginning of the project. Relocations of the major run will be very time consuming and a large risk to the project schedule. As noted previously in this section, we will work very closely with CenturyLink and assist them as necessary to coordinate the relocations with other construction activities.
- **CHARLOTTESVILLE GAS:** More than 500 LF (+/-) of a 6-inch natural gas line is in conflict and will require relocation. WRA worked very closely with Charlottesville Gas on the Route 29 Solutions project and has an established relationship with their local engineers.
- **ALBEMARLE COUNTY SERVICE AUTHORITY:** This project will contain the only water and sewer conflicts out of the bundle. Test holes will be needed on the lines before mitigation can be fully considered, but until our team can investigate these lines further, we are anticipating relocations. The 16-inch water main along Route 250 conflicts with both the bridge pier protection system and multiple drainage pipes. A relocation of this line through the interchange area is planned and shown on our Conceptual Concept Design in Volume II. The 8-inch water main along Glenorchy Drive crosses two drainage pipes and is also in conflict. Our Team’s Design modifications and enhancements have successfully eliminated all conflicts with the sanitary sewer along Route 250.

Integration of Utility Coordination, Adjustments, and Relocations into the Project Sequencing to Ensure Limited Disruption to Service and Minimization of Possible Schedule Delays.

Branch|WRA has gone to excessive lengths to study the existing facilities along the corridors of these projects and determined historical rates to project relocation durations to anticipate the impact of utility relocation on the project schedule. As discussed further in Section 4.5, the overall project schedule was developed to provide the utility companies with as much time as possible on the various project elements. Furthermore, we staggered this work such that the utility companies would not be faced with multiple relocation projects simultaneously. With a focus on the lesser impacted projects, construction can start earlier while some of the more complicated utility relocation tasks are handled on the other projects. We have fully integrated the utility relocations into the project CPM schedule and will track progress with weekly meetings with the utility companies actively onsite. As linear relocation tasks start to complete, the next carrier in line will be brought into the meetings to know the project is about to be available to them so that they can prepare their crews to avoid lag between companies.

4.4.3 Geotechnical

Geology & Soil Stratification

Branch|WRA has reviewed the information included in the Geotechnical Engineering Data Reports (GDR) for each improvement location provided with the RFP and available geological and geotechnical references and publications. The project sites are located within the Blue Ridge Anticlinorium and Basement Complex Physiographic Province. The general soil and bedrock stratigraphy, from bedrock to surface, is as follows:



- The bedrock at I-64 Exit 124 project improvement consists of Meta-Basalt (Greenstone) of Catoclin Formation. The moderately to highly weathered rock is expected within construction earthwork grades for the I-64 interchange in a few selected areas.
- Bedrock is not expected within construction earthwork grades for the rest of the sites. Rock in these areas is identified with multiple formations, and consist of Metagraywacke rocks, granites, conglomerate, Pyroxene Granulite, gneiss, and others.
- Above bedrock in several locations is very dense, highly weathered rock, sometimes referred to as intermediate geo-material (IGM). This material is at pavement subgrade in certain areas of the projects.
- The residual soils underlying the site consist of a range of material that includes fat clays, elastic silts, lean clays, silts, silty sand, and sand with gravel (rock fragments).
- Above the residual soils is existing fill material consisting of fat and lean clays with varying amount of sand, sandy elastic silt, poorly graded gravel with sand, and various amounts of gravel (rock fragments).
- Surface materials at the site consist of varying amounts of topsoil, and existing asphalt pavements with crushed stone base in the roadway areas.

Branch|WRA has extensive experience comprising of design and construction work in similar geological and geotechnical conditions.

Groundwater Control

Groundwater was reported in the GDRs several feet below proposed roadway subgrades and may not be an issue during the earthwork for the proposed pavement improvement and reconstructions. However, limited dewatering operations are expected during the construction of structures for stream crossings and SWM structures. At these locations, groundwater may be encountered at earthwork grades and structure foundation subgrades. The team will include additional long-term groundwater monitoring in supplemental subsurface investigation program for a refined prediction of groundwater conditions for construction planning and execution.

Additional Subsurface Investigation & Laboratory Testing

The team will conduct a supplemental subsurface investigation in proposed SWM basin areas. This program will consist of Standard Penetration Test (SPT) borings with long-term groundwater monitoring, and soil laboratory testing from SPT sampling. In addition to SWM basin areas, the supplemental subsurface investigation program will be extended to selected pavement improvement areas to supplement the GDRs. Laboratory testing will be performed on selected soil samples and these tests will include natural moisture content, Atterberg limits, gradation, and moisture-density relationship (Proctor). Laboratory tests for

pavement resilient modulus correlations will include one or more of the following: unconfined compressive strength test, quick shear test, and California Bearing Ratio (CBR) test. Existing and additional SPT boring test results will be used to obtain design criteria for the stormwater management basin.

Pavement Subgrades

New pavement and temporary pavement subgrades proposed for the project will be on newly placed fill (in fill areas) and on existing soils in cut areas. The test borings and laboratory testing from the GDRs indicated existing soils are suitable for a subgrade resilient modulus value (M_r) of 7600 psi or higher.

We see a potential risk in the suitability of the pavement subgrade in cut areas. It is noted that the RFP subgrade strength values were evaluated mostly from bulk samples from 0 to 8 foot depths, and the higher M_r values may not represent subgrades in cut areas where higher percentage of high plasticity fine soils are expected. Branch|WRA will evaluate the soils of cut area at subgrade levels and, if warranted, perform additional strength evaluation laboratory testing on samples representing these subgrade soils. To minimize the risk of constructing new pavements on unsuitable subgrade materials suspect areas will be checked during construction by proof rolling and visual observations during construction to confirm the soils are as anticipated. To further manage the risk of constructing pavement in areas where the subsurface investigation indicates unsuitable material are likely at pavement subgrade the following strategies will be considered:

- Construction phase subgrade testing by Dynamic Cone Penetrometer (DCP), unconfined compressive strength test, quick shear test, and CBR testing to accurately locate the unsuitable zones.
- Full undercut of unsuitable material to VDOT guidelines and replace with accepted structural backfill.
- Partial undercut and replacement with geo-synthetic reinforcement stabilization.
- Subgrade stabilization with the addition of cement or lime.
- Any rock undercuts, which may be encountered in the I-64 Exit 124 Interchange area, will be replaced with compacted VDOT No. 21B aggregate.

For the pavement construction in fill areas, Branch|WRA will use strategically selected materials from cut areas on the site and suitable borrow material as structural fill. Initial screening of the fill material will be based on plasticity, excess moisture content, swell potential, presence of rock, or soils containing debris, organic, or other deleterious materials. M_r value for selected fill will be verified by laboratory testing to support proposed pavement sections.

Earthwork & Slopes

Substantial cut and fill is anticipated in SWM basin areas, which will be designed by Branch|WRA. A portion of the cut slopes in SWM areas are expected to expose fine grain soils at the surface of the slope. These fine grain soils include elastic silts and fat clay. The risk associated with exposing these soils is the soils' susceptibility to long term creep which can lead to partial slope instability in the long term. To mitigate the creep issue, exposed areas with fine grained soils will be over-excavated and backfilled with a stable material to provide overburden pressure to the fine-grained soils. The amount of overburden will be determined during the design phase in addition to conventional slope stability analysis.

Based on RFP reported values of natural moistures contents and optimum proctor moistures, moisture conditioning of on-site soils is anticipated. The Team will employ aeration and/or quick lime stabilization based on the available area and weather during construction.

Existing/Proposed Structures

The proposed intersection improvement grades in general are close to existing grades, except for the single narrow areas at the Route 20/649 Roundabout and I-64 Exit 124 Interchange. Fills up to 8-feet are expected

at the Route 20/649 Roundabout, where a new stream crossing structure will replace the existing culvert. There is a risk that the existing culvert cannot handle the load from the additional fill. Although lightweight fill is an option, we will inspect and research the existing culvert material and determine its load carrying capacity.

4.4.4 Quality Assurance / Quality Control (QA/QC)

Branch|WRA's approach to the development and implementation of the Quality Assurance/Quality Control (QA/QC) Plan is to emphasize the importance of and define a process for obtaining a high-quality product in every project feature. Quality will be a key consideration in the day-to-day decisions made by employees at every level. All team members are required to become familiar with and follow these procedures. The QA/QC Plan will assure that procedural practices are in place to plan for and achieve the quality of workmanship standards set by Branch|WRA. These practices will establish the protocol to be followed by all team members, including all subcontractors, during the design and construction of the project. It will also provide detailed procedures and means to measure the Team's success in meeting VDOT's standards.

Branch|WRA has adopted the 2018 QA/QC Minimum Guidelines as the guidance document for the QA/QC Plan. Central to these quality guidelines are complying with the minimum requirements, specifications and standards of all applicable federal, state and local laws and VDOT Standards, Specifications, and Reference Documents. The intent and successful implementation of The Plan will result in process efficiencies, project profitability by elimination of re-work, increased employee morale and ultimately a successful project. Our Team has experienced very favorable performance evaluation scores (minimum 4.5/5 on the DB Performance Evaluations) on the I-95 Express Lanes Southern Terminus Extension (STE). WRA was also awarded the 2019 ACEC *Virginia Merit Award* for the I-95 Express Lanes STE Project, providing further proof that the QA/QC plans we develop are effective.

The Plan is organized into sections, with appropriate attachments in the Appendices, that provide additional guidance and checklists for Branch|WRA to implement the QA/QC plan for the project. The **Design QA/QC Plan** defines what processes, roles, and responsibilities that WRA will follow to ensure QA/QC in the design of the project. The **Construction QA Plan** is the plan that WRA's QA Manager will lead to ensure QA in the construction of the project. WRA will also oversee the implementation and adherence to the Construction QC Plan as part of the Construction QA Plan. To be successful, the Plan must be a living document, updated continuously with lessons learned as the project progresses. *In addition to the minimum requirements*, Branch|WRA intends to put the following enhancements into effect for this project.

- Update QA/QC Plan after each Preparatory Meeting.
- Amend QA/QC Plan after Approved for Construction (AFC) plans are released.
- Incorporate field changes and any associated correspondence into the QA/QC plan.
- Submit QA/QC updates monthly at a minimum.

Design

As Design Manager, *Mike Russell, P.E., DBIA*, will have ultimate responsibility for implementation of quality control and quality assurance processes for all design elements of the project. The Design QC and QA Plan addresses procedures and responsibilities to ensure the project design is correct and consistent with appropriate standards and specifications. Each design submittal of plans, calculations, or reports, whether intermediate or final will be subject to an independent quality

WRA and RDA will provide QC over each other's work to further enhance the quality control process.

review of both Design QC and Design QA functions. Each review is finalized by a review summary form, which indicates by signature that the reviewer has completed the review and that the Design Manager (DM) has confirmed that all review comments have been properly incorporated. The review set of documents becomes a permanent part of the project files.

Design quality control reviews will look at a detail level to verify numerical accuracy and completeness of calculations and plans and conformance to VDOT standards and contract requirements. This review will assess coordination between disciplines, sub-consultants, and details, and will assure that the design is correctly reflected on the plans. This process makes extensive use of standardized checklists, including VDOT LD-436 (Appendix B.1), and materials developed in-house. Design quality assurance reviews will look at the “big picture” to verify completeness and reasonableness of the design solution. The plan will also include conformance with contract requirements for each design discipline and at a minimum will include the following efforts:

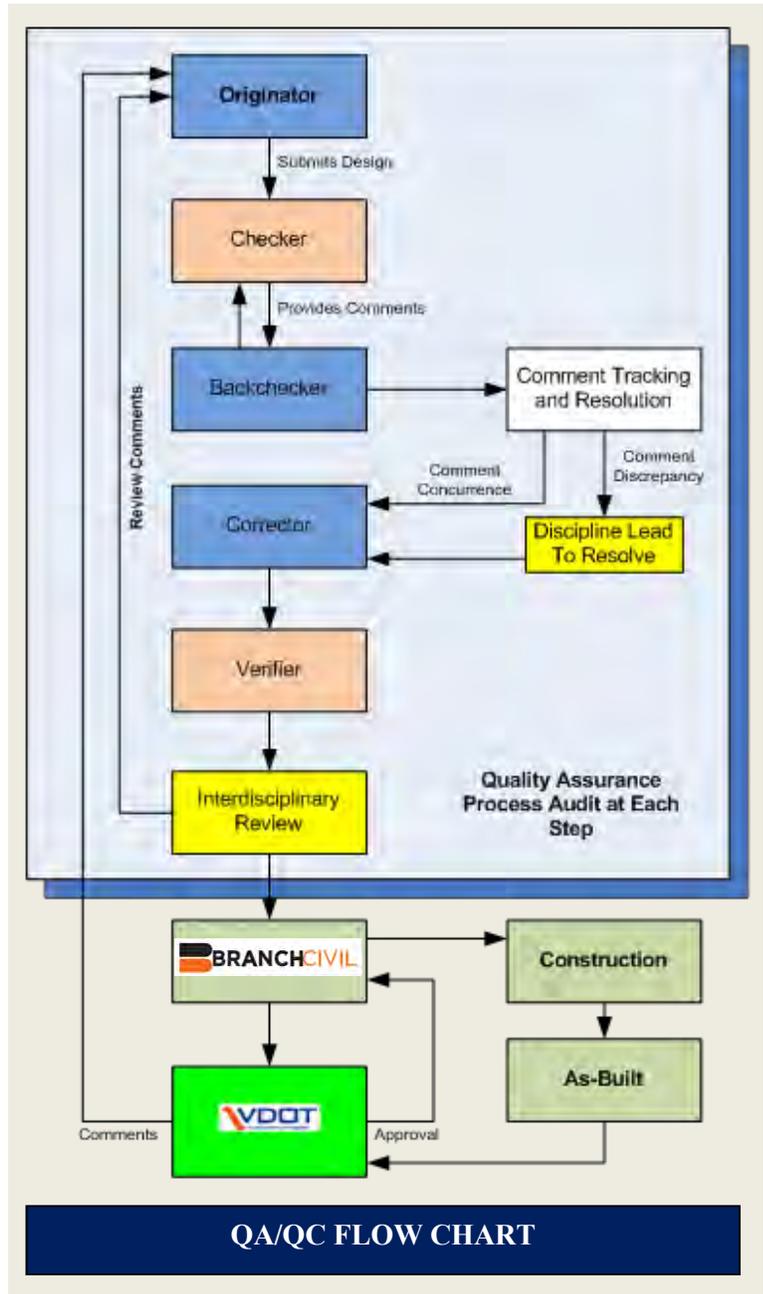
- All existing design data and calculations will be reviewed by the Design Engineer with an emphasis on engineering design and conformance with current VDOT standards to identify deficiencies. Deficiencies will be corrected as appropriate by the Design Engineer.
- The general geometry shown on the drawings will be reviewed by the Design Engineer to ensure standards are met.
- Once all calculations have been verified, the drawings will be checked by the independent QC Engineer to confirm that the design information has been correctly transferred to the plans.
- We will supplement the roadway plans with additional items, such as erosion and sediment control plans, traffic management plans, utility relocation plans, right-of-way acquisition plans and traffic engineering plans. Independent checks by the QC Engineer and reviews by the QA Engineer will be provided on these additional plans.
- Quantity calculations will be confirmed by starting with the original calculations as compiled by the Design Engineer being independently checked by the QC Engineer and comparing the information to the final drawings.
- Special provisions and special provisions copied notes will be reviewed by the Design Engineer to confirm their applicability. Additional special provisions will be provided as necessary with the concurrence and approval of the DM.
- Additionally, WRA and RDA will perform an additional independent review of each firm’s work.

The DM will review constructability, adequate right-of-way, possible utility conflicts, traffic maintenance issues, and interdisciplinary coordination. WRA and all design team members will work directly with Branch’s Design Construction Coordinator and the QAM to complete the constructability reviews of the plans to thoroughly ensure that all aspects of the project can be physically constructed in a safe manner. In addition to being safe, reviews will ensure the completed work is maintainable. This especially holds true for the impact the design will have on MOT. Items, such as material delivery/storage, workforce accessibility, and crane and other equipment placement will be reviewed to minimize traffic impacts. The DM will carry out his responsibilities by ensuring all QC and QA reviews are performed appropriately and by conducting regular design meetings and special meetings for specific issues and concerns.

Any field changes or any other deviations to the approved construction documents that need to be made will be subject to the same design QC and QA measures and procedures as applied to the original design. The requested change will be logged for tracking and will be sent to the Design Engineer who performed the original design. Once the change has been reviewed and the appropriate QC Engineer check performed, the requested change will be forwarded to the QA Engineer for review and DM for approval. Once the DM has approved the change, it will be sent to Branch and ultimately to VDOT and/or other entities, as needed, with a recommendation for approval. If there are no comments, then the field change will be incorporated into the as-built plans. If comments are received, they will be forwarded back to the original designer and we will continue the process until the requested change is acceptable to VDOT and/or the appropriate entity.

In summary, the mission is to provide quality designs and plans in the fast-paced delivery of a design-build project. The key that drives success is effective communication among everyone involved with the design. QA/QC design procedure goals are to:

- Design features that are safe and maintainable and meet VDOT regulations and Design Manuals.
- Conform to the standards and reference documents in RFP, Part 2, Section 2.1.1.
- Design elements that meet requirements, are constructible, durable, economical, inspectable, and minimize maintenance.
- Meet design schedule, budget, and construction staging requirements.
- Minimize design costs.
- Provide an organized and indexed set of design calculations, including design criteria and assumptions.
- Minimize VDOT Reviews.



VALUE: Key to project success is an integrated QA/QC process that includes the QC staff, designers, contractors, and the design team's QC checkers.

Specific Design QA/QC Element – Roundabout Design

While Roundabouts are becoming more and more common in Virginia, their design requires specific attention to detail regarding vehicle tracking, drainage, construction staking detail, and concrete pavement (construction detail, texture, and contrast). The two roundabouts proposed by Branch|WRA are an integral component to the success of the overall project bundle and traffic safety improvements at the intersections.

The proximity of the Route 250/151 roundabout to the proposed box culvert, stream and the approaching grades of the intersecting roadways introduce additional design constraints and complexities that must be considered. The phasing required to maintain all legs of the intersection introduces MOT details that must be carefully reviewed during final design. A constructability review and sequence of construction will be discussed with the construction staff to understand and address the challenges of building the roundabout. The Route 20/649 Roundabout enjoys a slightly less complex overall MOT impact but must carry the live stream directly underneath the proposed roundabout in the initial construction phase.

While many of these issues have been vetted during the conceptual design process, our Team plans to introduce an interim QC/QA reviews of the roundabout designs early in the design process and prior to any submittals being made to the Department. The intent of this interim review is to ensure that all design elements of the roundabouts are in accordance with NCHRP Report 672 and that all necessary design information such as AutoTurn plots and speed profiles have been prepared and reviewed. Furthermore, we plan to utilize the extensive knowledge of both WRA and RDA to perform not only “independent” reviews, but inter-firm reviews to ensure that multiple viewpoints and design approaches have been considered.

The QA/QC process described above will be followed as if this were a true submittal to the Department. Once the Designer has checked their work for completeness, the Design Manager will direct QC Engineers from roadway, traffic engineering, and drainage to perform reviews of the design with attention being paid to horizontal and vertical geometry and MOT during the various construction phases, and drainage. Once comments have been resolved, incorporated, and back-checked, a separate QA review will be performed to ensure the QC process was followed in accordance with the QA/QC plan followed by an Interdisciplinary Review to include the construction team members. A review will then be conducted by the QA/QC Manager to ensure the entire process is complete prior to Certification by the Design Manager that the work package is ready to submit to VDOT.

Construction

QA is defined as the overall process performed independently of the construction contractor (contractor’s production forces) for determining the conformance of the work by examining QC data and/or providing objective evidence (independent sampling and testing), to verify the contractor’s quality control sampling and testing.

The Construction QA Plan is intended to describe how Branch|WRA will achieve the QA functions in accordance with this definition and according to the requirements in VDOT’s *Minimum Quality Control and Quality Assurance Requirements for Design-Build & Public-Private Transportation Act Projects, January 2018* (Minimum Guidelines). The QA Staff consists of **M. Jeff Humphreys, DBIA**, Design-Build Project Manager (DBPM), **Lenny Coleman, PE, CCM**, the WRA Quality Assurance Manager (QAM), WRA QA Inspectors, and the QA Laboratory and Testing Technicians.

The DBPM will be ultimately responsible for the quality of the construction of the individual work elements, including the workmanship and materials incorporated into the Project. The QAM will report directly to the DBPM and will manage the construction Quality Assurance program. The QA organization will be separate from the design and production teams and the QA staff will not perform conflicting duties or production work.

Thus, in full compliance with VDOT’s requirements, the QA organization will be “distinct and separate from the design and production staff” and “all key personnel performing QA or QC functions” will “be exclusively designated as such and” will “not be assigned to perform conflicting duties or production work.”

The QAM will provide inspection and testing to assess construction processes relative to the applicable standards and specifications. The QAM and staff will perform independent control testing in accordance with this QA Plan, which is based on VDOT’s *Minimum Quality Control and Quality Assurance Requirements for Design-Build & Public-Private Transportation Act Projects, January 2018* (Minimum Guidelines), provide feedback to the VDOT PM, and will assure that all the necessary documentation regarding QA/QC inspections and testing of materials and in-place construction has been performed and adheres to the contract before any payment is approved. Per VDOT’s Guidelines, Branch will give the QAM written authority to stop work or hold payment.

Once construction starts, the QAM and his staff will interface daily with the Construction Manager and his Quality Control Team. The QAM’s primary point of contact on site will be the DBPM. The QC Staff, to include the QC Inspectors, Technicians and Laboratory, will submit all the QC documentation to the QAM for review and acceptance. Based on the Contractor’s two-week look-ahead schedule generally provided to the QAM on a weekly basis, the QAM will ensure that upcoming work items are properly inspected and tested. The QAM will review issue logs with the Quality Control Manager (QCM) and will then discuss these issues directly with the DBPM and VDOT with recommendations to correct any problem(s). Four phases of inspection will be used to ensure the work is performed in accordance with the contract documents. They are the Preparatory Phase, Intermediate Phase, the Completion Phase, and the Punch-list Phase.

The QAM, DBPM, and Construction Manager will use the inspection preparatory meetings as an opportunity to proactively address issues related to upcoming work and to convey lessons learned. Preparatory Inspection Meetings will be hold points and will be held in advance of specific work activities to verify approval of proper documents, materials, and permits, discuss the means and methods and sequencing that will be employed in the activity, plan for testing and necessary Owner interaction, and schedule the necessary inspection activities. The meeting will allow for coordination and communication between Branch|WRA, our production personnel, relevant Design-Team members, QC and QA personnel, and VDOT and VDOT’s Independent Assurance and Verification, Sampling, and Testing representatives. The meetings will ensure that all parties have the same understanding of the design intent and to confirm the completeness and suitability of the plans, and identify all relevant inspection checklists, inspections and testing that will occur for each work package.

The challenge in having a preparatory meeting 14 days in advance of this operation is that this element of work is constant throughout the life the project. To reinforce the level of quality discussed at the beginning of the project as the project develops, Branch|WRA will conduct weekly QA-QC meetings with the Branch|WRA, QA, QC, and VDOT teams on-site to ensure everyone understands his or her respective responsibilities and that all work is covered and properly documented. Daily communication with the Construction QC Manager will occur to review the project’s scheduled activities and to ensure proper coordination of QA/QC activities. When deemed necessary, Branch|WRA will conduct supplemental preparatory meetings to discuss previous hold-point topics as well as highlight challenges and solutions that the project has had since the first meetings. Branch|WRA has found this practice to be particularly valuable when a new subcontractor commences operations on the project that will impact a previously covered element of work.

When the procedures established in the QA/QC Plan and discussed at the Preparatory and Weekly Meetings are not followed, the QAM will utilize the enforcement and documentation tools at his disposal and at his discretion. They include an Internal Non-Conformance Statement (INCS), Non-Conformance Report (NCR),

and Stop Work Notice. An INCS will be utilized when an element of work has been observed by the QA, QC, Branch|WRA, or VDOT staff that is not in compliance with the project requirements but the next item in succession for this element of work has not yet begun. Examples of this would include the placement of tack on asphalt that has not yet been properly cleaned. An INCS would be issued for the tack to be removed, the asphalt layer cleaned, and tack reapplied. If the INCS was not corrected within seven days and the contractor proceeded with placement of the next lift of asphalt on the uncleaned surface, a NCR will be issued. The contractor would then have to justify to the satisfaction of the QAM, EOR and VDOT of the proposed corrective action. Payment for that element of work would be withheld until the NCR is closed.

Another example using enforcement and documentation tools is monitoring work zone compliance. The QC inspector will inspect the project's MOT elements daily for general compliance and on a weekly basis the QC and QA inspectors will complete separate Work Zone Safety Inspection Checklists (TE-97001). The inspectors will document the compliance of the various elements of the work zone within the checklist, review with the contractor responsible for the work zone, sign and file the checklist with their daily work report as well as maintaining a separate log. The VDOT checklist already follows the established enforcement policy established within Branch|WRA's QA/QC Plan. If an item is deemed non-compliant per the *Virginia Work Area Protection Manual* and not an immediate safety hazard (damaged barrel or leaning signage), the inspector will note it as such in the appropriate checkbox and re-inspect the noncompliant items within five business days. If an item requires immediate action because it has been determined to be an immediate safety hazard (clear zone infraction or malfunctioning advanced warning light) a NCR and a Stop Work Notice for that operation will be issued until the issue is corrected.

Witness and Hold Points will be established where notification of VDOT is required for the Department's option of observing or visually examining a specific work operation or test. Witness Points are points identified within the QA/QC Plan and CPM schedule, which require notification of VDOT. Work may proceed beyond a witness point with or without participation by VDOT provided proper notification has been given. Hold Points are mandatory verification points identified within the QA/QC Plan and CPM schedule beyond which work cannot proceed until mandatory verification is performed and a written release is granted by VDOT. The QAM will work with VDOT to identify witness and hold points accordingly.

Specific Construction QA/QC Element – Roundabout Construction

One of the more significant challenges presented by the Albemarle Intersection Bundling is maintaining traffic throughout the life of the various projects through the different phases and through the construction of the roundabouts at the Route 250/151 and Route 20/649 intersections. One of the first preparatory meetings for the project will be for MOT. This meeting, and all preparatory meetings, will be structured to be informational and not instructional to reinforce a collaborative solution-based meeting discussion. It is the Branch|WRA's experience that these meetings have resulted in impactful comments and questions being presented back to the design team for clarification and/or revision to assure a quality operation and final product. The inclusion of the applicable design discipline at these meetings has resulted in quick resolution of questions and changes to plans and provides the maximum level of quality during construction.

Discussion about the lane and shoulder closures will be a key topic in the MOT preparatory meeting as well as coordination efforts between VDOT, the nearby residents, and businesses. Understanding that the RFP considers the required restrictions, Branch|WRA, working with the above partners, will consider the impact of the project's phasing on special events and peak periods of traffic such as weekend tourist traffic. The MOT preparatory meeting will also focus on traffic shifts for the roundabouts. Roundabouts have proven to be a vital traffic calming measure, however during phased construction they present challenges for maintaining traffic flow particularly when opened in phases. Branch|WRA will engage all meeting attendees to discuss lessons learned on previous roundabouts constructed throughout the state so to maximize the quality of our

construction. Meeting minutes will be prepared and distributed within 48 hours of the meeting so that all parties are fully informed of the discussion. At a minimum, the following topics will be discussed at the Preparatory Meeting:

- ✓ **Layout for Construction**
- ✓ **Verification of Survey for Drainage and Roadway Improvements**
- ✓ **Sequence of Construction**
- ✓ **Maintaining Traffic During Construction**

Prior to making the roundabout fully operational, a Hold-Point will be introduced with Branch|WRA, VDOT, and the QA/QC teams to review the on-site conditions to verify all elements of work are in working order and the new traffic pattern can safely be implemented. A checklist will be provided by the QAM for all parties to confirm their agreement on the safe and operational condition of the intersection prior to the commencement of all traffic shifts as part of the Hold-Point inspection. This procedure will include confirmation from VDOT that proper notification has been provided to all project stakeholders and media outlets.



I-81 Exit 150 Route 11 Roundabout

4.5

Construction of the Project

4.5 Construction of the Project

Introduction

From working together on previous projects, Branch|WRA drew from our lessons learned to provide the means and methods required to safely and efficiently deliver this critical project ahead of schedule. We focused on the following to develop our construction approach:

- Reinforcing the safety of the traveling public, pedestrians and our workers during construction
- Construct most of the project without impacting traffic
- Reduce impacts to cultural resources, streams and wetlands
- Minimize impacts to right-of-way (ROW)
- Decrease the Maintenance of Traffic phases

Members of Branch|WRA have met on a weekly basis to develop the Sequence of Work that eventually led to the generation of the Project Schedule, shown in Section 4.7. The Project Schedule illustrates the detailed effort that will be put into the design and engineering, permitting, utilities, ROW, QA/QC and construction.

Project Enhancement	Positive Impacts for the Traveling Public
Final Completion Date of September 30, 2022	Delivers the Project six months earlier than VDOT's Final Completion Date
Unique Milestone Dates: <ul style="list-style-type: none"> • I-64 Exit 124: September 30, 2022 • I-64 Exit 118: October 30, 2020 • Fontaine Ave. Ramp: July 31, 2020 • Route 250/151: September 30, 2022 • Route 20/649: July 1, 2022 • Rio Mills Ext.: October 1, 2021 	I-64 Exit 118 and Fontaine Ave. Ramp are completed by the end of 2020 (over two years earlier than VDOT's Final Completion Date), eliminating potential impacts to the traveling public and during UVA football games during 2021 and 2022.
Optimized Alignment	Reducing the scope of construction work will require less time to complete the project, providing safety improvements to the traveling public earlier
Phased MOT Plan	Reducing the number of traffic shifts and phases of MOT increases safety for vehicles and pedestrians.
Early Project Element Completion Dates	Significantly reduces construction durations and travel delays

4.5.1 Sequence of Construction

4.5.1.a Approach to Construction Phasing

To develop the Construction Sequence, we focused on the pre-planning activities that will reduce potential construction delays. This approach **maximizes the opportunity of anticipating and mitigating any potential delays to construction and meeting the Unique Milestone Dates and Final Completion of the Project** by the dates included in the Letter of Submittal.

4.5.1.b General Sequence of Activities

I-64 Exit 124 (UPC 111814)

Phase 1 will widen the existing ramps and a portion of Route 250 south of I-64 in order to make traffic shifts to accommodate Phase 2. Phase 2 will add turn lanes at all ramps followed by widening of the median along Route 250 in Phase 3. Phase 4 involves widening and wedging along Route 250 just north of I-64. Please see the graphic on the following page and Volume II for graphical representations of the MOT phases.

I-64 Exit 118 (UPC 111727)

Improvements will begin behind barrier wall in the median of Route 29 then progress on to Ramp A. I-64 EB Lanes and US 29 southbound work will be performed after the median and Ramp A construction is complete and open to traffic.

Fontaine Avenue Ramp (UPC 111813)

The required widening along US 29 northbound and Ramp A to Fontaine Avenue will be performed concurrently. Any mill and overlay will take place after all new construction is complete.

Route 250 / 151 (UPC 111730)

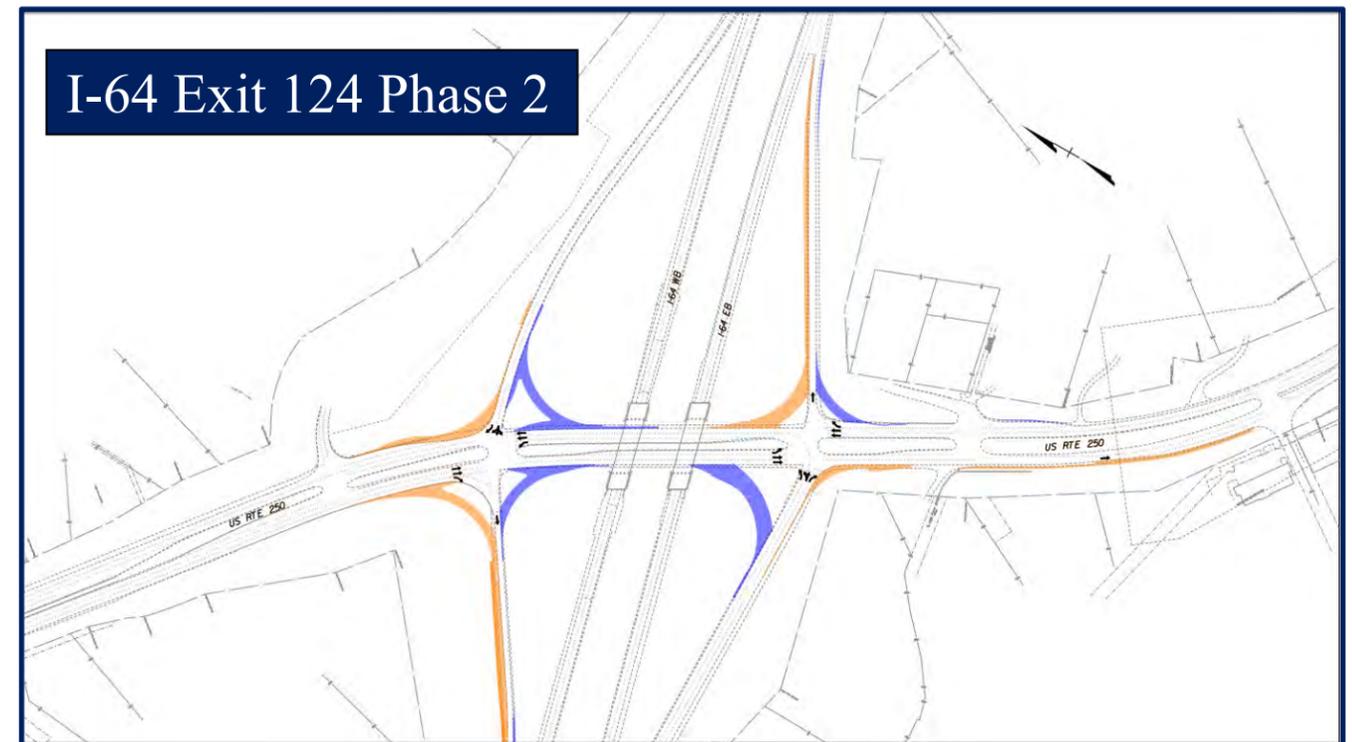
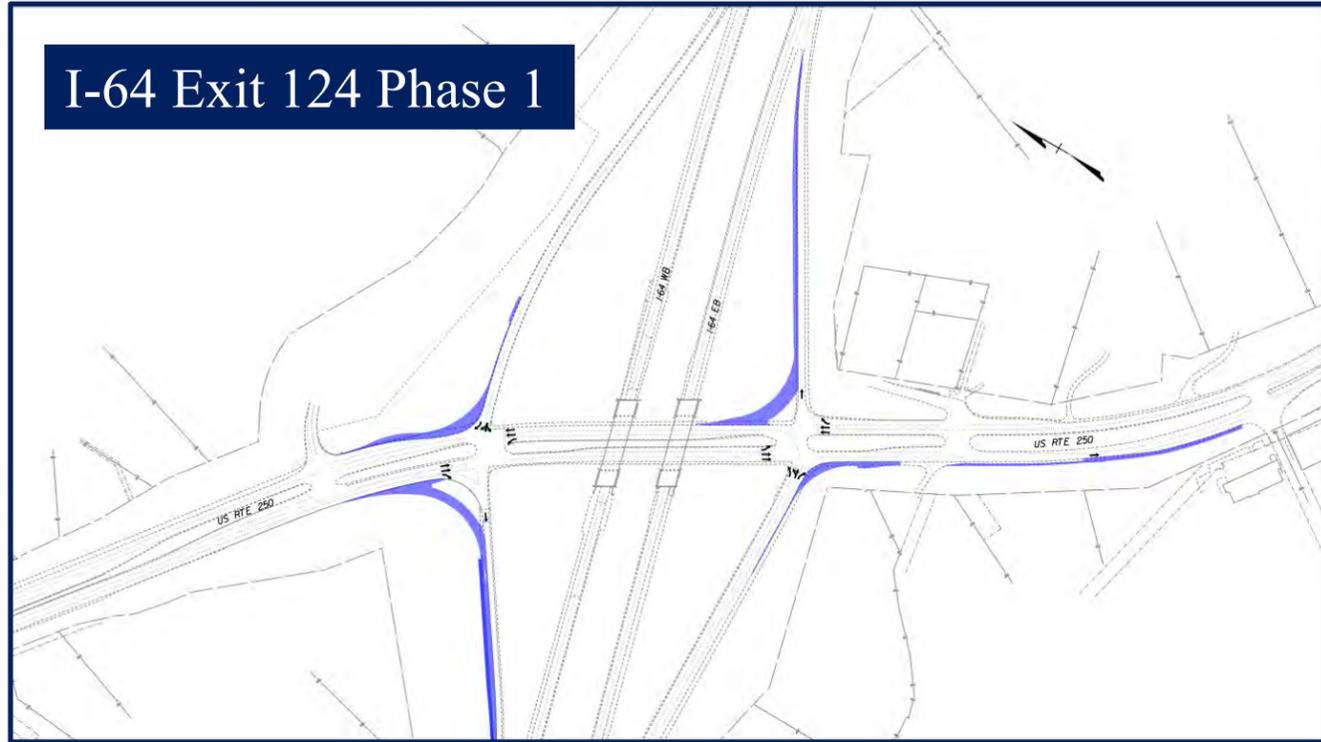
In Phase 1, the ultimate Route 250 pavement to the north and Route 151 to the east will be constructed along with the required additional temporary asphalt to allow traffic to be shifted for Phase 2 construction. Temporary wire walls will be utilized along Route 250 to minimize the amount of temporary pavement needed. The eastern half of the quad box under Route 151 will also be constructed in Phase 1. The traffic shift on Route 250 and 151 will allow for the completion of construction along Route 250 to the south, Route 151 to the east, and the southern quadrants of the roundabout. The second half of the quad box culvert is also completed in the second Phase. Phases 3 and 4 will complete the roundabout and any mill and overlay required. See Volume II for graphical representations of the MOT Phases.

