

# TRANSPORTATION IMPROVEMENTS AT HYDRAULIC ROAD AND US 29 TECHNICAL PROPOSAL | VOLUME I

## VIRGINIA DEPARTMENT OF TRANSPORTATION

January 24, 2023



A DESIGN-BUILD PROJECT  
State Project No.: 0029-M03-371, C501, P101, R201  
Federal Project No.: STP-5104 (299)  
Contract ID Number: C00118880DB 114

**kokosing**   
CONSTRUCTION COMPANY, INC.  
6235 WESTERVILLE ROAD  
WESTERVILLE, OH 43081

## 4.1 | Letter of Submittal

**4.1 | LETTER OF SUBMITTAL  
ELECTRONICALLY VIA BID EXPRESS**

January 24, 2023

Commonwealth of Virginia  
Department of Transportation (VDOT)  
Virginia Dept. of Transportation  
1401 East Broad Street  
Richmond, VA 23219

Attention: Bryan W. Stevenson, P.E., DBIA (APD Division)

**RE: Request for Proposals | Design-Build | Transportation Improvements at Hydraulic Road and US 29 | City of Charlottesville and Albemarle County, VA | State Project No.: 0029-M03-371, C501, P101, R201 | Federal Project No.: STP-5104 (299) | Contract ID Number: C00118880DB114**

Dear Bryan:

**4.1.1** Kokosing Construction Company, Inc. (Kokosing), 6235 Westerville Road, Westerville, OH 43081 is the legal entity who will execute the contract with Virginia Dept. of Transportation (VDOT).

**4.1.2** Kokosing hereby declares that it is our intent, if selected, to enter into a contract with VDOT for the Project per the RFP.

**4.1.3** Pursuant to Part 1, Section 8.2, Kokosing hereby declares that the offer represented by the Technical and Price Proposals will remain in full force and effect for one hundred twenty (120) days after the date the Price Proposal is actually submitted to VDOT.

<b>4.1.4 Point of Contact</b>	<b>Secondary Point of Contact</b>	<b>4.1.5 Kokosing Principal Officer</b>
Ryan Gorman, PE, DBIA Regional Vice President of Alternative Delivery Kokosing Construction Co., Inc. 16500 Happy Hill Road South Chesterfield, VA 23834 804-400-4521 Cell 301-953-2611 Fax rgorman@kokosing.biz	Chris Rutkai, PE Sr. Area Manager Kokosing Construction Co., Inc. 16500 Happy Hill Road South Chesterfield, VA 23834 804-400-9400 Cell 301-953-2611 Fax crutkai@kokosing.biz	Gregory A. Hamilton, PE, DBIA Regional Sr. Vice President Kokosing Construction Co., Inc. 12001 Guilford Road Annapolis Junction, MD 20701 614-207-0716 Cell gah@kokosing.biz

**4.1.6** Final Completion Date: November 5, 2025.      **4.1.7** Unique Milestone Dates: None.

**4.1.8** An executed Proposal Payment Agreement (Attachment 9.3.1) is in the Appendix.

**4.1.9** Certification Regarding Debarment Forms (Attachments 11.8.6(a) and (b)) are signed and in the Appendix.

**4.1.10** Kokosing is committed to achieving a 12% DBE participation goal for the entire value of the contract.

**4.1.11** Kokosing confirms that all commercial and professional registration requirements set forth in our Statement of Qualifications, including, but not limited to those requirements of the Virginia State Corporation Commission (SCC) and the Virginia Department of Professional and Occupational Regulations (DPOR) are complete and accurate and Kokosing, and business entities on our team, remain in good standing with all applicable regulatory bodies and are eligible to provide the services required on the Project.

Sincerely,

**KOKOSING CONSTRUCTION COMPANY, INC.**

  
Gregory A. Hamilton, PE, DBIA  
Regional Sr. Vice President



## 4.2 | Qualifications



4.2 QUALIFICATIONS

4.2.1 SOQ ACCURACY CONFIRMATION STATEMENT

The Kokosing Team has received approval from Virginia Department of Transportation (VDOT) to replace Kyle LaClair with Aaron Straebel as the Design/Construction Integrator in accordance with Part 1, Section 11.4. Per the Request for Proposal (RFP), our proposed deputy key personnel are designated with a ⭐ on our updated Organizational Chart. Apart from the change above and the deputy key personnel positions as allowed by the RFP, Kokosing Construction Company, Inc. (Kokosing) hereby confirms the remaining information contained in our Statement of Qualifications (SOQ) remains true and accurate.

**ORGANIZATIONAL CHART & NARRATIVE:** Figure 4.2.1-1 is our updated organizational chart from our submitted SOQ. Changes or additions to personnel have been marked in red:

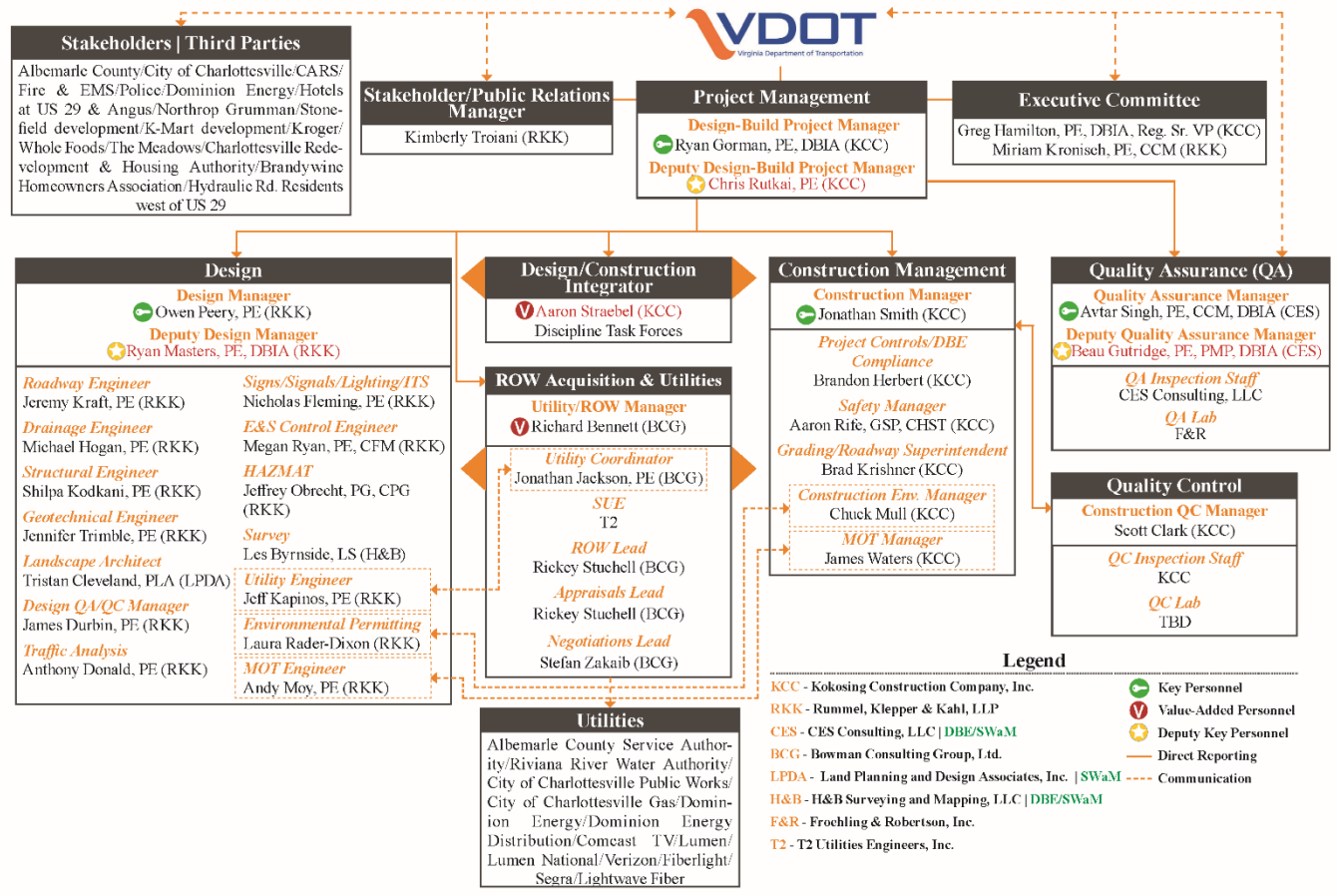


Figure 4.2.1-1: Updated Organizational Chart

**Revised from SOQ: Design/Construction Integrator (D/CI)** | Aaron Straebel (Kokosing) will coordinate the construction and design staff, which benefits VDOT by having a team working in unison towards delivering a quality, compliant project. Aaron has been involved with design-build projects since 2010 and has over 14 years of construction experience. His previous roles as a construction project manager and quality control manager give him the credentials to serve in this role effectively. For this Project, Aaron will serve the design-build project manager (DBPM) in collaborating, reviewing, and coordinating the technical aspects of the Project as it relates to contract conformance, constructability, and schedule adherence.

## 4.3 | Design Concept

### 4.3 DESIGN CONCEPT

#### 4.3.1 CONCEPTUAL ROADWAY PLANS

The Kokosing Team’s Conceptual Roadway plans meet/exceed RFP requirements and are in Volume II. Our design stays within the proposed right-of-way (ROW) limits in the RFP Conceptual Plans and does not include elements that require design exceptions or design waivers beyond what is included the RFP. It reduces proposed ROW by 632 SF as shown in our Conceptual Plans. *Figure 4.3.1-1 illustrates the four Project Elements with each color-coded which will be used throughout this document for clarity.*

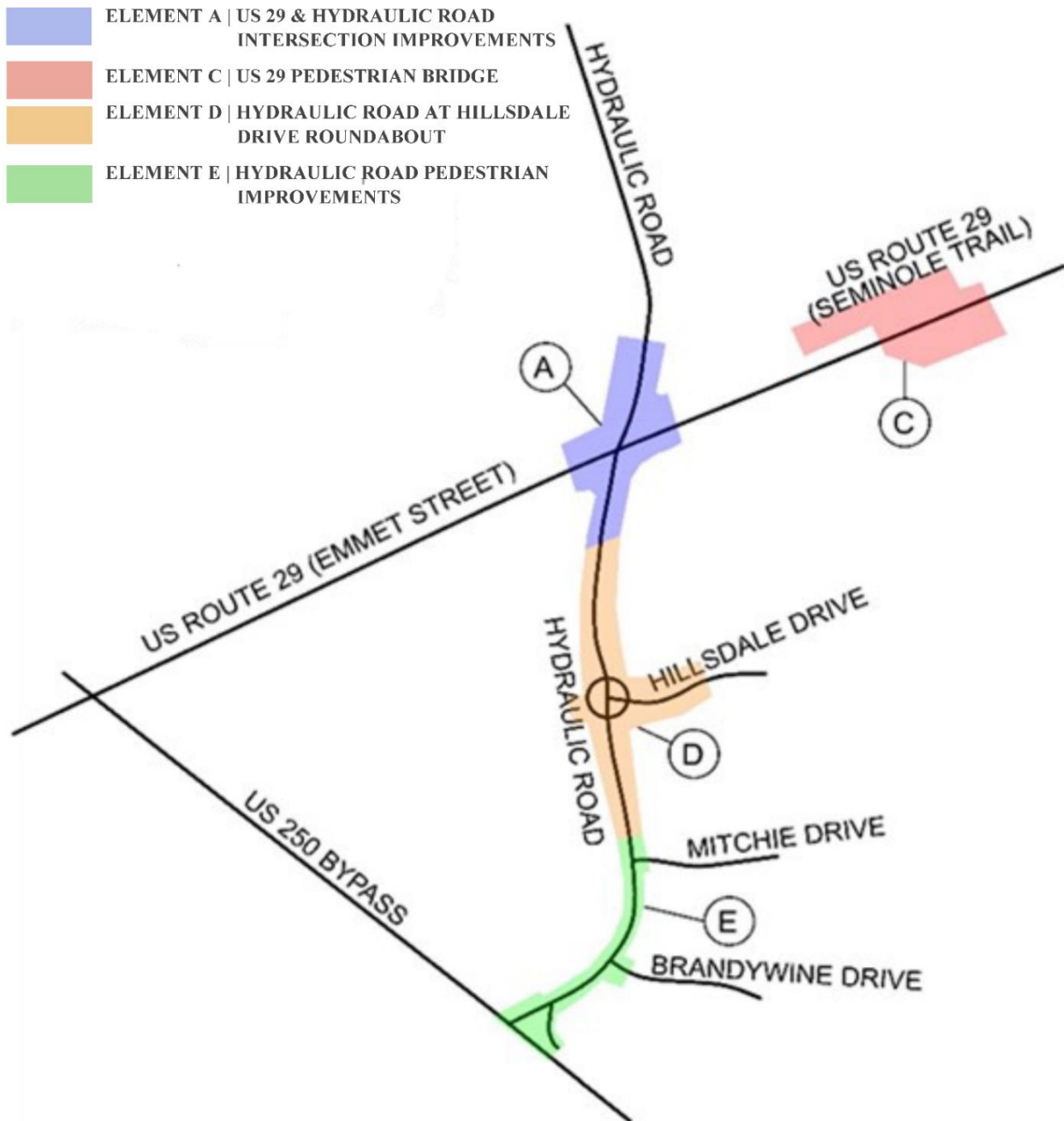


Figure 4.3.1-1: Design Enhancements

4.3 DESIGN CONCEPT

Table 4.3.1-1 illustrates our design enhancements for this Project.