Route 20 / 649 (UPC 111733)

During Phase 1, new construction outside of the existing travel lanes will be completed. This includes over 50% of the roundabout construction and new alignment legs of Route 20 and Route 649. In Phase 2, milling and asphalt overlay account for much of the work. The remaining roundabout and any remaining mill and overlay work is completed in Phase 3. See Volume II for graphical representations of the MOT Phases.

Rio Mills Extension (UPC 109397)

Construction with this element is predominantly new location except for the tie-ins at Rio Mills Road and Berkmar Drive. Construction begins with installing E&S measures, clearing and grubbing, and general grading. The tie-ins on each end will be made under lane closures to complete the connection.



I-64 Exit 124 Sequence of Construction

- Construction This Phase
- Construction Previous Phase

4.5.1.c Approach to Addressing Safety and Operations

Branch|WRA analyzed each element to look for ways to improve the safety and operations from a design and construction perspective. Below is a summary of enhancements incorporated and the corresponding benefit to the traveling public.

UPC	Safety and Operations Enhancements to Design and Construction	Benefits to the Traveling Public
UPC 111814 I-64 Exit 124	Widening to the median of Route 250 eliminates a phase of construction and multiple traffic shifts.	Reduces construction duration and disruption of traffic operations.
UPC 111727 I-64 Exit 118	Compressed design and construction durations. Early unique milestone for completion.	Minimizes duration of construction and impacts to traveling public. Construction completed in 2020 eliminated impacts for the UVA football season in 2021 and 2022.
UPC 111813 Fontaine Ave Ramp	Shifted Ramp A alignment to allow new construction to occur on inside. Reduces traffic shifts and duration of construction. Early unique milestone for completion.	Reduces traffic pattern disruptions and completes construction in 2020. Early completion eliminates impacts for the UVA football season in 2021 and 2022.
UPC 111730 Route 250/151	Shifted alignment along Route 250 and the roundabout to construct a larger portion of the new roadway improvements out of traffic.	The shift reduces the need for temporary pavement in this area and eliminates a traffic shift and reduces construction duration.
UPC 111733 Route 20/649	Alignment shifts to Route 20 and Route 649 has allowed for more improvements to be constructed out of traffic.	More than 50% of the improvements will be made prior to altering the existing traffic pattern.
UPC 109397 Rio Mills Ext.	Added a unique milestone for the early completion.	The new connection will allow for the traveling public to use the roadway 18 months earlier than VDOT’s scheduled Final Completion Date.

Safety and Environmental Compliance

Branch will employ the same practices and procedures on the Albemarle Intersection Bundling Project that have led to excellent Design-Builder Performance Evaluation Report scores on the I-95 at Route 3 Safety Improvements project. Much of the work on the I-95 at Route 3 Safety Improvements project was performed in 2018 when Branch consistently received a score of 4 for Safety and 4s and 5s for Environmental Compliance for the entire year.

4.5.1.d Staging and Storage Areas During Construction

Branch|WRA understands that the planning and establishment of appropriate staging and storage areas are critical to maximizing safety and efficiency of the Project. Several factors are considered when determining the most suitable locations for staging and storage areas: proximity to construction activities and ease of access. Additionally, we will evaluate each proposed area for line of sight considerations, ingress/egress safety

and consideration of clear zone location.

The storage of materials and equipment behind existing guardrail or temporary barrier results in a safe work zone with limited impact to traffic. Branch|WRA is careful to consider the deflection rate of guardrail and barrier to support the proper placement of materials and equipment to prevent these work zone elements from becoming potential hazards, even when placed behind protective devices.

Similarly, sight lines are evaluated to verify materials and equipment are not placed adjacent to driveways or intersections where they limit visibility for approaching traffic. Each of these potential risks is analyzed and the proposed areas are then coordinated with intended construction access points to develop the safest, most efficient plan for staging and storage areas, as well as access points. Several of the element locations do not have adequate room for staging and storage areas within the project limits. In these cases, an offsite staging and storage area will be utilized.

The following areas will be considered for staging and storage areas:

- **I-64 Exit 124 (UPC 111814):** Adjacent to the existing ramps
- **I-64 Exit 118 (UPC 111727):** Offsite staging and storage area
- **Fontaine Ave. Ramp (UPC 111813):** Offsite staging and storage area
- **Route 250/151 (UPC 111730):** Offsite staging and storage area
- **Route 20/649 (UPC 111733):** Adjacent to existing Route 20 and Route 649
- **Rio Mills Ext. (UPC 109397):** Within existing ROW for Rio Mills Extension

4.5.1.e Managing and Scheduling Resources to Deliver Multiple Elements Concurrently

Design

Branch|WRA is structured to allow design activities to begin on all six project elements *simultaneously*. We have strategically assigned specific design teams from WRA and RDA to develop the construction plans for each individual intersection improvement, as well as ROW, environmental, and utility considerations. Specifically, WRA (**Mark Vasco, PE**) will be responsible for managing the following three elements, *each of which will be accomplished by a separate design team*:

- **I-64 Exit 124 DDI**
- **Route 250/151 Roundabout**
- **Rio Mills Ext.**

Likewise, RDA (**John Giometti, PE**) will be responsible for managing the remaining three project elements that will be accomplished by *two separate design teams*. We feel that the I-64 Exit 118 and the Fontaine Ramp Improvements elements can be more efficiently delivered as a single work package both from a design and construction standpoint:

- **I-64 Exit 118 and the Fontaine Ramp Improvements**
- **Route 20/649 Roundabout**

Design Resources

WRA and RDA have separate design teams with proven experience with Design-Build projects including roundabout design. The two firms have a combined staff of over 900 that can be leveraged to work on this project if needed. The Design Manager (Mike Russell) for the project has full authority to obtain additional resources at any time during the project from both WRA and RDA. Many of the engineers are located in

Richmond allowing for the design teams to integrate and produce a seamless design product. This will allow each of these projects to have Approved for Construction Plans delivered as quickly as possible for each separate element.

Construction

Branch will set up the field operations to manage the Albemarle Intersection Bundling project like managing recently completed projects where multiple areas can be constructed at the same time. To better manage the construction, certain elements will be paired together, and others will be independent. Based on the opportunity to begin construction of certain elements early, proximity to each other, and type of construction, we plan on breaking the construction of the project down into these four segments:

- *I-64 Exit 124 DDI*
- *Rio Mills Ext. and Route 20/649 Roundabout*
- *I-64 Exit 118 and the Fontaine Ave. Ramp Improvements*
- *Route 250/151 Roundabout*

Raymond Bruce, Field Operations Manager, will work with **Greg Suttle** to manage the field crews. Raymond will balance the need of labor and equipment resources between each element to ensure each are staffed appropriately. Each of these four segments will have a dedicated superintendent to oversee the construction.

Jim Freeman, Superintendent, will supervise the I-64/Route 250 DDI. Jim was the superintendent on Branch's Southgate Drive project that featured a DDI interchange as well as two roundabouts.

The I-64 Exit 118 and the Fontaine Ave. Ramp Improvements will begin construction early. Neither project will require ROW to be acquired or utilities to be relocated. Our Team has verified that no environmental permits will be required in order to begin work. Since both projects begin early and the I-64 Exit 124 DDI project requires ROW acquisition, utilities to be relocated, and environmental permits to be acquired, Jim Freeman will also serve as Superintendent for these projects. While design and preconstruction activities are underway for the I-64 Exit 124 DDI project, work will begin on I-64 Exit 118 and the Fontaine Ramp Improvements projects. This approach should allow these two projects to be well underway before work begins on the DDI.

Greg Montgomery, Superintendent, will oversee the Rio Mills Ext. and Route 20/649 Roundabout projects. Greg recently completed the Exit 150 Bid-Build Project (Salem District) where a roundabout was constructed on Route 11. Like the Albemarle Intersection Bundling project, Greg maintained traffic while constructing the roundabout in stages. Greg will also oversee the Route 250/151 Roundabout element. The Rio Mills Ext. will begin construction in the summer of 2020 allowing for ROW, utility relocates, and permit acquisition to have ample time to be completed before construction begins.

Construction Resources

Both Jim and Greg will have separate crews dedicated to their respective segments in order to give the elements the necessary manpower and equipment they will need to complete as early as possible. Branch has over 150 people and 200 pieces of equipment within 75 miles of the project. These resources will be readily available to fulfill the requirements the project will have.

We anticipate beginning construction on the I-64 Exit 118 and the Fontaine Ave. Ramp elements in January of 2020 with a grading crew on each element. Construction will begin on the I-64 Exit 124 and Rio Mills Ext. elements in the spring and summer of 2020. Each of these elements will have a dedicated grading crew bringing the total number of crews at this time to four. In the fall of 2020, construction will begin on the Route

250/151 and Route 20/649 elements. As work is completed on I-64 Exit 118 and the Fontaine Ave. Ramp, grading crews on these elements will transition over to Route 250/151 and Route 20/649. Balancing the construction schedule means that Branch will only be constructing four of the elements at any given time and tapering down to only two elements under construction in 2022.

Overall Project Schedule

Below is a summary of the design and construction schedule. In order to adequately manage and schedule the resources required to deliver the project by the Unique and Final Completion Dates, design and construction activities have been staggered to consider the environmental, ROW, and utility relocation needs of each element. When construction begins there will be four of the six elements being constructed: I-64 Exit 124, I-64 Exit 118, the Fontaine Ave. Ramp, and Rio Mills Ext. In the fall of 2020 when I-64 Exit 118 and the Fontaine Ave. Ramp are completed, Route 250/151 and Route 20/649 will begin construction. This allows for the labor and equipment required for constructing concurrent elements to be properly managed. As noted above, Branch has adequate and experienced construction labor and equipment in the local area. If needed, additional local resources can be incorporated into the project.

PROJECT SCHEDULE

	2019		2020				2021				2022				2023
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Notice to Proceed (7-22-2019)	◊														
RFP Completion Date (3-30-2023)															◊
Pre-Construction (Design / ROW / Utility Relocation) Activities															
I-64 Exit 124															
I-64 Exit 118															
Fontaine Ave.															
Route 250 / 151															
Route 20 / 649															
Rio Mills Ext.															
Construction Activities															
I-64 Exit 124															
All Construction Activities															
Element Completion (9-30-2022)															◊
I-64 Exit 118															
All Construction Activities															
Element Completion (10-30-2020)						◊									
Fontaine Ave.															
All Construction Activities															
Element Completion (7-31-2020)					◊										
Route 250 / 151															
All Construction Activities															
Element Completion (9-30-2022)															◊
Route 20 / 649															
All Construction Activities															
Element Completion (7-1-2022)															◊
Rio Mills Ext.															
All Construction Activities															
Element Completion (10-1-2021)															◊
Final Completion Date (September 30, 2022)															◊

4.5.1.f Anticipating and Managing Potential Delays

In order to achieve the Interim and Final Completion Dates proposed, our proposed design considers optimizing the alignment, minimizing temporary asphalt, and limiting impacts to utilities and ROW. Design and construction activities will be supported by the approach of utilizing early start packages to expedite construction and using the multiple design and construction resources available to the team.

- **Optimizing Alignment:** Alignment shifts have been incorporated into the design in order to reduce the overall scope of work, decrease the duration of construction and minimize any impacts to the environment, ROW and utilities. Most notable on the I-64 Exit 124 element, the alignment shift will incorporate more median widening which eliminates an additional phase of construction.
- **Minimizing Temporary Asphalt:** The approach to MOT includes maximizing the use of the existing pavement and reducing the use of temporary asphalt. There are areas on several of the elements where the existing travel lanes will be built up with asphalt in lieu of using temporary pavement to shift traffic and reconstruct the existing roadway. This approach will reduce the construction duration.
- **Minimizing Utility Conflicts:** The project schedule includes durations for locating existing utilities, designing solutions, and relocation. Any potential delays due to utility conflicts have been minimized with the proposed design as well as with adequate time in the schedule. A major utility conflict on the Fontaine Ave. Ramp element has been eliminated. The alignment shift allowing for improvements to be made to the west side of Ramp A will eliminate any utility conflicts with the MMI Atlantic fiber line. Avoiding this conflict allows for early completion of the Fontaine Ave. element. We understand that CenturyLink may have limited resources to relocate their utilities. To accommodate their staff and better manage the project schedule, we will stagger their relocation efforts to adjust to their resources.
- **Avoiding Unnecessary ROW Acquisition:** The proposed design has reduced the overall need for ROW acquisition. The Route 20/649 element's conceptual design would require ROW acquisition from the VOF. Acquisition of permanent ROW could take up to a year to procure. Our proposed design will eliminate the need for permanent ROW from the VOF and instead only require a Temporary Construction Easement.
- **Multiple Resources:** Branch|WRA has ample design and construction resources to meet the proposed Interim and Final Completion Dates. WRA and RDA have a combined staff of over 900. If additional design resources are needed, Mike Russell and Darell Fischer will work together to staff the project accordingly. Branch has over 150 employees within 75 miles of the project. If delays are experienced and the construction staffing plan needs to be increased to expedite or accelerate activities, Branch has the local workforce to bring to the project.

4.5.2 Transportation Management Plan

Maintaining Traffic Through All Phases of Construction

While satisfying the requirements for safety improvements is a key focus of the Project, Branch|WRA places an equal significance on making sure the work is completed in a safe and efficient manner. Our focus is on designing and building a solution using a construction program that delivers the highest standard of safety with the least impact to the public.

To satisfy this high standard of safety and low impact, we have developed a design where minimal impacts will be made to existing traffic. Branch|WRA will also develop a comprehensive **Transportation Management Plan (TMP)** for each element that will include the following components:

- Fully detailed Temporary Traffic Control (TTC) Plan for all phases of construction
- Public Communications Plan (PCP)
- Incident Management Plan (IMP)

This comprehensive TMP will be developed, in part, through the efforts of our **Traffic Management Task Force (TMTF)**. The TMTF will verify that the TMP and construction activities are continually coordinated to mitigate safety and traffic congestion risks. Led by the Construction Manager and supported by the MOT Engineer and Roadway Superintendent, the task force will meet at least monthly with appropriate VDOT staff and project stakeholders to review the TMP and determine if any changes need to be made to address safety and logistics concerns. Not only will this regular coordination alleviate safety and traffic risks, but it will also provide an effective means of keeping VDOT and the stakeholders up-to-date on progress and upcoming changes in the traffic pattern.

Our TMTF will provide an effective means of keeping VDOT and the stakeholders up-to-date on progress and upcoming changes in the traffic pattern.

Following Project award, Branch|WRA will develop fully detailed TTC plans for each phase of construction to identify each traffic control element required for efficient construction and safe movement of traffic through the project. Branch|WRA will take great care to implement the appropriate devices to ensure the safety of the workers and motorists while satisfying the requirements of the *Virginia Work Area Protection Manual and the Manual on Uniform Traffic Control Devices (MUTCD)*. The TTC plans will include barrier locations, temporary attenuation device types and locations, temporary signage and pavement markings, advance warning via PCMS installation, temporary drainage features, construction access points and methods, and delineation of staged worked areas.

The TMTF will review historical crash data and existing safety concerns to verify that the TTC plan mitigates these risks. Branch|WRA will consider existing geometry, inadequate sight lines, and any other site characteristics identified that require special consideration for construction sequencing or traffic control. Branch|WRA has proactively completed a preliminary review of this data to make sure the sequencing and proposed phasing of construction addresses these existing safety concerns.

The PCP will consist of providing regular project updates to VDOT to be shared on the project website, public distribution of paper and social media, and sharing work zone information. The work zone information will be provided by using Portable Changeable Message Signs. During lane closures and traffic shifts, law enforcement will be utilized to assist the construction activities.

An IMP will be developed to address any field work that is performed which impacts travel lanes or shoulders. The intent of the IMP will be to prepare for incidents along the construction corridor. Our TMTF will coordinate with VDOT, EMS, and other stakeholders during the development of the plan and hold a stakeholder meeting to discuss the IMP. The IMP will be developed to address the following:

- 24/7 point of contact for emergency notification of incident by TOC
- Emergency detour routes and sign layout plans in addition to TMP signage
- Agency and stakeholder Responsibilities Matrix/Checklist
- Coordination with VDOT TOC
- Coordination with first responders
- Law enforcement, fire, and rescue access to the road network during incidents
- Pre-planned messages for various types of incidents for the portable DMS
- Contact list for appropriate stakeholder response personnel

Proposed Lane Closures

A specific TMP will be developed for each element which will include the use of lane closures. Temporary lane closures will be utilized to construct each of the six project elements.

Temporary Detours

No temporary detours are anticipated.

Time of Day Restrictions

Branch|WRA is aware of and will adhere to the Time of Day Restrictions established in the RFP.

Flagging Operations

Flagging operations will be required when making improvements to each of the elements. To reinforce the safety of both the workers and travelling public, our flaggers will be fully certified and will adhere to stringent safety standards such as the use of OSHA approved safety equipment and ISEA’s “American National Standard for High-Visibility Apparel,” appropriate station locations with adequate visibility, and the installation of advance warning signs.

Minimum Lane Widths

During construction, the minimum lane width to be used on all elements will be 11’, except for the Route 20/Route 649 element. On Route 1494, the minimum lane width will be 9’ based on the final design criteria.

Work Zone Speed Reductions

We believe speed reductions for the two roundabout projects should be considered and will be further evaluated. Once completed both roundabouts will operate at 25mph and reducing to this speed upon the start of construction will acclimate the travelling public to this new condition early and enhance safety of the work zone as a result.

Project Stakeholders

The summary below outlines the stakeholders that are located throughout the Project corridor and outlines our planned communication and mitigation strategies to limit disruptions to vehicular and pedestrian traffic through the work area and adjacent public transportation facilities/roadways.

Stakeholder / Impact	Communication / Mitigation Strategies
<p>Traveling Public: Potential time delay for temporary construction operations</p>	<ul style="list-style-type: none"> • Provide advance-warning via PCMS • Facilitate regular public meetings with stakeholders • Public outreach campaign (media) • Minimize lane closures and traffic shifts • Maximize temporary lane widths
<p>Pedestrians Potential for pedestrians within the work zone</p>	<ul style="list-style-type: none"> • Maintain all existing sidewalk and pedestrian access facilities • Monitor for other pedestrian activity and adjust construction activities to accommodate these pedestrians • Engage TMTF to coordinate with stakeholders in regard to special events and seasonal activities

Stakeholder / Impact	Communication / Mitigation Strategies
<p>Albemarle County, UVA & City of Charlottesville</p> <p>Potential time delay for temporary construction operations</p>	<ul style="list-style-type: none"> • Provide advance-warning via PCMS • Facilitate regular meetings with stakeholders • Public outreach campaign (media)
<p>Utilities</p> <p>Need for proactive coordination of relocation efforts with planned construction sequencing</p>	<ul style="list-style-type: none"> • Implement weekly utility coordination meetings facilitated by WRA; meeting will be attended by Branch WRA and utility owners to facilitate appropriate coordination and identification of early start areas • Engage TMTF to continuously evaluate and adjust the TMP to provide safe and efficient traffic control as dictated by needed utility operations
<p>Local Community (residents, Riggory Ridge Subdivision, apartment complexes, healthcare providers)</p> <p>Construction in close proximity</p>	<ul style="list-style-type: none"> • Facilitate regular meetings with stakeholders • Public outreach campaign (media) • Maintain access to all adjacent properties • Coordinate driveway and road tie-ins with residents
<p>Schools</p> <p>Potential delays to school buses and drop-off/pick-up traffic, and pedestrian safety</p>	<ul style="list-style-type: none"> • Facilitate regular meetings with stakeholders • Public outreach campaign (media) • Engage TMTF to coordinate with school administration • Strategically schedule construction activities • Analyze peak AM and PM traffic volumes to minimize disruptions
<p>Police, Fire & Rescue</p> <p>Potential for delay in response time</p>	<ul style="list-style-type: none"> • Continuous on-going coordination with stakeholders • After action reviews with stakeholders following incidents • Engage TMTF to coordinate with designated representative of each agency to serve as point-of-contact for proactive dissemination of upcoming traffic pattern or route changes • Analyze existing coverage areas and review the need for pre-staging of services • Pre-traffic switch meeting with agencies prior to major changes in traffic patterns
<p>Virginia Outdoor Foundation</p> <p>ROW Impact</p>	<ul style="list-style-type: none"> • Design enhanced to minimize impact to property and eliminate permanent ROW acquisition.

Approach to Public Outreach

Branch|WRA understands the desires of the local stakeholders, and through our experience delivering projects for VDOT, we also understand the needs of state and local emergency services, maintenance forces, and the VDOT District office. Windy Campbell with Seventh Point will help manage the public outreach efforts and timely and accurate reach out to stakeholders during all phases of the Project. Windy and Jeff Humphreys have successfully worked together with WRA on the I-64 Exit 200 to 205 Design-Build project. Our Team has several goals for public outreach on the Project:

- Providing timely and accurate information to limit surprises for all stakeholders;
- Maintaining a successful partnership with VDOT, key stakeholders, and the community to promote information sharing and transparent access to project information;
- Proactively anticipating and addressing community concerns and issues by promoting open, transparent communication while gaining insight from the TMTF.

Branch|WRA has evaluated construction impacts to vehicular, pedestrian, bicycle traffic and public transportation. The Rio Mills Road Extension connection to Berkmar Drive is the only area where existing pedestrian facilities exist. However, as previously stated, we will monitor all the project work zones for other pedestrian activity and adjust our construction activities to accommodate these users. Paved shoulders vary in width from 0 to ~10 feet and are discontinuous; bicyclists must take the travel lane. Existing signals do not have pedestrian clearance intervals. Transit facilities are also non-existent. Our focus will be to develop a Sequence of Construction (SOC) and TMP that minimizes impacts to vehicular traffic and opens the facilities that enhance the safety for any pedestrians and bicyclists as soon as possible.

4.6

Project Schedule

4.6 Proposal Schedule

4.6.1 Proposal Schedule

The 11x17 copy of the proposal schedule is provided in Volume II.

4.6.2 Proposal Schedule Narrative

Branch|WRA has developed a comprehensive Proposal Schedule and Proposal Schedule Narrative that demonstrates our understanding of the Project. The Proposal Schedule, along with our proven experience in managing and constructing all phases of design-build projects, will reinforce early delivery of the Project. Our team brings a history of experience working together that has evolved into a partnership with VDOT that successfully delivers design-build projects. Branch|WRA is committed to improving the enclosed Proposal Schedule to benefit VDOT, the traveling public and all associated stakeholders. Once the design process begins, we will work to identify areas where the Proposal Schedule can be improved.

Branch|WRA is committed to minimizing impacts to the traveling public and delivering the Project early. The timeline below outlines the Key Milestone dates from our schedule. To achieve these dates, coordination will be required between our team, VDOT, and other reviewing agencies. After Project Award, Branch|WRA will develop the Preliminary and Baseline Schedule for the Project.



Work Breakdown Structure

The Work Breakdown Structure (WBS) for the Project is a multi-level arrangement of the activities to be performed to complete the Project. Preconstruction and construction activities have been broken down by Phase and into the components as follows:

- **General Milestones:** Overall project status.
- **Project Durations / Milestones:** Construction durations for each of the UPCs.
- **General Conditions:** Scope validation, preliminary schedule and baseline schedule.
- **UPC 111814 – I-64 Exit 124 – Diverging Diamond Intersection:** Design activities consist of QA/QC plan, field surveys, geotechnical, environmental permits, utility relocation, MOT, E&S, grading, drainage, ITS, lighting, signing, striping and final roadway. Permitting includes wetland and stream delineation, coordination of approvals with USACE, and stormwater permits. Utility relocations are included. This approach will allow for better management and coordination of the relocation work required. Submittal milestones and approvals by VDOT are also included for all items. Construction activities include all work associated with roadway, MOT, drainage, and signage.

- **UPC 111727 – I-64 Exit 118 – Partial Cloverleaf Modification:** Design activities consist of QA/QC plan, field surveys, geotechnical, environmental permits, MOT, E&S, grading, drainage, striping and final roadway. Permitting activities include verifying that no permit will be required. Submittal milestones and approvals by VDOT are also included for all items. Construction activities include all work associated with roadway, MOT, drainage, and signage.
- **UPC 111813 – US 29 NB Ramp to Fontaine Ave.:** Design activities consist of QA/QC plan, field surveys, geotechnical, environmental permits, MOT, E&S, grading, drainage, striping and final roadway. Permitting activities include verifying that no permit will be required. Submittal milestones and approvals by VDOT are also included for all items. Construction activities include all work associated with roadway, MOT, drainage, and signage.
- **UPC 111730 – RTE 250 & 151 – Rockfish Gap & Cartharpin Rd – Roundabout:** Design activities consist of QA/QC plan, field surveys, geotechnical, environmental permits, utility relocation, ROW, MOT, E&S, grading, drainage, lighting, signing, striping and final roadway. Permitting includes wetland and stream delineation, coordination of approvals with USACE, and stormwater permits. Utility relocations are included. This approach will allow for better management and coordination of the relocation work required. ROW acquisition activities are included. Submittal milestones and approvals by VDOT are also included for all items. Construction activities include all work associated with roadway, MOT, drainage, and signage.
- **UPC 111733 – RTE 20 & 649 – Proffit Roundabout:** Design activities consist of QA/QC plan, field surveys, geotechnical, environmental permits, utility relocation, ROW, MOT, E&S, grading, drainage, lighting, signing, striping and final roadway. Permitting includes wetland and stream delineation, coordination of approvals with USACE, and stormwater permits. Utility relocations are included. This approach will allow for better management and coordination of the relocation work required. ROW acquisition activities are included. Submittal milestones and approvals by VDOT are also included for all items. Construction activities include all work associated with roadway, MOT, drainage, and signage.
- **UPC 109397 – Rio Mills Extension to Berkmar:** Design activities consist of QA/QC plan, field surveys, geotechnical, environmental permits, utility relocation, ROW, MOT, E&S, grading, drainage, lighting, signing, striping and final roadway. Permitting includes wetland and stream delineation, coordination of approvals with USACE, and stormwater permits. Utility relocations are included. This approach will allow for better management and coordination of the relocation work required. ROW acquisition activities are included. Submittal milestones and approvals by VDOT are also included for all items. Construction activities include all work associated with roadway, MOT, drainage, and signage.
- **Close-Out** | As-built drawings.

The table below is a summary of the WBS from Level 2 down to Level 3:

WBS Level 2	WBS Level 3
General Milestones	<i>General Milestones</i>
Project Durations / Milestones	<i>Project Durations / Milestones</i> <ul style="list-style-type: none"> • UPC 111814 – DDI – Construction Duration • UPC 111727 – I-64 Exit 118 – Construction Duration • UPC 111813 – Fontaine Ave – Construction Duration • UPC 111730 – RTE 250 & 151 – Construction Duration • UPC 111733 – RTE 20 & 649 Proffit – Construction Duration • UPC 109397 – Rio Mills – Construction Duration

WBS Level 2	WBS Level 3
General Conditions	<i>General Conditions</i> <ul style="list-style-type: none"> • Scope Validation • Project Schedules
UPC 111814 – I-64 Exit 124 – Diverging Diamond Intersection	<i>UPC 111814 – I-64 Exit 124 – Diverging Diamond Intersection</i> <ul style="list-style-type: none"> • Design - 111814 • Construction – DDI • Closeout - DDI
UPC 111727 – I-64 Exit 118 – Partial Cloverleaf Mod	<i>UPC 111727 – I-64 Exit 118 – Partial Cloverleaf Mod</i> <ul style="list-style-type: none"> • Design - 111727 • Construction – Exit 118 • Closeout – Exit 118
UPC 111813 – US-29 NB Ramp to Fontaine Ave.	<i>UPC 111813 – US-29 NB Ramp to Fontaine Ave.</i> <ul style="list-style-type: none"> • Design – 111813 • Construction – Fontaine Ave • Closeout – Fontaine Ave
UPC 111730 – RTE 250 & 151 – Rockfish Gap & Cartharpin Rd - Roundabout	<i>UPC 111730 – RTE 250 & 151 – Rockfish Gap & Cartharpin Rd - Roundabout</i> <ul style="list-style-type: none"> • Design - 111730 • Construction – RTE 250 & 151 • Closeout – RTE 250 & 151
UPC 111733 – RTE 20 & 649 – Proffit Roundabout	<i>UPC 111733 – RTE 20 & 649 – Proffit Roundabout</i> <ul style="list-style-type: none"> • Design – 111733 • Construction – RTE 20 & 649 • Close-Out – RTE 20 & 649
UPC 109397 – Rio Mills Extension to Berkmar	<i>UPC 109397 – Rio Mills Extension to Berkmar</i> <ul style="list-style-type: none"> • Design - 109397 • Construction – Rio Mills • Close-Out – Rio Mills
Close-Out	<i>Close-Out</i>

Calendar

The following calendars have been used in development of our schedule to represent a variety of scenarios:

Item	Details
ALB 7-DAY	This calendar is based on seven working days per week and is used for all General Milestones, Project Durations / Milestones, and General Conditions. This calendar is also used for VDOT reviews, QA/QC reviews, utility relocations, signal burn in, utility P&E review and approval.
ALB 5-DAY HD	<p>This calendar is based on five working days per week. Saturdays, Sundays and the following holidays are non-working days:</p> <ul style="list-style-type: none"> • New Year’s Day • Memorial Day • Monday after Easter • Independence Day • Labor Day • Thanksgiving • Friday after Thanksgiving • Christmas Eve • Christmas Day <p>This calendar will be used for design activities that are not dependent on weather.</p>
ALB 5-DAY HD W	<p>This calendar is based on five working days per week, includes holidays (same as in ALB 5-DAY HD) and adverse weather days. This calendar will be used for all construction activities except those that could affect the UVA football schedule and involving weather, temperature or time of year restrictions. The following adverse weather days are included:</p> <ul style="list-style-type: none"> • January – 3 days • February – 4 days • March – 4 days • April – 4 days • May – 5 days • June – 5 days • July – 7 days • August – 4 days • September – 4 days • October – 4 days • November – 4 days • December – 4 days
ALB 5-DAY HD W PVG	This calendar is based on five working days per week, includes holidays (same as in ALB 5-DAY HD), adverse weather days (same as in ALB 5-DAY HD W) and the period from November 15 to February 28. This calendar is assigned to any base stone or paving activity.
ALB 5-DAY HD W UVA	<p>This calendar is based on five working days per week, includes holidays (same as in ALB 5-DAY HD), adverse weather days (same as in ALB 5-DAY HD W) and the following number of Fridays in each month blocked off for UVA football games:</p> <ul style="list-style-type: none"> • August – 1 Friday

Item	Details
	<ul style="list-style-type: none"> September – 3 Fridays October – 1 Friday November – 2 Fridays <p>This calendar will be used for all construction activities including those that could affect the UVA football schedule and involving weather, temperature or time of year restrictions.</p>
ALB 5-DAY HD W UVA PVG	<p>This calendar is based on five working days per week, includes holidays (same as in ALB 5-DAY HD), adverse weather days (same as in ALB 5-DAY HD W), UVA football games (same as in ALB 5-DAY HD W UVA), and the period from November 15 to February 28.</p> <p>This calendar will be used for all construction activities associated with base stone or paving in locations that could affect the UVA football schedule.</p>

Plan and Strategy for Pre-Construction Activities

Branch|WRA has optimized the design of each element, assigned adequate resources and developed a schedule that delivers the completion of the project **6 months earlier** than the RFP Final Completion Date. The design and construction durations have been staggered in order to balance the design and construction staff required to complete each element and the entire project by the proposed completion dates listed in the Letter of Submittal. Branch, WRA and RDA have the local resources to complete the project on time. Our schedule approach includes a focus on pre-construction activities, design, environmental permits, ROW, and utilities, in order to eliminate issues that will impact construction progress:

Design

Each element has its independent design tasks. Within the design section, schedule activities are included to develop a QA/QC plan, perform field survey, complete a geotechnical investigation, obtain environmental permits, relocate utilities, develop final roadway plans, and to gain the necessary approvals. As specified in the RFP, we have included a 21-calendar day activity for VDOT review after each submission.

The design effort will begin following Notice to Proceed (NTP) on July 22, 2019. The development of the design has been distributed between WRA and RDA as follows:

- *WRA: I-64 Exit 124, Route 250 / 151, and Rio Mills Ext.*
- *RDA: I-64 Exit 118, Fontaine Ramp Improvements, and Route 20 / 649*

Environmental Permits

This section of the schedule contains activities involved with the evaluation, preparation, submission and approval of any and all environmental permits. The I-64 Exit 118 and Fontaine Ramp Improvements elements will not require any environmental permits; however, activities are shown in the schedule to verify that none are required.

Right-of-Way Acquisition

ROW acquisition will be performed in accordance with VDOT requirements and the RFP. Our Project Schedule reflects the necessary durations needed to perform all ROW acquisition tasks including: Title Reports, Appraisals, Appraisal Reviews, and negotiation with the property owner. To minimize schedule risk, parcels that will need to be acquired early will be identified.

Utility Relocation

Branch|WRA has contacted each utility company to confirm what utilities are located within each of the

project elements' footprint and determined the conflicts that exist. Coordination with the roadway, drainage, and traffic engineers was performed to optimize the design to eliminate or minimize utility conflicts. Where utility relocation needs to occur, activities have been included in the schedule to include time for performing a Level A SUE investigation, holding the Utility Field Investigation meeting, utility plan and estimate preparation by the utility owner, review and approval of plan and estimates and the relocation of the utilities. Close coordination with the utility companies will be required and adequate time has been included in the schedule for the relocation process. The following utilities are anticipated to be in conflict with the proposed improvements:

Project Element	Conflict	Schedule Resolution
UPC 111814 I-64 Exit 124	<ul style="list-style-type: none"> • Dominion Energy: Six poles • CenturyLink: Ductbank carrying copper and fiber; other underground copper and fiber lines • Charlottesville Gas: 6" gas line • Albemarle County Service Authority: 8" and 16" waterline 	<ul style="list-style-type: none"> • 7 months allowed for development of preliminary plans, field inspection, UT9s, approval of P&Es, and execution of master agreements. • 10 months allowed for relocation.
UPC 111727 I-64 Exit 118	<ul style="list-style-type: none"> • No conflicts 	<ul style="list-style-type: none"> • No utility relocation activities required.
UPC 111813 Fontaine Ramp Improvements	<ul style="list-style-type: none"> • CenturyLink: Underground copper line in conflict with drainage basin 	<ul style="list-style-type: none"> • Drainage basin has been eliminated. No utility relocation activities required.
UPC 111730 Route 250 / 151	<ul style="list-style-type: none"> • Verizon: Six poles and underground fiber lines • Lumos: Underground fiber line • Lightower: Aerial fiber line • CenturyLink: Underground fiber line • Dominion Energy: Poles at the intersection of Route 250 and 151 	<ul style="list-style-type: none"> • 5 months allowed for development of preliminary plans, field inspection, UT9s, approval of P&Es, and execution of master agreements. • 8 months allowed for relocation.
UPC 111733 Route 20 / 649	<ul style="list-style-type: none"> • CenturyLink: Two poles with copper and fiber. Underground copper line. • AT&T: Underground fiber line 	<ul style="list-style-type: none"> • 5 months allowed for development of preliminary plans, field inspection, UT9s, approval of P&Es, and execution of master agreements. • 3 months allowed for relocation.
UPC 109397 Rio Mills Ext.	<ul style="list-style-type: none"> • CenturyLink: Underground copper line • Comcast: Underground fiber line 	<ul style="list-style-type: none"> • 5 months allowed for development of preliminary plans, field inspection, UT9s, approval of P&Es, and execution of master agreements. • 3 months allowed for relocation.

Overall Construction Sequencing

Branch|WRA has developed the schedule to mitigate impacts to the traveling public and delays to construction

and to complete the Project in a timely fashion. The I-64 Exit 118 and Fontaine Ramp Improvements elements begin construction in the first quarter of 2020. Construction begins on I-64 Exit 124 in the spring of 2020 on the I-64 ramps allowing for utility relocations along Route 250 to advance. The I-64 Exit 118 and Fontaine Ramp Improvements elements will be complete by late fall 2020. As construction continues on I-64 Exit 124, improvements begin on the Route 250/151, Route 20/649 and Rio Mills Ext. elements at the end of 2020 and beginning of 2021. Rio Mills Ext. is completed in the fall of 2021 and Route 20/649 is finished in the summer of 2022. The I-64 Exit 124 and Route 250/151 elements continue into 2022 and are completed by September 30, 2022. The Final Completion Date on September 30, 2022 delivers the project **6 months earlier** than the RFP Completion Date.

Critical Path

The critical path of the project begins with the pre-construction activities for the I-64 Exit 124 element including developing the design QA/QC plan, geotechnical investigation, utility coordination, and roadway design. This work is followed by the Phase 1 ramp improvements of Exit 124. The activities for Exit 124 remain on the critical path up through the element closeout. Also, on the critical path is the design QA/QC plan and ROW acquisition for the Route 250/151 element. The utility relocation for Route 250/151 follows the ROW acquisition and leads to the Phase 1 and 2 construction. The Phase 2 installation of the quad box culvert is critical to the timely completion of this element. The I-64 Exit 124 and Route 250/151 elements have the same completion dates and correspond to the Final Completion Date of the project. Below is the summary of Critical Path activities:

Item	Details
MS-310	Notice to Proceed (EST 7-22-2019)
MS-990	Final Completion (9-30-2022)
PD-100	UPC 111814 DDI – Start Construction
PD-120	UPC 111814 DDI – Finish Construction
PD-400	UPC 111730 – Rte 250 & 151 – Start Construction
PD-420	UPC 111730 – Rte 250 & 151 – Finish Construction
DDI-DS-1000	Prepare & Submit QA/QC Plan
DDI-DS-1010	Kick Off Meeting
DDI-DS-3000	Prepare Boring Plan
DDI-DS-3010	Miss Utility Markings
DDI-DS-3020	Perform Soil Borings and Lab Work
DDI-DS-3030	Prepare Geotechnical Report and Recommendations
DDI-DS-3040	QA/QC and Submit Geotech Report
DDI-DS-3050	VDOT Review – Geotech Report
DDI-DS-3060	Revise/Resubmit Geotech Report

Item	Details
DDI-DS-3070	VDOT Review & Approval – Revised Geotech Report
DDI-DS-5020	VDOT Coordination Meeting
DDI-DS-5030	Preliminary Review Meeting with Utility Owners
DDI-DS-5040	Utility Field Inspection
DDI-DS-5070	Utilities Submits Plan and Estimate (P&E)
DDI-DS-5080	Utility P&E Approval
DDI-DS-5090	Utility and DB Master Agreements Completed
DDI-DS-6050	Resubmit for Approval
DDI-DS-6060	VDOT Review & Approval
DDI-DS-8000	Roadway Plans/Incorporate/Resolve Comments
DDI-DS-8010	Design QA/QC Review of Roadway Plans
DDI-DS-8020	Prepare Roadway Plans for Submission
DDI-DS-8030	VDOT Review & Approval – Final Design Plans
DDI-DS-8040	AFC Roadway Plans Released
DDI-1030	DDI – PH 1 – Utility Relocation
DDI-P1-3000	PH 1 – Ramp C – Remove Existing Guardrail
DDI-P1-3010	PH 1 – Ramp C – Sawcut Existing Asphalt
DDI-P1-3020	PH 1 – Ramp C – Demo Existing Pavement
DDI-P1-3030	PH 1 – Ramp C – Excavate for Roadway
DDI-P1-3050	PH 1 – Ramp C – Install Storm Drain Pipe & Structure
DDI-P1-3060	PH 1 – Ramp C – Grade for Curb & Gutter
DDI-P1-3070	PH 1 – Ramp C – FPS for Curb & Gutter
DDI-P1-3080	PH 1 – Ramp C – Fine Grade for Roadway
DDI-P1-3090	PH 1 – Ramp C – Install Aggregate Base
DDI-P1-3100	PH 1 – Ramp C – Install Underdrain
DDI-P1-3110	PH 1 – Ramp C – Install Base Asphalt
DDI-P1-3120	PH 1 – Ramp C – Install Intermediate Asphalt
DDI-P1-3140	PH 1 – Ramp C – Grade Slopes & Seed

Item	Details
DDI-P1-3150	PH 1 – Ramp C – Install Guardrail
DDI-P1-4000	PH 1 – Ramp D – Remove Existing Guardrail
DDI-P1-4010	PH 1 – Ramp D – Sawcut Existing Asphalt
DDI-P1-4020	PH 1 – Ramp D – Demo Existing Pavement
DDI-P1-4030	PH 1 – Ramp D – Excavate for Roadway
DDI-P1-4040	PH 1 – Ramp D – Excavate for Stormwater Management Basin
DDI-P1-4050	PH 1 – Ramp D – Install Storm Drain Pipe & Structure
DDI-P1-4060	PH 1 – Ramp D – Grade for Curb & Gutter
DDI-P1-4070	PH 1 – Ramp D – FPS for Curb & Gutter
DDI-P1-4080	PH 1 – Ramp D – Fine Grade for Roadway
DDI-P1-4090	PH 1 – Ramp D – Install Aggregate Base
DDI-P1-4100	PH 1 – Ramp D – Install Underdrain
DDI-P1-4120	PH 1 – Ramp D – Install Base Asphalt
DDI-P1-4130	PH 1 – Ramp D – Install Intermediate Asphalt
DDI-P1-4150	PH 1 – Ramp D – Grade Slopes & Seed
DDI-P1-4160	PH 1 – Ramp D – Install Guardrail
DDI-P2-0900	DDI – PH 2 – Switch MOT from PH 1 to PH 2
DDI-P2-1000	PH 2 – Ramp A – Remove Existing Guardrail
DDI-P2-1010	PH 2 – Ramp A – Sawcut Existing Asphalt
DDI-P2-1020	PH 2 – Ramp A – Excavate for Roadway
DDI-P2-1030	PH 2 – Ramp A – Install Storm Drain Pipe & Structure
DDI-P2-1040	PH 2 – Ramp A – Grade for Curb & Gutter
DDI-P2-1050	PH 2 – Ramp A – FPS for Curb & Gutter
DDI-P2-1060	PH 2 – Ramp A – Fine Grade for Roadway
DDI-P2-1070	PH 2 – Ramp A – Install Aggregate Base
DDI-P2-1080	PH 2 – Ramp A – Install Underdrain
DDI-P2-1090	PH 2 – Ramp A – Install Base Asphalt
DDI-P2-1100	PH 2 – Ramp A – Install Intermediate Asphalt

Item	Details
DDI-P2-1120	PH 2 – Ramp A – Final Grade & Seed
DDI-P2-1130	PH 2 – Ramp A – Install Guardrail
DDI-P2-2000	PH 2 – Ramp B – Remove Existing Guardrail
DDI-P2-2010	PH 2 – Ramp B – Sawcut Existing Asphalt
DDI-P2-2020	PH 2 – Ramp B – Excavate for Roadway
DDI-P2-2030	PH 2 – Ramp B – Install Storm Drain Pipe & Structure
DDI-P2-2040	PH 2 – Ramp B – Fine Grade for Roadway
DDI-P2-2050	PH 2 – Ramp B – Install Aggregate Base
DDI-P2-2060	PH 2 – Ramp B – Install Underdrain
DDI-P2-2070	PH 2 – Ramp B – Install Base Asphalt
DDI-P2-2080	PH 2 – Ramp B – Install Intermediate Asphalt
DDI-P2-2100	PH 2 – Ramp B – Final Grade & Seed
DDI-P2-2110	PH 2 – Ramp B – Install Guardrail
DDI-P2-3000	PH 2 – Ramp C – Remove Existing Guardrail
DDI-P2-3010	PH 2 – Ramp C – Sawcut Existing Asphalt
DDI-P2-3020	PH 2 – Ramp C – Excavate for Roadway
DDI-P2-3030	PH 2 – Ramp C – Install Storm Drain Pipe & Structure
DDI-P2-3040	PH 2 – Ramp C – Fine Grade for Roadway
DDI-P2-3050	PH 2 – Ramp C – Install Aggregate Base
DDI-P2-3060	PH 2 – Ramp C – Install Underdrain
DDI-P2-3070	PH 2 – Ramp C – Install Base Asphalt
DDI-P2-3080	PH 2 – Ramp C – Install Intermediate Asphalt
DDI-P2-3100	PH 2 – Ramp C – Final Seed & Grade
DDI-P2-3110	PH 2 – Ramp C – Install Guardrail
DDI-P2-4000	PH 2 – Ramp D – Remove Existing Guardrail
DDI-P2-4010	PH 2 – Ramp D – Sawcut Existing Asphalt
DDI-P2-4020	PH 2 – Ramp D – Demo Existing Pavement
DDI-P2-4030	PH 2 – Ramp D – Excavate for Roadway

Item	Details
DDI-P2-4040	PH 2 – Ramp D – Install Storm Drain Pipe & Structure
DDI-P2-4050	PH 2 – Ramp D – Fine Grade for Roadway
DDI-P2-4070	PH 2 – Ramp D – Install Aggregate Base
DDI-P2-4080	PH 2 – Ramp D – Install Underdrain
DDI-P2-4090	PH 2 – Ramp D – Install Base Asphalt
DDI-P2-4100	PH 2 – Ramp D – Install Intermediate Asphalt
DDI-P2-4120	PH 2 – Ramp D – Final Seed & Grade
DDI-P2-4130	PH 2 – Ramp D – Install Guardrail
DDI-P3-1000	DDI – PH 3 – Switch MOT from PH 2 to PH 3
DDI-P3-3000	PH 3 – Sawcut Existing Asphalt
DDI-P3-3010	PH 3 – Demo Existing Pavement
DDI-P3-3020	PH 3 – Excavate for Roadway
DDI-P3-3030	PH 3 – Install Storm Drain Pipe & Structures
DDI-P3-3040	PH 3 – Grade for Curb & Gutter
DDI-P3-3050	PH 3 – FPS for Curb & Gutter
DDI-P3-3060	PH 3 – Fine Grade for Roadway
DDI-P3-3070	PH 3 – Install Aggregate Base
DDI-P3-3080	PH 3 – Install Base Asphalt
DDI-P3-3090	PH 3 – Install Intermediate Asphalt
DDI-P3-3110	PH 3 – Grade Islands & Seed
DDI-P4-1000	PH 4 – Switch MOT from PH 3 to PH 4
DDI-P4-1010	PH 4 – Sawcut Existing Asphalt
DDI-P4-1020	PH 4 – Demo Existing Pavement
DDI-P4-1030	PH 4 – Excavate for Roadway
DDI-P4-1040	PH 4 – Install Storm Drain Pipe & Structures
DDI-P4-1050	PH 4 – Grade for Curb & Gutter
DDI-P4-1060	PH 4 – FPS for Curb & Gutter
DDI-P4-1070	PH 4 – Fine Grade for Roadway

Item	Details
DDI-P4-1080	PH 4 – Install Aggregate Base
DDI-P4-1090	PH 4 – Install Base Asphalt
DDI-P4-1100	PH 4 – Install Intermediate Asphalt
DDI-P4-1120	PH 4 – Mill Existing Asphalt (All Areas)
DDI-P4-1130	PH 4 – Grade Islands & Seed
DDI-9000	DDI – Punch List
DDI-9010	DDI – Final Inspection
DDI-9020	DDI – Remove MOT
RCK-DS-1000	Prepare & Submit QA/QC Plan
RCK-DS-1010	Kick Off Meeting
RCK-DS-6000	RW Plans
RCK-DS-6010	Prepare RW Plan Sheets
RCK-DS-6090	Preliminary RW/Easement Acquisition Effort (Title research, Appraisal)
RCK-DS-6100	Appraisal Reviews
RCK-DS-6110	Perform RW/Easement Acquisition
RCK-P1-1030	PH 1 – Utility Relocation
RCK-P1-3000	PH 1 – 250 NS – Remove Existing Wooden Fence
RCK-P1-3010	PH 1 – 250 NS – Sawcut Existing Asphalt
RCK-P1-3020	PH 1 – 250 NS – Demo Existing Asphalt
RCK-P1-3030	PH 1 – 250 NS – Construct Retaining Wall
RCK-P1-3040	PH 1 – 250 NS – Excavate for Roadway
RCK-P1-3050	PH 1 – 250 NS – Install Storm Drain Pipe & Structures
RCK-P1-3060	PH 1 – 250 NS – Grade for Curb & Gutter
RCK-P1-3070	PH 1 – 250 NS – FPS for Curb & Gutter
RCK-P1-3080	PH 1 – 250 NS – Fine Grade for Roadway
RCK-P1-3090	PH 1 – 250 NS – Install Aggregate Base
RCK-P1-3100	PH 1 – 250 NS – Install Underdrain
RCK-P1-3110	PH 1 – 250 NS – Install Base Asphalt

Item	Details
RCK-P1-3120	PH 1 – 250 NS – Install Intermediate Asphalt
RCK-P2-1000	PH 2 – Shift MOT from PH 1 to PH 2 / Temporary Asphalt
RCK-P2-2000	PH 2 – 250 SS – Sawcut Existing Asphalt
RCK-P2-2010	PH 2 – 250 SS – Demo Existing Pavement
RCK-P2-2020	PH 2 – 250 SS – Excavate for Roadway
RCK-P2-2030	PH 2 – 250 SS – Install Storm Drain Pipe & Structures
RCK-P2-2040	PH 2 – 250 SS – Grade for Curb & Gutter
RCK-P2-2050	PH 2 – 250 SS – FPS for Curb & Gutter
RCK-P2-2060	PH 2 – 250 SS – Fine Grade for Roadway
RCK-P2-2070	PH 2 – 250 SS – Install Aggregate Base
RCK-P2-2080	PH 2 – 250 SS – Install Underdrain
RCK-P2-2090	PH 2 – 250 SS – Install Base Asphalt
RCK-P2-2100	PH 2 – 250 SS – Install Intermediate Asphalt
RCK-P2-3000	PH 2 – 151 WS – Remove Existing Guardrail
RCK-P2-3010	PH 2 – 151 WS – Sawcut Existing Asphalt
RCK-P2-3020	PH 2 – 151 WS – Demo Existing Pavement
RCK-P2-3030	PH 2 – 151 WS – Excavate for Roadway
RCK-P2-3050	PH 2 – 151 WS – Install Quad Box Culvert
RCK-P2-3060	PH 2 – 151 WS – Grade for Curb & Gutter
RCK-P2-3070	PH 2 – 151 WS – FPS for Curb & Gutter
RCK-P2-3080	PH 2 – 151 WS – Fine Grade for Roadway
RCK-P2-3090	PH 2 – 151 WS – Install Aggregate Base
RCK-P2-3100	PH 2 – 151 WS – Install Underdrain
RCK-P2-3110	PH 2 – 151 WS – Install Base Asphalt
RCK-P2-3120	PH 2 – 151 WS – Install Intermediate Asphalt
RCK-P2-3130	PH 2 – 151 WS – Install Guardrail
RCK-P2-3140	PH 2 – 151 WS – Grade Slopes & Seed
RCK-P3-1000	PH 3 – Shift MOT from PH 2 to PH 3

Item	Details
RCK-P3-1010	PH 3 – Grade for Roundabout
RCK-P3-1020	PH 3 – FPS for Roundabout
RCK-P3-1030	PH 3 – Grade for Divider Islands (3)
RCK-P3-1040	PH 3 – FPS for Divider Islands (3)
RCK-P3-1050	PH 3 – Mill Existing Asphalt (All Areas)
RCK-P3-1060	PH 3 – Install Surface Asphalt (All Areas)
RCK-9010	RTE 250 & 151 – Grade Slopes & Seed
RCK-9020	RTE 250 & 151 – Punch List
RCK-9030	RTE 250 & 151 – Final Inspection
RCK-9040	RTE 250 & 151 – Remove MOT
CL-1000	Prepare & Submit As-Built Drawings
CL-1010	VDOT Review & Approve As-Built Drawings
CL-1020	Prepare & Submit Final O&M Manuals
CL-1030	VDOT Review & Approve Final O&M Manuals

Schedule Management

Effective management of the Project schedule will require the use of a proven software program for scheduling and document control. Branch|WRA will develop the schedule using Primavera P6 scheduling software to plan, schedule and monitor the construction project.

To develop the initial overall detailed CPM schedule, each discipline manager for design, along with the Construction Manager (CM), will be responsible for producing the individual schedule of their activities. The DBPM will hold a meeting with all discipline managers and the CM to review the individual schedules and to integrate into the overall CPM schedule. This process will create buy-in from everyone and make sure that all activities are captured.

Branch|WRA will manage the CPM schedule from the on-site project field office. The Project Engineer will be responsible for maintaining and updating the schedule. The DBPM, supported by the CM, will ultimately be responsible for the implementation of the project controls required to manage the schedule.

The project controls used to manage the schedule will be founded in efficient communication between the discipline design managers and construction staff. Branch|WRA includes the value-added Construction Design Coordinator (CDC) to help facilitate the design coordination process.

From the date of the NTP through the completion of the design activities, Branch|WRA will hold weekly Design Coordination Meetings, which will be facilitated by the DBPM and attended by all design disciplines, the CDC and the Project Engineer. The CDC will help provide a constructability review of the design and the Project Engineer will help manage and maintain the schedule.

For each Design Coordination Meeting, the DBPM will review the CPM schedule and identify all activities that were scheduled for completion the previous week and planned for the next two weeks. The Design Coordination Meetings will promote discussion related to the current status of activities, critical completion dates, addition or deletion of activities as the schedule progresses, activities that can be advanced for earlier completion or those that will take a longer duration and ways to mitigate any potential schedule delays.

During construction, the same project controls used during the design will be in place. Weekly Construction Coordination Meetings will be held by the DBPM and attended by all construction staff. These meetings will allow all construction schedule activities to be reviewed. The Project Engineer will help manage and maintain the schedule. The DBPM will review the CPM schedule to analyze all scheduled activities for the previous week along with those planned for the next two weeks. These Construction Coordination Meetings will allow for the construction staff to identify activities in the work plan that can be accelerated or those needing mitigation to avoid delays.

Branch|WRA will prepare and submit monthly schedule updates for review and approval by VDOT, which will include a narrative of any schedule changes, updated activities, any issues effecting the schedule and an updated Critical Path showing schedule milestones.

Schedule Recovery

If changes or unforeseen circumstances arise that impact the schedule, Branch/WRA will notify VDOT and begin a Time Impact Analysis, review the activities and durations to revise the schedule and prepare a recovery schedule to reclaim lost time. The recovery plan may include any of the following to recover lost time:

- Additional crews and equipment
- Increased work shifts
- Modify design
- Re-sequence construction work
- Revise priority of utility relocation

If the schedule needs to be revised and subcontractor work is impacted, the CM will work with the subcontractor to accommodate the change in the schedule. Weekly communication with subcontractors will be maintained for timely response to schedule changes, if required.

Attachment 4.0.1.1

Technical Proposal Checklist and Contents

ATTACHMENT 4.0.1.1
ALBEMARLE INTERSECTION BUNDLING
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

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

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Technical Proposal Checklist and Contents	Attachment 4.0.1.1	Section 4.0.1.1	no	Vol. I - Appendices
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.7 (Form C-78-RFP)	Sections 3.7, 4.0.1.1	no	Vol. I - Appendices
Letter of Submittal	NA	Sections 4.1		Vol. I – Pgs. 1-2
Letter of Submittal on Offeror’s letterhead	NA	Section 4.1.1	yes	Vol. I – Pg. 2
Identify the full legal name and address of Offeror	NA	Section 4.1.1	yes	Vol. I – Pg. 2
Authorized representative’s original signature	NA	Section 4.1.1	yes	Vol. I – Pg. 2
Declaration of intent	NA	Section 4.1.2	yes	Vol. I – Pg. 2
120 day declaration	NA	Section 4.1.3	yes	Vol. I – Pg. 2
Point of Contact information	NA	Section 4.1.4	yes	Vol. I – Pg. 2
Principal Officer information	NA	Section 4.1.5	yes	Vol. I – Pg. 2
Final Completion Date	NA	Section 4.1.6	yes	Vol. I – Pg. 2
Unique Milestone Date(s)	NA	Section 4.1.7	yes	Vol. I – Pg. 2
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.8	no	Vol. I - Appendices
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.9	no	Vol. I - Appendices
Written statement of percent DBE participation	NA	Section 4.1.10	yes	Vol. I – Pg. 2

ATTACHMENT 4.0.1.1
ALBEMARLE INTERSECTION BUNDLING
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Offeror's Qualifications	NA	Section 4.2		Vol. I – Pages 3-4
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	Vol. I – Pg. 3
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	Vol. I – Pg. 4
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	Vol. I – Pg. 3
Design Concept	NA	Section 4.3		Vol. I – Pgs. 5-15
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	Vol. I – Pgs. 10-15 Vol. II – Pgs. 45-75
Project Approach	NA	Section 4.4		Vol. I – Pgs. 16-32
Environmental Management	NA	Section 4.4.1	yes	Vol. I – Pgs. 16-20
Utilities	NA	Section 4.4.2	yes	Vol. I – Pgs. 20-23
Geotechnical	NA	Section 4.4.3	yes	Vol. I – Pgs. 24-26
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	Vol. I – Pgs. 26-32
Construction of Project	NA	Section 4.5		Vol. I – Pgs. 33-44
Sequence of Construction	NA	Section 4.5.1	yes	Vol. I – Pgs. 33-40

ATTACHMENT 4.0.1.1
ALBEMARLE INTERSECTION BUNDLING
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Transportation Management Plan	NA	Section 4.5.2	yes	Vol. I – Pgs. 40-44
Proposal Schedule	NA	Section 4.6		Vol. I & II
Proposal Schedule	NA	Section 4.6	no	Vol. II – Pgs. S16-S35
Proposal Schedule Narrative	NA	Section 4.6	no	Vol. I – Pgs. S1-S15
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.6	no	Project Schedule CD-ROM

Attachment 3.7

Form C-78-RFP

Acknowledgement of RFP Revisions and/or Addenda

ATTACHMENT 3.7

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION**

RFP NO. C00111814DB103
 UPC 111814 (0250-002-956, P101, R201, C501; NHPP-002-7(051));
 UPC 111727 (0029-002-959, P101, C501; HSIP-5104(269));
 UPC 111813 (0029-002-955, P101, R201, C501; NHPP-002-7(050));
 UPC 111730 (0250-002-954, P101, R201, C501; HSIP-002-7(049));
PROJECT NO.: UPC 111733 (0020-002-953, P101, R201, C501; STP-5104(267));
UPC 109397 (9999-002-941, P101, R201, C501)

ACKNOWLEDGEMENT OF RFP, REVISION AND/OR ADDENDA

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

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

1. Cover letter of RFP – November 27, 2018
(Date)
2. Cover letter of Addendum #1- February 7, 2019
(Date)
3. Cover letter of Addendum #2- March 19, 2019
(Date)
4. Cover letter of Addendum #3- April 10, 2019
(Date)


SIGNATURE

4-23-2019
DATE

JASON E. HORNE
PRINTED NAME

VICE PRESIDENT
TITLE

Appendix 9.3.1

Proposal Payment Agreement

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this "Agreement") is made and entered into as of this 23rd day of APRIL, 2019, by and between the Virginia Department of Transportation ("VDOT"), and BRANCH CIVIL, INC. ("Offeror").

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs") pursuant to VDOT's July 11, 2018 (last addendum on August 2, 2018) Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the Albemarle Intersection Bundling, Project Nos. UPC 111814 (0250-002-956, P101, R201, C501; NHPP-002-7(051)); UPC 111727 (0029-002-959, P101, C501; HSIP-5104(269)); UPC 111813 (0029-002-955, P101, R201, C501; NHPP-002-7(050)); UPC 111730 (0250-002-954, P101, R201, C501; HSIP-002-7(049)); UPC 111733 (0020-002-953, P101, R201, C501; STP-5104(267)); UPC 109397 (9999-002-941, P101, R201, C501) ("Project"), under a design-build contract with VDOT ("Design-Build Contract"); and

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

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

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

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

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

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

3. **Proposal Payment.** VDOT agrees to pay Offeror the lump sum amount of **thirty thousand and 00/100 Dollars (\$30,000.00)** ("Proposal Payment"), which payment constitutes payment in full to Offeror for the conveyance of Offeror's Intellectual Property to VDOT in accordance with this Agreement. Payment of the Proposal Payment is conditioned upon: (a) Offeror's Proposal being, in the sole discretion of VDOT, responsive to the RFP; (b) Offeror complying with all other terms and conditions of this Agreement; and (c) either (i) Offeror is not awarded the Design-Build Contract, or (ii) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror.

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

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

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

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

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

9. **Miscellaneous.**

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

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

c. This Agreement, together with the RFP, embodies the entire agreement of the parties with respect to the subject matter hereof. There are no promises, terms, conditions, or obligations other than those contained herein or in the RFP, and this Agreement shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties hereto.

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

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

of the Commonwealth of Virginia.

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

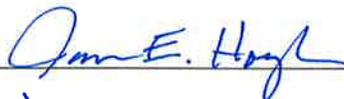
VIRGINIA DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

BRANCH CIVIL, INC.

By: _____ 

Name: _____ JASON E. HOYLE

Title: _____ VICE PRESIDENT

Appendix 11.8.6(a)

Primary Debarment Form

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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

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

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

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

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

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

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

Jim E. Hoyle 4-23-2019 VICE PRESIDENT
Signature Date Title

BRANCH CIVIL, INC.
Name of Firm

Appendix 11.8.6(b)

Lower Tier Debarment Forms

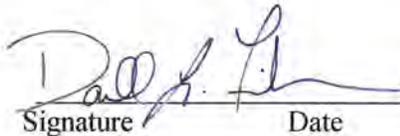
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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

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

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

 _____
Signature Date 3/8/2019

Chief Business Officer
Title

Rinker Design Associates, P.C. _____
Name of Firm

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

Project No.: UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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

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

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



Signature

March 11, 2019

Date

Vice President/
Transportation Services Leader

Title

MBP

Name of Firm

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

Project No.: UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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

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

Anthony F. Le 03/08/2019 VP, BUSINESS ADMINISTRATION
Signature Date Title

CTI CONSULTANTS, INC.
Name of Firm

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

Project No.: UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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

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

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

 Signature	March 11, 2019 Date	Vice President Title
--	------------------------	-------------------------

Froehling & Robertson, Inc.
Name of Firm

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

Project No.: UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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

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

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



March 8, 2019

Vice President

Signature

Date

Title

H & B Surveying and Mapping, LLC

Name of Firm

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

Project No.: UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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

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

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



March 19, 2019

President

Signature

Date

Title

Land Planning and Design Associates, Inc.

Name of Firm

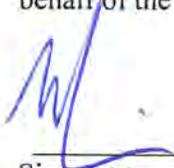
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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

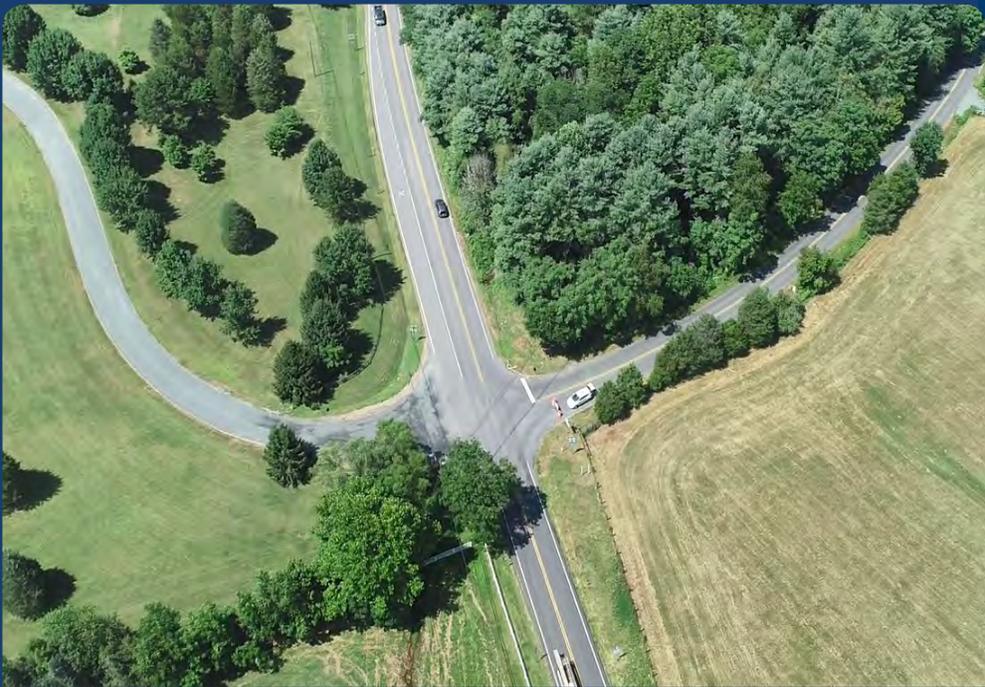
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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

	3.14.19	President
_____ Signature	_____ Date	_____ Title

Seventh Point Transportation PR

Name of Firm



VDOT

SUBMITTED APRIL 23, 2019

ORIGINAL
COPY 1 OF 10 COPIES



A DESIGN-BUILD PROJECT

ALBEMARLE INTERSECTION BUNDLING

TECHNICAL PROPOSAL VOLUME II

UPC (State Project Nos.: Federal Project Nos.)

UPC 111814 (0250-002-956, P101, R201, C501; NHPP-002-7(051));

UPC 111727 (0029-002-959, P101, C501; HSIP-5104(269));

UPC 111813 (0029-002-955, P101, R201, C501; NHPP-002-7(050));

UPC 111730 (0250-002-954, P101, R201, C501; HSIP-002-7(049));

UPC 111733 (0020-002-953, P101, R201, C501; STP-5104(267));

UPC 109397 (9999-002-941, P101, R201, C501)

Contract ID Number: C00111814DB103

SUBMITTED BY



REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.		SEE TABLES BELOW FOR PROJECT NUMBERS	2

TRAFFIC DATA SHEET

9999-002-941 - FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA	
	RIO MILLS ROAD EXTENSION
FROM:	0.739 MILE SOUTH OF RT. 743
TO:	BERKMAR DRIVE
FUNCTIONAL CLASSIFICATION	URBAN LOCAL ROAD - ROLLING
ADT (2018)	0 (EXTENSION) / 790 (EXISTING RIO MILLS RD)
ADT (2040)	670
DHV	120
D (%) (design hour)	52%
T (%) (design hour)	15%
V (MPH)	V = 30 MPH
TC STD.	TC - 5.11 ULS
GEOMETRIC STD.	GS-8

0020-002-953 - FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA			
	ROUTE 20	ROUTE 649	ROUTE 1494
FROM:	0.111 MILE SOUTH OF RT. 649	0.078 MILE WEST OF RT. 20	0.079 MILE EAST OF RT. 20
TO:	0.104 MILE NORTH OF RT. 649		
FUNCTIONAL CLASSIFICATION	RURAL MINOR ARTERIAL (SOUTH OF RT. 649) / RURAL MAJOR COLLECTOR (NORTH OF RT. 649) - ROLLING	RURAL MAJOR COLLECTOR - ROLLING	RURAL LOCAL ROAD - ROLLING
ADT (2018)	8,100 (SOUTH OF RT. 649) / 4,100 (NORTH OF RT. 649)	5,600	13
ADT (2040)	11,470 (SOUTH OF RT. 649) / 5,810 (NORTH OF RT. 649)	7,930	20
DHV	1,360 (SOUTH OF RT. 649) / 860 (NORTH OF RT. 649)	1,020	-
D (%) (design hour)	63% (SOUTH OF RT. 649) / 77% (NORTH OF RT. 649)	55%	-
T (%) (design hour)	3%	1%	-
V (MPH) (ROUNDBABOUT)	V = 20 MPH		V = 15 MPH
V (MPH) (MAINLINE)	V = 50 MPH		V = 25 MPH
TC STD.	TC - 5.11R	TC - 5.11R	TC - 5.11R
GEOMETRIC STD.	GS-2 (SOUTH OF RT. 649) / GS-3 (NORTH OF RT. 649)	GS-3	GS-4

0029-002-959 - FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA		
	ROUTE 29	RAMP A
FROM:	0.152 MILE SOUTH OF I-64 EB	ROUTE 29 SB
TO:	0.010 MILE SOUTH OF I-64 EB	0.142 MILE EAST OF RT. 29 SB
FUNCTIONAL CLASSIFICATION	URBAN OTHER PRINCIPAL ARTERIAL - ROLLING	INTERCHANGE RAMP
ADT (2018)	20,000	2,958
ADT (2023)	21,550	3,150
DHV	1,900	-
D (%) (design hour)	61%	-
T (%) (design hour)	11%	-
V (MPH)	V = 60 MPH	V (MIN) = 25 MPH
TC STD.	TC - 5.11R	
GEOMETRIC STD.	GS-5	GS-R

0029-002-955 - FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA		
	ROUTE 29	RAMP A
FROM:	0.208 MILE SOUTH OF FONTAINE AVE	ROUTE 29
TO:	0.057 MILE SOUTH OF FONTAINE AVE	0.012 MILE SOUTH OF FONTAINE AVE
FUNCTIONAL CLASSIFICATION	URBAN FREEWAY - ROLLING	INTERCHANGE RAMP
ADT (2018)	54,000	5,931
ADT (2040)	76,470	8,300
DHV	7,830	1,330
D (%) (design hour)	69%	100%
T (%) (design hour)	11%	7%
V (MPH)	V = 60 MPH	V = 30 MPH
TC STD.	TC - 5.11R	TC - 5.11R
GEOMETRIC STD.	GS-5	GS-R

0250-002-954 - FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA		
	ROUTE 250	ROUTE 151
FROM:	0.137 MILE WEST OF RT. 151	0.107 MILE SOUTH OF RT. 250
TO:	0.133 MILE EAST OF RT. 151	
FUNCTIONAL CLASSIFICATION	RURAL MINOR ARTERIAL - ROLLING	RURAL MINOR ARTERIAL - ROLLING
ADT (2018)	7,100 (WEST OF RT. 151) / 6,800 (EAST OF RT. 151)	9,700
ADT (2040)	10,060 (WEST OF RT. 151) / 9,630 (EAST OF RT. 151)	13,740
DHV	1,050 (WEST OF RT. 151) / 1,110 (EAST OF RT. 151)	1,220
D (%) (design hour)	57% (WEST OF RT. 151) / 65% (EAST OF RT. 151)	61%
T (%) (design hour)	7% (WEST OF RT. 151) / 2% (EAST OF RT. 151)	7%
V (MPH) (ROUNDBABOUT)	V = 20 MPH	
V (MPH) (MAINLINE)	V = 60 MPH	
TC STD.	TC - 5.11R	
GEOMETRIC STD.	GS-2	GS-2

0250-002-956 - FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA					
	ROUTE 250	RAMP A	RAMP B	RAMP C	RAMP D
FROM:	0.384 MILE WEST OF I-64 WB	I-64 WB	ROUTE 250	I-64 EB	ROUTE 250
TO:	0.354 MILE EAST OF I-64 WB	ROUTE 250	I-64 WB	ROUTE 250	I-64 EB
FUNCTIONAL CLASSIFICATION	URBAN OTHER PRINCIPAL ARTERIAL (WEST OF I-64) / URBAN MINOR ARTERIAL (EAST OF I-64)	INTERCHANGE RAMP	INTERCHANGE RAMP	INTERCHANGE RAMP	INTERCHANGE RAMP
ADT (2018)	40,000 (WEST OF I-64) / 24,000 (EAST OF I-64)	4,700	9,610	7,300	6,720
ADT (2040)	59,040 (WEST OF I-64) / 35,430 (EAST OF I-64)	6,940	13,990	10,780	9,790
DHV	5,450 (WEST OF I-64) / 3,450 (EAST OF I-64)	930	1,630	1,440	1,170
D (%) (design hour)	62% (WEST OF I-64) / 68% (EAST OF I-64)	100%	100%	100%	100%
T (%) (design hour)	2% (WEST OF I-64) / 3% (EAST OF I-64)	2%	7%	2%	4%
V (MPH) (DDI)	V = 25 MPH				
V (MPH) (MAINLINE)	V = 50 MPH	V = 25 MPH	V = 35 MPH	V = 25 MPH	V = 35 MPH
TC STD.	TC - 5.11U	TC - 5.11R	TC - 5.11R	TC - 5.11R	TC - 5.11R
GEOMETRIC STD.	GS-5 (WEST OF I-64) / GS-6 (EAST OF I-64)	GS-R	GS-R	GS-R	GS-R

TECHNICAL PROPOSAL CONCEPT PLANS
 ALBEMARLE INTERSECTION BUNDLING
 TRAFFIC DATA
 SHEET 2 OF 31



REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.		SEE TABLES BELOW FOR PROJECT NUMBERS	3

PROJECT LENGTH TABULATION DATA

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	EQUALITIES	LENGTH INCLUDING BRIDGE(S)		LENGTH EXCLUDING BRIDGE(S)		BRIDGE PLAN NO.	TYPE PROJECT	DESCRIPTION
					FEET	FEET	MILES	FEET	MILES			
0250-002-956	P101	NHPP-002-7(051)	PENG	111814		3437	0.651	3437	0.651		PRELIM. ENG.	Fr: 0.333 MILE WEST OF I-64 WB
	C501	NHPP-002-7(051)	1000	111814		3437	0.651	3437	0.651		CONSTRUCTION	To: 0.318 MILE EAST OF I-64 WB
	R201	NHPP-002-7(051)	ROWA	111814		-	-	-	-		RIGHT OF WAY	-

NOTE: PROJECT LENGTHS BASED ON RT.250 EB CONSTRUCTION BASELINE

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	EQUALITIES	LENGTH INCLUDING BRIDGE(S)		LENGTH EXCLUDING BRIDGE(S)		BRIDGE PLAN NO.	TYPE PROJECT	DESCRIPTION
					FEET	FEET	MILES	FEET	MILES			
0250-002-953	P101	STP-5104(267)	PENG	111733		919.14	0.174	919.14	0.174		PRELIM. ENG.	Fr: 0.090 MILE SOUTH OF RT. 649
	C501	STP-5104(267)	1000	111733		919.14	0.174	919.14	0.174		CONSTRUCTION	To: 0.084 MILE NORTH OF RT.649
	R201	STP-5104(267)	ROWA	111733		1124.23	0.213	1124.23	0.213		RIGHT OF WAY	Fr: 0.109 MILE SOUTH OF RT. 649 To: 0.104 MILE NORTH OF RT.649