TABLE 4.3.1-1: DESIGN ENHANCEMENTS	
Enhancement	Benefits
<b>Element A   US 29 &amp; Hydraulic Road Intersection Improvements</b>	
Using MS-1 median on Hydraulic Road East instead of MS-2 / MC-1 shown on the RFP Plan typical sections.	<ul style="list-style-type: none"> <li>Concrete surface reduces the need for future mowing (maintenance).</li> <li>Reduces construction time and schedule risk.</li> <li>Eliminates the 1-ft wide trench needed for formwork and full depth pavement to refill which reduces construction time and schedule risk.</li> </ul>
Modified cross slope of Route 29 median refuge to prevent water from flowing through and ponding in the refuge, eliminating an inlet and storm drainage pipe.	<ul style="list-style-type: none"> <li>Eliminates an impact to Verizon (MCI) fiber optic ducts which reduces schedule risk and driver disruptions due to lane closures needed to relocate it.</li> <li>Eliminates standing water and accumulating debris improving ADA accessibility.</li> </ul>
<b>Element C   US 29 Pedestrian Bridge</b>	
Bridge profile changed to 2%	<ul style="list-style-type: none"> <li>Eliminate need for bridge scuppers.</li> <li>Minimizes future maintenance.</li> </ul>
Use of fully integral abutments.	<ul style="list-style-type: none"> <li>Eliminates all bearings at the abutments and need for future jacking to replace the bearing pads at the abutments.</li> <li>Most economical type of abutment.</li> <li>Eliminates maintenance and corrosion of steel bearings at the abutments.</li> </ul>
Precast bulb-T 37-in. deep continuous for live load superstructure.	<ul style="list-style-type: none"> <li>Eliminates fracture-critical elements found in trusses thereby reducing future inspections.</li> <li>Eliminates long term maintenance associated with painting a steel superstructure.</li> <li>Creates a true jointless structure without using link-slabs between adjacent spans.</li> </ul>
Modified the pedestrian bridge profile to optimize vertical clearance, reducing the abutment height by 1.5-ft.	<ul style="list-style-type: none"> <li>Shortens ramp length which increases usage and will improve public acceptance.</li> <li>Reduces the length/height of walls and long-term maintenance.</li> <li>Reduces project cost.</li> </ul>
Shifted the location of the median bridge pier 3-ft closer to SB US 29.	<ul style="list-style-type: none"> <li>Eliminates conflict with 8-in. gas main allowing construction to start sooner and saves money.</li> <li>Increasing the offset to the old 18-in. ductile iron water main mitigates any pile driving damage and potential schedule delays.</li> </ul>

4.3 DESIGN CONCEPT

TABLE 4.3.1-1: DESIGN ENHANCEMENTS	
Enhancement	Benefits
<b>Element D   Hydraulic Road at Hillsdale Drive Roundabout</b>	
Shifted the roundabout northwest.	<ul style="list-style-type: none"> <li>▪ Avoids impacting a key Dominion utility pole which reduces project cost and schedule risk.</li> </ul>
Reconfigured roundabout approaches and optimized vehicle paths to reduce the intersection footprint and maintain function and meeting design requirements.	<ul style="list-style-type: none"> <li>▪ Reduces ROW impacts to Parcel 401 by 632 SF.</li> <li>▪ Eliminates retaining wall on private property which reduces cost and streamlines ROW negotiations.</li> <li>▪ Eliminates retaining wall impacts to the water and 8-in. sewer lines crossing under the alignment which reduces cost.</li> <li>▪ Reduces pedestrian cross walk lengths decreasing exposure time to traffic and duration to cross US 29.</li> </ul>
Changed the Hydraulic Road vertical profile to flatten the 8% grade to 5% to reduce cut impacts.	<ul style="list-style-type: none"> <li>▪ Reduces cut along Hillsdale Drive, minimizes reconstruction along Hillsdale Drive and eliminates impact to 8-in. water line, which all reduces cost.</li> <li>▪ Eliminates cut impact to 12-in. water line west of the roundabout which reduces cost and schedule risk due to relocation and potential betterment upgrade to 24-in.</li> <li>▪ Reduces WB speeds and vehicular stopping distance improving safety and operations.</li> <li>▪ Minimizes pavement wear and tear due to a flatter stopping area, reducing future maintenance.</li> <li>▪ Improves sight distance into the intersection when approaching from the east, enhancing user safety.</li> </ul>
<b>Element E   Hydraulic Road Access Management Improvements</b>	
Shifted the Brandywine Drive intersection improvements to the east.	<ul style="list-style-type: none"> <li>▪ Reduces fill/embankment needed to install sidewalk and guardrail to standard.</li> <li>▪ Eliminates the need to extend storm drain, which reduces future pipe maintenance and improves constructability.</li> <li>▪ Eliminates probable wetland impacts which minimizes schedule risk.</li> </ul>
Eliminated the retaining wall	<ul style="list-style-type: none"> <li>▪ Reduces cost and future maintenance.</li> </ul>
Used MS-1 medians instead of MS-1A.	<ul style="list-style-type: none"> <li>▪ Eliminates the 1-ft wide trench needed for formwork and full depth pavement to refill which reduces construction time and schedule risk.</li> <li>▪ Eliminates the 1-ft wide trench adjacent to traffic which improves public safety.</li> </ul>



**4.3 DESIGN CONCEPT**

**(A) GENERAL GEOMETRY, INCLUDING HORIZONTAL CURVE DATA AND ASSOCIATED DESIGN SPEEDS, THE NUMBER AND WIDTHS OF LANES AND SHOULDERS:** The design criteria for each Project Element is in *Table 4.3.1-2*. Horizontal alignments, curve data, and lanes are on our Conceptual Roadway Plans. Our typical sections convey dimensions, offsets, and improvements in additional detail. Our design meets/exceeds the RFP Design Criteria requirements and provide the improvements shown on the *RFP Concept Plans*.

**Table 4.3.1-2 Kokosing Team Conceptual Design Geometric Criteria (UPC 118880)**

<b>Kokosing Team Conceptual Design Geometric Criteria (UPC 118880)</b>								
<b>Project Element</b>	<b>Roadway</b>	<b>Functional Classification</b>	<b>Design Speed (MPH)</b>	<b>Shoulder/ C&amp;G</b>	<b>Number of Lanes - Lane Width</b>	<b>Maximum Vertical Grade</b>	<b>RFP Maximum Vertical Grade</b>	<b>Kokosing / RK&amp;K Maximum Grade</b>
<b>Element A</b>	US 29	(GS-5)	NB: 40 SB: 45	CG-2, CG-6	3 - 11' <sup>(2)</sup>	Existing	Existing	Existing
	Hydraulic Road (Route 743)	(GS-6)	35	CG-2, CG-6	2 - 11' <sup>(2)</sup>	Existing	Existing	Existing
<b>Element C</b>	US 29	(GS-5)	45	CG-2, CG-6	4 NB / 5 SB - 11' <sup>(2)</sup>	Existing	Existing	Existing
	Shared Use Path / Ramp / Bridge	N/A	N/A	2' Shoulders	1 - 10'	8.33% With Landings	8.33% With Landings	8.33% With Landings
<b>Element D</b>	Hydraulic Road (Route 743)	(GS-6)	35	CG-2, CG-6	2 - 11' <sup>(2)</sup>	8%	8.0%	5.7%
	Hillsdale Drive	(GS-7)	30	CG-2, CG-6	2 - 11' <sup>(2)</sup>	11%	5.2%	4.8%
	Roundabout	N/A	20	CG-2, CG-6	2×1 Hybrid - 14' to 17'	5%	5.0%	5.0%
<b>Element E</b>	US 250 Spur	N/A	15	CG-2, CG-6	1 - 23' <sup>(1)</sup>	Existing (15%)	14.7%	14.7%
	Hydraulic Road (Route 743)	(GS-6)	35	CG-2, CG-6	1 - 11' <sup>(2)</sup>	N/A	N/A	N/A

**Notes**

- (1) Measured between faces of curb.
- (2) Lane width shall be 11' or match the existing width, if greater.

**(B) HORIZONTAL ALIGNMENTS:** Our Conceptual Plans depict the horizontal alignments, curve data, design speeds, and super elevation (*See Table 4.3.1-2 for each Project Element*). The alignments match the RFP Conceptual Design, with the exception of:

**Element A | Hydraulic Road & US 29 Intersection**

We designed the US 29 median refuge to prevent runoff from entering the handicap ramp and eliminated the need for an inlet within the ramp.

**What this means:** Eliminating the inlet removes an object that may create a conflict or cause confusion to a visually impaired pedestrian. Equally important, eliminating the inlet and associated storm drain avoids a conflict with underground Verizon (MCI) telecommunications fiber optic ducts which reduces schedule risk and temporary traffic impacts associated with a utility relocation in the middle of US 29.

### 4.3 DESIGN CONCEPT

#### Element D | Hydraulic Road at Hillsdale Drive Roundabout

Our design concept optimizes the location and layout of the roundabout to increase constructability and reduce community, utility, and property impacts during construction. It matches the number of lanes, minimum lane widths and design criteria specified by the RFP for the approach roadways and the hybrid roundabout. However, with our concept we shifted the roundabout slightly to the northwest, refined and optimized the entry/exit angles and reduced the roundabout's diameter from a 133-ft circumscribed diameter to 122-ft diameter while still providing the required functionality.

The Kokosing Team designed the roundabout in accordance with NCHRP 672 guidelines, including balancing size, splitter islands, and position to achieve deflection while minimizing the risk of path overlap, and optimizing the fastest path (speed curves). Our design accommodates the required vehicles, including a WB-40, within the paved travel way and a modified WB-67 with over tracking. The paths of all vehicle movements have been confirmed with AutoTURN. Tangent two-lane entry/exit points, along with the 4-ft veins in strategic locations, accommodate vehicles safely. *Figure 4.3.1-2* depicts the key AutoTURN paths for the WB-40 design vehicle.

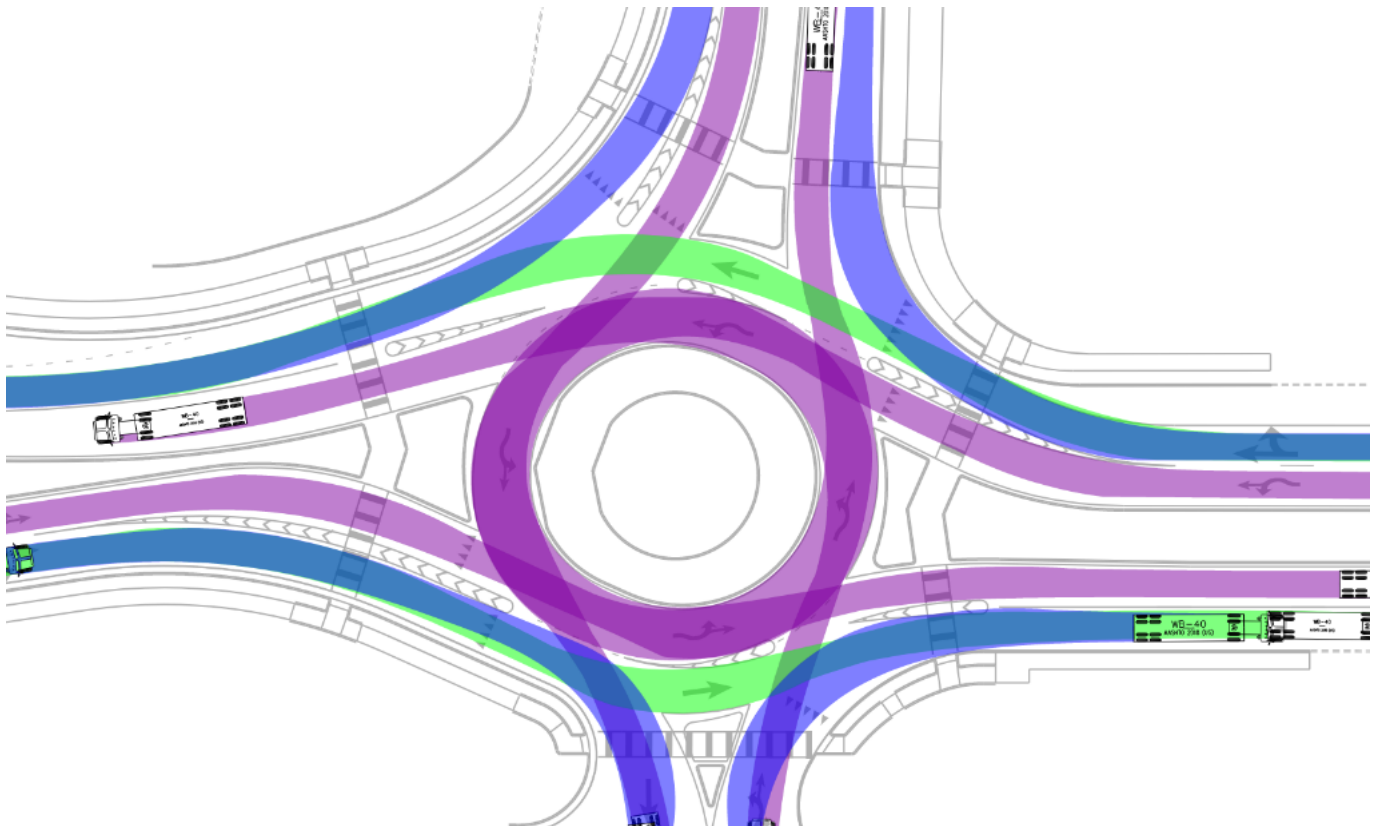


Figure 4.3.1-2: WB-40 AutoTURN Paths

**What this means:** Our design modifications and refinements reduced the footprint of the intersection area. This results in reduced/minimized property impacts to Parcel 401 while providing speeds that meet the design requirements. Our design concept eliminates the need for a retaining wall on Parcel 401 which cuts Project cost and eliminates impacts to Parcel 401's water and sewer service and future wall maintenance.

Our Team identified utility relocations as a critical Project risk, especially to the schedule. With that in mind, many of our design modifications focused on avoiding and reducing utility impacts, which in turn, ensures the Project will be completed on or ahead of schedule.

### 4.3 DESIGN CONCEPT

Our concept avoids impacting the Dominion Virginia Power utility pole and guy wires in the southwest quadrant, which is a major benefit to the power loop that services the entire Charlottesville area (Avoiding other utilities is discussed in 4.3.1(c)). This accelerates the construction schedule as construction activities do not have wait for this utility pole to be relocated. It also minimizes community and traveling public impacts by reducing the number of temporary lane closures and ultimately completing construction earlier. Many elements of the intersection improvements can start before the summer 2024 closure period. Starting those elements before the closure window greatly reduces schedule impacts as the primary modifications included in Elements A and E cannot begin until the roundabout is open to traffic.

**(C) MAXIMUM GRADE FOR ALL SEGMENTS AND CONNECTORS:** Our design concept complies with the maximum roadway, sidewalk, and shared-use path grades required. The maximum grades for all elements are in *Table 4.3.1-2* and key profiles are graphicly depicted in Volume II. They match the RFP Conceptual Plans, except for the following modifications:

#### Element C | US 29 Pedestrian Bridge

Our design concept uses a 2% vertical profile on the pedestrian bridge.

**What this means:** Our vertical profile is parallel to the cross slope of US 29 which optimizes the vertical clearance and lowers the height of the abutments by 1.5-ft while maintaining the minimum 17.5-ft vertical clearance over US 29. This not only reduces cost, but a shorter wall system can be constructed which is less impactful and requires less future maintenance. Additionally, the grade modification eliminates the expense and future maintenance of a drainage system on the bridge.

#### Element D | Hydraulic Road at Hillsdale Drive Roundabout

Our design concept optimized the vertical profiles in the RFP Conceptual Plans and raises the grade of the roundabout to approximately the grade of the existing intersection, while maintaining a tilted plain through the roundabout similar to that shown on the RFP plans. This eliminates a 140-ft long section of cut on Hillsdale Road and all of the cut on Hydraulic Road’s eastbound (EB) lanes, and the northern half of the roundabout’s circulatory roadway.

**What this means:** The reduced excavation accelerates construction, and more importantly, reduces utility conflicts by increasing the cover over the existing lines. It eliminates impacts to the 12-in. water main on Hydraulic Road west of the intersection which reduces cost, schedule risk, and traffic impacts related to the relocation. Our modification also eliminated impacts to the 8-in. water line along Hillsdale Drive. The profile changes maximize the area of mill/overlay and reduce the risk of exposing unsuitable subgrade soils or having wet weather create schedule delays between the time existing pavement is removed and pavement is installed. These position the Kokosing Team to deliver the roundabout within the 2024 Summer closure period.

**KOKOSING TEAM ADVANTAGE:** Our roundabout design further increases value as it closely matches the existing Hydraulic Road profile and maintains the existing roadway’s 5% vertical grade compared to the RFP Conceptual Design’s 8% east of the roundabout. This means our flatter vertical grade enhances vehicle performance during adverse weather conditions.



**(D) TYPICAL SECTIONS OF THE ROADWAY SEGMENTS, INCLUDING RAMPS, RETAINING WALLS, BRIDGE STRUCTURES AND PAVEMENT SECTIONS:** Our typical sections match those in the RFP criteria, except as noted below, or if the design criteria require another criterion be held. Our understanding is that the values in Attachment 2.2 (Design Criteria Table) take precedence and we have made those adjustments to our design. One global change is that we designed sidewalks and ramps with a 1.5% cross slope to accommodate varying field conditions that may result during construction. We have reviewed the proposed sidewalks and shared

### 4.3 DESIGN CONCEPT

use paths and increased the green space behind sidewalk/shared use path or flattened the fill slope where needed so only the wall systems on Element C require handrails. The following describes other design modifications:

#### Element C | US 29 Pedestrian Bridge

Our bridge concept maintains the locations of the bridge abutments shown on the RFP Conceptual Plans. This avoids future maintenance that would be required with the addition of impact attenuators to protect the abutments, if they were within the clear zone and is safer for motorists (The bridge and wall system for the approach ramps are discussed in Section 4.3.2 and shown in Volume II).

Our design concept optimizes the median pier location by shifting it 3-ft closer to the southbound (SB) travel lanes. This eliminates a conflict between the Bridge Pier Protection System (BPPS) and the 8-in. gas line and increases the offset to an old 18-in. water line.

**What this means:** Our design concept eliminates the gas line conflict allowing construction to start earlier and avoids a relocation within the travel lane, thereby reducing schedule risk and additional temporary lane closures to relocate the line out of the median area. The increased offset to the water line lessens the chance that pile driving vibrations will impact the utility, avoids schedule delays, and motorist impacts having to repair the line.

The short retaining wall right of Sta 131+60 avoids impacting an inlet on Parcel 302 and potential changes to the shopping center's stormwater management (SWM) calculations.

#### Element E | Hydraulic Road Access Management Improvements

Our design concept modifies the median refuge at the Brandywine Drive intersection to match the width of the shared use path and the handicap ramps are adjusted to align the level landings with the median refuge. *Figure 4.3.1-3* shows our improved alignment.



Figure 4.3.1-3: Our Proposed Improved Alignment

**What this means:** All medians and islands will be built as MS-1s, which reduces construction time and impacts to motorists by eliminating saw cutting and full depth pavement around each element.

At the US 250 Spur, our design uses the reduced shared use path buffer width allowed in Addendum 2 to reduce impacts to the Dominion Power transmission pole. We have coordinated the remaining excavation with Dominion transmission engineers, and determined that Dominion will approve the current plan without the need for a retaining wall.

**What this means:** This modification to the RFP concept plans reduces construction time, impacts to the traveling public and eliminates future wall maintenance.

**(E) CONCEPTUAL HYDRAULIC AND SWM DESIGN:** This Project will be implemented with no new stormwater features. Nearly all proposed construction involves *maintenance* of existing impervious surfaces, mitigating the need for new stormwater facilities. Per RFP, Sec. 2.7.4, Post-Construction Stormwater Management Facilities, we concur that purchase of nutrient credits is the most prudent path. As the design progresses and is refined, the magnitude of that credit will continually be reviewed, computed, and updated to further improve our design to minimize the need for Project nutrient credits.



### 4.3 DESIGN CONCEPT

After reviewing the RFP plans, we anticipate no large hydraulic structure evaluations or FEMA floodplain requirements considering the Hydraulic Road structure over Meadow Creek (within Element E) is not proposed to be modified. This is the only significant hydraulic crossing within the Project limits. No significant cut/fill is required within the FEMA floodplain limits as depicted on FEMA panel 51003C0286D (effective February 4, 2005) for the Hydraulic Road crossing of Meadow Creek.

Since review of FEMA’s anticipated floodplain re-evaluation for Charlottesville confirms no preliminary mapping, no change is expected during the Project’s lifespan. However, the Federal Registry lists preliminary mapping for Meadow Creek to be on public notice for Quarter 2, 2023. We expect this schedule to not be met since preliminary issuance was to be September 2022, which did not occur. Two downstream LOMRs have been identified (19-03-1243P and 16-03-1697P) on Meadow Creek, but since they will not impact the Project, no Hydrologic and Hydraulic Analysis (H&HA) or scour evaluation is required.

A nutrient credit requirement summary will be submitted to VDOT, along with a final signed and sealed drainage report, which will contain drainage calculations, including pre- and post-development discharges, capacities, and supporting data, such as drainage areas (with maps) and ground cover calculations. This report will adhere to the latest VDOT Drainage Manual and includes:

1. Computations for development of closed storm drainage designs for asphalt curb roadway sections.
2. Computations for development of inlet and pipe designs for open drainage to satisfy/meet ditch depth criteria.
3. Storm drain profiles for proposed storm drain systems.
4. Development ditch analyses for graded median sections.
5. Computations for development of culvert analyses for crossings conveying offsite drainage through the project area.
6. Analysis of systems in accordance with VDOT criteria for pipe adequacy (sizing and hydraulic grade line) and outfalls satisfy VA DEQ Part IIB Channel and Flood Protection criteria.
7. Drainage descriptions.
8. Drainage calculation book for submission and approval by VDOT.

A Stormwater Pollution Prevention Plan (SWPPP) will be developed for each phase and includes:

- 1 An Erosion and Sediment Control Plan and Narrative
- 2 A Pollution Prevention (P2) Plan
- 3 A post construction Stormwater Management Plan

Figure 4.3.1-4: Stormwater Pollution Prevention Plan

Our Team will visually evaluate (i.e., CCTV) all drainage within the Project limits and report deficiencies to VDOT. Several structures/pipes within the roundabout area will be replaced as directed in Addendum 2. New parallel drainage conveyance/structure replaces existing drainage during construction; drainage is diverted into the new system, and then the previous system is removed/plugged per VDOT standards.



### 4.3 DESIGN CONCEPT

The Kokosing Team includes an authorized VDEQ certified plan reviewer for erosion & sediment (ESC)/SWM and we will complete the latest available versions of:

- VPDES Construction Permit Registration form (LD-445).
- The VPDES Construction Permit Contact Information (LD-445A).
- The completed ESC and SWM Plan Certification form (LD-445C).

We will provide a completed SWPPP Certification form (LD-455E) before starting any land disturbing activity, and a VPDES Construction Permit Termination Notice form (LD-445D) at the end of all construction.

Drainage details included in our design concept for each Project Element are as follows:

#### Element A | US 29 & Hydraulic Road Intersection Improvements

- Elimination of three proposed inlets and 220-ft ± of storm drain at northbound (NB) Route 29 BL 119+84 down to drainage structure 6116 as shown on the RFP concept plans. Two inlets (one replacement, one new) are added towards the south of the median with approximately 12-ft of new pipe. There are subtle grade changes through the median crosswalk for safe and acceptable drainage through this area.
- All other modifications do not require additional proposed drainage features.

#### Element C | US 29 Pedestrian Bridge

- Bridge drainage design adheres to HEC 21, *Design of Bridge Deck Drainage*.
- A 2% longitudinal and cross slope is proposed for the bridge deck with slot drains at both ends at the abutments. One to two additional slot drains are proposed for each ramp. Short sections of pipe are proposed on both sides of the bridge to make drainage connections where existing drainage systems conflict with the proposed abutments.
- Eliminate the need for a *dog house* connection to the large 42-in. diameter pipe that traverses Route 29 from west to east. This pipe is approximately 30-ft below grade and maintenance of traffic (MOT)/closures are needed to install the deep structure. Our design avoids the need for deep excavation for drainage.