NOTE: PROJECT LENGTHS BASED ON RT.20 SOUTH AND RT.20 NORTH CONSTRUCTION BASELINE

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	EQUALITIES	LENGTH INCLUDING BRIDGE(S)		LENGTH EXCLUDING BRIDGE(S)		BRIDGE PLAN NO.	TYPE PROJECT	DESCRIPTION
					FEET	FEET	MILES	FEET	MILES			
0250-002-954	P101	HSIP-002-7(049)	PENG	111730		1292.67	0.245	1292.67	0.245		PRELIM. ENG.	Fr: 0.113 MILE WEST OF RT. 151
	C501	HSIP-002-7(049)	1000	111730		1292.67	0.245	1292.67	0.245		CONSTRUCTION	To: 0.132 MILE EAST OF RT.151
	R201	HSIP-002-7(049)	ROWA	111730		1050.85	0.199	1050.85	0.199		RIGHT OF WAY	Fr: 0.077 MILE WEST OF RT. 151 To: 0.122 MILE EAST OF RT.151

NOTE: PROJECT LENGTHS BASED ON RT.250 EAST AND RT.250 WEST CONSTRUCTION BASELINE

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	EQUALITIES	LENGTH INCLUDING BRIDGE(S)		LENGTH EXCLUDING BRIDGE(S)		BRIDGE PLAN NO.	TYPE PROJECT	DESCRIPTION
					FEET	FEET	MILES	FEET	MILES			
0029-002-959	P101	HSIP-5104(269)	PENG	111727		750	0.142	750	0.142		PRELIM. ENG.	Fr: 0.152 MI. SOUTH OF I-64 EB
	C501	HSIP-5104(269)	1000	111727		750	0.142	750	0.142		CONSTRUCTION	To: 0.010 MILE SOUTH OF I-64 EB

NOTE: PROJECT LENGTHS BASED ON RT.29 SB CONSTRUCTION BASELINE

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	EQUALITIES	LENGTH INCLUDING BRIDGE(S)		LENGTH EXCLUDING BRIDGE(S)		BRIDGE PLAN NO.	TYPE PROJECT	DESCRIPTION
					FEET	FEET	MILES	FEET	MILES			
0029-002-955	P101	NHPP-002-7(050)	PENG	111813		810.62	0.154	810.62	0.154		PRELIM. ENG.	Fr: 0.208 MI. SOUTH OF FONTAINE AVE
	C501	NHPP-002-7(050)	1000	111813		810.62	0.154	810.62	0.154		CONSTRUCTION	To: 0.054 MI. SOUTH OF FONTAINE AVE

NOTE: PROJECT LENGTHS BASED ON RT.29 CONSTRUCTION BASELINE

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	EQUALITIES	LENGTH INCLUDING BRIDGE(S)		LENGTH EXCLUDING BRIDGE(S)		BRIDGE PLAN NO.	TYPE PROJECT	DESCRIPTION
					FEET	FEET	MILES	FEET	MILES			
9999-002-941	P101		PENG	109397		1440.85	0.273	1440.85	0.273		PRELIM. ENG.	Fr: 0.739 MI. SOUTH OF RT. 743
	C501		1000	109397		1440.85	0.273	1440.85	0.273		CONSTRUCTION	To: Berkmar Drive
	R201		ROWA	109397		1440.85	0.273	1440.85	0.273		RIGHT OF WAY	Fr: 0.739 MI. SOUTH OF RT. 743 To: Berkmar Drive

NOTE: PROJECT LENGTHS BASED ON RIO MILLS CONSTRUCTION BASELINE

TECHNICAL PROPOSAL CONCEPT PLANS
 ALBEMARLE INTERSECTION BUNDLING
 PROJECT LENGTH TABULATION DATA
 SHEET 3 OF 31



PROJECT MANAGER *Bryan W. Stevenson, P.E. 804-786-6929*
 SURVEYED BY, DATE _____
 DESIGN BY *Whitman, Reardon & Associates, 804-272-8700*
 SUBSURFACE UTILITY BY, DATE _____

TYPICAL SECTIONS

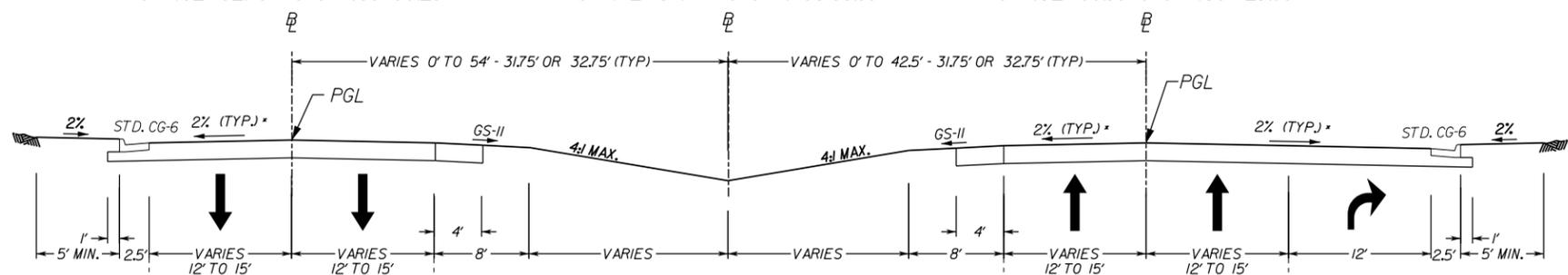
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	250	0250-002-956 P101, R201, C501	4

RT 250 WB
 STA.603+75.00 TO STA.616+06.77
 STA.624+92.73 TO STA.631+30.23

RT 250 CL
 STA.703+75.00 TO STA.716+86.99
 STA.724+64.44 TO STA.736+86.89

RT 250 EB
 STA.506+58.18 TO STA.516+87.09
 STA.524+80.98 TO STA.537+25.00

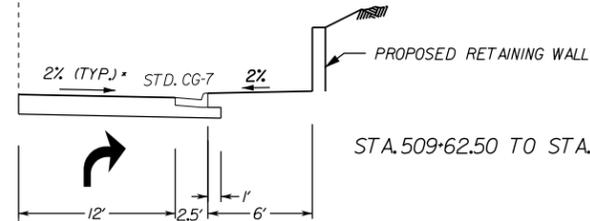
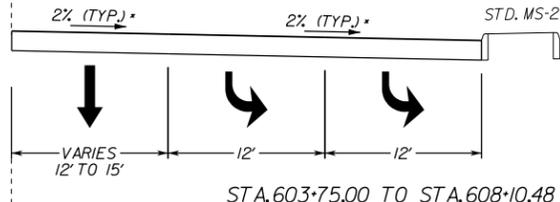
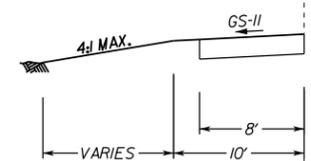


NOTE:
 BASELINES CROSS AT RT.250 EB STA.516+87.09
 AND RT.250 WB STA.617+06.77

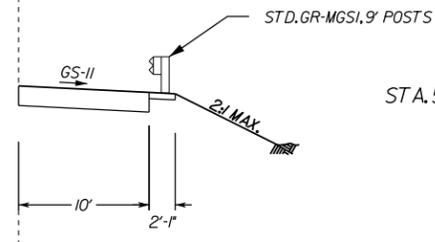
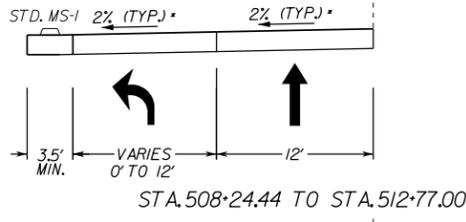
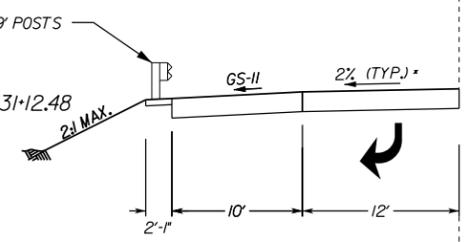
BASELINES CROSS AT RT.250 EB STA.524+80.98
 AND RT.250 WB STA.624+92.73

* SEE PLANS FOR SUPER ELEVATION RATES

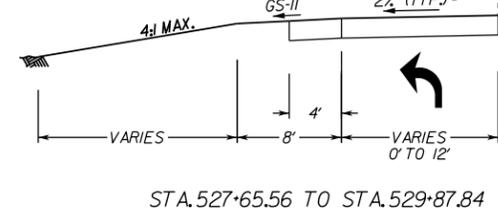
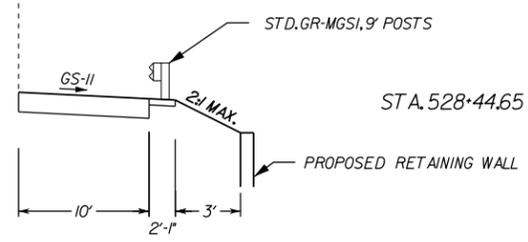
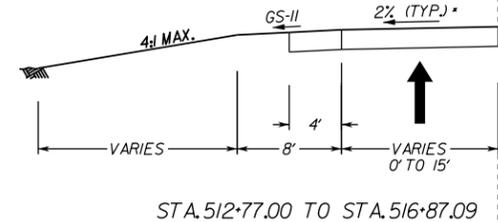
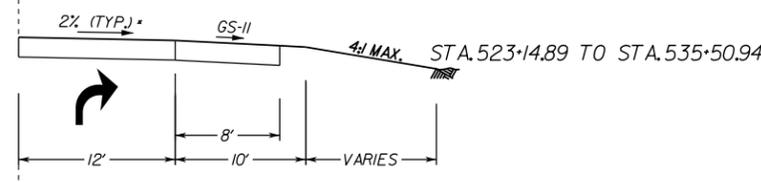
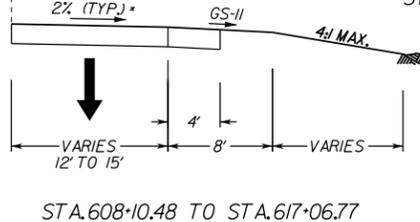
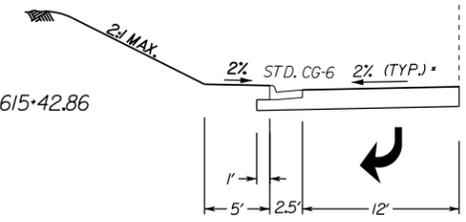
STA.624+92.73 TO STA.628+72.50



STA.628+72.50 TO STA.631+12.48



STA.613+53.65 TO STA.615+42.86



TECHNICAL PROPOSAL CONCEPT PLANS
 I-64 EXIT 124 INTERCHANGE IMPROVEMENTS
 (PROJECT # 0250-002-956)
 SHEET 4 OF 31

NOT TO SCALE

USER

DATE

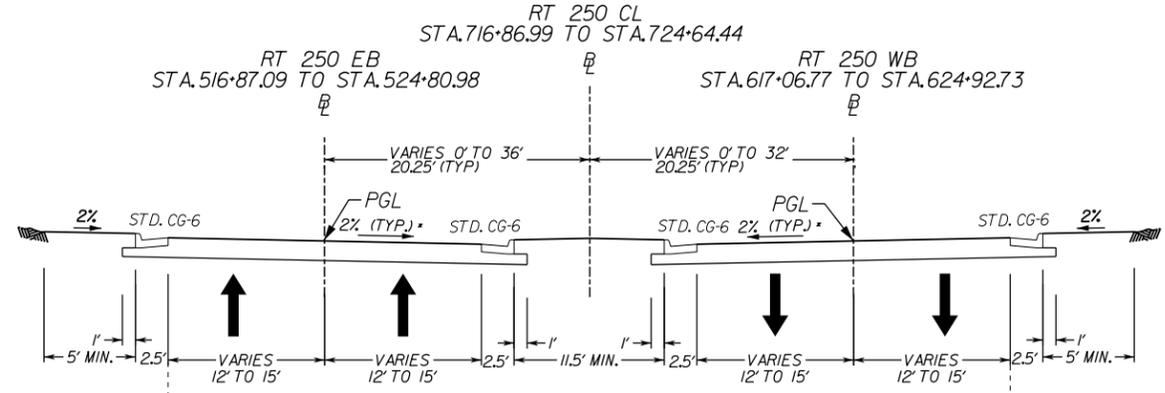
FILE

PROJECT MANAGER *Bryan W. Stevenson, P.E. 804-786-6929*
 SURVEYED BY, DATE _____
 DESIGN BY *Whitman, Reardon & Associates, 804-272-8700*
 SUBSURFACE UTILITY BY, DATE _____

TYPICAL SECTIONS

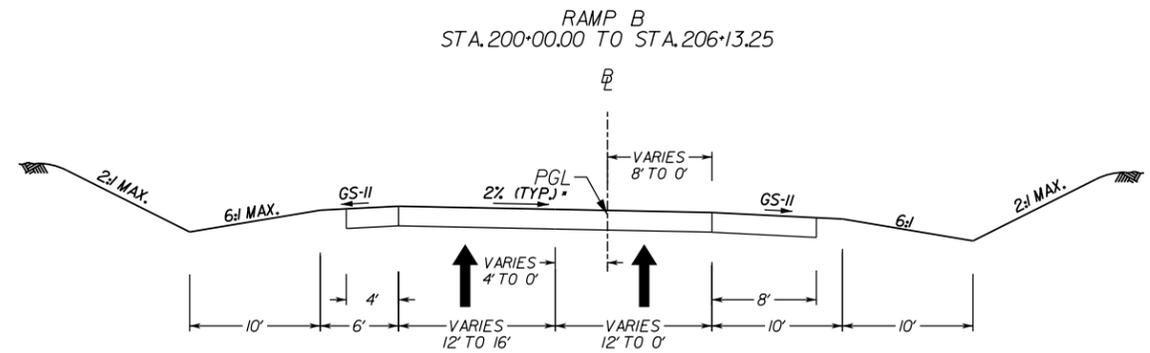
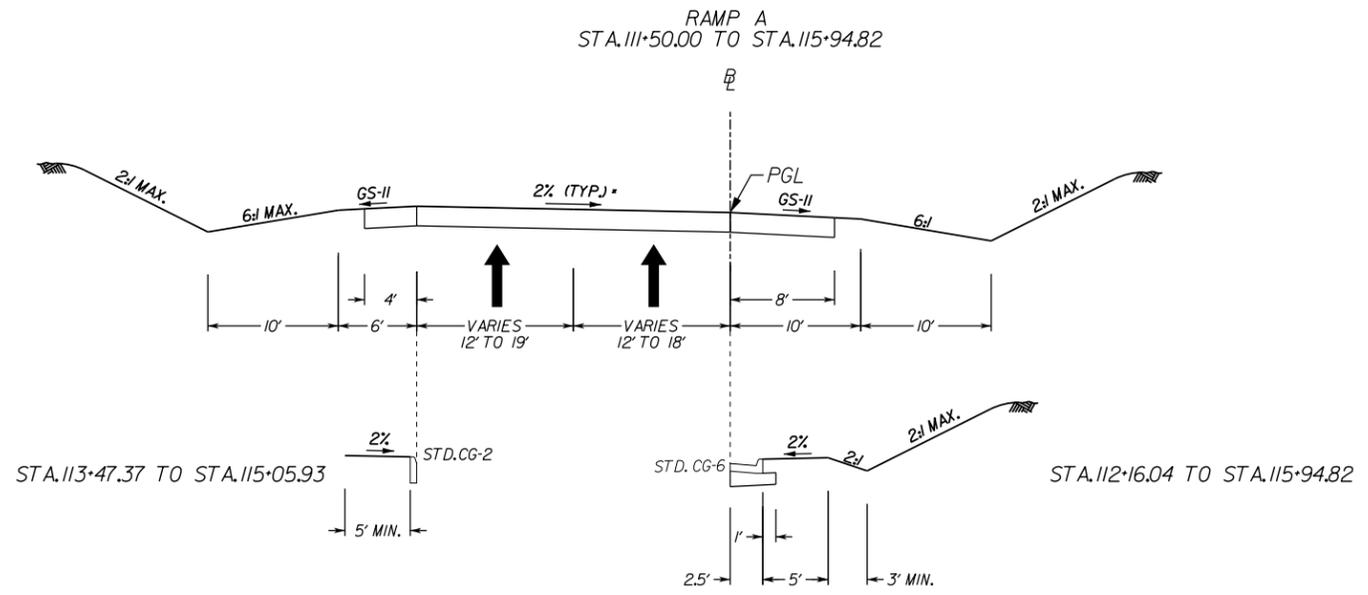
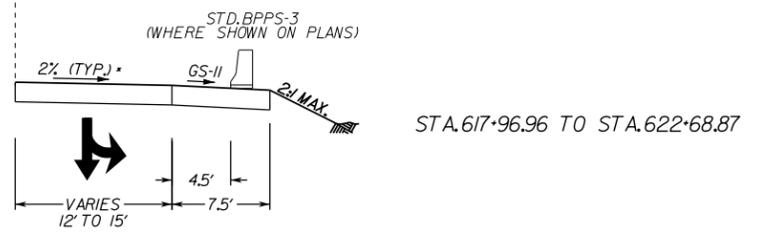
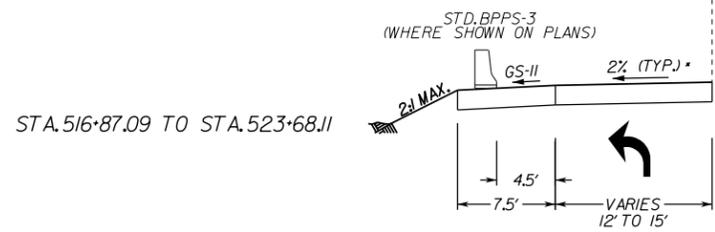
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	250	0250-002-956 PI01, R201, C501	5



NOTE:
 BASELINES CROSS AT RT.250 EB STA.516-87.09 AND RT.250 WB STA.617-06.77
 BASELINES CROSS AT RT.250 EB STA.524-80.98 AND RT.250 WB STA.624-92.73

* SEE PLANS FOR SUPER ELEVATION RATES



TECHNICAL PROPOSAL CONCEPT PLANS
 I-64 EXIT 124 INTERCHANGE IMPROVEMENTS
 (PROJECT # 0250-002-956)
 SHEET 5 OF 31

NOT TO SCALE

\$USER\$

\$DATE\$

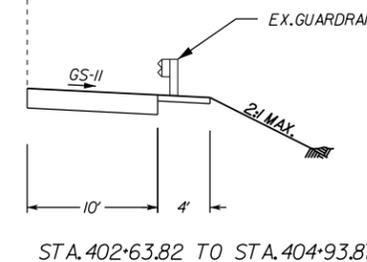
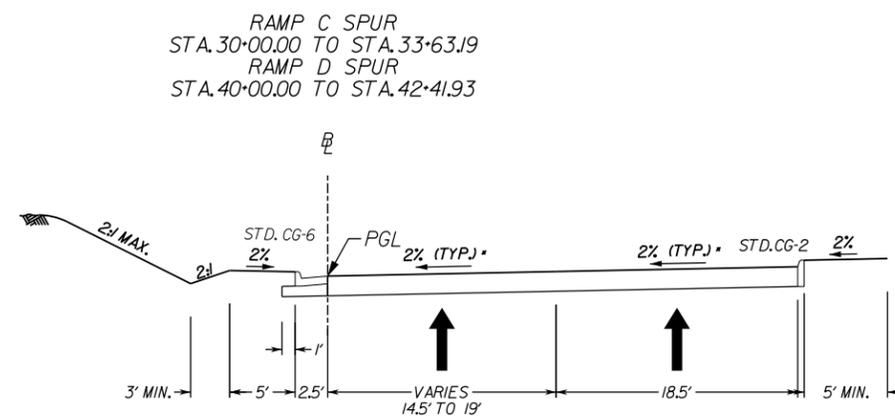
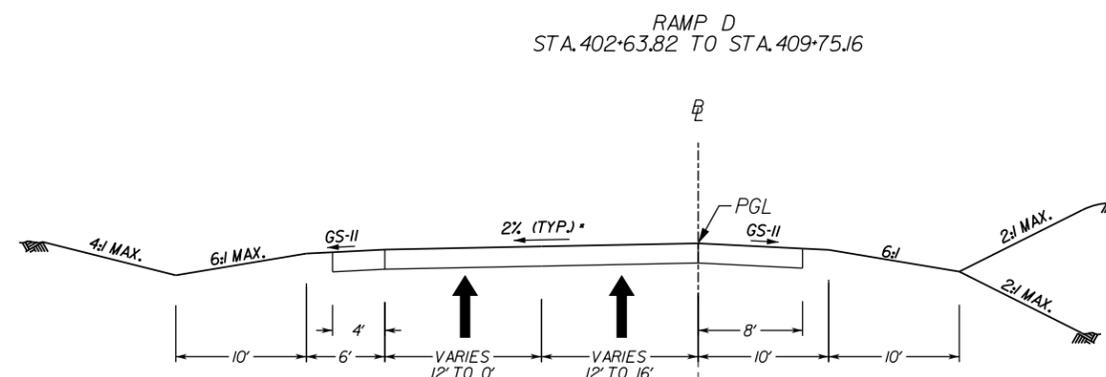
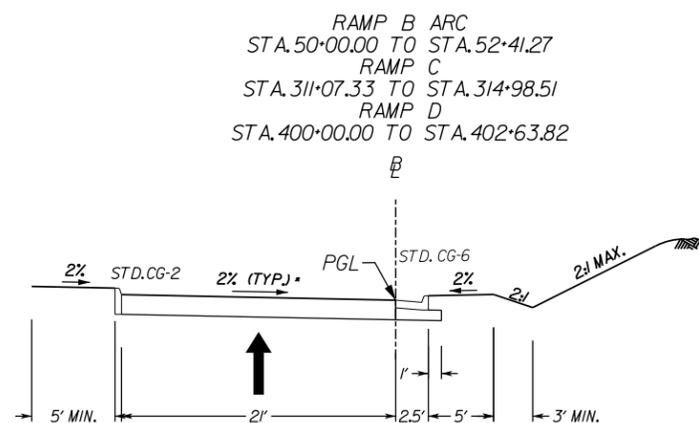
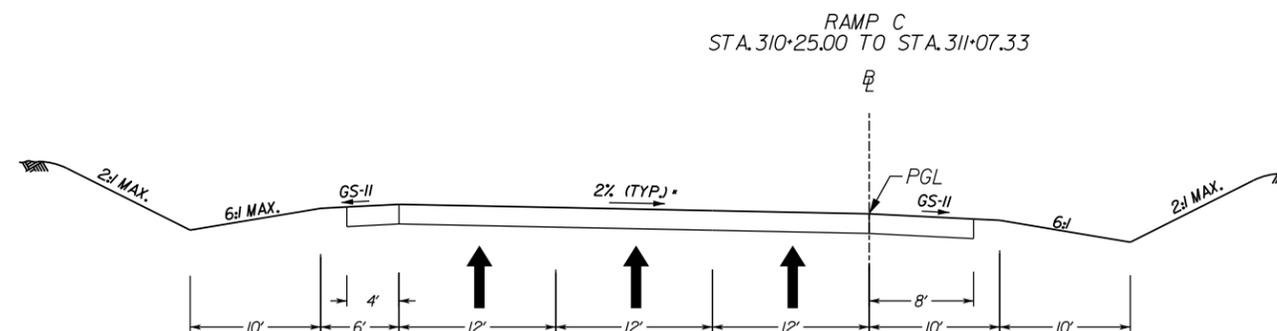
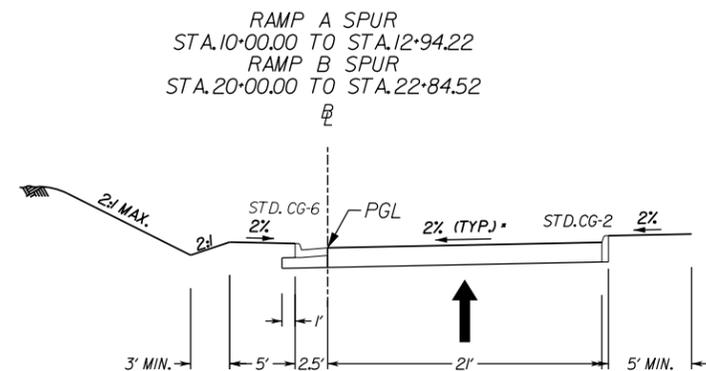
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PROJECT MANAGER *Bryan W. Stevenson, P.E. 804-786-6929*
 SURVEYED BY, DATE _____
 DESIGN BY *Whitman, Reardon & Associates, 804-272-8700*
 SUBSURFACE UTILITY BY, DATE _____

TYPICAL SECTIONS

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

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	250	0250-002-956 PI01, R201, C501	6



STA. 402+63.82 TO STA. 404+93.87

* SEE PLANS FOR SUPER ELEVATION RATES

TECHNICAL PROPOSAL CONCEPT PLANS
 I-64 EXIT 124 INTERCHANGE IMPROVEMENTS
 (PROJECT # 0250-002-956)
 SHEET 6 OF 31

NOT TO SCALE

\$USER\$

\$DATE\$

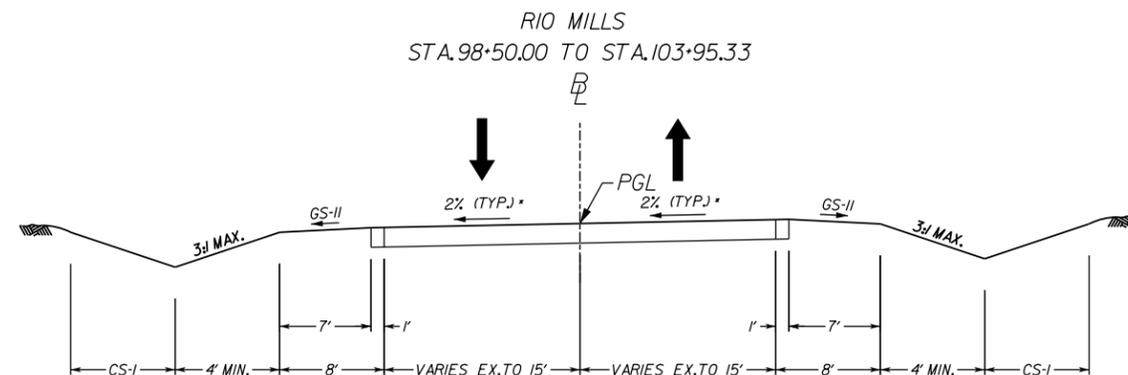
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PROJECT MANAGER *Bryan W. Stevenson, P.E. 804-786-6929*
 SURVEYED BY, DATE _____
 DESIGN BY *Whitman, Reardon & Associates, 804-272-8700*
 SUBSURFACE UTILITY BY, DATE _____

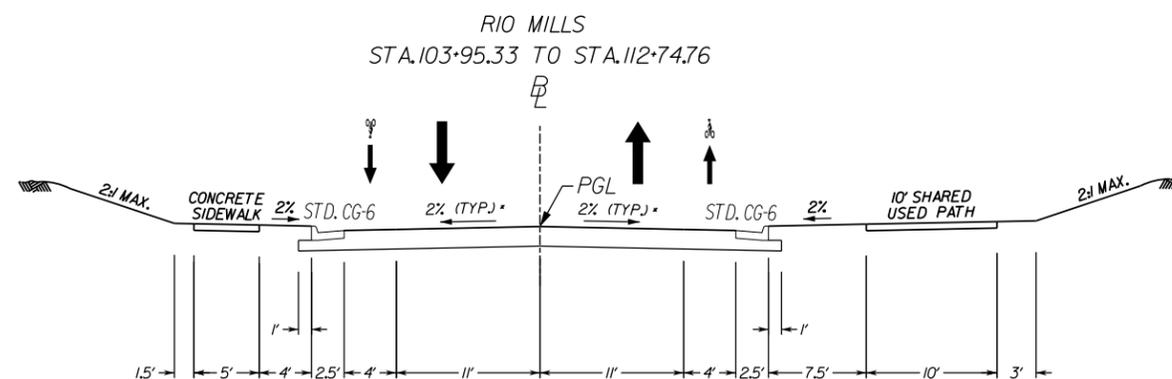
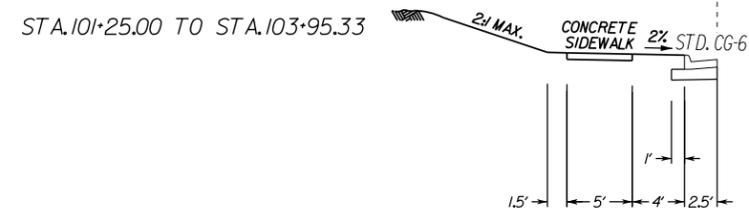
TYPICAL SECTIONS

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

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.		9999-002-941 PI01, R201, C501	7



* SEE PLANS FOR SUPER ELEVATION RATES



NOT TO SCALE

TECHNICAL PROPOSAL CONCEPT PLANS

RIO MILLS ROAD EXTENSION
(PROJECT # 9999-002-941)

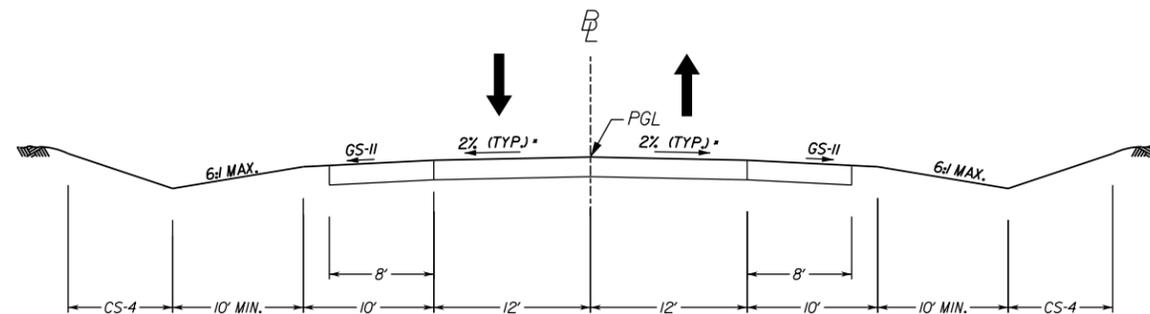
SHEET 7 OF 31



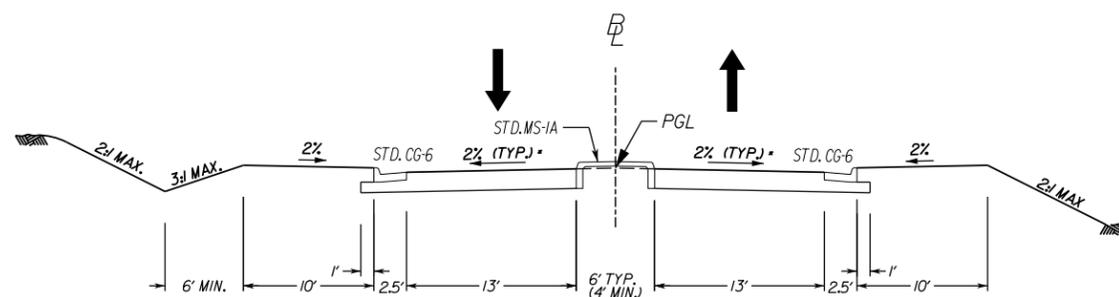
REVISED	STATE	STATE PROJECT		SHEET NO.
		ROUTE	PROJECT	
	VA.	250	0250-002-954 PI01, R201, C501	8

TYPICAL SECTIONS

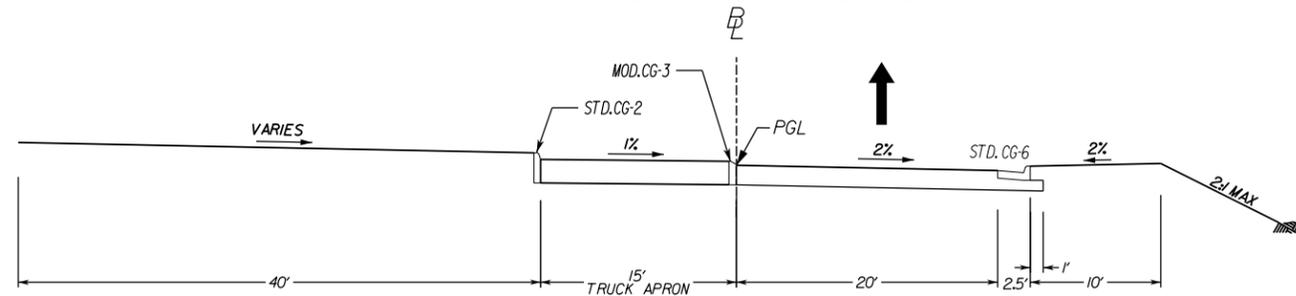
RT 250 WEST
 STA.103+75.00 TO STA.107+43.82
 RT 250 EAST
 STA.202+30.00 TO STA.206+95.37
 RT 151
 STA.301+60.00 TO STA.305+00.00



RT 250 WEST
 STA.107+43.82 TO STA.108+97.30
 RT 250 EAST
 STA.200+75.00 TO STA.202+30.00
 RT 151
 STA.305+00.00 TO STA.306+51.96



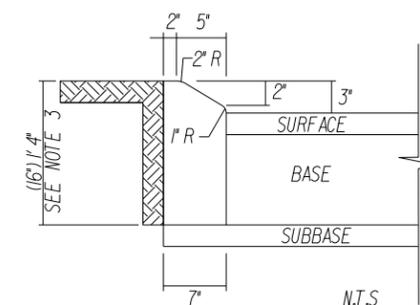
ROUNDABOUT
 STA.400+00.00 TO STA.403+45.58



* SEE PLANS FOR SUPER ELEVATION RATES

CG-3 MODIFIED

FOR USE ON ROUNDABOUT TRUCK APRONS ONLY



- NOTES:
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
 2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
 3. THE DEPTH OF CURB MAY BE REDUCED AS MUCH AS 3" (13" DEPTH) OR INCREASED AS MUCH AS 3" (19" DEPTH) IN ORDER THAT THE BOTTOM OF THE CURB WILL COINCIDE WITH THE TOP OF A COURSE OF THE PAVEMENT'S SUBSTRUCTURE. OTHERWISE, THE DEPTH IS TO BE 16" AS SHOWN. NO ADJUSTMENT IN THE PRICE BID IS TO BE MADE FOR A DECREASE OR AN INCREASE IN DEPTH.
 4. THE MODIFICATION TO THE STANDARD CG-3 IS TO REDUCE THE EXPOSED HEIGHT OF THE CURB AS SHOWN. MODIFIED CURB SHALL BE PAID FOR AS STANDARD CG-3.

TECHNICAL PROPOSAL CONCEPT PLANS
 U.S. ROUTE 250 & ROUTE 151 ROUNDABOUT
 (PROJECT # 0250-002-954)
 SHEET 8 OF 31



NOT TO SCALE

PROJECT MANAGER: *Bryan W. Stevenson, P.E., 804-786-6929*
 SURVEYED BY, DATE: _____
 DESIGN BY: *Whitman, Reardon & Associates, (804) 272-8700*
 SUBSURFACE UTILITY BY, DATE: _____

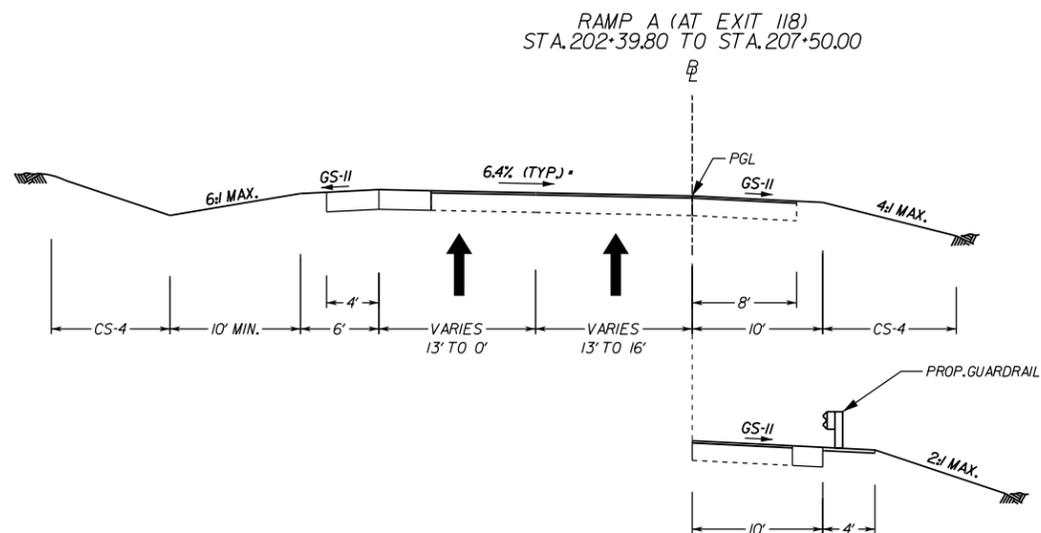
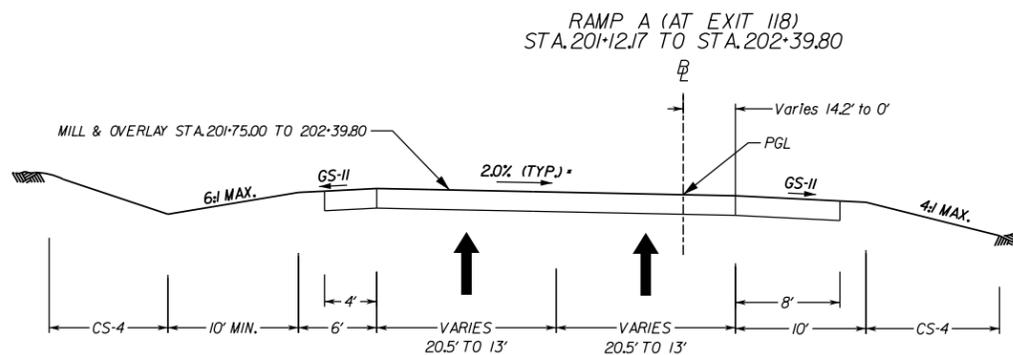
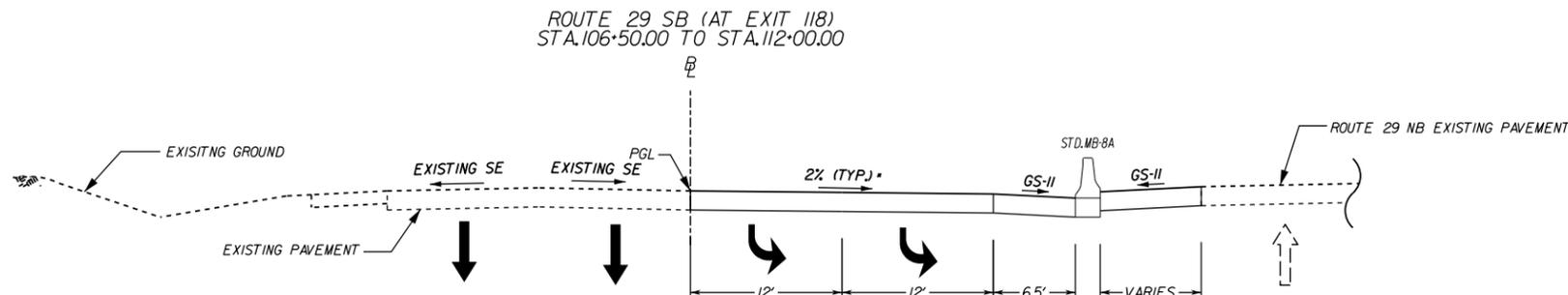
TYPICAL SECTIONS

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

REVISED	STATE	STATE		SHEET NO.
		ROUTE	PROJECT	
	VA.	29	0029-002-959 P101, C501	9

* SEE PLANS FOR SUPERELEVATION RATES

NOTE:
 1: See plan sheets for locations of mill & overlay, widening, and full depth pavement sections.
 2: All pavement designs are to meet the minimum criteria listed in RFP Section 2.6J, Minimum Pavement Sections.