#### Element D | Hydraulic Road at Hillsdale Drive Roundabout

- Our drainage concept is similar to the RFP plans. We are meeting the Addendum 2 requirement for replacement of nine structures and drainage pipes between each structure. Considering one inlet is at a sump, the existing system will be kept active for as long as possible to lessen delays during construction from periodic storms.
- Nutrient credit determinations considering proposed impervious areas will be reduced as compared to the RFP plans.

#### Element E | Hydraulic Road Access Management Improvements

- Since our spread calculations for the median inlet at Drainage Structure 1508 at the Hydraulic Road median are less than the allowable 6-ft spread per VDOT standards, even considering proposed drainage divides and features (i.e., proposed sidewalk), we deliberated eliminating the inlets and storm drain from Hydraulic Road East Construction Baseline Sta 502+00 to Sta 503+80. However, since VDOT standard requires inlets at superelevation transitions, inlets and connecting pipes are needed similar to the RFP documents.
- Eliminated the need for an extended outfall from Structure 5512 by shifting the Brandywine Drive intersection improvements east to reduce the required fill to install sidewalk and guardrail. This also reduces the risk of floodplain fill interpretations during Project progression.

### 4.3 DESIGN CONCEPT

The Kokosing Team will deliver as-built drawings of post-construction SWM facilities, if needed, as per the special provision for Construction Record Documentation of Permanent Stormwater Management Facilities (SP105-DB1000-01). Disturbed and/or extended drainage facilities within the Project limits will be in serviceable condition at Project completion.

**(F) PROPOSED ROW LIMITS (I.E. SHOWN AS AN OVERLAY OF OUR PROPOSED ROW LIMITS AND VDOT'S RFP CONCEPTUAL ROW, HIGHLIGHTING THE DIFFERENCES BETWEEN THE TWO):** The Kokosing Team's design limits of construction shown on our Design Concept Plans are within the existing and proposed ROW limits shown on the RFP Conceptual Plans. Our design reduces proposed ROW at:

#### Element D | Hydraulic Road at Hillsdale Drive Roundabout

Our changes discussed above to the RFP Conceptual Design reduced impacts to Parcel 401 and the parking lot. Total reduction in proposed ROW is 632 SF.

**What this means:** Our design eliminates a retaining wall that the RFP Conceptual Plans proposed outside ROW on Parcel 401. These reductions benefit the property owner and streamline negotiations.

**(G) PROPOSED UTILITY IMPACTS:** Being in the commercial area of Charlottesville, there are all types of utility facilities within the Project limits, with three considered high priority: *1) Element E's Dominion Transmission Tower, (2) Element D's Dominion triple circuit distribution pole near the roundabout, and (3) Element C's gas main.*

The utility impacts, mitigation strategies and proposed relocations are further described in Section 4.4.2 and in our Concept Plans.

**What this means:**

#### Element C | US 29 Pedestrian Bridge

At the pedestrian bridge, our concept shifts the median bridge pier west to avoid a direct conflict with the barrier pier protection systems and the 8-in. gas main. This also increases the offset between construction and a nearby existing 18-in. old water main to reduce the potential for pile driving impacting the old 18-in. water main.

#### Element D | Hydraulic Road at Hillsdale Drive Roundabout

For the critical triple circuit Dominion distribution pole near the roundabout, to avoid the pole and six guy wires, our enhancement shifts the roundabout northwest while meeting the design criteria (These changes are detailed above in 4.3.1 (b) and (c)). Our design also eliminates the retaining wall in the northwest quadrant to avoid a probable conflict with a 6-in. water main.

#### Element E | Hydraulic Road Access Management Improvements

After extensive coordination with Dominion's transmission engineers and reviewing the potential grading options that use the reduced shared use path buffer near the tower foundation, we eliminated the need for a retaining wall while ensuring that Dominion will approve the work near the tower.

**Table 4.3.1-3** highlights these and other design enhancements made to avoid utility conflicts:

**TABLE 4.3.1-3: DESIGN ENHANCEMENTS THAT AVOID UTILITY CONFLICTS**

Utility	Utility Location	Conflict	Design Enhancement
<b>Element A   US 29 &amp; Hydraulic Road Intersection Improvements</b>			
Verizon (MCI)	SB 3061+50 - 3080+00 Fiber Optic	Drainage Inlets and Pipes	<b>Conflict Avoided</b> Optimized design by shifting drainage.

#### Element C | US 29 Pedestrian Bridge

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TABLE 4.3.1-3: DESIGN ENHANCEMENTS THAT AVOID UTILITY CONFLICTS

Utility	Utility Location	Conflict	Design Enhancement
City of Charlottesville Gas	Route 29 NB 131+10 - 134+25 Lt 8-in. Gas	Bridge Pier Footing and Guardrail/BPPS	<b>Conflict Avoided</b> Optimized design by shifting pier and guardrail/BPPS.
Albemarle County Service Authority	Route 29 SB 233+70 - 237+65 Lt 8-in. San. Sewer	Bridge Ramp Walls and Fill	<b>Conflict Minimized</b> Optimized design by reducing ramp length and grade.
Dominion Energy	Route 29 SB 236+25 - 237+75 Lt Elec Ductbank	Drainage Inlets and Pipes	<b>Conflict Avoided</b> Optimized design by shifting drainage.
<b>Element D   Hydraulic Road at Hillsdale Drive Roundabout</b>			
Dominion Energy	Hydraulic Road 513+60 - 514+50 Lt Elec Pole Guy Wires	Road Widening	<b>Conflict Avoided</b> Optimized design by shifting the roundabout to the north.
City of Charlottesville	Hydraulic Road 512+00 - 515+00 Lt 12-in. Water & 8-in. SS	Road Widening and Grade	<b>Conflict Avoided</b> Optimized design by shifting the roundabout to the north and raising the grade.
<b>Element E   Hydraulic Road Access Management Improvements</b>			
Dominion Energy	Hydraulic Road 501+70 Rt Transmission Tower	Shared-Use Path	<b>Conflict Avoided</b> Optimized design by reducing buffer in coordination with Dominion Energy.
City of Charlottesville	Hydraulic Road 501+15 - 503+50 Lt 8-in. San Sewer	Drainage Inlets and Pipes	<b>Conflict Avoided</b> Confirmed vertical clearances were appropriate for proposed drainage in proximity of sanitary sewer.

**What is to be Relocated:** Although we will continue evaluating alternatives to avoid/minimize utility conflicts during final design, using utility test hole information from early additional surveys, we determined that the utilities in **Table 4.3.1.4**, remain in conflict with our concept design for the four elements and need to be relocated.

We have already engaged the utility companies to understand their requirements and possible relocation plan. These are the primary line and any incidental relocations and adjustments of services, handholds, fire hydrants, manhole covers, values boxes and other items to the finished grade are a part of those relocations.

TABLE 4.3.1.4 UTILITY CONFLICTS REQUIRING RELOCATIONS

Utility Owner	Utility Location	Conflict	Conflict Resolution Plan
<b>Element A   US 29 &amp; Hydraulic Road Intersection Improvements</b>			
<b>NO CONFLICTS</b>			
<b>Element C   US 29 Pedestrian Bridge</b>			
Albemarle County Service Authority	Route 29 SB 235+10 - 237+85 Lt 12-in. Sanitary Sewer	Bridge Ramp Walls & Fill	Relocate 12-in. Sanitary Sewer Line.

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TABLE 4.3.1.4 UTILITY CONFLICTS REQUIRING RELOCATIONS

Utility Owner	Utility Location	Conflict	Conflict Resolution Plan
City of Charlottesville	Route 29 NB 133+50 - 134+35 Rt 8-in. Sanitary Sewer	Bridge Ramp Walls & Fill	Relocate 8-in. Sanitary Sewer Line.
City of Charlottesville Gas	Route 29 NB 131+00 - 132+50 Rt 2-in. Gas	Bridge Ramp Walls & Fill	Relocate 2-in. Gas Line.
Brightspeed (CenturyLink)	Route 29 SB 239+25 Lt Tel Ducts & Cables	Bridge Ramp Walls & Fill	Relocate Ducts, Handholes & Cables.
	Route 29 NB 132+30 - 134+25 Rt Tel Ducts & Cables		
Comcast	Route 29 SB 234+90 - 236+50 Lt TV Ducts & Cables	Bridge Ramp Walls & Fill	Relocate Ug TV Cables.
	Route 29 NB 132+30 - 134+25 Rt TV Ducts & Cables		
Fiberlight	Route 29 NB 131+00 - 134+25 Rt Tel Ducts & Cables	Bridge Ramp Walls & Fill	Relocate Ducts, Handholes & Cables.
Middle Mile	Route 29 NB 131+00 - 134+25 Rt Tel Ducts & Cables	Bridge Ramp Walls & Fill	Relocate Ducts, Handholes & Cables.
Verizon (MCI)	Route 29 NB 131+00 - 134+25 Rt Tel Ducts & Cables	Bridge Ramp Walls & Fill	Relocate Ducts, Handholes & Cables.
Dominion Energy	Route 29 NB 131+25 - 132+50 Rt Elec Ug Conductors	Bridge Ramp Walls & Fill	Relocate Ducts, Conductors & Three Transformers.

**Element D | Hydraulic Road at Hillsdale Drive Roundabout**

Brightspeed (CenturyLink)	Hydraulic Road 509+75 - 512+80 Lt Tel Ducts & Cables	Grading, Drainage Inlets & Pipes	Relocate Ducts, Handholes & Cables.
Comcast	Hydraulic Road 511+75 - 512+80 Lt Ug TV Duct & Cables	Drainage Inlets & Pipes	Relocate Ug TV Cables.
Segra (Lumos)	Hydraulic Road 509+75 - 512+80 Lt Tel Ducts & Cables	Grading, Drainage Inlets & Pipes	Relocate Ducts, Handholes & Cables.
City of Charlottesville - Gas	Hydraulic Road 509+75 - 512+80 Lt 6-in Gas	Drainage Inlets & Pipes	Relocate Gas Main.
City of Charlottesville	Hydraulic Road 512+00 - 513+75 Lt/Rt 6-in. Water	Road Widening & Grade	Relocate Two Fire Hydrants.

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TABLE 4.3.1.4 UTILITY CONFLICTS REQUIRING RELOCATIONS

Utility Owner	Utility Location	Conflict	Conflict Resolution Plan
<b>Element E   Hydraulic Road Access Management Improvements</b>			
Brightspeed (CenturyLink)	Hydraulic Road 502+40 - 503+90 Rt Pole and Ug Tel	Shared Use path	Relocate Pole and Associated Ug Lines.
Comcast	Hydraulic Road 502+10 - 503+75Rt Ug TV Duct & Cables	Shared Use path	Relocate Ug TV Cables.

The Riviana River Water & Sewer Authority has indicated interest in having a new water main installed in Hydraulic Road through Elements A and D. As it is best to install underground new construction in connection with these improvements, our Team will work with them to accommodate this potential betterment as we determined that it will not affect our scheduled completion of these elements.

**(H) LIGHTING:** The following pertains to lighting for each Element: As per the RFP, Sec. 2.9.5, lighting is in accordance with the latest IES RP-8 and VDOT’s Traffic Engineering Design Manual, Guides and Informational Instructions, is constructed in accordance with the VDOT Road and Bridge Specifications, Standards and National Electric Code requirements and is as follows:

**Element A | US 29 & Hydraulic Road Intersection Improvements**

- Pedestrian crossing lighting at the intersection is per the RFP which illuminates the crossings to the required IEA RP-8 criteria for the intersection. Lighting will be stand-alone and not combined with the existing traffic signal equipment. Installing lighting at the intersection coincides with Element D’s lighting installation, during the Project’s early stages, to enhance safety and improve lighting conditions during construction.

**Element C | US 29 Pedestrian Bridge**

- Providing lighting on the pedestrian bridge, ramps and sidewalk as per the RFP. Recessed lighting along the bridge will illuminate the pathway. No pole mounted lighting will be used on the bridge as per the RFP.
- Pole mounted lighting will be used along the sidewalk, ramp areas and at bus stop areas. A pole will be within 25-ft of each bus shelter and on the approach side of traffic.

**Element D | Hydraulic Road at Hillsdale Drive Roundabout**

- Roundabout lighting at the intersection is per the RFP which illuminates the roadways for the roundabout and pedestrian crossings from Sta 511+50 to Sta 515+50.
- Installing roundabout lighting before circulatory operations, which improves safety at the intersection during construction.