STA. 201+70.49 TO STA. 202+75.00
 STA. 206+49.45 TO STA. 207+50.00

NOT TO SCALE

TECHNICAL PROPOSAL CONCEPT PLANS
 US 29, I-64 EXIT 118 PAR-CLO MODIFICATION
 UPC 111727 (PROJECT: 0029-030-121)
 SHEET 9 OF 31



USER

DATE

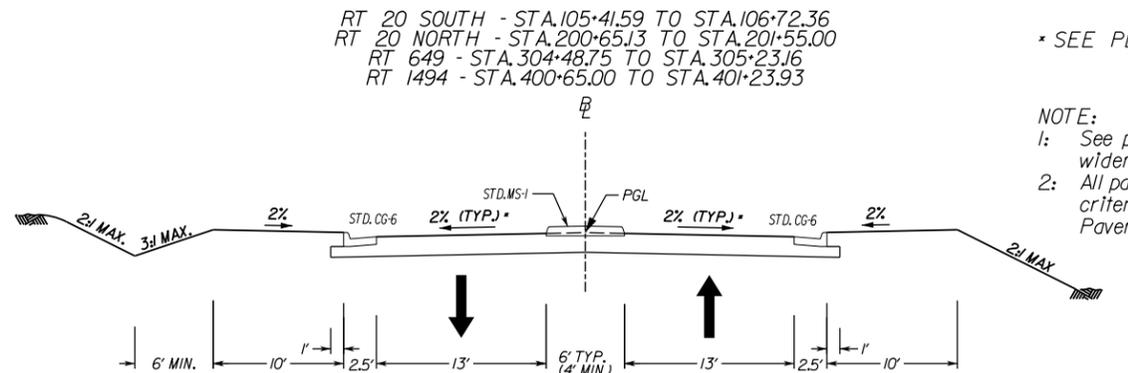
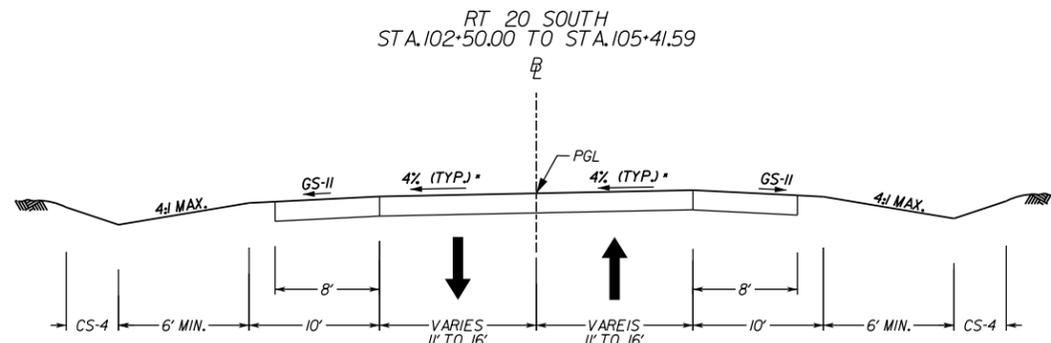
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PROJECT MANAGER: *Bryan W. Stevenson, P.E., 804-786-6929*
 SURVEYED BY, DATE: _____
 DESIGN BY: *Whitman, Reardon & Associates, (804) 272-8700*
 SUBSURFACE UTILITY BY, DATE: _____

TYPICAL SECTIONS

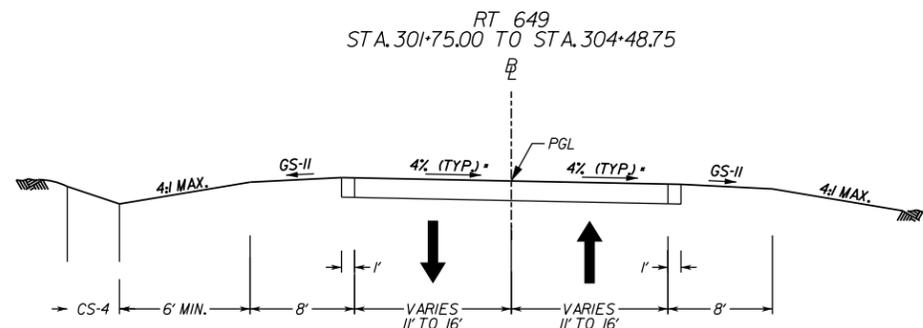
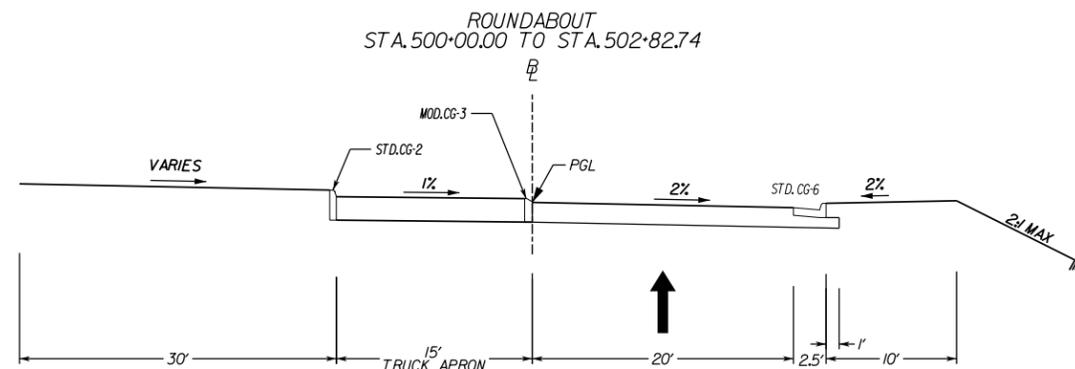
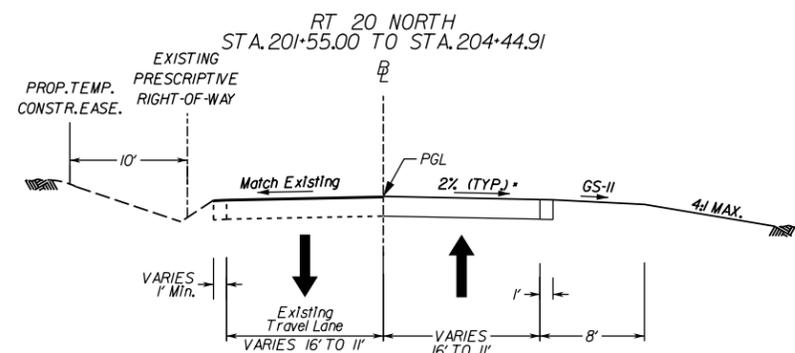
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	20	0020-002-953 P101, R201, C501	10



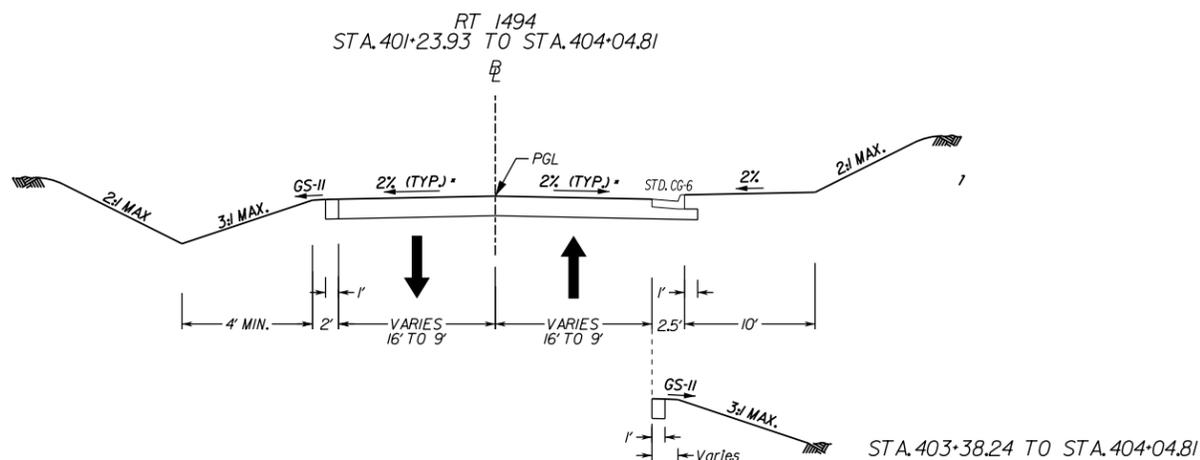
* SEE PLANS FOR SUPERELEVATION RATES

NOTE:
 1: See plan sheets for locations of mill & overlay, widening, and full depth pavement sections.
 2: All pavement designs are to meet the minimum criteria listed in RFP Section 2.6J, Minimum Pavement Sections.



CG-3 MODIFIED
 FOR USE ON ROUNDABOUT TRUCK APRONS ONLY

NOTES:
 1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
 2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
 3. THE DEPTH OF CURB MAY BE REDUCED AS MUCH AS 3" (13" DEPTH) OR INCREASED AS MUCH AS 3" (19" DEPTH) IN ORDER THAT THE BOTTOM OF THE CURB WILL COINCIDE WITH THE TOP OF A COURSE OF THE PAVEMENT'S SUBSTRUCTURE. OTHERWISE, THE DEPTH IS TO BE 16" AS SHOWN. NO ADJUSTMENT IN THE PRICE BID IS TO BE MADE FOR A DECREASE OR AN INCREASE IN DEPTH.
 4. THE MODIFICATION TO THE STANDARD CG-3 IS TO REDUCE THE EXPOSED HEIGHT OF THE CURB AS SHOWN. MODIFIED CURB SHALL BE PAID FOR AS STANDARD CG-3.



TECHNICAL PROPOSAL CONCEPT PLANS
 RT.20 AND RT.649 PROPOSED ROUNDABOUT
 UPC 111733 (PROJECT: 0020-002-953)

SHEET 10 OF 31



NOT TO SCALE

*USER#

*DATE#

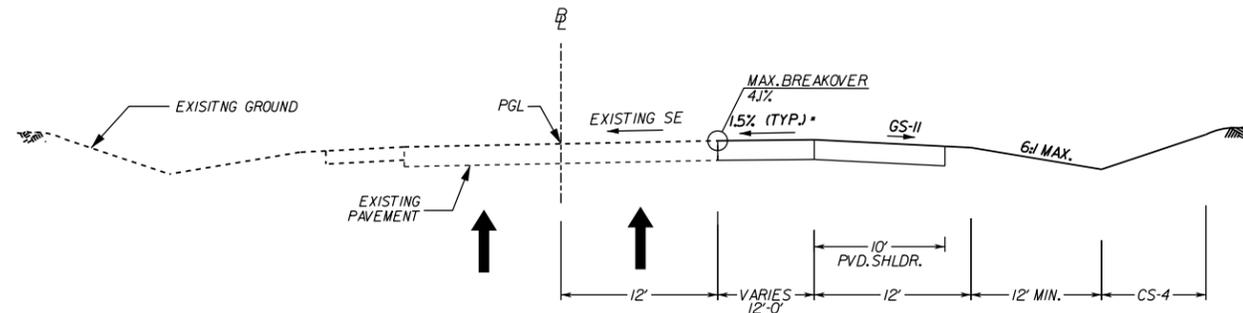
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TYPICAL SECTIONS

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

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0020-002-955 P101, C501	11

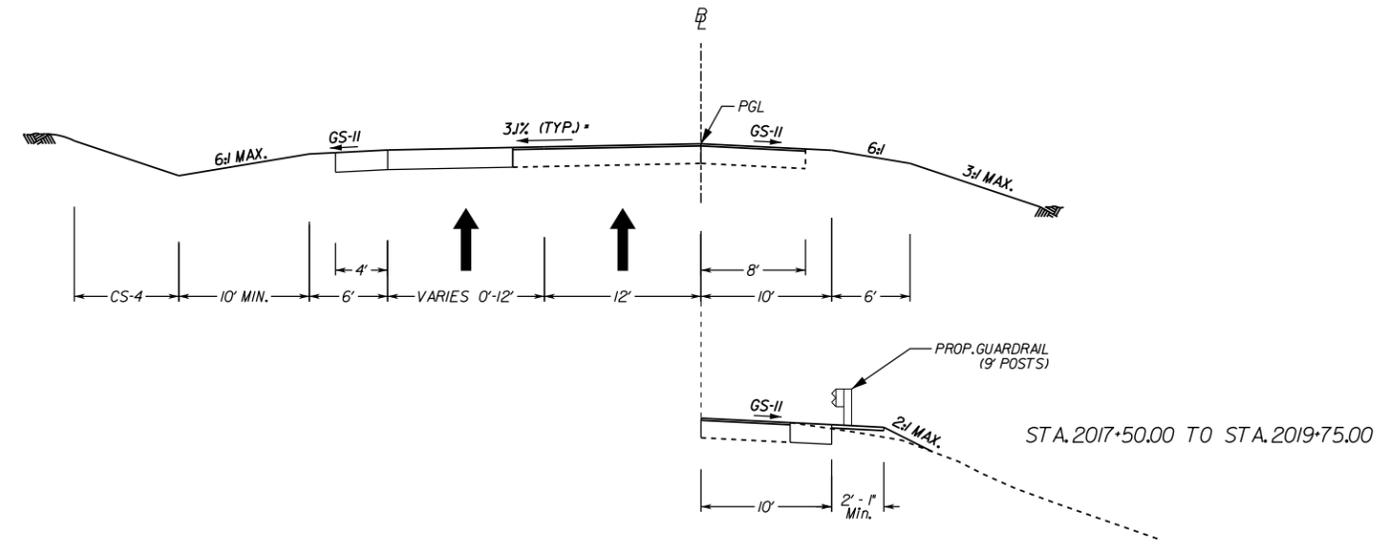
RT 29 NB (AT FONTAINE AVE.)
 STA.1021+96.24 TO STA.1025+56.52



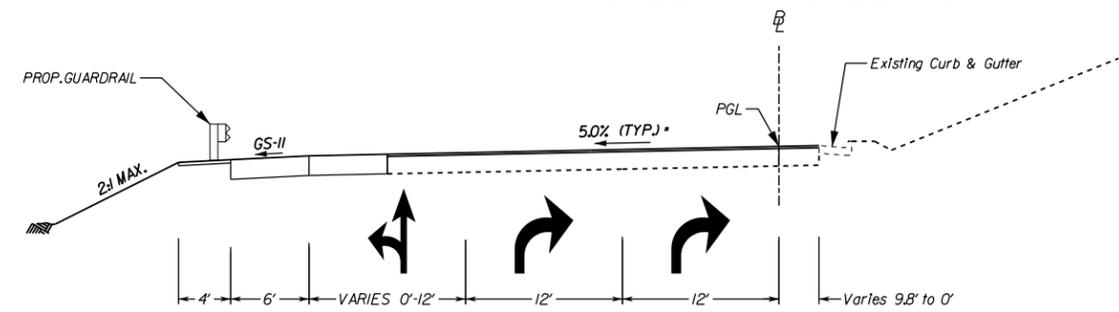
* SEE PLANS FOR SUPERELEVATION RATES

NOTE:
 1: See plan sheets for locations of mill & overlay, widening, and full depth pavement sections.
 2: All pavement designs are to meet the minimum criteria listed in RFP Section 2.6.J, Minimum Pavement Sections.

RAMP A (TO FONTAINE AVE.)
 STA.2017+50.00 TO STA.2026+13.86



RAMP A (TO FONTAINE AVE.)
 STA.2026+13.86 TO STA.2029+19.62



TECHNICAL PROPOSAL CONCEPT PLANS
 NB US 29 EXIT RAMP TO FONTAINE AVE.
 UPC 111813 (PROJECT:0029-002-955)
 SHEET 11 OF 31



NOT TO SCALE

\$TIME\$

\$DATE\$

\$FILE\$

PROJECT MANAGER: Bryan W. Stevenson, P.E. 804-786-6929
 SURVEYED BY, DATE: _____
 DESIGN BY: Wilman Reardon & Associates, 804-272-8700
 SUBSURFACE UTILITY BY, DATE: _____

Curve WBOI
 PI - 612-90.08
 DELTA - 5° 26' 54.48" (RT)
 D - 2° 54' 52"
 T - 93.55'
 L - 186.95'
 R - 1966.00'
 PC - 611-96.54
 PRC - 613-83.49
 DS - 50 MPH
 SE - EXISTING

Curve CLOI
 PI - 715-47.77
 DELTA - 2° 57' 39.59" (RT)
 D - 2° 31' 25"
 T - 440.54'
 L - 870.26'
 R - 2270.50'
 PC - 711-07.23
 PT - 719-77.49
 DS - N/A
 SE - N/A

Curve EBOI
 PI - 512-67.69
 DELTA - 5° 46' 55.47" (RT)
 D - 3° 00' 56"
 T - 95.95'
 L - 191.74'
 R - 1900.00'
 PC - 511-71.74
 PCC - 513-63.48
 DS - 50 MPH
 SE - EXISTING

Curve HANOI
 PI - 7-11.4
 DELTA - 32° 37' 22.56" (RT)
 D - 28° 38' 52"
 T - 58.53'
 L - 113.88'
 R - 200.00'
 PC - 6-52.61
 PT - 7-66.49
 DS - STOP CONDITION
 SE - EXISTING

Curve BOI
 PI - 49-14.92
 DELTA - 22° 11' 21.52" (RT)
 D - 12° 52' 32"
 T - 87.26'
 L - 172.34'
 R - 445.00'
 PC - 48-27.66
 PCC - 50-00.00
 DS - 25 MPH
 SE - 2%

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

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	250	0250-002-956 PI01, R201, C501	12

DESIGN ENHANCEMENT
 ADDITIONAL THRU LANES ADDED TOWARD THE MEDIAN (BOTH EB AND WB) TO MINIMIZE WIDENING TO THE OUTSIDE AND ELIMINATE THE NEED FOR A DRAINAGE EASEMENT

DESIGN ENHANCEMENT
 PORK CHOP ISLAND AND RIGHT TURN LANE ADDED

DESIGN ENHANCEMENT
 ADDING LANES TO THE INSIDE, ELIMINATING THE NEED FOR TRAFFIC TO SHIFT ACROSS THE CROWN

DESIGN ENHANCEMENT
 THE NARROWEST PORTION OF THE MEDIAN WILL BE RAISED AND 3.5' IN WIDTH FOR THE LENGTH OF THE TURN LANE ONTO HANSENS MOUNTAIN RD.

DESIGN ENHANCEMENT
 RETAINING WALL WAS ADDED TO ELIMINATE THE NEED FOR RIGHT OF WAY

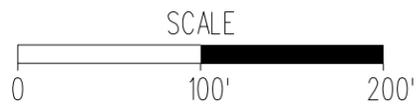
SEE SHEETS 17-20 AND SECTION 4.5 FOR MOT INFORMATION

TRAFFIC ITEM	PLAN SYMBOL
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)	
Pedestal Pole and Foundation (Std. PF-2)	
Traffic Signal Head with Backplate	
ITS CCTV Camera	
Junction Box (Std. as noted on plans)	
Signal Luminaire and arm (135 W LED)	
Controller Cabinet & Foundation (Std. CF-5)	
Uninterruptible Power Supply Cabinet	
Electrical Service SE-5	
Standalone Light Pole and Luminaire	
Groundmount Sign Support (single or double per plans)	
O/H Cantilever Sign Support	

LEGEND:			
	EXISTING RIGHT OF WAY		SHARED USE PATH
	EXISTING LIMITED ACCESS LINE		SIDEWALK
	EXISTING EASEMENT		MILL AND OVERLAY
	PROPOSED LIMITED ACCESS LINE		FULL DEPTH PAVEMENT
	PROPOSED RIGHT OF WAY		PAVEMENT DEMOLITION
	PROPOSED TEMPORARY EASEMENT		DENOTES CONSTRUCTION LIMITS IN CUT
	PROPOSED PERMANENT EASEMENT		DENOTES CONSTRUCTION LIMITS IN FILL
	RFP PROPOSED LIMITED ACCESS LINE		PROPOSED WATER RELOCATION
	RFP PROPOSED TEMPORARY EASEMENT		PROPOSED SEWER RELOCATION
	RFP PROPOSED PERMANENT EASEMENT		
	RFP PROPOSED RIGHT OF WAY		

	ST'D. CG-6 REQ'D		ST'D. IA-2 REQ'D.
	ST'D. CG-2 REQ'D		MOD CG-3 REQ'D
	ST'D. CG-12 REQ'D.		PAVED SHOULDER
	ST'D. CG-7 REQ'D.		ST'D. GR-MGS3 REQ'D
	ST'D. MS-1A REQ'D.		ST'D. GR-MGS4 REQ'D
	ST'D. MS-1 REQ'D.		
	ST'D. MS-2 REQ'D.		
	ST'D. GR-MGS1 REQ'D.		
	ST'D. GR-MGS2 REQ'D.		

	SFM		SFM
	NATURAL GAS		EXISTING ELECTRIC
	EXISTING WATER		EXISTING CABLE TV
	EXISTING FIBER OPTIC		EXISTING TELEPHONE
	EXISTING TRAFFIC CONTROL		EXISTING UNKNOWN UTILITY



TECHNICAL PROPOSAL CONCEPT PLANS
 I-64 EXIT 124 INTERCHANGE IMPROVEMENTS
 (PROJECT # 0250-002-956)
 SHEET 12 OF 31

BRANCH CIVIL

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WRA

\$USER# _____ \$DATE# _____ \$FILE# _____

PROJECT MANAGER: *Bryan W. Stevenson, P.E.*, 804-786-6929
 SURVEYED BY, DATE: _____
 DESIGN BY: *Wilman Reavard & Associates*, 804-272-8700
 SUBSURFACE UTILITY BY, DATE: _____

Curve WB01
 PI • 612-90.08
 DELTA • 5° 26' 54.48" (RT)
 D • 2' 54' 52"
 T • 93.55'
 L • 186.95'
 R • 196.00'
 PC • 611-96.54
 PRC • 613-83.49
 DS • 50 MPH
 SE • EXISTING

Curve WB02
 PI • 614-18.47
 DELTA • 9° 38' 06.87" (LT)
 D • 13' 48' 22"
 T • 34.98'
 L • 69.79'
 R • 415.00'
 PC • 613-83.49
 PRC • 614-53.28
 DS • 25 MPH
 SE • TRANSITION (ULS) SE • 2%

Curve WB03
 PI • 615-34.45
 DELTA • 38° 52' 39.41" (RT)
 D • 24' 54' 40"
 T • 81.17'
 L • 156.06'
 R • 230.00'
 PC • 614-53.28
 PRC • 616-09.35
 DS • 25 MPH
 SE • 2%

Curve WB04
 PI • 618-22.90
 DELTA • 28° 39' 24.28" (LT)
 D • 26' 38' 57"
 T • 54.92'
 L • 107.53'
 R • 215.00'
 PC • 617-67.98
 PRC • 618-75.52
 DS • 25 MPH
 SE • 2%

Curve WB05
 PI • 619-07.69
 DELTA • 15° 55' 36.86" (RT)
 D • 24' 54' 40"
 T • 32.17'
 L • 63.93'
 R • 230.00'
 PC • 618-75.52
 PRC • 619-39.45
 DS • 25 MPH
 SE • 2%

Curve B01
 PI • 49-14.92
 DELTA • 22° 11' 21.52" (RT)
 D • 12' 52' 32"
 T • 87.26'
 L • 172.34'
 R • 445.00'
 PC • 48-27.66
 PCC • 50-00.00
 DS • 25 MPH
 SE • 2%

Curve B02
 PI • 51-46.01
 DELTA • 8° 19' 04.90" (RT)
 D • 33' 42' 12"
 T • 146.01'
 L • 241.28'
 R • 170.00'
 PCC • 50-00.00
 PT • 52-41.27
 DS • 25 MPH
 SE • 2%

Curve B03
 PI • 21-51.78
 DELTA • 83° 30' 59.75" (LT)
 D • 33' 42' 12"
 T • 151.78'
 L • 247.80'
 R • 170.00'
 PC • 20-00.00
 PT • 22-47.80
 DS • 25 MPH
 SE • 2%

Curve B04
 PI • 49-14.92
 DELTA • 22° 11' 21.52" (RT)
 D • 12' 52' 32"
 T • 87.26'
 L • 172.34'
 R • 445.00'
 PC • 48-27.66
 PCC • 50-00.00
 DS • 25 MPH
 SE • 2%

Curve B05
 PI • 51-46.01
 DELTA • 8° 19' 04.90" (RT)
 D • 33' 42' 12"
 T • 146.01'
 L • 241.28'
 R • 170.00'
 PCC • 50-00.00
 PT • 52-41.27
 DS • 25 MPH
 SE • 2%

Curve B06
 PI • 21-51.78
 DELTA • 83° 30' 59.75" (LT)
 D • 33' 42' 12"
 T • 151.78'
 L • 247.80'
 R • 170.00'
 PC • 20-00.00
 PT • 22-47.80
 DS • 25 MPH
 SE • 2%

Curve WB06
 PI • 622-86.20
 DELTA • 13° 23' 29.78" (RT)
 D • 26' 38' 57"
 T • 25.24'
 L • 50.25'
 R • 215.00'
 PC • 622-60.96
 PRC • 623-11.21
 DS • 25 MPH
 SE • TRANSITION

Curve WB07
 PI • 623-75.70
 DELTA • 33° 23' 29.78" (LT)
 D • 26' 38' 57"
 T • 64.49'
 L • 125.30'
 R • 215.00'
 PRC • 623-11.21
 PT • 624-36.51
 DS • 25 MPH
 SE • TRANSITION

Curve WB08
 PI • 626-17.71
 DELTA • 28° 05' 00.61" (RT)
 D • 26' 38' 57"
 T • 53.77'
 L • 105.38'
 R • 215.00'
 PC • 625-63.94
 PRC • 626-69.32
 DS • 25 MPH
 SE • TRANSITION

Curve WB09
 PI • 626-84.87
 DELTA • 8° 05' 00.61" (LT)
 D • 26' 02' 37"
 T • 15.55'
 L • 31.04'
 R • 220.00'
 PRC • 626-69.32
 PT • 627-00.36
 DS • 25 MPH
 SE • EXISTING

Curve EBO1
 PI • 512-67.69
 DELTA • 5° 46' 55.47" (RT)
 D • 3' 00' 56"
 T • 95.95'
 L • 191.74'
 R • 1,900.00'
 PC • 513-71.74
 PCC • 513-63.48
 DS • 50 MPH
 SE • EXISTING

Curve EBO2
 PI • 514-20.67
 DELTA • 15° 41' 36.32" (RT)
 D • 13' 48' 22"
 T • 57.19'
 L • 113.67'
 R • 415.00'
 PCC • 513-63.48
 PRC • 514-77.15
 DS • 50 MPH
 SE • TRANSITION

Curve EBO3
 PI • 515-31.91
 DELTA • 26° 47' 04.77" (LT)
 D • 24' 54' 40"
 T • 54.76'
 L • 107.52'
 R • 230.00'
 PRC • 514-77.15
 PT • 515-84.67
 DS • 25 MPH
 SE • 2%

Curve EBO4
 PI • 518-21.44
 DELTA • 39° 56' 37.96" (RT)
 D • 26' 38' 57"
 T • 78.13'
 L • 149.89'
 R • 215.00'
 PC • 517-43.30
 PRC • 518-93.19
 DS • 25 MPH
 SE • 2%

Curve EBO5
 PI • 519-18.73
 DELTA • 12° 40' 25.38" (LT)
 D • 24' 54' 40"
 T • 25.54'
 L • 50.88'
 R • 230.00'
 PRC • 518-93.19
 PT • 519-44.07
 DS • 25 MPH
 SE • 2%

Curve EBO6
 PI • 522-62.17
 DELTA • 14° 21' 33.27" (LT)
 D • 24' 54' 40"
 T • 29.77'
 L • 59.64'
 R • 230.00'
 PC • 522-33.20
 PRC • 522-90.84
 DS • 25 MPH
 SE • TRANSITION

Curve EBO7
 PI • 523-57.31
 DELTA • 34° 21' 33.27" (RT)
 D • 26' 38' 57"
 T • 66.47'
 L • 128.93'
 R • 215.00'
 PRC • 522-90.84
 PT • 524-19.77
 DS • 25 MPH
 SE • TRANSITION

Curve EBO8
 PI • 526-03.13
 DELTA • 34° 21' 33.27" (LT)
 D • 26' 38' 57"
 T • 66.47'
 L • 128.93'
 R • 215.00'
 PC • 525-52.20
 PRC • 526-52.23
 DS • 25 MPH
 SE • TRANSITION

Curve EBO9
 PI • 526-81.40
 DELTA • 6° 40' 43.25" (RT)
 D • 11' 27' 33"
 T • 29.17'
 L • 58.28'
 R • 500.00'
 PRC • 526-81.40
 PT • 527-10.51
 DS • 25 MPH
 SE • EXISTING

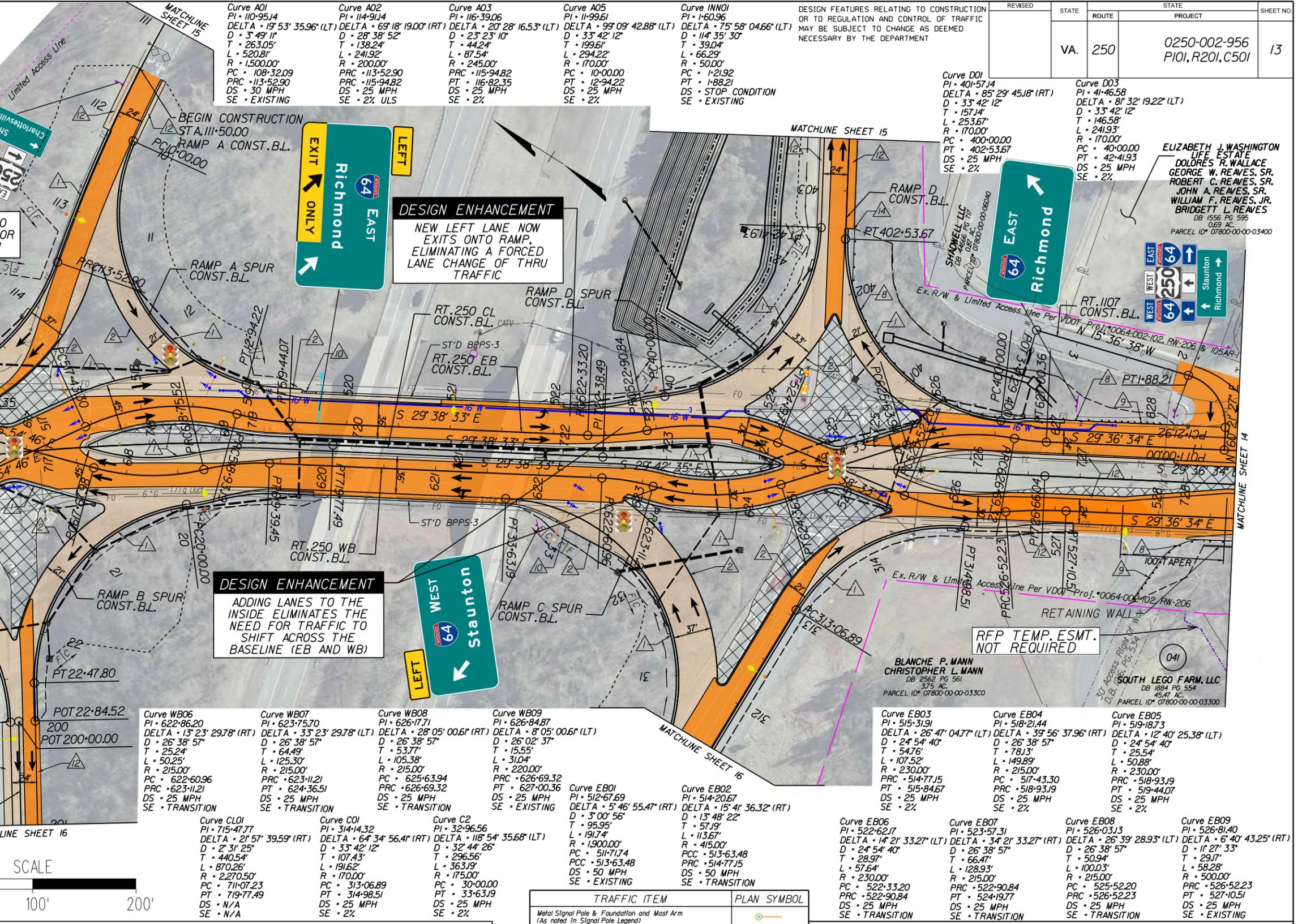
LEGEND:
 EXISTING RIGHT OF WAY
 EXISTING LIMITED ACCESS LINE
 EXISTING EASEMENT
 PROPOSED LIMITED ACCESS LINE
 PROPOSED RIGHT OF WAY
 PROPOSED TEMPORARY EASEMENT
 PROPOSED PERMANENT EASEMENT
 RFP PROPOSED LIMITED ACCESS LINE
 RFP PROPOSED TEMPORARY EASEMENT
 RFP PROPOSED PERMANENT EASEMENT
 RFP PROPOSED RIGHT OF WAY

SHARED USE PATH
 SIDEWALK
 MILL AND OVERLAY
 FULL DEPTH PAVEMENT
 PAVEMENT DEMOLITION
 DENOTES CONSTRUCTION LIMITS IN CUT
 DENOTES CONSTRUCTION LIMITS IN FILL
 PROPOSED WATER RELOCATION
 PROPOSED SEWER RELOCATION

ST'D. CG-6 REQ'D
 ST'D. CG-2 REQ'D
 ST'D. CG-12 REQ'D
 ST'D. CG-7 REQ'D
 ST'D. MS-1A REQ'D
 ST'D. MS-1 REQ'D
 ST'D. MS-2 REQ'D
 ST'D. GR-MGS1 REQ'D
 ST'D. GR-MGS2 REQ'D

ST'D. IIA-2 REQ'D
 MOD CG-3 REQ'D
 PAVED SHOULDER
 ST'D. GR-MGS3 REQ'D
 ST'D. GR-MGS4 REQ'D

SFM
 NATURAL GAS
 EXISTING WATER
 EXISTING ELECTRIC
 EXISTING FIBER OPTIC
 EXISTING CABLE TV
 EXISTING TELEPHONE
 EXISTING TRAFFIC CONTROL
 EXISTING UNKNOWN UTILITY



PROJECT MANAGER: *Bryan W. Stevenson, P.E.*, 804-786-6929
DESIGN BY: *Wilman Reavard & Associates*, 804-272-8700

STATE: VA. ROUTE: 250 PROJECT: 0250-002-956 SHEET NO: 13
 PROJECT: P101, R201, C501

ELIZABETH J. WASHINGTON LIFE ESTATE
 DOLORES R. WALLACE
 GEORGE W. REAVES, SR.
 ROBERT C. REAVES, SR.
 JOHN A. REAVES, JR.
 WILLIAM F. REAVES, JR.
 BRIDGETT L. REAVES
 DB 1556 PG 595
 0.89 AC
 PARCEL ID: 07800-00-00-03400

BLANCHE P. MANN
 CHRISTOPHER L. MANN
 DB 2562 PG 561
 37.5 AC
 PARCEL ID: 07800-00-00-03300

SOUTH LEGO FARM, LLC
 DB 1884 PG 554
 45.47 AC
 PARCEL ID: 07800-00-00-03300

SHADWELL, LLC
 DB 4466 PG 517
 1.00 AC
 PARCEL ID: 07800-00-00-00600

SCALE: 0 100' 200'

TECHNICAL PROPOSAL CONCEPT PLANS
I-64 EXIT 124 INTERCHANGE IMPROVEMENTS
 (PROJECT # 0250-002-956)
 SHEET 13 OF 31

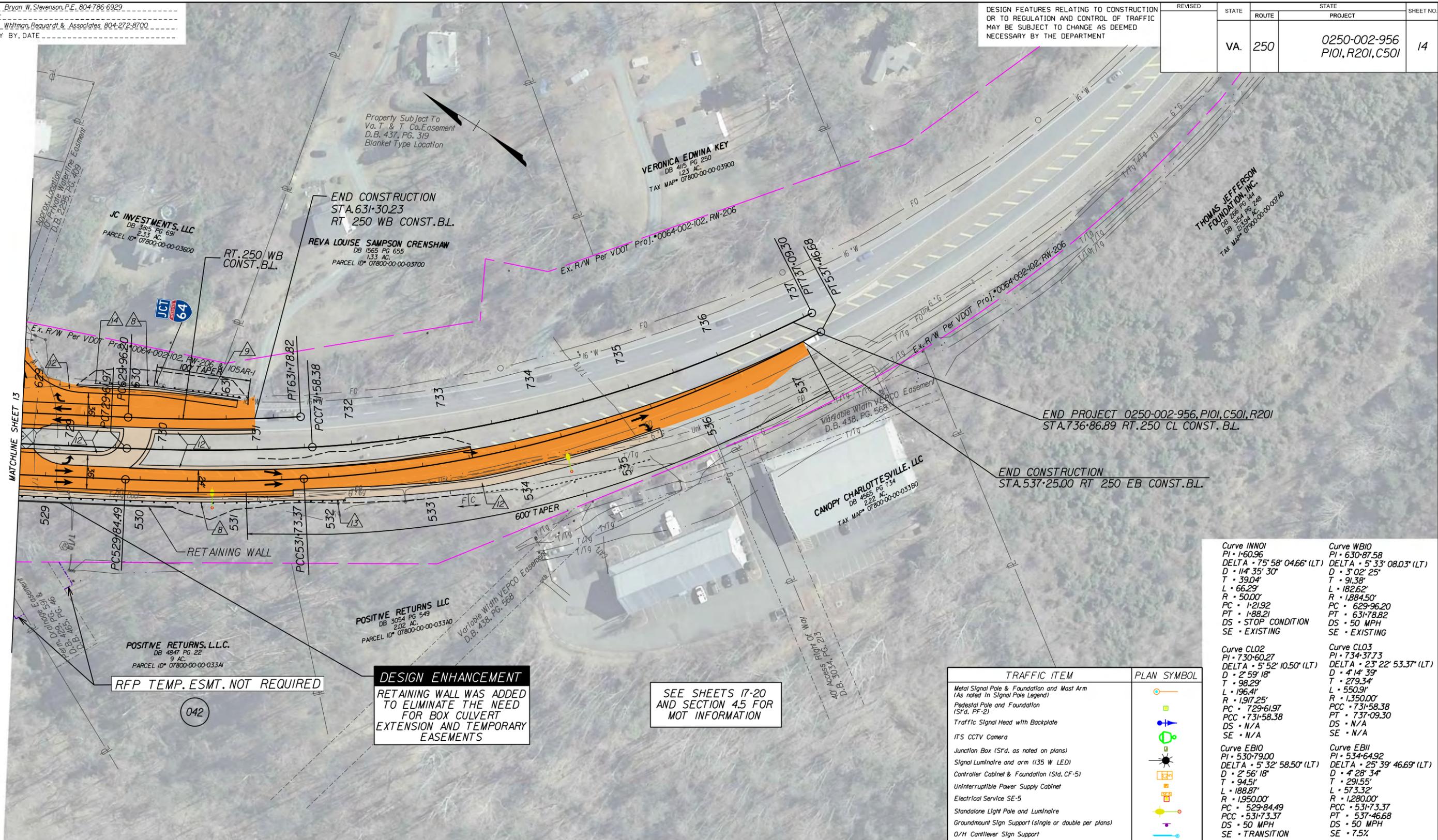
BRANCH CIVIL
WRA

Page 57

PROJECT MANAGER: Bryan W. Stevenson, P.E. 804-786-6929
 SURVEYED BY, DATE: _____
 DESIGN BY: Whitman, Reardon & Associates, 804-272-8700
 SUBSURFACE UTILITY BY, DATE: _____

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

REVISED	STATE	ROUTE	PROJECT	STATE	SHEET NO.
	VA.	250	0250-002-956 PI01, R201, C501		14



RFP TEMP. ESMT. NOT REQUIRED

DESIGN ENHANCEMENT
 RETAINING WALL WAS ADDED TO ELIMINATE THE NEED FOR BOX CULVERT EXTENSION AND TEMPORARY EASEMENTS

SEE SHEETS 17-20 AND SECTION 4.5 FOR MOT INFORMATION

Curve INNO1 PI • 160.96 DELTA • 75° 58' 04.66" (LT) D • 114' 35" 30" T • 39.04' L • 66.29' R • 50.00' PC • 121.92 PT • 188.21 DS • STOP CONDITION SE • EXISTING	Curve WB10 PI • 630.87.58 DELTA • 5° 33' 08.03" (LT) D • 3' 02' 25" T • 91.38' L • 182.62' R • 1884.50' PC • 629.96.20 PT • 631.78.82 DS • 50 MPH SE • EXISTING
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Curve CLO2 PI • 730.60.27 DELTA • 5° 52' 10.50" (LT) D • 2' 59' 18" T • 98.29' L • 196.41' R • 1917.25' PC • 729.61.97 PCC • 731.58.38 DS • N/A SE • N/A	Curve CLO3 PI • 734.37.73 DELTA • 2° 32' 53.37" (LT) D • 4' 14' 39" T • 279.34' L • 550.91' R • 1,350.00' PC • 731.58.38 PT • 737.09.30 DS • N/A SE • N/A
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Curve EB10 PI • 530.79.00 DELTA • 5° 32' 58.50" (LT) D • 2' 56' 18" T • 94.51' L • 188.87' R • 1,950.00' PC • 529.84.49 PCC • 531.73.37 DS • 50 MPH SE • TRANSITION	Curve EB11 PI • 534.64.92 DELTA • 2° 39' 46.69" (LT) D • 4' 28' 34" T • 291.55' L • 57.3.32' R • 1,280.00' PC • 531.73.37 PT • 537.46.68 DS • 50 MPH SE • 7.5%
---	--

TRAFFIC ITEM	PLAN SYMBOL
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)	
Pedestal Pole and Foundation (Std. PF-2)	
Traffic Signal Head with Backplate	
ITS CCTV Camera	
Junction Box (Std. as noted on plans)	
Signal Luminaire and arm (135 W LED)	
Controller Cabinet & Foundation (Std. CF-5)	
Uninterruptible Power Supply Cabinet	
Electrical Service SE-5	
Standalone Light Pole and Luminaire	
Groundmount Sign Support (single or double per plans)	
O/H Cantilever Sign Support	

LEGEND:

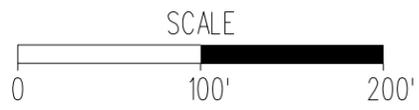
	EXISTING RIGHT OF WAY
	EXISTING LIMITED ACCESS LINE
	EXISTING EASEMENT
	PROPOSED LIMITED ACCESS LINE
	PROPOSED RIGHT OF WAY
	PROPOSED TEMPORARY EASEMENT
	PROPOSED PERMANENT EASEMENT
	PROPOSED UTILITY EASEMENT
	RFP PROPOSED LIMITED ACCESS LINE
	RFP PROPOSED TEMPORARY EASEMENT
	RFP PROPOSED PERMANENT EASEMENT
	RFP PROPOSED RIGHT OF WAY

	SHARED USE PATH
	SIDEWALK
	MILL AND OVERLAY
	FULL DEPTH PAVEMENT
	PAVEMENT DEMOLITION
	DENOTES CONSTRUCTION LIMITS IN CUT
	DENOTES CONSTRUCTION LIMITS IN FILL
	PROPOSED WATER RELOCATION
	PROPOSED SEWER RELOCATION

	ST'D. CG-6 REQ'D
	ST'D. CG-2 REQ'D
	ST'D. CG-12 REQ'D
	ST'D. CG-7 REQ'D
	ST'D. MS-1A REQ'D
	ST'D. MS-1 REQ'D
	ST'D. MS-2 REQ'D
	ST'D. GR-MGS1 REQ'D
	ST'D. GR-MGS2 REQ'D

	ST'D. 1A-2 REQ'D
	MOD CG-3 REQ'D
	PAVED SHOULDER
	ST'D. GR-MGS3 REQ'D
	ST'D. GR-MGS4 REQ'D

	SFM	SFM
	NATURAL GAS	
	EXISTING WATER	
	EXISTING ELECTRIC	
	EXISTING FIBER OPTIC	
	EXISTING CABLE TV	
	EXISTING TELEPHONE	
	EXISTING TRAFFIC CONTROL	
	EXISTING UNKNOWN UTILITY	



TECHNICAL PROPOSAL CONCEPT PLANS
 I-64 EXIT 124 INTERCHANGE IMPROVEMENTS
 (PROJECT # 0250-002-956)
 SHEET 14 OF 31

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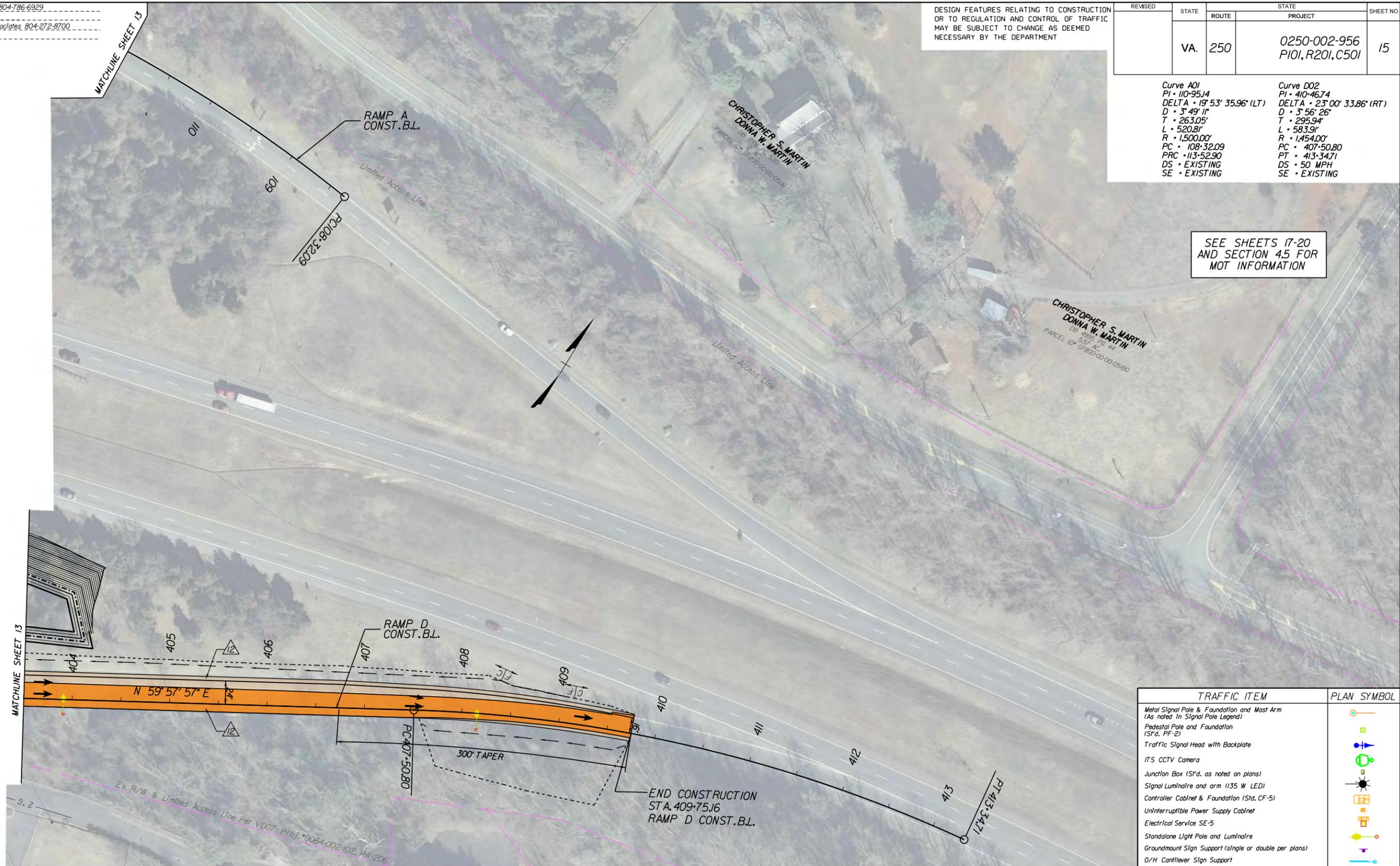
PROJECT MANAGER: *Bryan W. Stevenson, P.E. 804-786-6929*
 SURVEYED BY, DATE: _____
 DESIGN BY: *Whitman, Reardon & Associates, 804-272-8700*
 SUBSURFACE UTILITY BY, DATE: _____

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

REVISED	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA.	250		0250-002-956 PI01, R201, C501	15

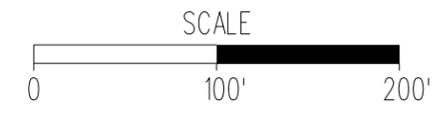
Curve A01 PI • 110+95.14 DELTA • 19° 53' 35.96" (LT) D • 3' 49' 11" T • 263.05' L • 520.81' R • 1,500.00' PC • 108+32.09 PRC • 113+52.90 DS • EXISTING SE • EXISTING	Curve D02 PI • 410+46.74 DELTA • 23° 00' 33.86" (RT) D • 3' 56' 26" T • 295.94' L • 583.91' R • 1,454.00' PC • 407+50.80 PT • 413+34.71 DS • 50 MPH SE • EXISTING
--	---

SEE SHEETS 17-20 AND SECTION 4.5 FOR MOT INFORMATION



TRAFFIC ITEM	PLAN SYMBOL
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)	
Pedestal Pole and Foundation (Std. PF-2)	
Traffic Signal Head with Backplate	
ITS CCTV Camera	
Junction Box (Std. as noted on plans)	
Signal Luminaire and arm (135 W LED)	
Controller Cabinet & Foundation (Std. CF-5)	
Uninterruptible Power Supply Cabinet	
Electrical Service SE-5	
Standalone Light Pole and Luminaire	
Groundmount Sign Support (single or double per plans)	
O/H Cantilever Sign Support	

LEGEND:	
	EXISTING RIGHT OF WAY
	EXISTING LIMITED ACCESS LINE
	EXISTING EASEMENT
	PROPOSED LIMITED ACCESS LINE
	PROPOSED RIGHT OF WAY
	PROPOSED TEMPORARY EASEMENT
	PROPOSED PERMANENT EASEMENT
	PROPOSED UTILITY EASEMENT
	RFP PROPOSED LIMITED ACCESS LINE
	RFP PROPOSED TEMPORARY EASEMENT
	RFP PROPOSED PERMANENT EASEMENT
	RFP PROPOSED RIGHT OF WAY
	SHARED USE PATH
	SIDEWALK
	MILL AND OVERLAY
	FULL DEPTH PAVEMENT
	PAVEMENT DEMOLITION
	DENOTES CONSTRUCTION LIMITS IN CUT
	DENOTES CONSTRUCTION LIMITS IN FILL
	PROPOSED WATER RELOCATION
	PROPOSED SEWER RELOCATION
	ST'D. CG-6 REQ'D
	ST'D. CG-2 REQ'D
	ST'D. CG-12 REQ'D
	ST'D. CG-7 REQ'D
	ST'D. MS-1A REQ'D
	ST'D. MS-1 REQ'D
	ST'D. MS-2 REQ'D
	ST'D. GR-MGS1 REQ'D
	ST'D. GR-MGS2 REQ'D
	ST'D. 1A-2 REQ'D
	MOD CG-3 REQ'D
	PAVED SHOULDER
	ST'D. GR-MGS3 REQ'D
	ST'D. GR-MGS4 REQ'D
	SFM SFM
	NATURAL GAS
	EXISTING WATER
	EXISTING ELECTRIC
	EXISTING FIBER OPTIC
	EXISTING CABLE TV
	EXISTING TELEPHONE
	EXISTING TRAFFIC CONTROL
	EXISTING UNKNOWN UTILITY



TECHNICAL PROPOSAL CONCEPT PLANS
 I-64 EXIT 124 INTERCHANGE IMPROVEMENTS
 (PROJECT # 0250-002-956)
 SHEET 15 OF 31

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\$USER\$

\$DATE\$

\$FILE\$

PROJECT MANAGER: Bryan W. Stevenson, P.E., 804-786-6929
 SURVEYED BY, DATE: _____
 DESIGN BY: Whitman, Reardon & Associates, 804-272-8700
 SUBSURFACE UTILITY BY, DATE: _____

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

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	250	0250-002-956 PI01, R201, C501	16



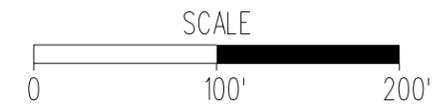
TRAFFIC ITEM	PLAN SYMBOL
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)	
Pedestal Pole and Foundation (S'd., PF-2)	
Traffic Signal Head with Backplate	
ITS CCTV Camera	
Junction Box (S'd., as noted on plans)	
Signal Luminaire and arm (135 W LED)	
Controller Cabinet & Foundation (Std., CF-5)	
Uninterruptible Power Supply Cabinet	
Electrical Service SE-5	
Standalone Light Pole and Luminaire	
Groundmount Sign Support (single or double per plans)	
O/H Cantilever Sign Support	

Curve B04
 PI • 206+44.43
 DELTA • 19° 14' 09.67" (RT)
 D • 3' 16' 40"
 T • 296.22'
 L • 586.86'
 R • 1748.00'
 PC • 203+48.21
 PT • 209+35.07
 DS • 50 MPH
 SE • EXISTING

Curve C2
 PI • 32+96.56
 DELTA • 118° 54' 35.68" (LT)
 D • 32' 44' 26"
 T • 296.56'
 L • 363.19'
 R • 175.00'
 PC • 30+00.00
 PT • 33+63.19
 DS • 25 MPH
 SE • 2%

SEE SHEETS 17-20 AND SECTION 4.5 FOR MOT INFORMATION

LEGEND:		ST'D. CG-6 REQ'D		ST'D. IA-2 REQ'D		SFM	
	EXISTING RIGHT OF WAY		ST'D. CG-6 REQ'D		ST'D. IA-2 REQ'D		SFM
	EXISTING LIMITED ACCESS LINE		ST'D. CG-2 REQ'D		MOD CG-3 REQ'D		NATURAL GAS
	EXISTING EASEMENT		ST'D. CG-12 REQ'D		PAVED SHOULDER		EXISTING WATER
	PROPOSED LIMITED ACCESS LINE		ST'D. CG-7 REQ'D		ST'D. GR-MGS3 REQ'D		EXISTING ELECTRIC
	PROPOSED RIGHT OF WAY		ST'D. MS-1A REQ'D		ST'D. GR-MGS4 REQ'D		EXISTING FIBER OPTIC
	PROPOSED TEMPORARY EASEMENT		ST'D. MS-1 REQ'D				EXISTING CABLE TV
	PROPOSED PERMANENT EASEMENT		ST'D. MS-2 REQ'D				EXISTING TELEPHONE
	PROPOSED UTILITY EASEMENT		ST'D. GR-MGS1 REQ'D				EXISTING TRAFFIC CONTROL
	RFP PROPOSED LIMITED ACCESS LINE		ST'D. GR-MGS2 REQ'D				EXISTING UNKNOWN UTILITY
	RFP PROPOSED TEMPORARY EASEMENT						
	RFP PROPOSED PERMANENT EASEMENT						
	RFP PROPOSED RIGHT OF WAY						
	SHARED USE PATH						
	SIDEWALK						
	MILL AND OVERLAY						
	FULL DEPTH PAVEMENT						
	PAVEMENT DEMOLITION						
	DENOTES CONSTRUCTION LIMITS IN CUT						
	DENOTES CONSTRUCTION LIMITS IN FILL						
	PROPOSED WATER RELOCATION						
	PROPOSED SEWER RELOCATION						



TECHNICAL PROPOSAL CONCEPT PLANS
 I-64 EXIT 124 INTERCHANGE IMPROVEMENTS
 (PROJECT # 0250-002-956)
 SHEET 16 OF 31

BRANCH CIVIL

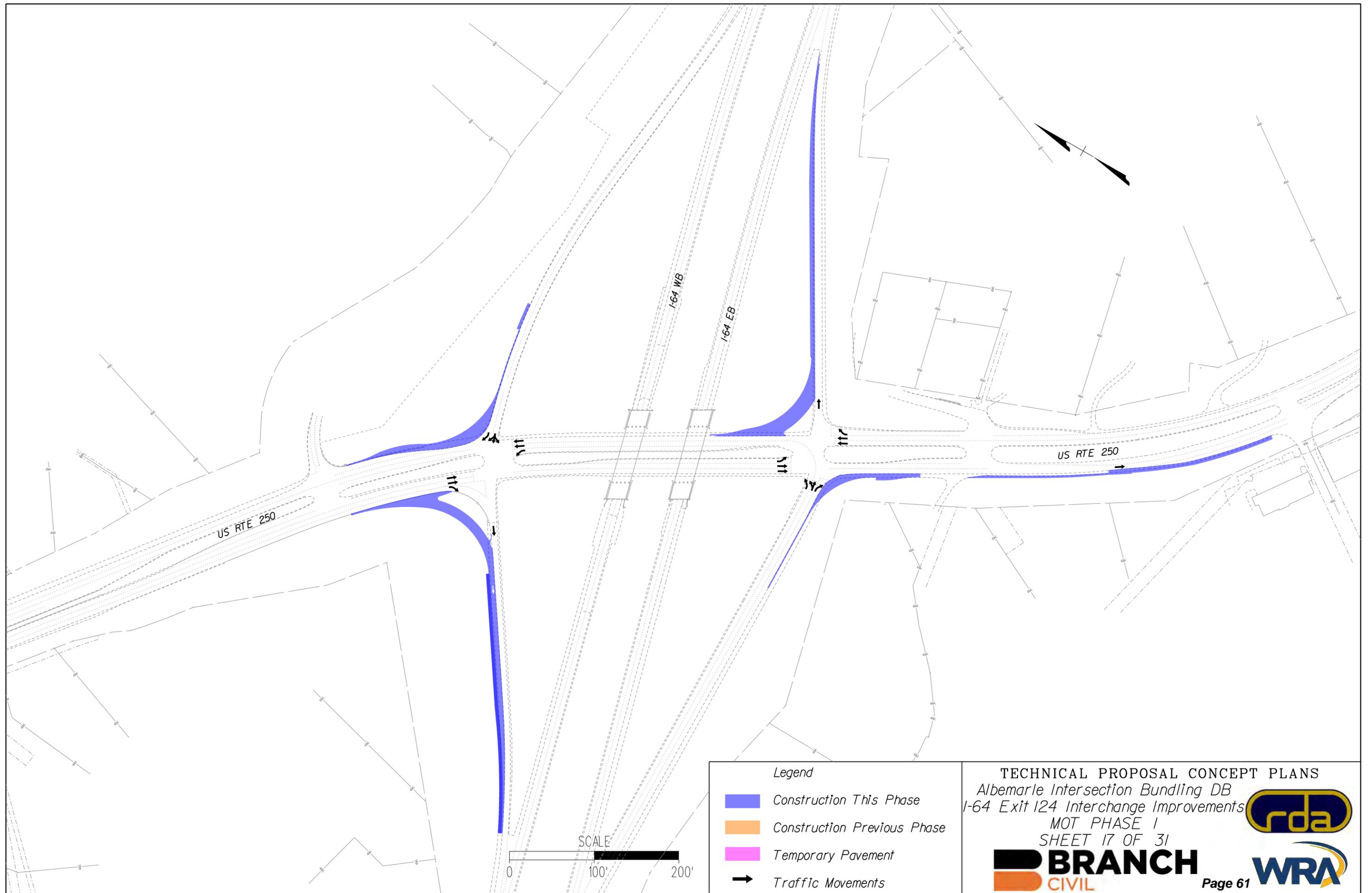
Page 60

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\$USER\$

\$DATE\$

\$FILE\$



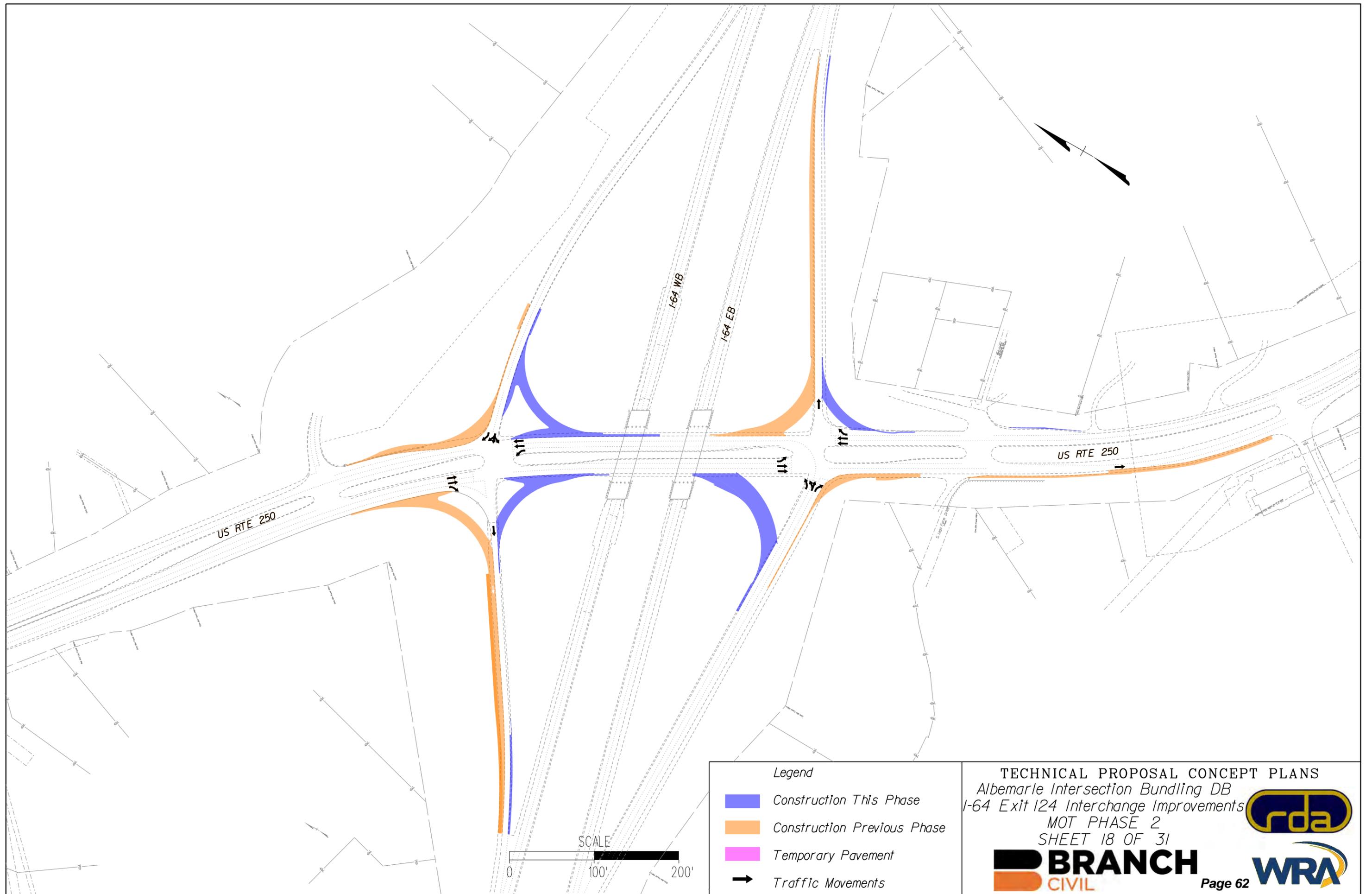
Legend

- Construction This Phase*
- Construction Previous Phase*
- Temporary Pavement*
- Traffic Movements*



TECHNICAL PROPOSAL CONCEPT PLANS
 Albemarle Intersection Bundling DB
 I-64 Exit 124 Interchange Improvements
 MOT PHASE 1
 SHEET 17 OF 31

Page 61



Legend

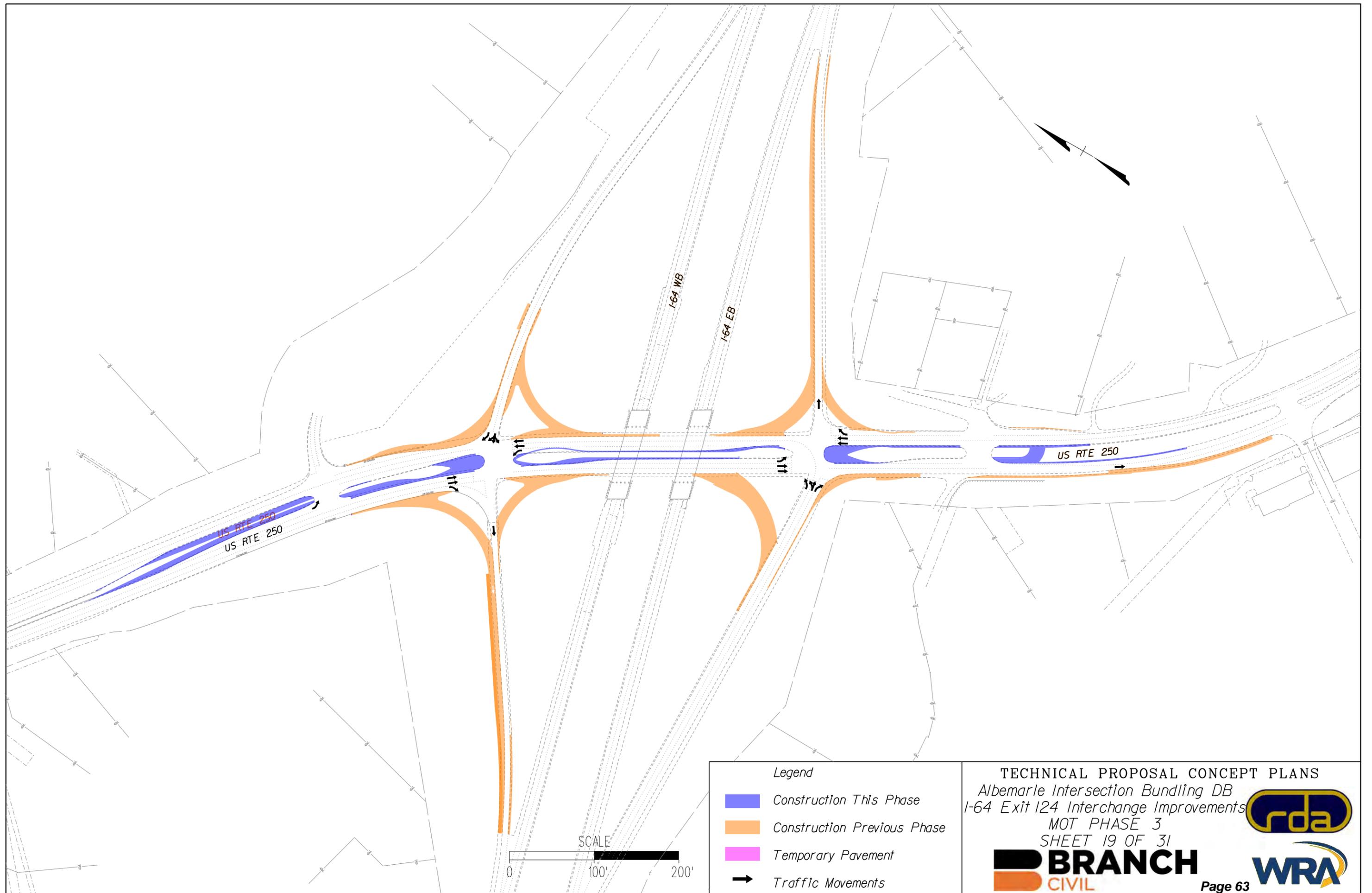
- Construction This Phase*
- Construction Previous Phase*
- Temporary Pavement*
- Traffic Movements*

TECHNICAL PROPOSAL CONCEPT PLANS
 Albemarle Intersection Bundling DB
 I-64 Exit 124 Interchange Improvements
 MOT PHASE 2
 SHEET 18 OF 31






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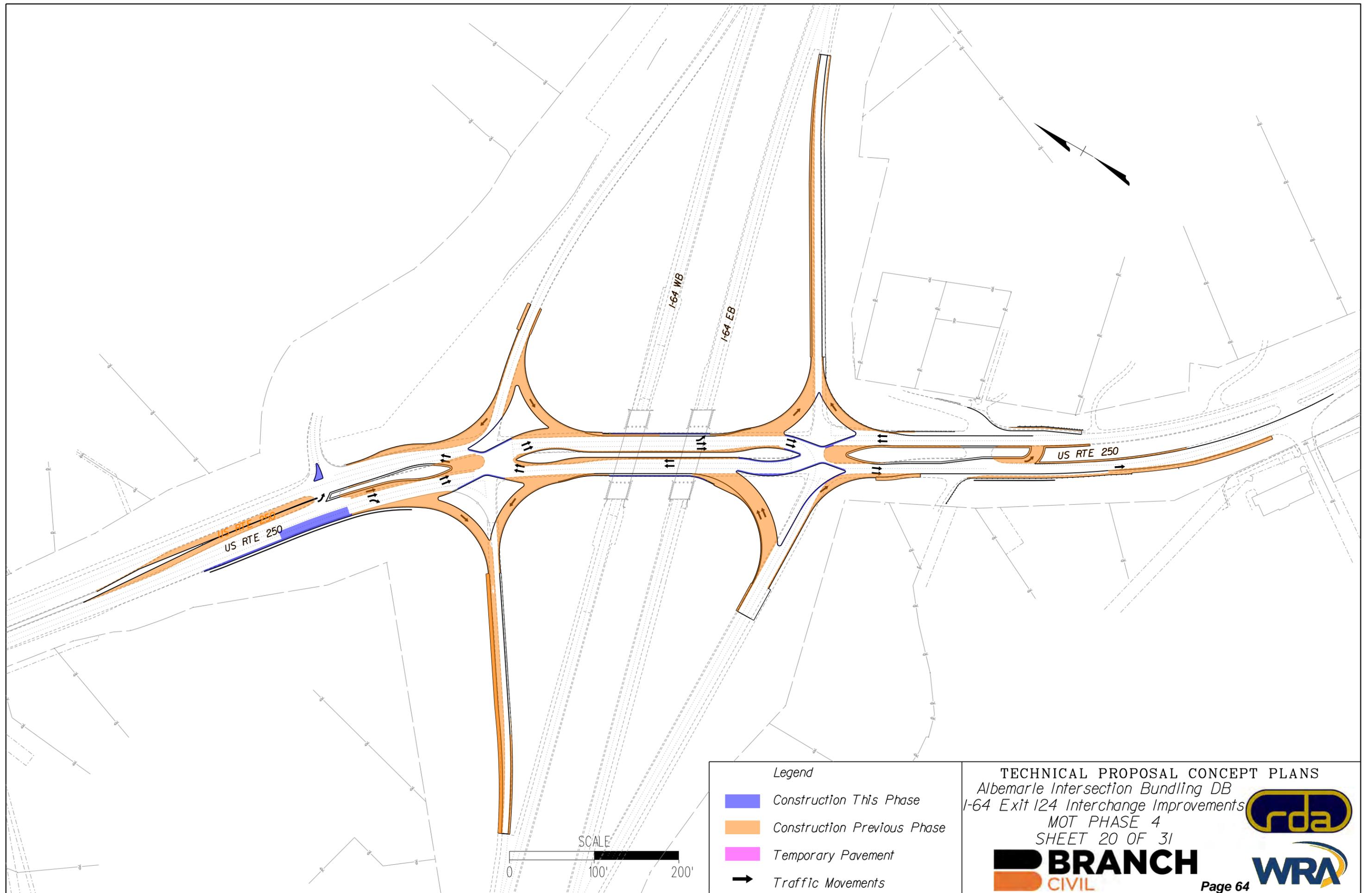
Legend

- Construction This Phase*
- Construction Previous Phase*
- Temporary Pavement*
- Traffic Movements*



TECHNICAL PROPOSAL CONCEPT PLANS
 Albemarle Intersection Bundling DB
 I-64 Exit 124 Interchange Improvements
 MOT PHASE 3
 SHEET 19 OF 31

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Legend

- Construction This Phase*
- Construction Previous Phase*
- Temporary Pavement*
- Traffic Movements*

TECHNICAL PROPOSAL CONCEPT PLANS
 Albemarle Intersection Bundling DB
 I-64 Exit 124 Interchange Improvements
 MOT PHASE 4
 SHEET 20 OF 31






Page 64

PROJECT MANAGER: Bryan W. Stevenson, P.E. 804-786-6929
 SURVEYED BY, DATE: _____
 DESIGN BY: Whitman, Reardon & Associates, 804-272-8700
 SUBSURFACE UTILITY BY, DATE: _____