**Element E | Hydraulic Road Access Management Improvements**

- No lighting required per the RFP.

**(I) GUARDRAIL/BARRIER:** In accordance with the RFP, Part 2, Secs. 2.2 and 2.9.3, guardrail within the Project limits will be upgraded; however, Addendum 2 limited guardrail replacement on Element E to approximately 86 LF at the corner of Brandywine Drive, thereby excluding the remaining guardrail along Hydraulic Road or Brandywine Drive. Our design concept shifts the Brandywine Drive intersection geometry east, while maintaining lane and median widths.

**What this means:** Our design shifts the intersection east to allow the sidewalk and guardrail to be replaced while nearly eliminating fill within the Zone AE FEMA flood plain. This minimizes the schedule risk of coordinating



### 4.3 DESIGN CONCEPT

with FEMA and eliminates the need for a pipe extension within the floodplain and likely wetland area on Parcel 503.

#### **(J) LOCATIONS OF MILL AND OVERLAY/BUILD-UP OF EXISTING PAVEMENT/NEW PAVEMENT:**

Our plans depict the limits of mill/overlay and full depth pavement and complies with the RFP. Our design concept has been changed to use MS-1 medians in place of MS-1A medians where previous construction project plans indicate it is feasible. This eliminates the 1-ft wide trench needed for formwork and full depth pavement to refill and reduces construction time, schedule risk, in addition to removing a potential drop off hazard to motorists while the formwork is in place.

#### **Element D | Hydraulic Road at Hillsdale Drive Roundabout**

Our design concept optimized the vertical profiles to reduce cut at this intersection. The limits of mill/overlay in Volume II reflect these changes and the RFP requirement limiting buildup to 3-in.

**What this means:** Our design not only reduces costs, but increases the offset between paving activities and existing utilities, reduces the number of utility relocations, and the risk of schedule delays from those relocations.

**(K) OTHER KEY PROJECT FEATURES:** The Kokosing Team meets the RFP requirements for traffic signal modifications, pedestrian signal installation at the US 29 and Hydraulic Road intersection. The traffic signal is modified by relocating signal heads and mast arm signing to suit the reconfigured lane uses for Hydraulic Road.

No changes are anticipated by the Kokosing Team to any existing overhead signs in the Project area vicinity. The signing for the Project will follow RFP, MUTCD, VA Supplement to the MUTCD, and NCHRP 672 guidelines. RRFBs will be installed for the pedestrian crossings of Hydraulic Road at Element D.

**Landscaping:** As per Part 2, Sec. 2.8 landscaping features are at the center of the roundabout. Our Landscape Architecture subcontractor, LPDA, is experienced with the area and designed the landscaping for VDOT's Route 29 Solutions design-build project with RK&K and Kokosing.

### 4.3.2 CONCEPTUAL STRUCTURAL PLANS

#### **GRADE SEPARATED PEDESTRIAN BRIDGE OVER US 29**



**Geometry:** The geometry of the bridge matches the RFP with regards to typical pedestrian walkway widths, and keeps the same longitudinal layout with some minor adjustments. A 17-ft, 6-in. minimum clearance over Route 29 is maintained, while the longitudinal grade is increased to 2%, crowning at the pier. The pier location is shifted 3-ft west to avoid an underground gas line. A minimum 14-ft between curbs is maintained for the walkway on the bridge and approach ramps. VDOT standard pedestrian fence and curbs are proposed along the length of the bridge, and VDOT standard HR-1 handrail, galvanized, for the MSE wall approaches. The bridge and approach walkway geometry are coordinated in Open Bridge for consistency in layouts and geometry (See rendering created from Open Bridge in **Figure 4.3.2-1**).

Figure 4.3.2-1: Bridge Rendering and Approach Walkway

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**Superstructure:** Our superstructure consists of three 37-in. deep prestressed bulb-Ts made continuous for live loads. See transverse section in **Figure 4.3.2-2**. Both 90 psf pedestrian live load and an H10 truck are considered in this analysis in accordance with AASHTO Guide Specification for the Design of Pedestrian Bridges with deck widths over 10-ft wide. A three-girder system over Route 29 does not require annual inspections, such as a fracture critical truss. Approaches use MSE style walls vs. approach spans, which reduce the number of structural elements needing inspections, and eliminates potential fracture critical concerns for two-girder approach spans. A detail similar to VDOT's micro-abutment detail is used at the abutments for thermal expansion of the superstructure adjacent to the MSE supported walkway, but allows water to be captured and routed away from bearings.

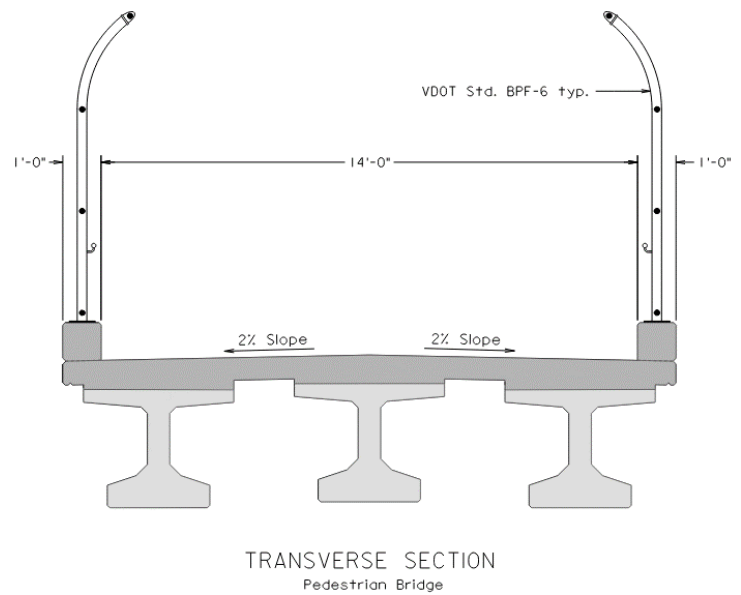


Figure 4.3.2-2: Pedestrian Bridge Transverse Section

Materials and details for the superstructure have been selected to minimize long term maintenance while providing a cost-effective bridge. Low permeability, low shrinkage concrete will be used in the deck slab and curbs, and the curbs are tied to the concrete deck slab. Additionally, there is no paint to maintain as there would be with a steel girder or truss superstructure. Per the RFP, corrosion resistant reinforcing steel, Class I will be used in the deck slab and curbs. Bearings at the pier will be laminated elastomeric, but bearings at the abutments are not necessary by using an integral abutment style bridge. Drainage coming from the bridge will be collected off of the structure, eliminating the cost to install and maintain closed drainage system. No timber, asphalt, or weathering steel members are proposed per the RFP.

**Substructure:** Our substructure uses integral abutments at each abutment allowing superstructure expansion and maintaining a fixed bearing at the central pier. The pier is detailed to accommodate future jacking as per the RFP. The integral abutment bridge eliminates bearing pads at the abutments, and their potential future maintenance.

All substructure units are founded on piles driven to rock to avoid any settlement issues. For the abutments, it is anticipated that the piles will be driven through cans to avoid issues with downdrag from MSE wall settlement. Therefore, appropriate setbacks from the MSE wall must be considered in accordance with VDOT's Bridge Design Manual, Part 2, Chapter 17 (See **Figure 4.3.2-3**). Since the pile sleeves are not allowed to relieve lateral forces on the MSE walls, the MSE wall are designed for the lateral forces resulting from the bridge's thermal movement. MSE walls and the pier will be coated with an anti-graffiti coating per the RFP.

MSE approaches use a concrete slab on top of the MSE wall fill. Standard VDOT HR-1 are bolted directly to the top of the MSE wall

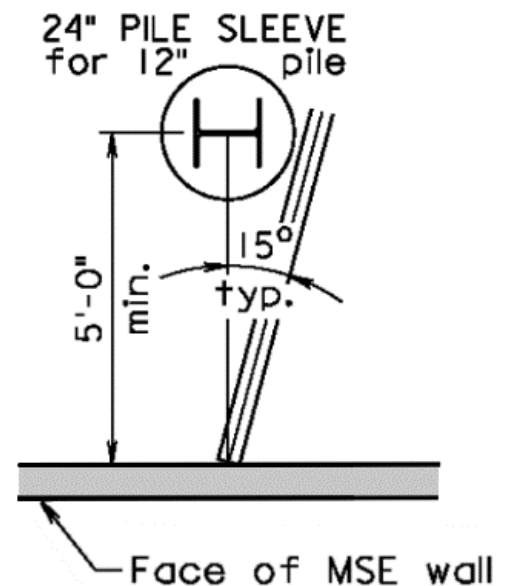


Figure 4.3.2-3: Integral Abutments using MSE Walls

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cap and are sufficient for pedestrian level lateral loads. Ramps are in accordance with ADA requirements, along with required landings every 30-in. of rise for a 1:12 sloped ramp. The approach walkways maintain the required 14-ft clear between railings.

Our pier is hammerhead and has bridge pier protection to guard it from traffic impacts. It is moved slightly from the RFP plans to avoid a direct conflict between the bridge pier protection and 8-in. gas line.

The pier is a fix-fix condition, and the bulb-Ts will be continuous for live load with fixed elastomeric bearings. During the bridge's service life, the bearings will need to be replaced, so bridge jacking must be accommodated in accordance with Chapter 28 of the Bridge Design Manual. This can be accomplished with either making the pier cap wider or forming holes in the continuity diaphragm for jacking similar to 28.02-11. Our Team has elected to widen the pier cap to allow for jacking directly from the pier cap, which greatly simplifies the process and can be accomplished with low profile jacks per **Figure 4.3.2-4**.

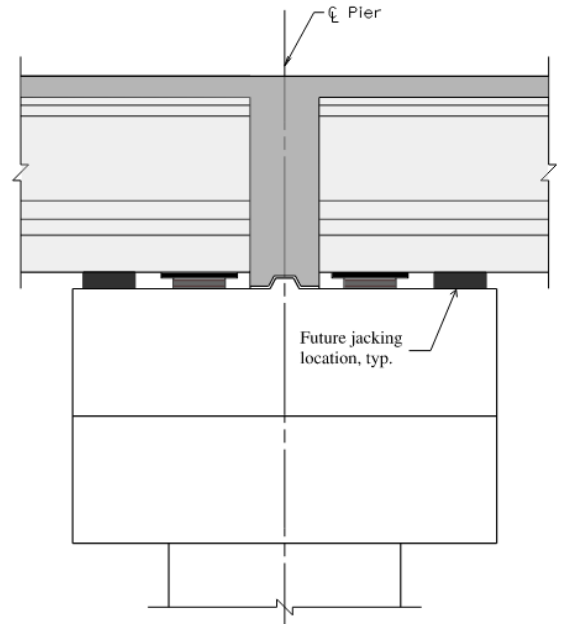


Figure 4.3.2-4: Pier Cap allowing for Future Maintenance Jacking

## 4.4 | Project Approach

## 4.4 PROJECT APPROACH

### 4.4.1 ENVIRONMENTAL MANAGEMENT

**ENVIRONMENTAL MANAGEMENT APPROACH:** The Kokosing Team knows the importance of a comprehensive and environmentally conscious approach to navigate the Project’s unique characteristics. Most of the Project area consists of transportation land use, including roadways, access drives, and sidewalks. The remaining area is made up of roadway rights-of-way, including utilities and signage.

Since environmentally sensitive features do exist, including adjacent trees, wetlands, streams, and previously identified contaminated soils, managing impacts is critical. We have identified the potential risks and developed mitigation strategies. We will not only head off any pitfalls, but also uphold environmental commitments, including those in the Special Provisions during design and construction. Managing environmental risk requires:



- 1 A strong partnership with VDOT’s environmental management team and any agencies with jurisdiction.
- 2 Conducting over the shoulder reviews with VDOT, including a fully integrated CPM schedule showing permit activity hold points, application package preparation/submittal, regulatory agency coordination, and receipt of permits.
- 3 Closely monitoring progress of permit approvals/submittals, comments, coordination of field revisions, and environmental certification/commitment compliance, including those identified in the Special Provisions.

We launched our environmental management approach during the procurement phase and will continue throughout design, agency coordination, and construction. We will obtain the environmental clearances and compile/track commitments during Project delivery. Our approach is tailored to the Project requirements and is implemented by identifying required approvals, environmental risk management strategies, using constraints mapping, complying with legal requirements, and having environmental technical support staff engaged during implementation.