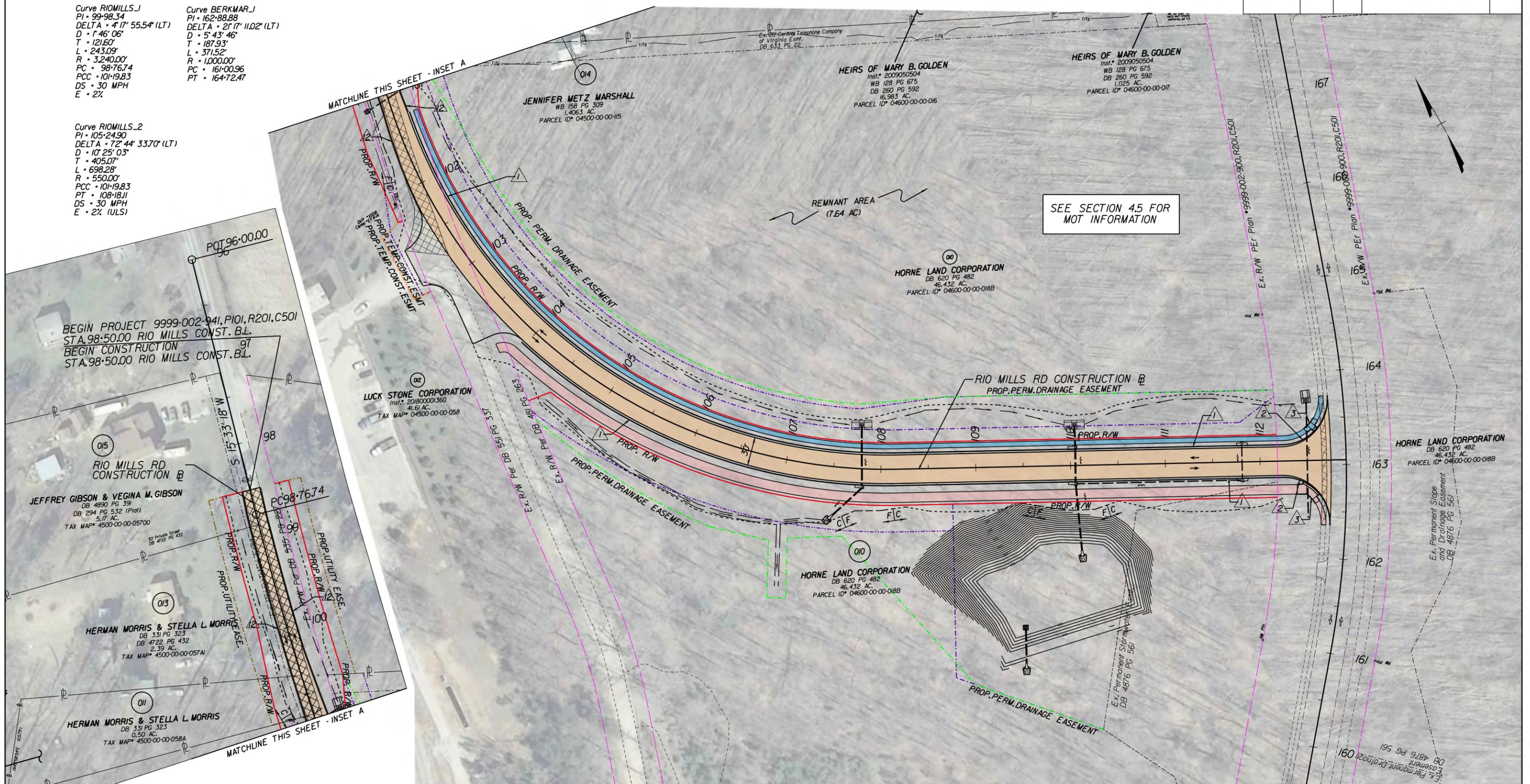
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.		9999-002-941 P101, R201, C501	21

Curve RIOMILLS_1
 PI • 99+98.34
 DELTA • 41° 55.54' (LT)
 D • 1' 46' 06"
 T • 121.60'
 L • 243.09'
 R • 3,240.00'
 PC • 98+76.74
 PCC • 101+19.83
 DS • 30 MPH
 E • 2%

Curve BERKMAR_1
 PI • 162+88.88
 DELTA • 21° 17' 11.02' (LT)
 D • 5' 43' 46"
 T • 187.93'
 L • 371.52'
 R • 10,000.00'
 PC • 161+00.96
 PT • 164+72.47

Curve RIOMILLS_2
 PI • 105+24.90
 DELTA • 72° 44' 33.70' (LT)
 D • 10' 25' 03"
 T • 405.07'
 L • 698.28'
 R • 5,500.00'
 PCC • 101+19.83
 PT • 108+18.11
 DS • 30 MPH
 E • 2% (ULS)



LEGEND:

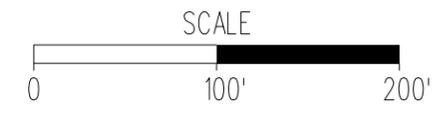
	EXISTING RIGHT OF WAY		SHARED USE PATH		ST'D. CG-6 REQ'D		ST'D. 1A-2 REQ'D		SFM
	EXISTING LIMITED ACCESS LINE		SIDEWALK		ST'D. CG-2 REQ'D		MOD CG-3 REQ'D		NATURAL GAS
	EXISTING EASEMENT		MILL AND OVERLAY		ST'D. CG-12 REQ'D		PAVED SHOULDER		EXISTING WATER
	PROPOSED LIMITED ACCESS LINE		FULL DEPTH PAVEMENT		ST'D. CG-7 REQ'D		ST'D. GR-MGS3 REQ'D		EXISTING ELECTRIC
	PROPOSED RIGHT OF WAY		PAVEMENT DEMOLITION		ST'D. MS-1A REQ'D		ST'D. GR-MGS4 REQ'D		EXISTING FIBER OPTIC
	PROPOSED TEMPORARY EASEMENT				ST'D. MS-1 REQ'D				EXISTING CABLE TV
	PROPOSED PERMANENT EASEMENT				ST'D. MS-2 REQ'D				EXISTING TELEPHONE
	PROPOSED UTILITY EASEMENT				ST'D. GR-MGS1 REQ'D				EXISTING TRAFFIC CONTROL
	RFP PROPOSED LIMITED ACCESS LINE				ST'D. GR-MGS2 REQ'D				EXISTING UNKNOWN UTILITY
	RFP PROPOSED TEMPORARY EASEMENT								
	RFP PROPOSED PERMANENT EASEMENT								
	RFP PROPOSED RIGHT OF WAY								

DENOTES CONSTRUCTION LIMITS IN CUT

DENOTES CONSTRUCTION LIMITS IN FILL

PROPOSED WATER RELOCATION

PROPOSED SEWER RELOCATION



TECHNICAL PROPOSAL CONCEPT PLANS
 RIO MILLS ROAD EXTENSION
 (PROJECT # 9999-002-941)
 SHEET 21 OF 31

BRANCH CIVIL

Page 65

*USER#

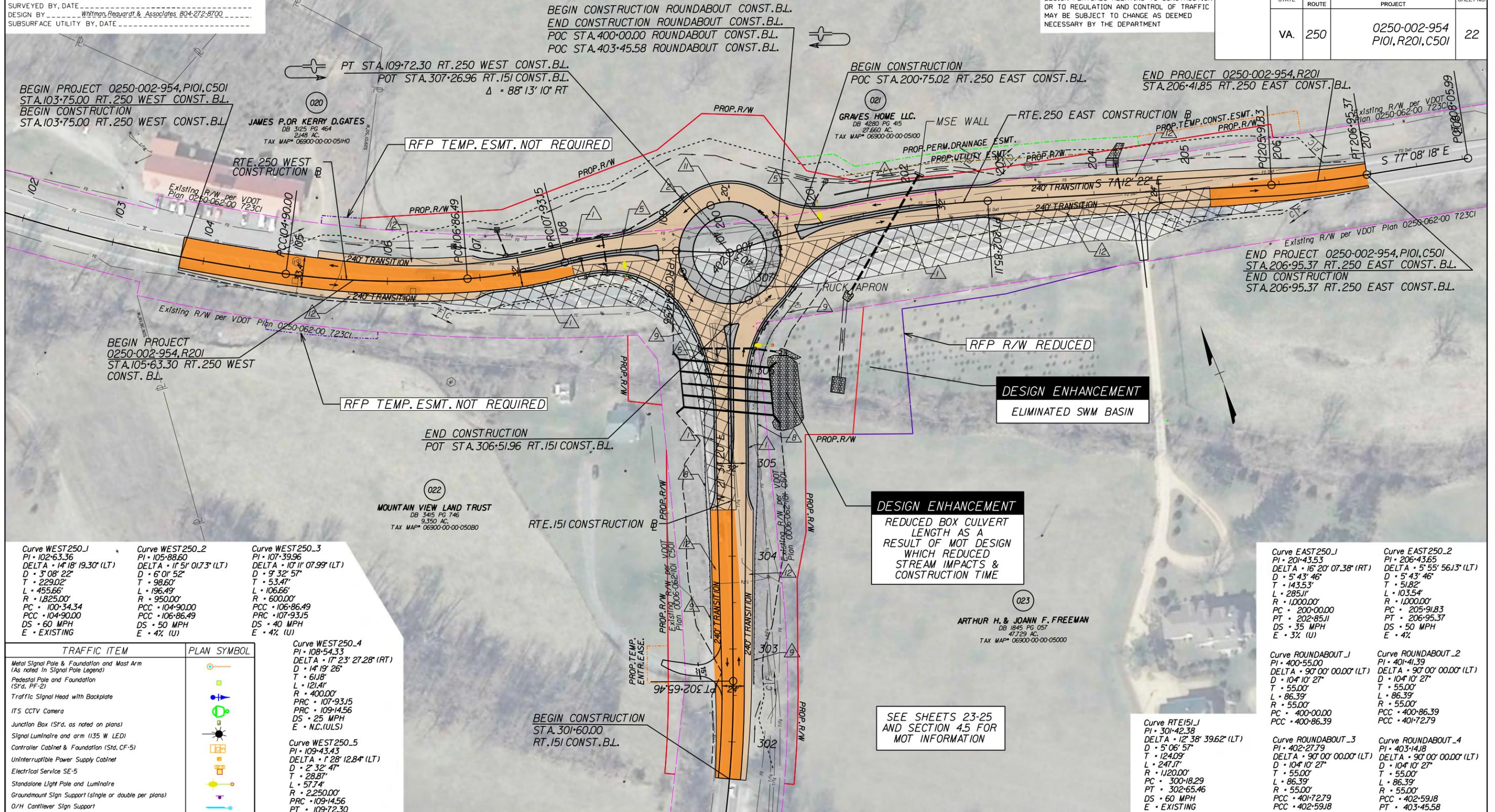
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*FILE#

PROJECT MANAGER: Bryan W. Stevenson, P.E. 804-786-6929
 SURVEYED BY, DATE: _____
 DESIGN BY: William Reardon & Associates, 804-272-8700
 SUBSURFACE UTILITY BY, DATE: _____

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

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	250	0250-002-954 PI01, R201, C501	22

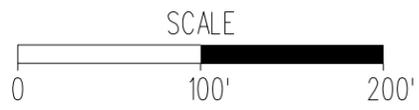


Curve WEST250_1	Curve WEST250_2	Curve WEST250_3
PI • 102+63.36	PI • 105+88.60	PI • 107+39.96
DELTA • 14° 18' 19.30" (LT)	DELTA • 11° 51' 01.73" (LT)	DELTA • 10° 11' 07.99" (LT)
D • 3' 08" 22"	D • 6' 01" 52"	D • 9' 32" 57"
T • 229.02'	T • 98.60'	T • 53.47'
L • 455.66'	L • 196.49'	L • 106.66'
R • 1825.00'	R • 950.00'	R • 600.00'
PC • 100+34.34	PCC • 104+90.00	PCC • 106+86.49
PCC • 104+90.00	PCC • 106+86.49	PRC • 107+93.15
DS • 60 MPH	DS • 50 MPH	DS • 40 MPH
E • EXISTING	E • 4% (U)	E • 4% (U)

TRAFFIC ITEM	PLAN SYMBOL
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)	
Pedestal Pole and Foundation (Std. PF-2)	
Traffic Signal Head with Backplate	
ITS CCTV Camera	
Junction Box (Std. as noted on plans)	
Signal Luminaire and arm (135 W LED)	
Controller Cabinet & Foundation (Std. CF-5)	
Uninterruptible Power Supply Cabinet	
Electrical Service SE-5	
Standalone Light Pole and Luminaire	
Groundmount Sign Support (single or double per plan)	
O/H Cantilever Sign Support	

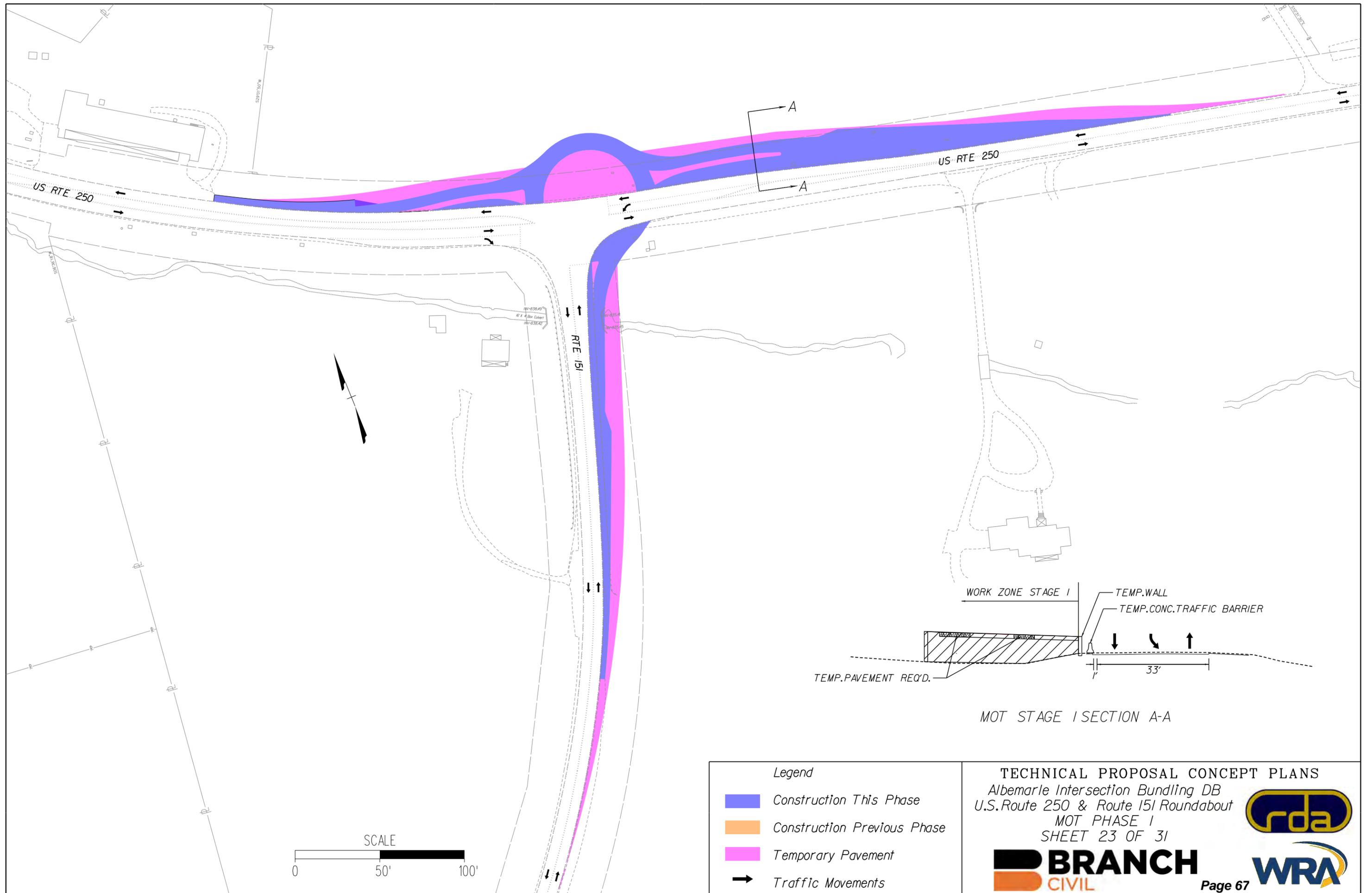
Curve WEST250_4 PI • 108+54.33 DELTA • 17° 23' 27.28" (RT) D • 14' 19" 26" T • 61.18' L • 121.41' R • 400.00' PRC • 107+93.15 PRC • 109+14.56 DS • 25 MPH E • N.C.(ULS)	Curve WEST250_5 PI • 109+43.43 DELTA • 1° 28' 12.84" (LT) D • 2' 32" 47" T • 28.87' L • 57.74' R • 2,250.00' PRC • 109+14.56 PT • 109+72.30
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LEGEND:	SYMBOLS	DESCRIPTIONS
		EXISTING RIGHT OF WAY
		EXISTING LIMITED ACCESS LINE
		EXISTING EASEMENT
		PROPOSED LIMITED ACCESS LINE
		PROPOSED RIGHT OF WAY
		PROPOSED TEMPORARY EASEMENT
		PROPOSED PERMANENT EASEMENT
		PROPOSED UTILITY EASEMENT
		RFP PROPOSED LIMITED ACCESS LINE
		RFP PROPOSED TEMPORARY EASEMENT
		RFP PROPOSED PERMANENT EASEMENT
		RFP PROPOSED RIGHT OF WAY
		SHARED USE PATH
		SIDEWALK
		MILL AND OVERLAY
		FULL DEPTH PAVEMENT
		PAVEMENT DEMOLITION
		DENOTES CONSTRUCTION LIMITS IN CUT
		DENOTES CONSTRUCTION LIMITS IN FILL
		PROPOSED WATER RELOCATION
		PROPOSED SEWER RELOCATION
		ST'D. CG-6 REQ'D
		ST'D. CG-2 REQ'D
		ST'D. CG-12 REQ'D
		ST'D. CG-7 REQ'D
		ST'D. MS-1A REQ'D
		ST'D. MS-1 REQ'D
		ST'D. MS-2 REQ'D
		ST'D. GR-MGS1 REQ'D
		ST'D. GR-MGS2 REQ'D
		ST'D. 1A-2 REQ'D
		MOD CG-3 REQ'D
		PAVED SHOULDER
		ST'D. GR-MGS3 REQ'D
		ST'D. GR-MGS4 REQ'D
		SFM - SFM
		G - NATURAL GAS
		24" W - EXISTING WATER
		E - EXISTING ELECTRIC
		FO - EXISTING FIBER OPTIC
		CATV - EXISTING CABLE TV
		T/Tg - EXISTING TELEPHONE
		TC - EXISTING TRAFFIC CONTROL
		Unk - EXISTING UNKNOWN UTILITY



TECHNICAL PROPOSAL CONCEPT PLANS
 U.S. ROUTE 250 & ROUTE 151 ROUNDABOUT
 (PROJECT # 0250-002-954)
 SHEET 22 OF 31

BRANCH CIVIL Page 66

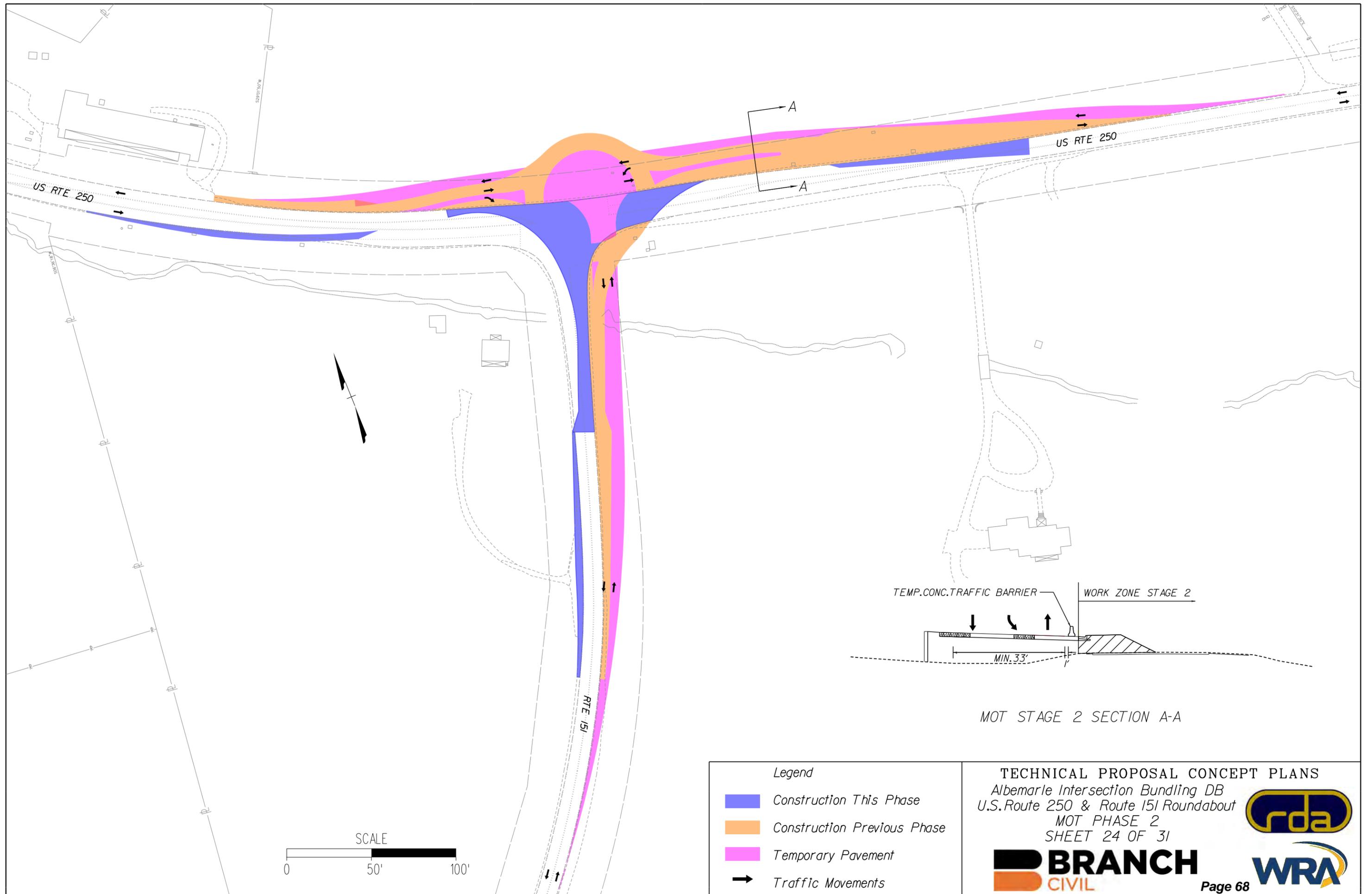


Legend

- Construction This Phase*
- Construction Previous Phase*
- Temporary Pavement*
- Traffic Movements*

TECHNICAL PROPOSAL CONCEPT PLANS
 Albemarle Intersection Bundling DB
 U.S.Route 250 & Route 151 Roundabout
 MOT PHASE 1
 SHEET 23 OF 31



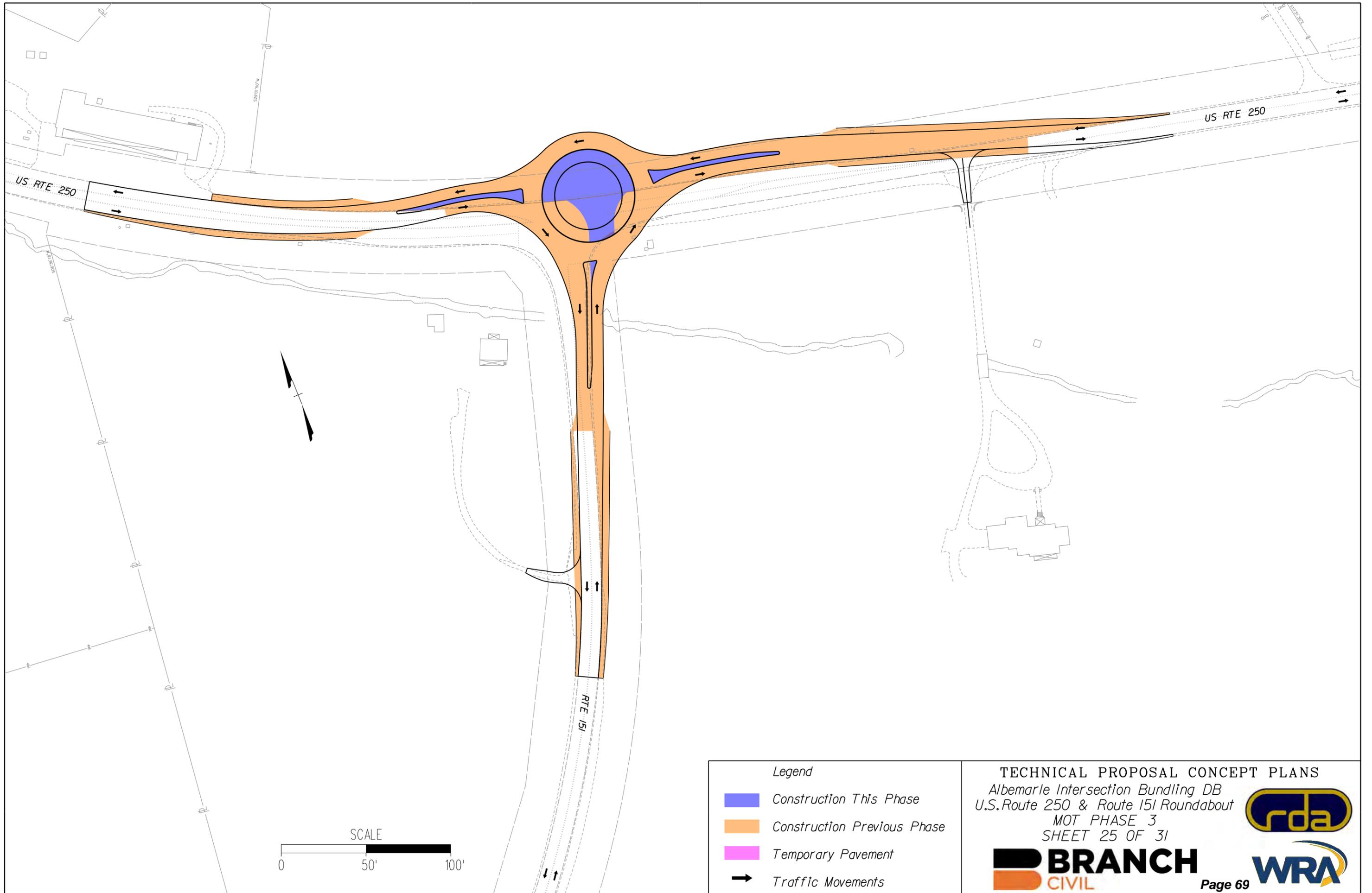


Legend

- Construction This Phase*
- Construction Previous Phase*
- Temporary Pavement*
- Traffic Movements*

TECHNICAL PROPOSAL CONCEPT PLANS
 Albemarle Intersection Bundling DB
 U.S. Route 250 & Route 151 Roundabout
 MOT PHASE 2
 SHEET 24 OF 31





Legend

- Construction This Phase*
- Construction Previous Phase*
- Temporary Pavement*
- Traffic Movements*

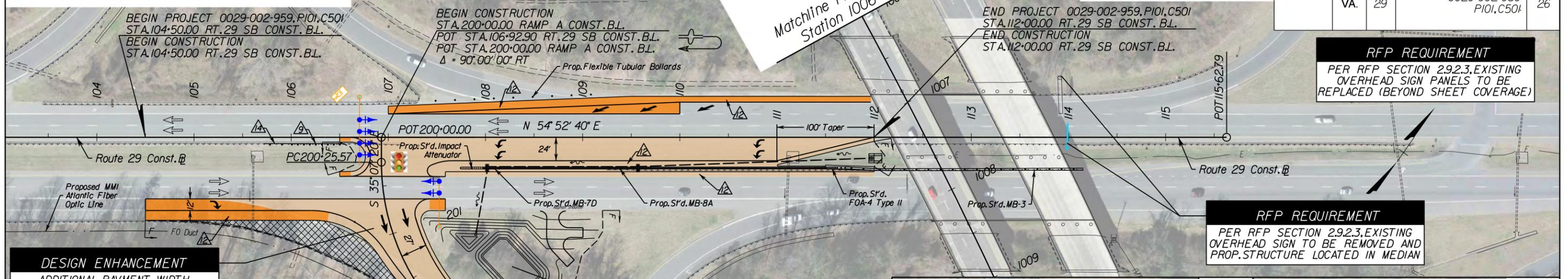
TECHNICAL PROPOSAL CONCEPT PLANS
 Albemarle Intersection Bundling DB
 U.S. Route 250 & Route 151 Roundabout
 MOT PHASE 3
 SHEET 25 OF 31



PROJECT MANAGER: Bryan W. Stevenson, P.E., 804-786-6929
 SURVEYED BY, DATE: _____
 DESIGN BY: Whitman, Reardon & Associates, (804) 272-8700
 SUBSURFACE UTILITY BY, DATE: _____

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

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-002-959 PI01, C501	26

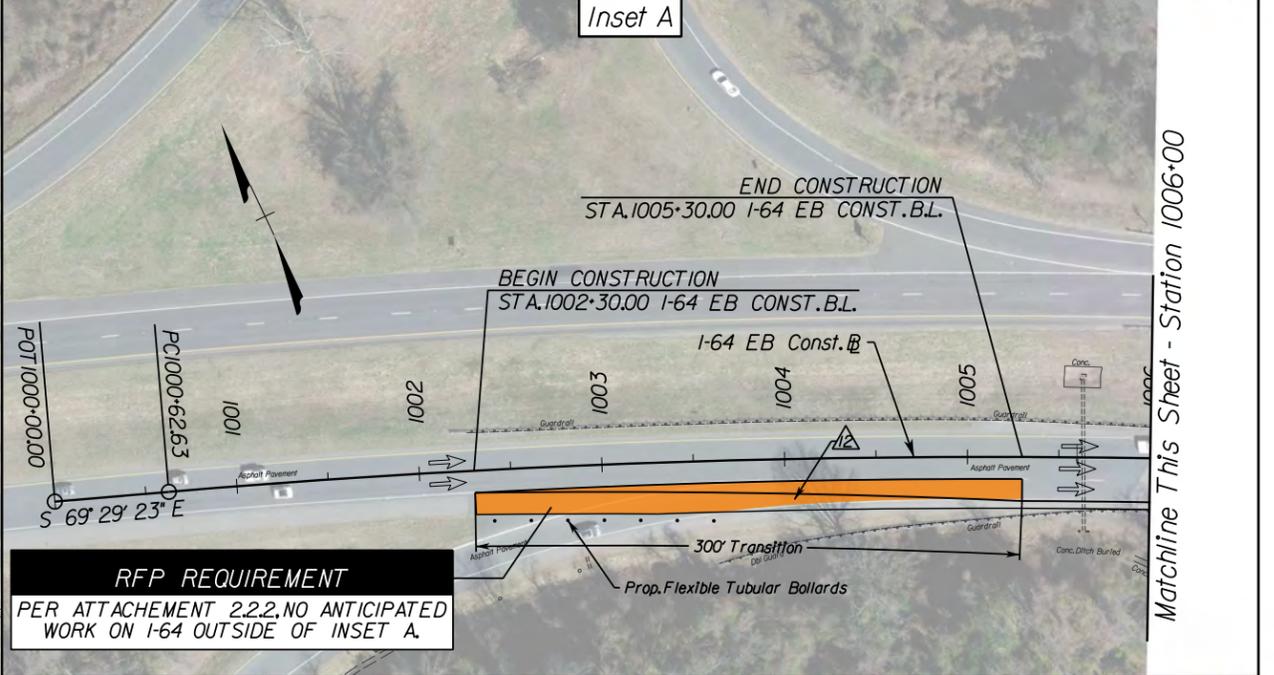


RFP REQUIREMENT
 PER RFP SECTION 2.9.2.3, EXISTING OVERHEAD SIGN PANELS TO BE REPLACED (BEYOND SHEET COVERAGE)

RFP REQUIREMENT
 PER RFP SECTION 2.9.2.3, EXISTING OVERHEAD SIGN TO BE REMOVED AND PROP. STRUCTURE LOCATED IN MEDIAN

DESIGN ENHANCEMENT
 ADDITIONAL PAYMENT WIDTH PROVIDED FOR TURNING MOVEMENTS

DESIGN ENHANCEMENT
 SWM WATER QUALITY REQUIREMENTS MET THROUGH NUTRIENT CREDIT PURCHASE AND WATER QUANTITY REQUIREMENTS MET THROUGH ON-SITE FACILITY (REDUCED MAINTENANCE REQUIREMENTS)



RAMP A CURVE DATA

Curve HA_RAMP_A_1 PI • 201+26.26 DELTA • 47° 17' 16.67" (LT) D • 24' 54' 40" T • 100.69' L • 189.83' R • 230.00' PC • 200+25.57 PRC • 202+15.39 DS • 25 MPH SE • NC (ULS)	Curve HA_RAMP_A_2 PI • 203+11.12 DELTA • 24° 01' 09.17" (RT) D • 12' 43' 57" T • 95.73' L • 188.65' R • 450.00' PC • 202+15.39 PT • 204+04.04 DS • 30 MPH SE • 6.4%
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I-64 EB CURVE DATA

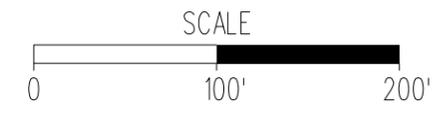
Curve HA_64_EB_1 PI • 1008+68.63 DELTA • 17° 17' 38.52" (RT) D • 1' 04' 52" T • 806.00' L • 1599.74' R • 5,300.00' PC • 1000+62.63 PT • 1016+62.37	Curve HA_64_EB_2 PI • 211+85.70 DELTA • 63° 04' 46.81" (RT) D • 19' 05' 55" T • 184.13' L • 330.28' R • 300.00' PC • 210+01.58 PT • 213+31.86 DS • 30 MPH E • EXISTING
--	--

TRAFFIC ITEM	PLAN SYMBOL
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)	
Pedestal Pole and Foundation (Std., PF-2)	
Traffic Signal Head with Backplate	
ITS CCTV Camera	
Junction Box (Std., as noted on plans)	
Signal Luminaire and arm (135 W LED)	
Controller Cabinet & Foundation (Std., CF-5)	
Uninterruptible Power Supply Cabinet	
Electrical Service SE-5	
Standalone Light Pole and Luminaire	
Groundmount Sign Support (single or double per plans)	
O/H Cantilever Sign Support	

DOUGLAS D. HUDSON
 STERLING M. HUDSON
 TRUSTEES OF THE
 DOUGLAS D. HUDSON
 REVOCABLE TRUST
 WB 1899 PG 164
 100 AC
 PARCEL ID# 07600-00-00-02140

LEGEND:

EXISTING RIGHT OF WAY	SHARED USE PATH	ST'D. CG-6 REQ'D.	ST'D. 1A-2 REQ'D.	SFM	SFM
EXISTING LIMITED ACCESS LINE	SIDEWALK	ST'D. CG-2 REQ'D.	MOD CG-3 REQ'D.	G	NATURAL GAS
EXISTING EASEMENT	MILL AND OVERLAY	ST'D. CG-12 REQ'D.	PAVED SHOULDER	24' W	EXISTING WATER
PROPOSED LIMITED ACCESS LINE	FULL DEPTH PAVEMENT	ST'D. CG-7 REQ'D.	ST'D. GR-MGS3 REQ'D.	E	EXISTING ELECTRIC
PROPOSED RIGHT OF WAY	PAVEMENT DEMOLITION	ST'D. MS-1A REQ'D.	ST'D. GR-MGS4 REQ'D.	FO	EXISTING FIBER OPTIC
PROPOSED TEMPORARY EASEMENT	DENOTES CONSTRUCTION LIMITS IN CUT	ST'D. MS-1 REQ'D.		CATV	EXISTING CABLE TV
PROPOSED PERMANENT EASEMENT	DENOTES CONSTRUCTION LIMITS IN FILL	ST'D. MS-2 REQ'D.		T/Tg	EXISTING TELEPHONE
PROPOSED UTILITY EASEMENT		ST'D. GR-MGS1 REQ'D.		TC	EXISTING TRAFFIC CONTROL
RFP PROPOSED LIMITED ACCESS LINE	8" W	ST'D. GR-MGS2 REQ'D.		Unk	EXISTING UNKNOWN UTILITY
RFP PROPOSED TEMPORARY EASEMENT	4" FM				
RFP PROPOSED PERMANENT EASEMENT					
RFP PROPOSED RIGHT OF WAY					



All construction is to be performed within existing right of way.