**Design:** During the design phase, Environmental Permitting Specialist Laura Rader-Dixon coordinates with Design Manager (DM) Owen Peery who is managing design quality assurance (QA) and design compliance, as well as Construction Manager (CM) Jonathan Smith, who reviews the Project for constructability. During construction, Jonathan is responsible for implementing environmental controls and Quality Assurance Manager (QAM) Avtar Singh ensures adherence to environmental permits and commitments.

Our environmental team developed a list of commitments based on the NEPA document, Special Provisions, and other documentation to create an Environmental Constraints Map for the work area so that we are sure to minimize and/or avoid impacts. Our Team uses this tool during design, while construction access and temporary work areas are identified, and during coordination with utility companies. Having this information at the beginning of preliminary design gives us the advantage of investigating avoidance/minimization environmental impacts early on. **Table 4.4.1-1** summarizes the permit conditions/commitments we will meet during design and construction.

**TABLE 4.4.1-1: PERMIT CONDITIONS/COMMITMENTS**

Condition/Commitment	Resource/Topic	Kokosing Team Environmental Responsibilities
Time-of-Year Restriction (TOYR)	Northern Long-eared Bat, and potentially the Tricolored Bat (proposed for Federal listing)	Abide by a Special Provision that restricts removing trees greater than or equal to 3-in. in diameter and that no trees greater than or equal to 3-in. in diameter at breast height can be removed from April 1 to November 14, unless otherwise allowed by VDOT.



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TABLE 4.4.1-1: PERMIT CONDITIONS/COMMITMENTS

Condition/Commitment	Resource/Topic	Kokosing Team Environmental Responsibilities
Environmental Due Diligence Documentation	NEPA, Water Quality, Cultural Resources, Hazardous Materials, Protected Species	Provide permits, documentation, commitment compliance, and correspondence with regulatory agencies to VDOT for their update/finalization of forms and checklists, including EQ-103, EQ-200, and EQ-201.
Recognized Environmental Conditions (RECs)	Hazardous Materials	Observe land disturbance activities in areas of concern previously identified in the <i>Phase I Memorandum for: Route 29 (Seminole Trail) and Hydraulic Road Improvements (Charlottesville)</i> (March 16, 2022) included in the RFP and manage materials as per DEQ guidelines regarding suitability for reuse, export, and/or disposal.
Preliminary Jurisdictional Determination (PJD)	Wetlands/Waters	Complete a wetlands/waters delineation in the Project area and obtain a PJD, if needed. Decisions will then be made early, minimizing any delays. Our design enhancement goal is to avoid impacts to Waters of the US.
Nationwide Permit 23	Wetlands/Waters	If wetland/water impacts are unavoidable, submit a pre-construction notification, in the form of a Joint Permit Application, to obtain Nationwide Permit coverage in accordance with the Permit Determination prepared by VDOT on December 8, 2022.
Virginia Marine Resources Commission (VMRC) Habitat Management Permit	Tidal Wetlands, Subaqueous Bottoms, Streams with Drainage Areas greater than 5 square miles in Size	If required, submit a wetlands/waters permit application, but we anticipate a No Permit Required response from VMRC due to the lack of VMRC-regulated resources in the Project area, and in agreement with VDOT's Permit Determination.
Virginia Water Protection (VWP) Permit	Wetlands/Waters	If wetlands/waters permitting is required, coordinate with DEQ, and confirm that no VWP permit will be issued with use of NWP23 as VDEQ provided general 401 certification for the NWP and it is anticipated that the Project would adhere/conform to all 401 conditions. This agrees with VDOT's Permit Determination.
Mitigation	Wetlands/Waters	If wetland and/or stream mitigation is required to secure permit authorization, we will provide the required compensatory mitigation.
Virginia Stormwater Management Permit	Land Disturbance	Obtain permit authorization for land disturbing activities.
Restore Temporary Disturbances within Seven Days	ESC and Project Stormwater	Stabilize temporary disturbances not at final grade within seven days of disturbance.

During the Project's transition from design to construction, Laura will work with the CM and the DBPM to provide construction team leader training on the environmental resources that are present in the Project area and which resources must be avoided. This includes an environmental permit and clearance requirement review. We will make our leaders aware of environmental conditions, resources, and commitments to further reduce risk to VDOT and set the stage for the environmentally compliant Project delivery. In addition, this training will emphasize the environmental team as a resource that is available to the field staff to answer questions and resolve environmental issues.

The Kokosing Team continues to avoid/minimize impacts to environmental resources during construction by evaluating/monitoring the locations of borrow/disposal areas, staging locations, and use of temporary/permanent easement areas. We are experienced at interpreting federal/ state water quality regulations and providing environmental compliance assistance is extremely beneficial during construction to advocate the importance of regulatory compliance to inspectors and contractors.

#### 4.4 PROJECT APPROACH

**Construction:** During construction, our Team uses work plans for activities in/near environmental resources and there are pre-activity meetings, including an environmental commitment review. The CM, environmental and QA inspectors, and construction supervision communicate daily regarding any environmental construction issues. This is coordinated with the VDOT environmental management team ensuring that issues and/or instances of a potential non-compliance are identified, agreed to, and understood by everyone for a quick resolution. *Figure 4.4.1-1* shows the steps to be taken to reduce environmental incidents or non-compliances:



Figure 4.4.1-1: Steps to reduce environmental incidents or non-compliances

Design and construction teams will use measures, such as flagging sensitive resources to be protected, so they are easily identified in the field. To avoid/minimize environmental resource impacts, an ESC Plan has been developed to contain sediment on site using BMPs, such as silt fence, super silt fence, temporary sediment traps and/or basins, rock check dams, and inlet and outlet protection. The TOYR specified for tree clearing is incorporated into the construction schedule and will be discussed with our construction team members (*See Table 4.4.1-1: Permit Conditions/Commitments*).

**ADDRESSING RECOGNIZED ENVIRONMENTAL CONDITIONS/AREAS OF CONCERN WITHIN THE PROJECT FOOTPRINT:** Our Team will provide a GIS referenced environment commitments database which documents the environmental resource locations and provides letters of instruction for each environmental clearance or Special Provision associated with the Project.

A primary area of concern is in Element C previously denoted as a *Site of Potential Concern*. Our Team will use trained environmental professionals to assess site conditions and closely observe land disturbance activities and operate in accordance with VDEQ guidelines regarding suitability for reuse, export, and/or disposal of soils.

**Solutions:** Based on the Project’s environmental commitments, we identified strategies to reduce environmental risk by each resource (*See Table 4.4.1-2*). They are crafted to improve environmental performance and to deliver an environmentally compliant project.

TABLE 4.4.1-2: ENVIRONMENTAL RISK REDUCTION		
Resource/Permit	Impact	Risk Management Reduction Strategy
NEPA	Project Authorization Delays	<ul style="list-style-type: none"> <li>As design progresses, do not expand the limits of disturbance (LOD) and ROW beyond those evaluated in the CE. <b>BENEFITS:</b> Eliminates additional environmental and NEPA studies and keeps the project on track.</li> <li>Communicate the environmental commitments to the design team at the biweekly design status meeting. <b>BENEFITS:</b> Confirms and reconfirms requirements and expectations to avoid unpermitted impacts.</li> <li>Create constraints mapping for environmental resources. <b>BENEFITS:</b> Provides a clear reference for constraints and commitments to avoid unpermitted impacts.</li> <li>Quality control (QC) review of plans, reports, and outside agency coordination. <b>BENEFIT:</b> Confirms environmental commitments are incorporated.</li> </ul>

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TABLE 4.4.1-2: ENVIRONMENTAL RISK REDUCTION

Resource/Permit	Impact	Risk Management Reduction Strategy
		<ul style="list-style-type: none"> <li>Implement our environmental commitments tracking database. <b>BENEFITS:</b> Provides a clear reference for constraints/commitments which is accessible to the management, environmental, and construction teams.</li> </ul>
Natural Resources	Unpermitted or Unauthorized Impacts to Wetlands, Waters, and/or Listed Species	<ul style="list-style-type: none"> <li>Confirm presence/absence of wetlands/streams in the Project area. <b>BENEFIT:</b> Confirms if a PJD, permitting, and mitigation are needed.</li> <li>Confirm design can avoid existing wetlands/streams. <b>BENEFIT:</b> If no permit is needed, the Project can proceed more quickly and eliminates any schedule risk.</li> <li>Coordinate permitting with USACE early following completion of wetland and waters delineations. <b>BENEFIT:</b> Considering the USACE is currently under a heavy workload, filing a complete application quickly reduces permitting and project delays.</li> <li>Identify any mitigation requirements and negotiate with mitigation banks at Notice to Proceed (NTP). <b>BENEFITS:</b> Secures compensation when credits are available and avoids delays waiting for additional credits to enter the market.</li> <li>Incorporate TOYR for tree clearing, and permit acquisition timeframes into the Project schedule. <b>BENEFIT:</b> Maintains VDOT Special Provision compliance and avoids agency coordination, species surveys, and Project delays.</li> </ul>
Hazardous Materials	Hazardous Materials Encountered Which Delays the Project	<ul style="list-style-type: none"> <li>Asbestos monitoring and containment removal of natural asbestos soils per VDOT Special Provisions. <b>BENEFIT:</b> Reduces worker exposure to airborne particles during land disturbance activities.</li> <li>Prepare/implement Spill Prevention, Control and Countermeasure Plan. <b>BENEFIT:</b> Complies with US EPA regulations denoted in 40 CFR 112.</li> <li>Develop an incident emergency management plan that addresses encountering unknown materials. <b>BENEFIT:</b> Reduces the potential for project delays that may increase project costs.</li> </ul>
ESC and SWM/ Environmental Compliance	Sediment Released During Construction	<ul style="list-style-type: none"> <li>Focus on constructability with phased E&amp;S and stormwater controls. <b>BENEFIT:</b> Reduces/eliminates conflicts during construction.</li> <li>Review QA plan to minimize field changes and maximize environmental protection measures to the receiving waters. <b>BENEFIT:</b> Added assurance that environmental protections are performing as specified.</li> <li>Train team members in compliance requirements before entering the site. <b>BENEFIT:</b> Avoids non-compliance in the field per VDOT/DEQ standards.</li> <li>Consistently monitor the temporary measures and restoration. <b>BENEFIT:</b> Prevents sediment release from the project site.</li> <li>Keep SWPPP updated throughout construction. <b>BENEFIT:</b> Ensures General Permit compliance and provides records of major grading activities, stabilization measures, and modifications to its implementation.</li> <li>Track/document environmental commitments during construction. <b>BENEFIT:</b> Ensures compliance as the Project is closing out.</li> </ul>

**INTEGRATING ENVIRONMENTAL MANAGEMENT INTO THE PROJECT SCHEDULE:** We have integrated the environmental clearances into our schedule by starting the environmental work at NTP, including preparing our Environmental Management Plan which is reviewed semi-annually and updated as needed as determined by the VDOT Project Manager. We considered the environmental resource information and the plan details for grading, drainage, and temporary construction items to ensure environmental impacts are vetted and

#### 4.4 PROJECT APPROACH

represented when the environmental clearances are requested and anticipated to be received. Activities particularly sensitive to the environment (e.g., tree clearing and work near potentially contaminated soils) are acknowledged in the schedule and planned to provide as much float as possible to keep the project on track and not rush activities.

We have established defined environmental coordination touch points and schedule hold points to promote timely discussions at our technical design meetings for environmental clearances. Once clearances are obtained, they are recorded in the environmental compliance database with supporting documentation. This information is provided to VDOT to assist in completing the EQ-103, EQ-200, and EQ-201, saving time and effort.

#### 4.4.2 UTILITIES

**UTILITY COORDINATION, ADJUSTMENTS, AND RELOCATIONS:** Our top priority for utility coordination is to avoid utilities. During final design, the Kokosing Team will consider horizontal/vertical location of each utility facility in the four project areas and devise design solutions to eliminate conflicts wherever possible. For any unavoidable conflicts, we will have early, frequent, and open communication with the utility owners to keep them informed of the final design progress and engage them at the Utility Field Inspection, when relocation design is discussed in more detail and utility relocation design can proceed.

To coordinate/relocate utilities, we brought on board Bowman Consulting (Bowman) who provides unparalleled excellence in utility relocation services as evident through their years of experience, utility relationships, and knowledge of the industry. They complement our lead designer (RK&K) as both have extensive relationships through decades of providing utility services. Bowman and RK&K have utility relocation coordination experience in the Charlottesville area: Bowman is currently coordinating utility relocations on the six VDOT Albemarle Bundle contract projects for VDOT and RK&K was the lead design firm on VDOT’s award-winning Route 29 Solution bundle project with Kokosing. Since many of the utility owners on this bundle project had facilities on those projects, we already have an established reputable relationship with them.

**KOKOSING TEAM ADVANTAGE:** Bowman is also providing ROW acquisition services, which will make utility easement acquisitions much more efficient.



Our approach at NTP is to continue coordinating, which has already started for this proposal. *Table 4.4.2-1* illustrates utilities within the four elements:

TABLE 4.4.2-1: UTILITIES WITHIN THE FOUR ELEMENTS	
<b>ELEMENT A   US 29 &amp; Hydraulic Road Intersection Improvements</b>	
<ul style="list-style-type: none"> <li>■ Albemarle County Service Authority</li> <li>■ Brightspeed (CenturyLink)</li> <li>■ Comcast</li> <li>■ City of Charlottesville (gas, sanitary sewer, water)</li> <li>■ Dominion Energy</li> </ul>	<ul style="list-style-type: none"> <li>■ Fiberlight</li> <li>■ Riviana Water &amp; Sewer Authority</li> <li>■ Segra (Lumos)</li> <li>■ Verizon (MCI)</li> </ul>
<b>ELEMENT C   US 29 Pedestrian Bridge</b>	
<ul style="list-style-type: none"> <li>■ Albemarle County Service Authority</li> <li>■ Brightspeed (CenturyLink)</li> <li>■ Comcast</li> <li>■ Middle Mile Infrastructure</li> <li>■ City of Charlottesville (gas, sanitary sewer, water)</li> </ul>	<ul style="list-style-type: none"> <li>■ Dominion Energy</li> <li>■ Fiberlight</li> <li>■ Segra (Lumos)</li> <li>■ Riviana Water &amp; Sewer Authority</li> <li>■ Verizon (MCI)</li> </ul>



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TABLE 4.4.2-1: UTILITIES WITHIN THE FOUR ELEMENTS

ELEMENT D   Hydraulic Road at Hillsdale Drive Roundabout	
<ul style="list-style-type: none"> <li>Brightspeed (CenturyLink)</li> <li>Comcast</li> <li>City of Charlottesville (gas, sanitary sewer, water)</li> </ul>	<ul style="list-style-type: none"> <li>Dominion Energy</li> <li>Fiberlight</li> <li>Segra (Lumos)</li> </ul>
ELEMENT E   Hydraulic Road Access Management Improvements	
<ul style="list-style-type: none"> <li>Brightspeed (Century Link)</li> <li>Comcast</li> </ul>	<ul style="list-style-type: none"> <li>City of Charlottesville (gas, sanitary sewer, water)</li> <li>Dominion Energy, distribution/transmission</li> </ul>

Our strategy is to highlight the conflict changes to our design update, outline our project schedule, and identify where relocations fall within the sequence of construction, while following VDOT procedures/policy.

**Utility Relocation Approach:** Since utility relocations tend to increase project costs and can have a disastrous effect on the project schedule when they hit the critical path, we have refined a design concept that minimizes utility impacts considering constructability parameters and project schedule coupled with our sequence of construction. With the utility holes we obtain, during final design, our engineers will verify that the RFP avoided utility are not in conflict and determine if other conflicts can be avoided or minimized.

Upon contract award, our utility team, led by Richard Bennett of Bowman, will continue the positive working relationships through the design, conflict analysis, utility relocations, and construction. He has over 50 years of experience in transportation project design; development; utility coordination; and construction, including 37 years working with VDOT, and also served as VDOT’s State Utilities Engineer responsible for the utility relocation program.

Figure 4.4.2-1 illustrates our approach to managing and accomplishing utility coordination for the four elements. Our Team’s experience ensures that the utilities will be coordinated and relocated in accordance with the budget and schedule.

STEP 1

- Our utility team assembles utility information and prepares a Utility Investigation Plan to confirm all utilities are identified.
- Extend subsurface utility engineering (SUE) location in needed areas and complete utility test holes to verify horizontal/vertical positions of the facilities.
- Reconnect with each utility owner to secure more information about facility sizes and any extraordinary relocation requirements.
- Verify information obtained during the additional SUE work and, with the original data, prepare a Utility Status Report.

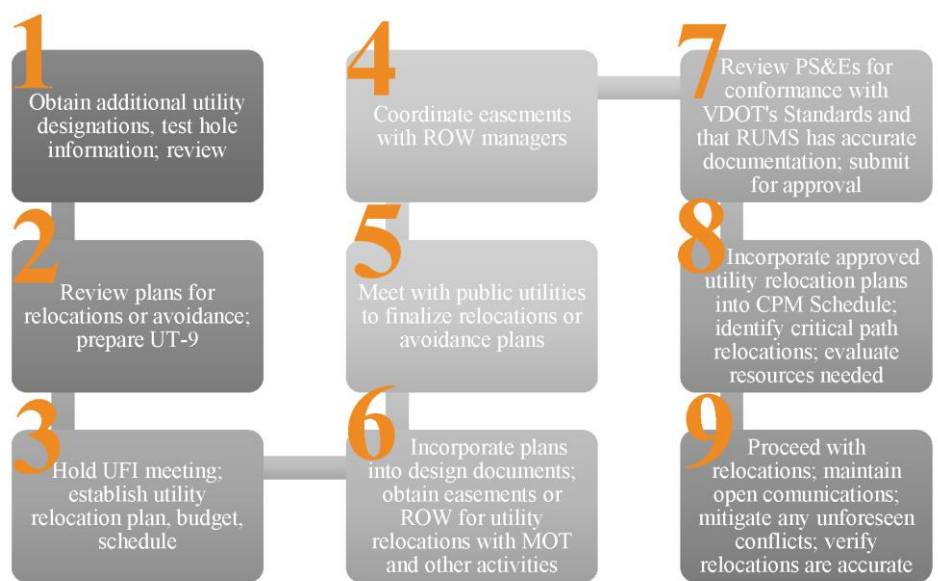


Figure 4.4.2-1: Utility Relocation Coordination Approach



## 4.4 PROJECT APPROACH

- With this information on hand, our utility manager, DBPM and CM update the project schedule to reflect any new adjustment or relocation information.

### STEP 2

- Our utility coordination team works with the design engineers to further evaluate potential utility conflicts and come up with solutions based on the additional test holes at critical points to complete the conflict analysis and relocation design. This early interaction avoids more conflicts and refines the project schedule.

### STEP 3

- Using the 50 - 60% design plans, our utility team distributes them to the utility companies and schedules a Utility Field Inspection (UFI) to review the conflicts, drafted utility relocation design, and potential relocation areas. There most likely will be two UFIs due to different utility involvement on each Element which will explain the conflicts accompanied by utility relocation alternatives that can be accommodated in the Project's footprint.
- Prepare/distribute a UFI Report and other customary documents and update the utility data in RUMS.
- Establish schedules for the utility companies' submission of easements and plans, specifications, and estimates (PS&E) for the relocations.

### STEP 4

- Obtain the required easement and coordinate with the ROW plans being prepared.

### STEP 5

- Follow the UFI and involve planning of the City's and Authorities' gas, water, and sanitary sewer relocations.
- Our utility design engineer engages with the owner to ensure the correct standards are followed and everyone agrees with the proposed relocations. Coordination includes formal reviews of progress and final plans.

### STEP 6

- Our utility team continues to work with each utility owner to confirm final PS&Es are progressing on schedule and to resolve any issues between the project plans and the utility plans.

### STEP 7

- As the utility company's plan and estimates are submitted, review in accordance with federal/state regulations and procedures; determine cost responsibility; and recommend for approval by VDOT.
- Utility company executes a utility relocation agreement and is submitted to VDOT for approval as part of the PS&E assembly.
- Once approved, authorize the utility owner to proceed with the utility relocation, pending availability of required ROW or easements.

### STEP 8

- Utility team coordinates with our scheduler to make any adjustments based on the final utility plan.
- They monitor the utility adjustment or relocation schedule, and gives the affected utility advance notices about the available ROW or easements needed to start their work.
- They monitor and coordinate during the utility relocations, including having a pre-construction meeting with the utility contractor and verifying stakeout for the relocated poles and underground lines. They inspect and complete notes for the record.
- Continue monitoring the utility relocation to ensure utility companies are completing the work per the approved schedule. Use the monthly Utility Status Report to confirm work is proceeding as scheduled.

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## STEP 9

- Utility Team reviews and implements solutions to any utility facility-related issue that arises during the road construction. Our utility coordinator, design and construction team members review the issues and agree to a solution, which is then implemented timely.
- As the utility adjustments or relocations are completed, the utility inspector prepares the as-builts drawings, secures final billings, and sees that the utility owners receive any applicable VDOT land use permits.

#### ***MITIGATION STRATEGY TO OFFSET POTENTIAL IMPACTS OF UTILITY RELOCATION EXCEEDING ESTIMATED TIMEFRAMES OR UNIDENTIFIED/NON-LOCATED UTILITIES BEING DISCOVERED DURING CONSTRUCTION***

**Avoid/Mitigate Utility Conflicts by Design:** As noted in Section 4.3.1.g., we zeroed in on avoiding/mitigating major utility conflicts. Our conceptual design changes focused on minimizing impacts to the Dominion Transmission Tower, Dominion’s main power feed heading to Albemarle County through the roundabout, intersection and pedestrian bridge and the gas main at the pedestrian bridge, and formulated solutions to avoid them.

As with every design-build project, our Team evaluates the corridor for unknown utilities and potential new utilities to avoid delays and identify issues as quickly as possible. If a utility is discovered, we are prepared to pivot construction efforts to maintain project schedule and delivery. Our construction approach addresses issues related to private utility relocations by coordinating for expedited relocations or by sequencing our work accordingly if timeframes exceed estimated.

Anticipated utility relocation schedules and milestones have been integrated in our schedule to minimize delays and evaluate potential risk. Our construction approach accounts for any potential delays as the private utility relocations may be concurrent with construction. Our schedule keeps relocations ahead of the construction activity to avoid this scenario.

The sequence of construction was selected to mitigate potential utility relocation delays.

#### ***What this means:***

Element C will be completed in the first year of construction. The majority of Elements A and E will be constructed concurrently with Element C during this time as well. The decision to build Element C and most of A and E in the first year builds float into the schedule for the utility relocations associated with Element D guaranteeing that work will not be delayed at this most critical location.

With this selected sequence, if utility relocation issues arise on Elements A, C or E, work can be re-sequenced to mitigate delays on these Elements as well.

Additionally, the Kokosing Team identified areas where work can be completed that is not in conflict with existing utilities. For example, in Element C, the pedestrian bridge’s pier and pier protection will be constructed first concurrently with utility relocations along the outsides of US 29. For Element A, the US 29 median work will be completed early on. Portions of Element E can be constructed as well prior to any utility relocations.

**Avoid/Mitigate by Construction Means and Methods:** To accelerate the utility relocations, our Team has identified opportunities will construct a joint utility ductbank for telecommunication relocations. Element C is the best opportunity as there are three parallel companies on the west side of Route 29 and five companies on the east. We will coordinate and construct a single trench duct bank system for the telecommunication relocations around the pedestrian bridge. This will focus the utility companies’ work on placing and splicing cables shortening the relocation duration of each company relocation independently.

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Additional information obtained during the utility validation process and from additional utility test hole excavations will be available to the construction team working on the site, including all utility relocation plans and schedules. They will plan operations accordingly considering the utility’s location. For example, after Miss Utility marks the lines, additional pot holing by hand digging may be completed at points along a pipe runs to verify the amount of clearance.

**Avoid/Mitigate Unexpected Utility Conflicts:** We will update and validate the SUE data provided by VDOT to ensure all utility facilities are identified and evaluated for potential conflicts with our design.

During construction, if we encounter any unexpected utility facilities, we immediately bring the utility owners and team members to the site where strategies are reviewed and determine how to resolve it. This includes whether the Kokosing or the utility completes the relocation and cost responsibilities.

**UTILITIES IN CONFLICT WITH THE DESIGN AND OUR POTENTIAL SOLUTIONS FOR ACCOMMODATING THEM:** In Section 4.3.1(g), *Table 4.3.1.4*, we show the utility facilities that remain in potential conflict with our design for the four elements and need to be relocated. We engaged the utility companies to understand their requirements and possible relocation plan and summarized the locations in that table. Our Team will obtain test holes information and continue to review changes that may eliminate some of these potential conflicts. Shown are the primary line relocations and any incidental relocations and adjustments of services, handholds, fire hydrants, manhole covers, valves boxes and other items to the finished grade are a part of those relocations.