See Volume I Section 4.5 for MOT Information

TECHNICAL PROPOSAL CONCEPT PLANS
 US 29, I-64 EXIT 118 PAR-CLO MODIFICATION
 UPC 111727 (PROJECT: 0029-002-959)

SHEET 26 OF 31

BRANCH CIVIL

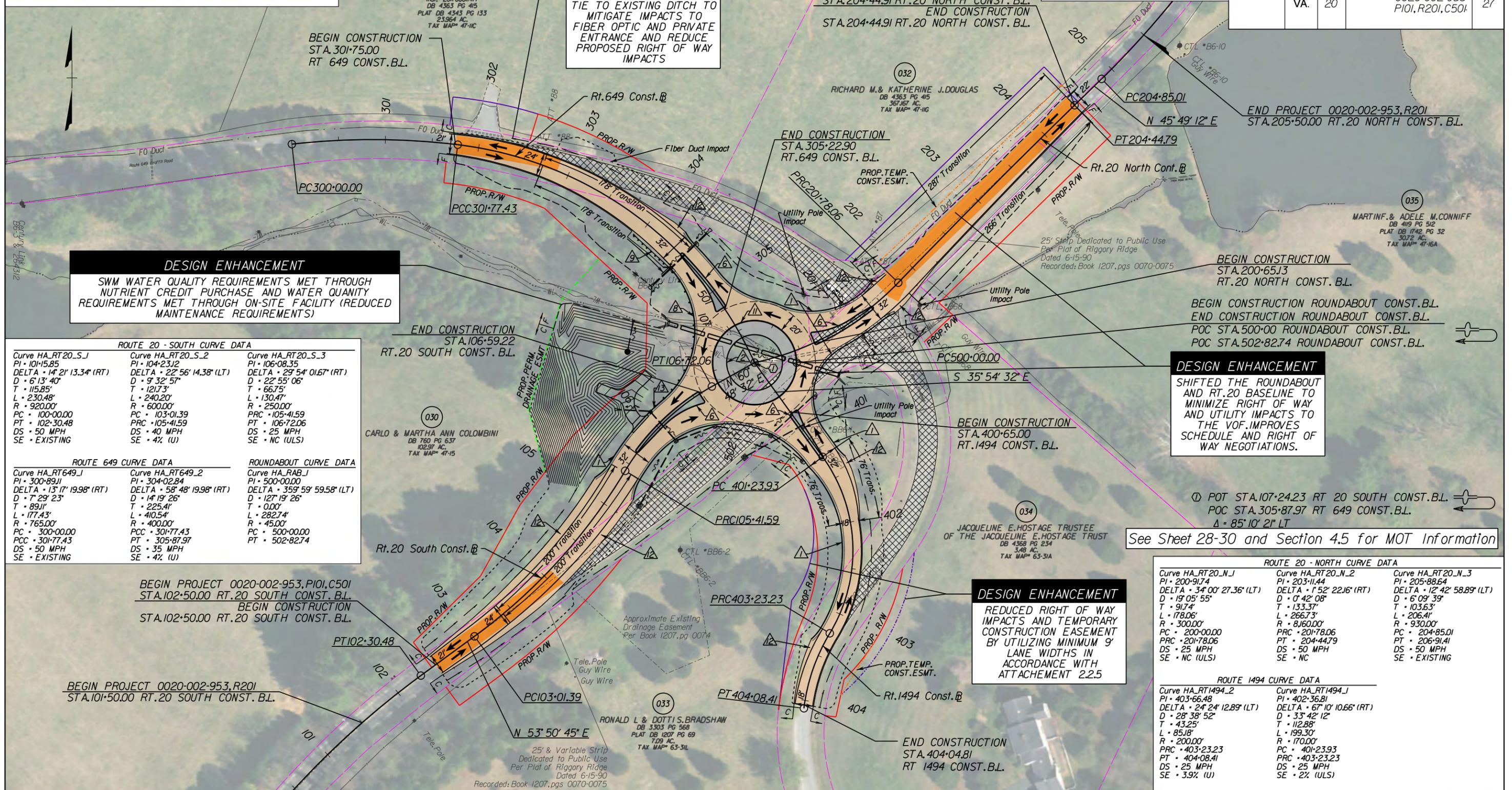
WRA

Page 70

PROJECT MANAGER: Bryan W. Stevenson, P.E. 804-786-6929
 SURVEYED BY, DATE: _____
 DESIGN BY: Whitman, Reardon & Associates (804) 272-8700
 SUBSURFACE UTILITY BY, DATE: _____

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

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	20	0020-002-953 P101, R201, C501	27



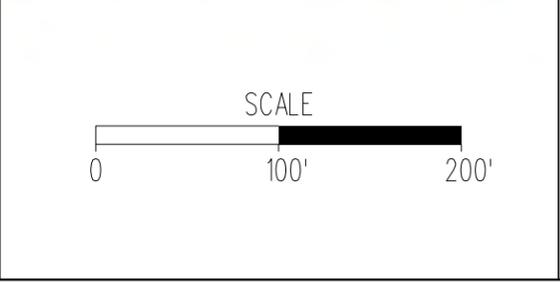
ROUTE 20 - SOUTH CURVE DATA		
Curve HA_RT20_S_1 PI • 101+5.85 DELTA • 14° 21' 13.34" (RT) D • 6' 13' 40" T • 115.85' L • 230.48' R • 920.00' PC • 100+00.00 PT • 102+30.48 DS • 50 MPH SE • EXISTING	Curve HA_RT20_S_2 PI • 104+23.12 DELTA • 22° 56' 14.38" (LT) D • 9' 32' 57" T • 66.75' L • 240.20' R • 600.00' PC • 103+01.39 PT • 105+41.59 DS • 40 MPH SE • 4% (U)	Curve HA_RT20_S_3 PI • 106+08.35 DELTA • 29° 54' 01.67" (RT) D • 22' 55' 06" T • 66.75' L • 130.47' R • 250.00' PC • 105+41.59 PT • 106+72.06 DS • 25 MPH SE • NC (ULS)

ROUTE 649 CURVE DATA		ROUNDBOUNT CURVE DATA	
Curve HA_RT649_1 PI • 300+89.11 DELTA • 13° 17' 19.98" (RT) D • 7' 29' 23" T • 89.11' L • 177.43' R • 765.00' PC • 300+00.00 PT • 301+77.43 DS • 50 MPH SE • EXISTING	Curve HA_RT649_2 PI • 304+02.84 DELTA • 58° 48' 19.98" (RT) D • 14' 19' 26" T • 225.41' L • 410.54' R • 400.00' PC • 301+77.43 PT • 305+87.97 DS • 35 MPH SE • 4% (U)	Curve HA_RAB_1 PI • 500+00.00 DELTA • 359° 59' 59.58" (LT) D • 127' 19' 26" T • 0.00' L • 282.74' R • 45.00' PC • 500+00.00 PT • 502+82.74	Curve HA_RAB_2 PI • 500+00.00 DELTA • 127' 19' 26" T • 0.00' L • 282.74' R • 45.00' PC • 500+00.00 PT • 502+82.74

ROUTE 20 - NORTH CURVE DATA		
Curve HA_RT20_N_1 PI • 200+91.74 DELTA • 34° 00' 27.36" (LT) D • 19' 05' 55" T • 91.74' L • 178.06' R • 300.00' PC • 200+00.00 PT • 201+78.06 DS • 25 MPH SE • NC (ULS)	Curve HA_RT20_N_2 PI • 203+11.44 DELTA • 1° 52' 22.16" (RT) D • 0' 42' 08" T • 133.37' L • 266.73' R • 816.00' PC • 201+78.06 PT • 204+44.79 DS • 50 MPH SE • NC	Curve HA_RT20_N_3 PI • 205+88.64 DELTA • 12° 42' 58.89" (LT) D • 6' 09' 39" T • 103.63' L • 206.41' R • 930.00' PC • 204+85.01 PT • 206+91.41 DS • 50 MPH SE • EXISTING

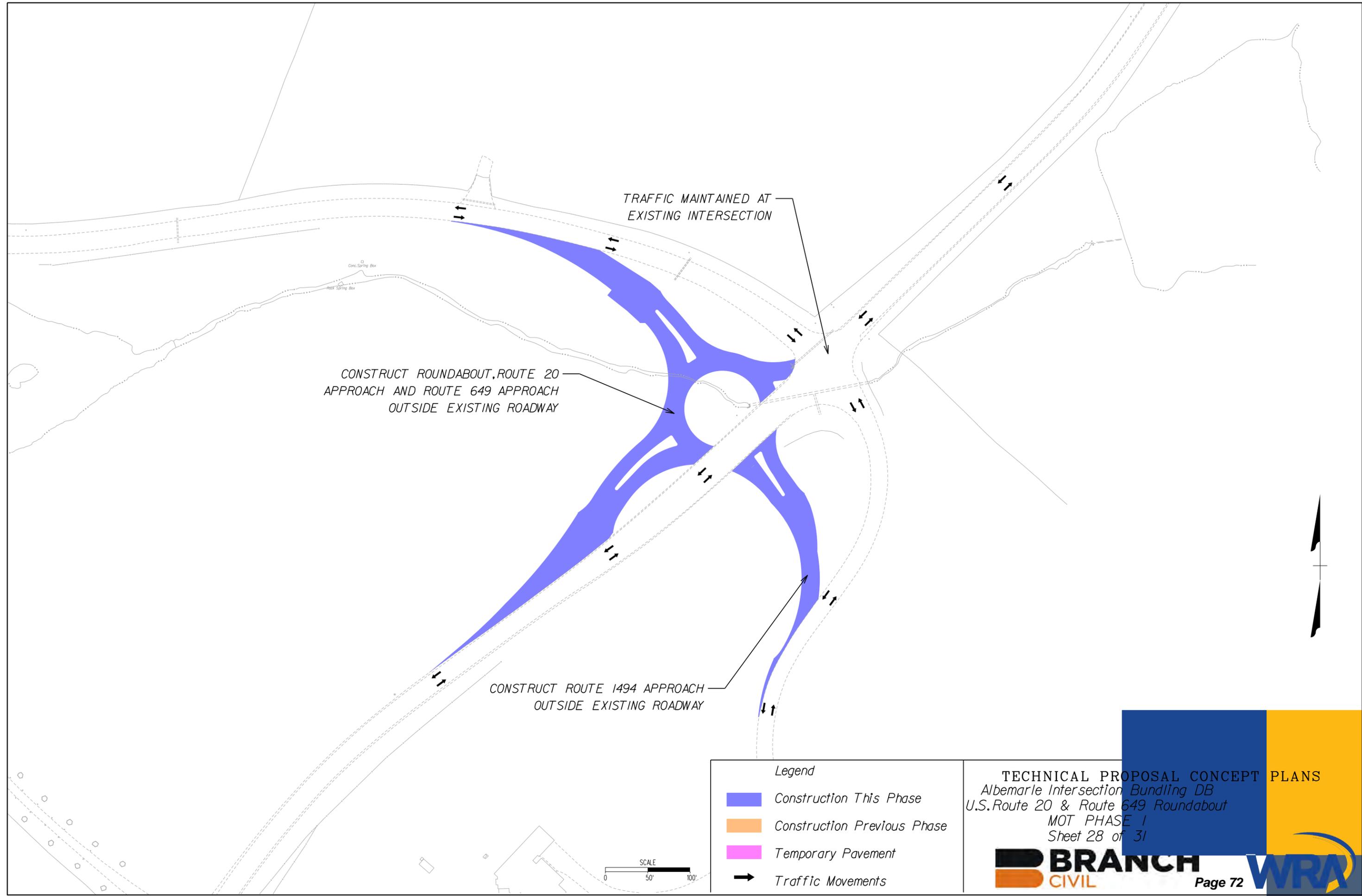
ROUTE 1494 CURVE DATA	
Curve HA_RT1494_2 PI • 403+66.48 DELTA • 24° 24' 12.89" (LT) D • 28' 38' 52" T • 43.25' L • 85.18' R • 200.00' PC • 403+23.23 PT • 404+08.41 DS • 25 MPH SE • 3.9% (U)	Curve HA_RT1494_1 PI • 402+36.81 DELTA • 67° 10' 10.66" (RT) D • 33' 42' 12" T • 112.88' L • 199.30' R • 170.00' PC • 401+23.93 PT • 403+23.23 DS • 25 MPH SE • 2% (ULS)

LEGEND:		ST'D. CG-6 REQ'D		ST'D. 1A-2 REQ'D.		SFM	
EXISTING RIGHT OF WAY	SHARED USE PATH	ST'D. CG-2 REQ'D	ST'D. 1A-2 REQ'D.	MOD CG-3 REQ'D	NATURAL GAS	— SFM —	SFM
EXISTING LIMITED ACCESS LINE	SIDEWALK	ST'D. CG-12 REQ'D.	MOD CG-3 REQ'D	PAVED SHOULDER	EXISTING WATER	— 24" W —	EXISTING WATER
EXISTING EASEMENT	MILL AND OVERLAY	ST'D. CG-7 REQ'D.	ST'D. GR-MGS3 REQ'D.	ST'D. GR-MGS4 REQ'D.	EXISTING ELECTRIC	— E —	EXISTING ELECTRIC
PROPOSED LIMITED ACCESS LINE	FULL DEPTH PAVEMENT	ST'D. MS-1A REQ'D.	ST'D. GR-MGS3 REQ'D.	ST'D. GR-MGS4 REQ'D.	EXISTING FIBER OPTIC	— FO —	EXISTING FIBER OPTIC
PROPOSED RIGHT OF WAY	PAVEMENT DEMOLITION	ST'D. MS-1 REQ'D.	ST'D. GR-MGS4 REQ'D.		EXISTING CABLE TV	— CATV —	EXISTING CABLE TV
PROPOSED TEMPORARY EASEMENT		ST'D. MS-2 REQ'D.			EXISTING TELEPHONE	— T/Tg —	EXISTING TELEPHONE
PROPOSED PERMANENT EASEMENT		ST'D. MS-2 REQ'D.			EXISTING TRAFFIC CONTROL	— TC —	EXISTING TRAFFIC CONTROL
PROPOSED UTILITY EASEMENT		ST'D. GR-MGS1 REQ'D.			EXISTING UNKNOWN UTILITY	— Unk —	EXISTING UNKNOWN UTILITY
RFP PROPOSED LIMITED ACCESS LINE	Denotes CONSTRUCTION LIMITS IN CUT	ST'D. GR-MGS2 REQ'D.					
RFP PROPOSED TEMPORARY EASEMENT	Denotes CONSTRUCTION LIMITS IN FILL						
RFP PROPOSED PERMANENT EASEMENT							
RFP PROPOSED RIGHT OF WAY							



TECHNICAL PROPOSAL CONCEPT PLANS
 RT.20 AND RT.649 PROPOSED ROUNDBOUNT
 UPC 111733 (PROJECT: 0020-002-953)
 SHEET 27 OF 31

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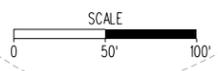
CONSTRUCT ROUNDABOUT, ROUTE 20
APPROACH AND ROUTE 649 APPROACH
OUTSIDE EXISTING ROADWAY

TRAFFIC MAINTAINED AT
EXISTING INTERSECTION

CONSTRUCT ROUTE 1494 APPROACH
OUTSIDE EXISTING ROADWAY

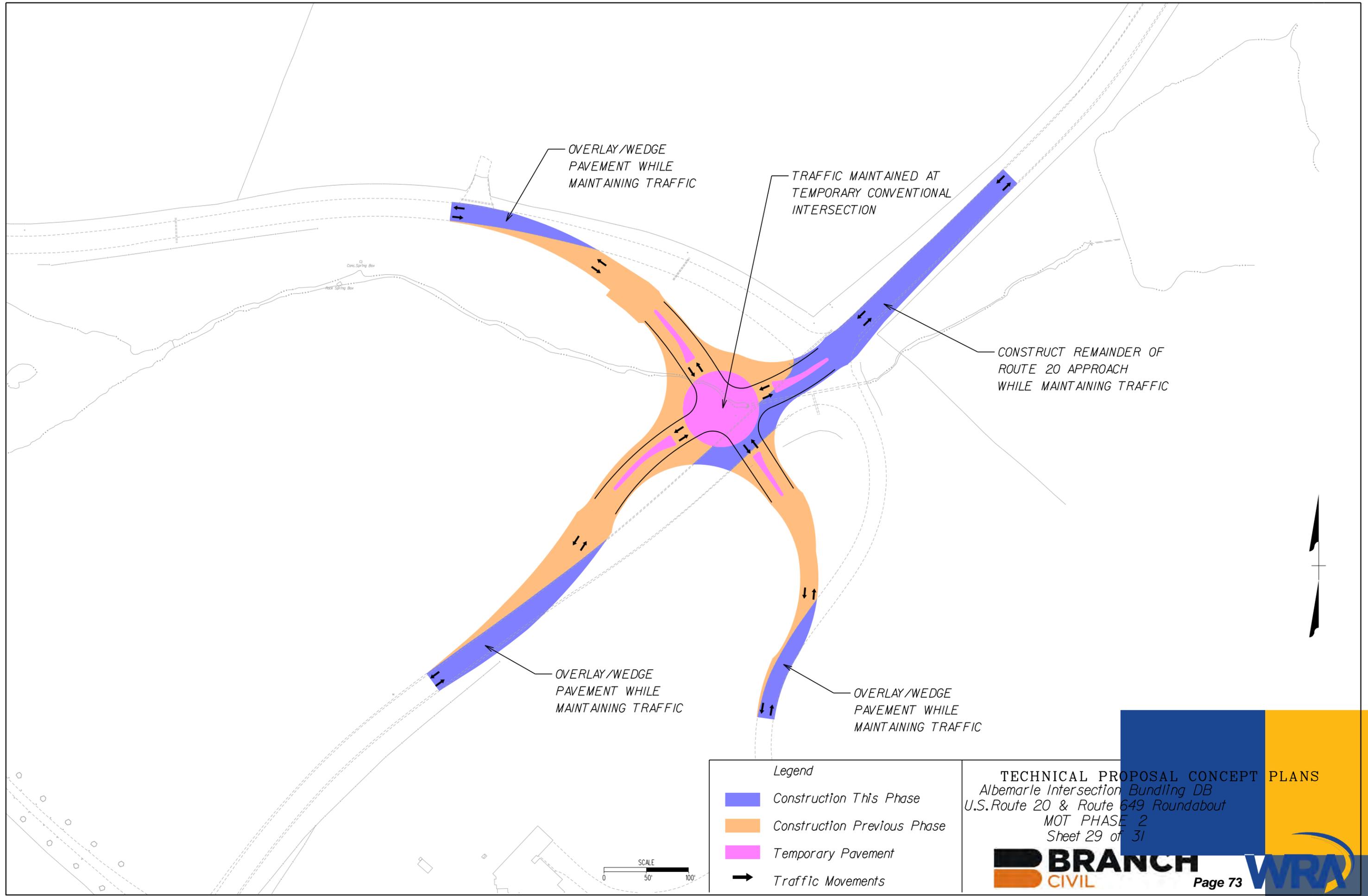
Legend

- Construction This Phase
- Construction Previous Phase
- Temporary Pavement
- Traffic Movements



TECHNICAL PROPOSAL CONCEPT PLANS
Albemarle Intersection Bundling DB
U.S. Route 20 & Route 649 Roundabout
MOT PHASE 1
Sheet 28 of 31





OVERLAY/WEDGE
PAVEMENT WHILE
MAINTAINING TRAFFIC

TRAFFIC MAINTAINED AT
TEMPORARY CONVENTIONAL
INTERSECTION

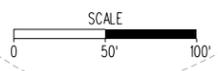
CONSTRUCT REMAINDER OF
ROUTE 20 APPROACH
WHILE MAINTAINING TRAFFIC

OVERLAY/WEDGE
PAVEMENT WHILE
MAINTAINING TRAFFIC

OVERLAY/WEDGE
PAVEMENT WHILE
MAINTAINING TRAFFIC

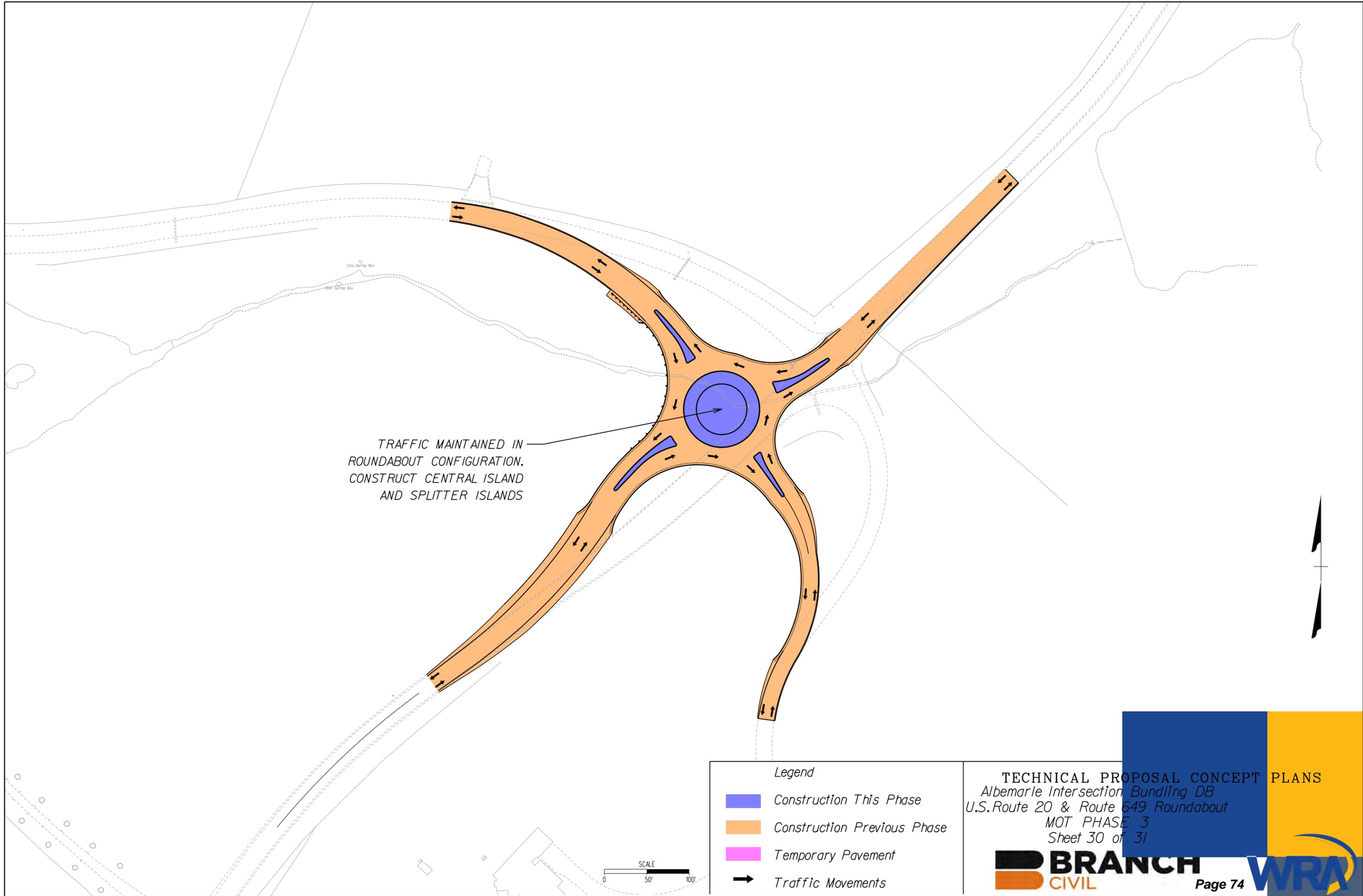
Legend

- Construction This Phase
- Construction Previous Phase
- Temporary Pavement
- Traffic Movements



TECHNICAL PROPOSAL CONCEPT PLANS
Albemarle Intersection Bundling DB
U.S. Route 20 & Route 649 Roundabout
MOT PHASE 2
Sheet 29 of 31

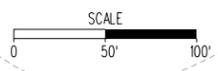




TRAFFIC MAINTAINED IN
 ROUNDABOUT CONFIGURATION.
 CONSTRUCT CENTRAL ISLAND
 AND SPLITTER ISLANDS

Legend

- Construction This Phase*
- Construction Previous Phase*
- Temporary Pavement*
- Traffic Movements*



TECHNICAL PROPOSAL CONCEPT PLANS
 Albemarle Intersection Bundling DB
 U.S. Route 20 & Route 649 Roundabout
 MOT PHASE 3
 Sheet 30 of 31



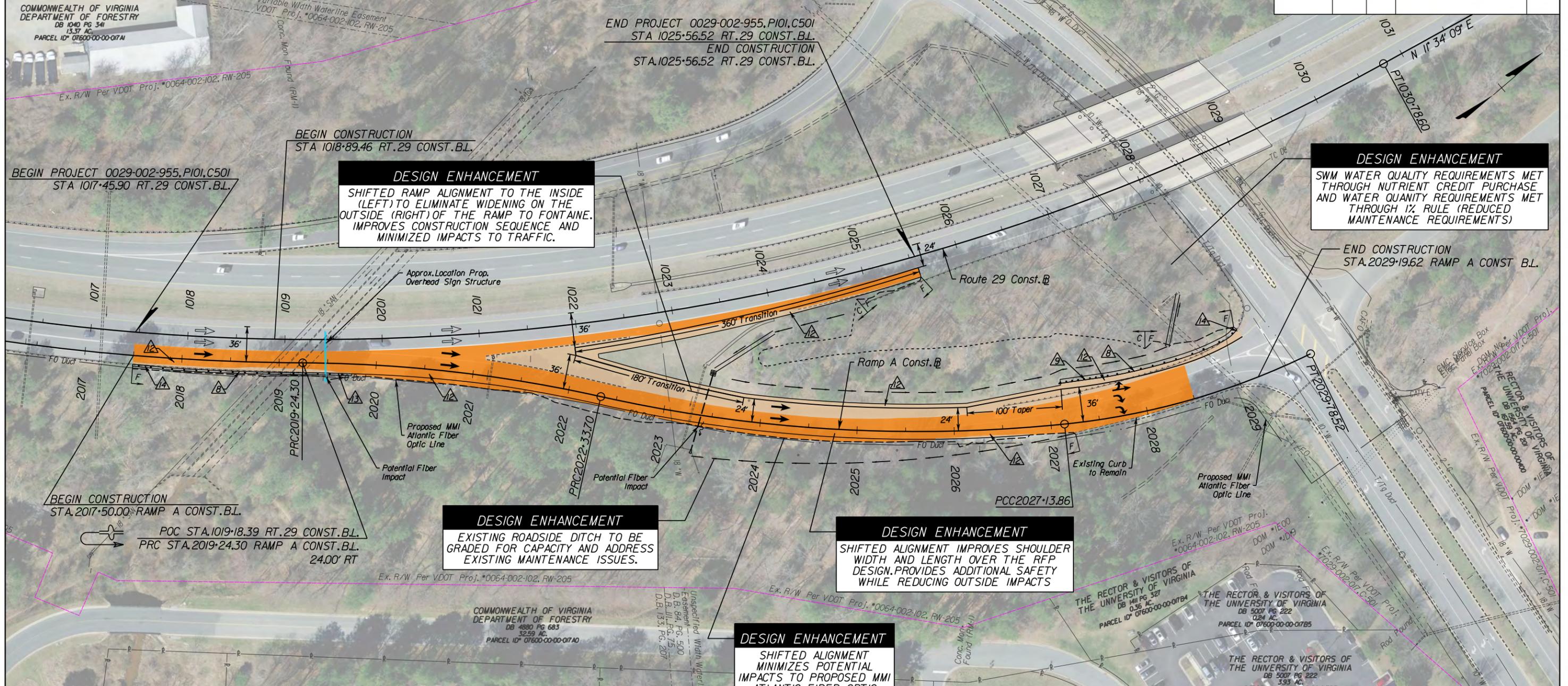
PROJECT MANAGER: Bryan W. Stevenson, P.E. 804-786-6929
 SURVEYED BY, DATE: _____
 DESIGN BY: Whitman, Reardon & Associates (804) 272-8700
 SUBSURFACE UTILITY BY, DATE: _____

FONTAINE LAND TRUST
 WILLIAM W. STEVENSON, TRUSTEE
 SHIRLEY L. FISHER, TRUSTEE
 DB 1635 PG 942
 1.21 AC.
 PARCEL ID: 07600-00-00-012E0

FONTAINE LOT LLC
 DB 4692 PG 415
 0.61 AC.
 PARCEL ID: 07600-00-00-012F0

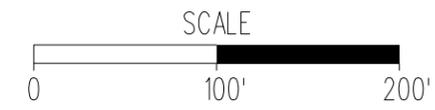
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-002-955 PI01,C501	31



RT.29 CURVE DATA		RAMP A CURVE DATA			
Curve HA_RT_29.J	Curve HA_RAMPA_1	Curve HA_RAMPA_2	Curve HA_RAMPA_3	Curve HA_RAMPA_4	
PI • 1022-61.46	PI • 2016-42.24	PI • 2020-79.59	PI • 2024-75.85	PI • 2028-47.58	
DELTA • 43° 19' 55.59" (LT)	DELTA • 14° 07' 29.66" (LT)	DELTA • 12° 13' 32.25" (RT)	DELTA • 18° 20' 27.21" (LT)	DELTA • 20° 13' 05.65" (LT)	
D • 2' 31' 0.3"	D • 2' 29' 28"	D • 3' 57' 0.5"	D • 3' 49' 11"	D • 7' 38' 2.2"	
T • 904.17'	T • 284.95'	T • 155.29'	T • 242.15'	T • 133.72'	
L • 1721.31'	L • 567.01'	L • 309.40'	L • 480.16'	L • 264.66'	
R • 2,276.00'	R • 2,300.00'	R • 1,450.00'	R • 1,500.00'	R • 750.00'	
PC • 1013-57.29	PC • 2013-57.29	PRC • 2019-24.30	PRC • 2022-33.70	PCC • 2027-13.86	
PT • 1030-78.60	PT • 2019-24.30	PRC • 2019-24.30	PRC • 2022-33.70	PT • 2029-78.52	
DS • 60 MPH	DS • 30 MPH				
SE • EXISTING	SE • EXISTING	SE • 3.1%	SE • 3.1%	SE • 5.0%	

LEGEND:		SHARED USE PATH		ST'D. CG-6 REQ'D		ST'D. 1A-2 REQ'D		SFM	
—	EXISTING RIGHT OF WAY	—	SIDEWALK	△	ST'D. CG-2 REQ'D	△	MOD CG-3 REQ'D	— G —	NATURAL GAS
---	EXISTING LIMITED ACCESS LINE	—	MILL AND OVERLAY	△	ST'D. CG-12 REQ'D	△	PAVED SHOULDER	— 24" W —	EXISTING WATER
---	EXISTING EASEMENT	—	FULL DEPTH PAVEMENT	△	ST'D. CG-7 REQ'D	△	ST'D. GR-MGS3 REQ'D	— E —	EXISTING ELECTRIC
---	PROPOSED LIMITED ACCESS LINE	—	PAVEMENT DEMOLITION	△	ST'D. MS-1A REQ'D	△	ST'D. GR-MGS4 REQ'D	— FO —	EXISTING FIBER OPTIC
---	PROPOSED RIGHT OF WAY	—	DENOTES CONSTRUCTION LIMITS IN CUT	△	ST'D. MS-1 REQ'D	△		— CATV —	EXISTING CABLE TV
---	PROPOSED TEMPORARY EASEMENT	—	DENOTES CONSTRUCTION LIMITS IN FILL	△	ST'D. MS-2 REQ'D	△		— T/Tg —	EXISTING TELEPHONE
---	PROPOSED PERMANENT EASEMENT	—	8" W → PROPOSED WATER RELOCATION	△	ST'D. GR-MGS1 REQ'D	△		— TC —	EXISTING TRAFFIC CONTROL
---	PROPOSED UTILITY EASEMENT	—	4" FM → PROPOSED SEWER RELOCATION	△	ST'D. GR-MGS2 REQ'D	△		— Unk —	EXISTING UNKNOWN UTILITY
---	RFP PROPOSED LIMITED ACCESS LINE								
---	RFP PROPOSED TEMPORARY EASEMENT								
---	RFP PROPOSED PERMANENT EASEMENT								
---	RFP PROPOSED RIGHT OF WAY								

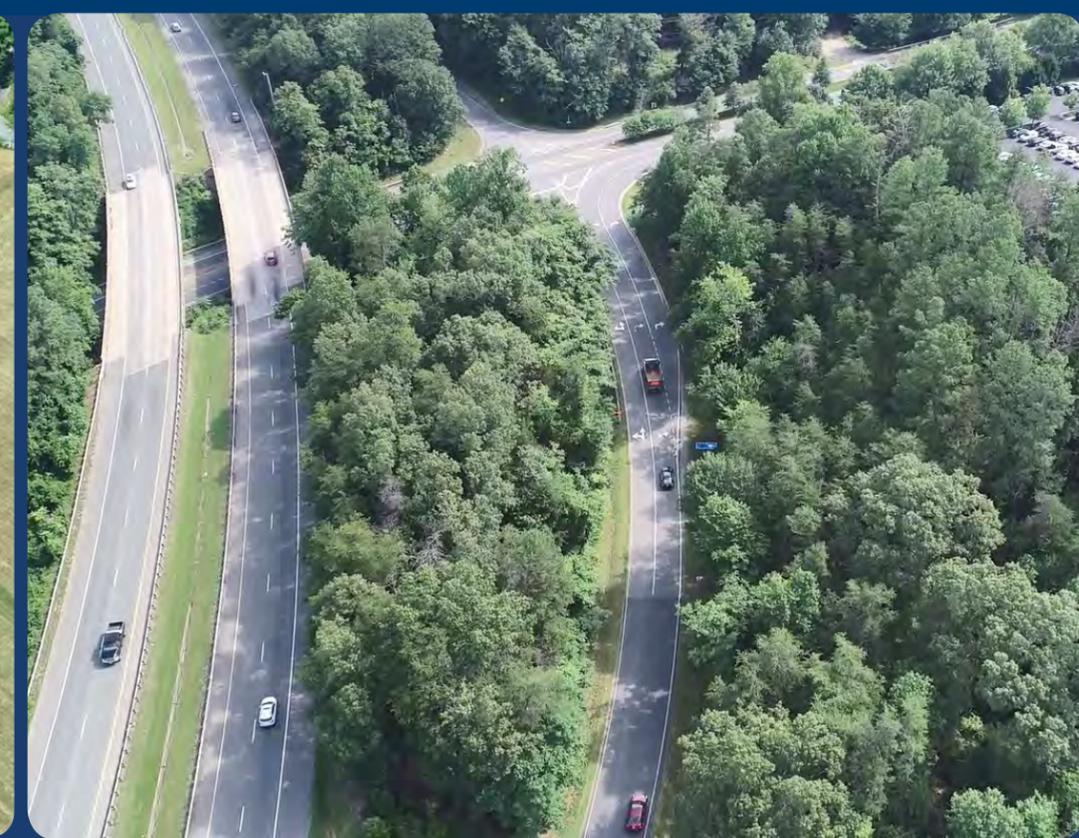
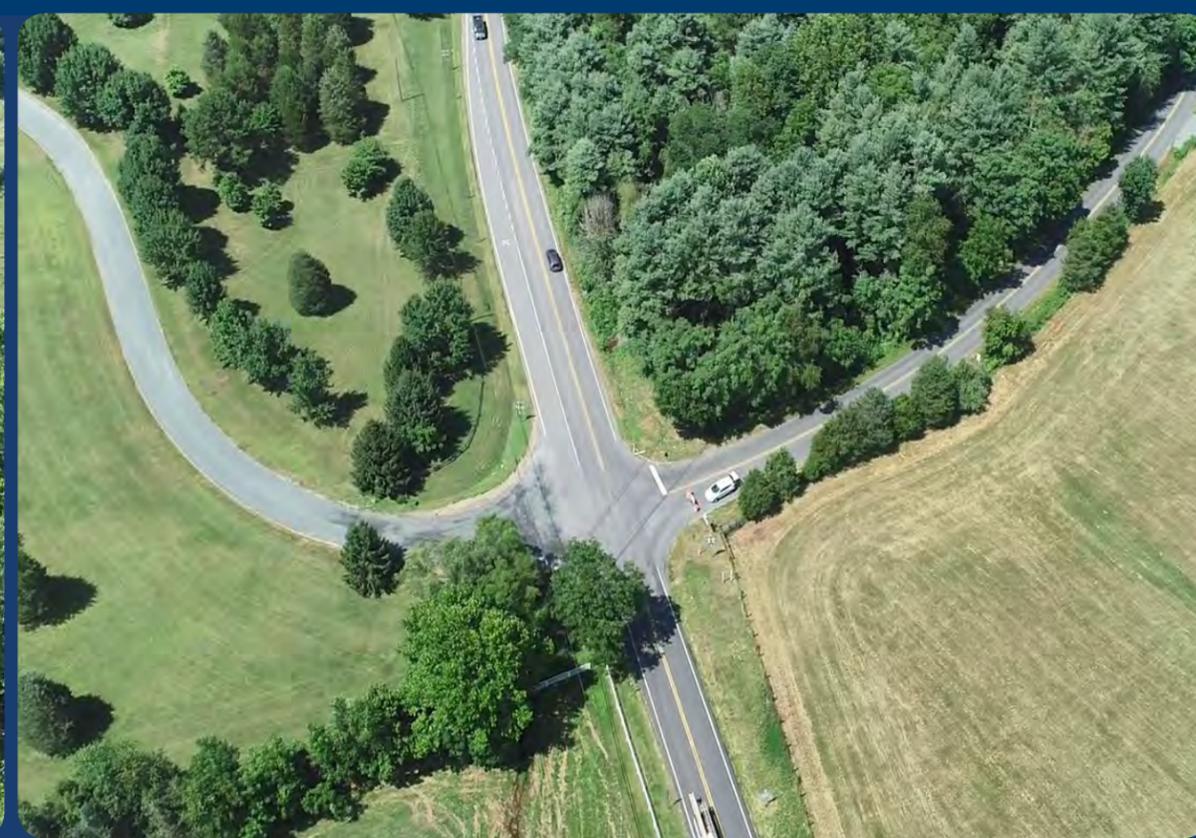


All construction is to be performed within existing right of way.
 See Volume I Section 4.5 for MOT Information

TECHNICAL PROPOSAL CONCEPT PLANS
 NB US 29 EXIT RAMP TO FONTAINE AVE.
 UPC 111813 (PROJECT: 0029-002-955)

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VDOT

BRANCH | **WRA**
CIVIL