**INTEGRATING UTILITY COORDINATION, ADJUSTMENTS AND RELOCATIONS INTO THE PROJECT SEQUENCING TO MINIMIZE SCHEDULE DELAYS:** We have integrated interactions with utility companies with facilities within the Project into our pre-construction and construction schedules. Our schedule reflects they need certain information before they can evaluate the final impact and the requirements for the utility relocation. This includes acquiring any additional utility easement needed for the relocation. Our schedule includes the following major activities:

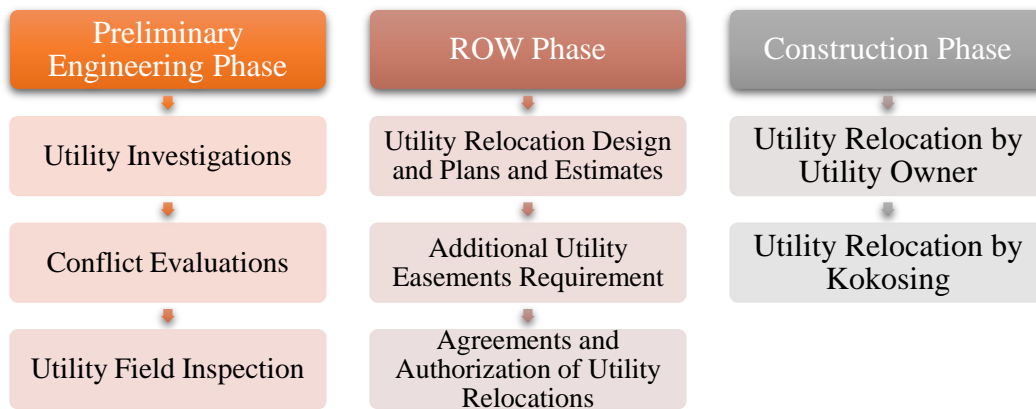


Figure 4.4.2-2: Major Activities in the Schedule

**Prioritizing Utility Relocations to Expedite Construction Sequencing:** Since some utility relocations require significantly more lead time, we prioritized the long relocation times, such as telecommunication and gas, including any time of year service disruption requirements. Having these requirements in our integrated CPM schedule enables us to manage the relocations and mitigate any potential impact to the Project schedule. Our construction team is equipped to react to unexpected issues, such as extended work schedules or unknown utilities.

## 4.4 PROJECT APPROACH

### 4.4.3 GEOTECHNICAL

**IDENTIFYING/MITIGATING GEOTECHNICAL RISKS:** This Project is in the Blue Ridge Geologic Province of Virginia which presents challenging geotechnical conditions. The corridor consists predominately of moisture sensitive, moderate to highly plastic, fine-grained soils, often containing mica. These soils exhibit elevated moistures within the upper strata, typically at/near existing subgrade elevations in many areas. There are also isolated areas of deeper highly plastic soils in the region. The site contains a significant amount of fill, extending to beyond 30-ft below the existing ground surface in some areas near the proposed pedestrian bridge. Historic mapping indicates there was a stream, which has been filled in.

**Geotechnical Exploration Practices:** We have reviewed the VDOT-provided geotechnical documents, including the Geotechnical Data Report (GDR) dated May 24, 2022. We will complete a supplemental geotechnical exploration and when combined with the geotechnical data, the subsurface exploration will meet/exceed the minimum requirements in Chapter III of VDOT’s Manual of Instructions (MOI).

Our geotechnical exploration program is tailored to address the real geotechnical issues relative to the proposed design, with emphasis on near-surface subgrade soil suitability, moisture-sensitivity of existing soils, properties of the existing fill material, and geotechnical construction considerations. Additional exploration and testing will be in support of the final design level Geotechnical Engineering Report (GER). The supplemental field exploration is conducted in sequence using one to two drill rigs to complete the supplemental borings. Sampling and testing of in-situ soils focuses on delineating the extent of embankment fill from the previous construction of US 29, highly plastic, excessively wet, and California Bearing Ratio (CBR) or Resilient Modulus ( $M_R$ ) value soils at the proposed subgrade elevation. Cone Penetration Test Probes (CPTs) will characterize the fill soil behavior types at the abutments and retaining walls and to aid in establishing soil parameters for settlement and consolidation evaluation.

*Our geotechnical exploration program is tailored to address the real geotechnical issues relative to the proposed design, with emphasis on near-surface subgrade soil suitability, moisture-sensitivity of existing soils, properties of the existing fill material, and geotechnical construction considerations.*

There will also be Shelby tube sampling so that direct shear and consolidation testing can be performed on undisturbed samples. The shear strength and consolidation test results will be used to develop the engineering parameters for each soil stratum.

#### KOKOSING TEAM ADVANTAGE

*The sampling and testing will be scheduled to obtain the parameters critical in confirming our preliminary evaluations of settlement rates and magnitudes, supporting the external and global stability analyses, and retaining wall designs. We are familiar with the subsurface conditions onsite as RK&K led the design for VDOT’s Route 29 Solutions design-build 1.5 miles north of this Project site for Kokosing.*





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**Geotechnical Design and Analysis Practices:** Geotechnical design and analyses starts as soon as supplemental borings and laboratory test data are available. The design and analyses of the geotechnical features will be in accordance with AASHTO LRFD Bridge Design, VDOT’s MOI, the RFP and Special Provisions. Laboratory testing and selecting accurate engineering parameters will aid in refining the geotechnical analyses conducted by our Team to date. The key risk factors are the delineation of unsuitable and historic fill soils, settlement at retaining walls and downdrag on abutment piles, impacts of pile driving on adjacent utilities and structures, and construction considerations with respect to moisture sensitive soils. There is a layer of ledge rock near Abutment B that may cause the piles to refuse shallower than planned, but deep enough for bearing. Using pile points will seat the piles in the ledge rock. We will confirm the depth and material consistency of the ledge rock upon award. Pre-drilling for the piles to penetrate deeper than the ledge rock will be included for Abutment B, if required.

**Construction Methods:** To implement GER recommendations during construction, geotechnical design team members will be involved. This emphasizes the need to accurately delineate areas of unsuitable soils, generate the most effective plan to remediate those areas, and ensures the plan is implemented and documented during construction. For success, we will place importance on communication between the geotechnical engineer, construction staff, and the QC and QA inspectors. The geotechnical representatives will be on-site during the critical earthwork operations to observe and document the remediation procedures and recommend further mitigation techniques as necessary.

**Geotechnical Risks and Challenges:** The geotechnical risks have been identified and evaluated based on the Project information provided by VDOT, our understanding of the geologic setting, and our experience with this area. Although predominately low, *Table 4.4.3-1* presents the identified geotechnical risks and potential impacts on the construction duration, costs, quality, and long-term serviceability, along with mitigation strategies to deliver a high-quality project with an expedited timeframe.

TABLE 4.4.3-1 GEOTECHNICAL RISKS AND MITIGATION STRATEGIES

Risk	Potential Impacts	Mitigation
<b>Unsuitable Subgrade Soils</b>	Schedule MOT/Public Safety Earthwork Quantities Long-term Serviceability QA/QC Needs	<ul style="list-style-type: none"> <li>Confirm and delineate accurate lateral and depth extents of the unsuitable soil in areas already identified using available subsurface information.</li> <li>Finalize Soils Remediation Plan prior to construction.</li> <li>Account for schedule impacts in the CPM schedule.</li> <li>Confirm moisture-sensitive soil areas are identified with the available subsurface information and supplemental investigation.</li> <li>Denote the locations of these soils on the final Project plans.</li> <li>Implement methods at each location to protect these soils from the elements once exposed.</li> <li>Schedule earthwork operations to limit exposure of the moisture sensitive soils.</li> </ul>
<b>Historic FILL</b>	Schedule Long-term Serviceability	<ul style="list-style-type: none"> <li>Confirm and delineate accurate depth and material properties of the existing FILL.</li> <li>Finalize foundation design prior to construction.</li> <li>Account for schedule impacts in the CPM schedule.</li> </ul>
<b>Settlement</b>	Schedule Serviceability	<ul style="list-style-type: none"> <li>Perform subsurface exploration consisting of borings, in situ testing, and laboratory testing.</li> <li>Evaluate expected settlement and mitigate through design to avoid impacting existing infrastructure.</li> </ul>



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TABLE 4.4.3-1 GEOTECHNICAL RISKS AND MITIGATION STRATEGIES

		<ul style="list-style-type: none"> <li>▪ Mitigate effects of settlement on new construction by sequencing construction, i.e., driving piles after abutment construction or include negative skin friction in the pile design.</li> <li>▪ Evaluate existing utilities for proposed settlement and either relocate or provide support.</li> </ul>
<b>Pile Installation</b>	Schedule MOT/Public Safety Damage to Structures or Utilities	<ul style="list-style-type: none"> <li>▪ Evaluate where piles will be driven or predrilled by delineating existing utilities and structures within the vicinity.</li> <li>▪ Evaluate sensitivity to vibration of infrastructure identified.</li> <li>▪ Develop a monitoring plan and mitigation methods to limit vibration to tolerable levels.</li> <li>▪ Evaluate drivability and use of pile points to avoid overstressing.</li> </ul>
<b>Poor Pavements / Rehabilitation</b>	Schedule MOT/Public Safety Serviceability	<ul style="list-style-type: none"> <li>▪ Construct new full depth pavement section.</li> <li>▪ Risk of unsuitable subgrade soils, see above mitigation/strategies.</li> </ul>
<b>Pavement Section</b>	Schedule Constructability MOT/Public Safety	<ul style="list-style-type: none"> <li>▪ RFP pavement section with Cement Treated Aggregate (CTA) is not conducive for placement and curing during daily MOT closures.</li> <li>▪ Assess means/methods for CTA installation, especially in sliver widening areas.</li> <li>▪ Evaluate the use and approval of alternative pavement sections.</li> </ul>

4.4.4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

One of the most important aspects of a VDOT design-build project is a successful QA/QC program. To meet our mission and objectives, we assembled a team of highly qualified and experienced professionals to ensure compliance with VDOT’s Minimum Requirements for Quality Assurance and Quality Control on Design-Build and Public-Private Transportation Act Projects, dated July 2018. Essential to our Team is CES who will lead the Construction QA team under the leadership of Avtar Singh, PE, CCM, DBIA.

The Kokosing Team’s QA/QC approach creates a partnering environment between VDOT, our field staff and QC inspectors/testers, and CES’s QA staff. Forming this collaboration with a proactive/robust QA/QC testing and inspection program starts with a project-specific QA/QC Plan that:

- Reduces/eliminates contractor or designer rework.
- Keeps QA efforts focused and targeted.
- Limits VDOT’s need to assign valuable resources.
- Minimizes future maintenance.
- Assures VDOT of a well-maintained, safe construction site with all construction/materials meeting specifications.
- Provides required documentation for VDOT acceptance of the facilities.
- Assures compliance with VDOT, local, and federal requirements.

Our QA/QC Plan is a living document which is updated/revised as the Project progresses. Below is our QA/QC approach for design/construction, including processes and staffing levels to achieve full acceptance of the Project Elements:

**QA/QC APPROACH DURING DESIGN:** As Lead Designer, RK&K manages the design QA/QC for the design team. On their first day of work, RK&K employees are given a copy of their QA/QC procedures and sign

## 4.4 PROJECT APPROACH

a *Commitment to Quality* form acknowledging they have read, understand and affirm their personal commitment to the quality policy in that plan.

**Design QC Plan:** For this Project, RK&K will develop a specific Design Quality Management Plan (DQMP) which is an extension of RK&K's established QA/QC procedures. DM Owen Peery, PE and Design Quality Manger (DQM) Jim Durbin, PE are independent of the Design QC activities. Working under Owen, is a leader in each discipline area and for each subconsultant on the Project. Each discipline leader certifies that proper QA/QC procedures have been implemented before submitting any deliverable. These reviews are then verified by Owen to confirm procedures are being followed. Periodic audits of the process are completed by Jim.

**Submittals:** For each submittal, the discipline leader appoints a checker, who is someone other than the person or people that originated the design. After the work has been checked and corrected, if needed, the discipline leader performs an interdisciplinary check for quality, completeness and constructability with respect to other disciplines of work and then is audited by Jim at a minimum rate of 10%. The basis of these reviews and checks are VDOT checklists supplemented by the designer's experiences and checklists.

Our plan includes the following:

- Plan details.
- Design calculations.
- Cross checking of work from other disciplines within the Kokosing Team.
- Environmental compliance.
- Subconsultant design packages.
- Constructability reviews by the construction team.
- VDOT and RK&K developed checklists.

Our DQMP also:

- Incorporates a thorough understanding of the Project technical and execution requirements.
- Identifies team member roles/responsibilities throughout design and construction.
- Defines the processes that executes and documents the design quality.
- Integrates the design and construction teams to leverage lessons learned and refine the design.
- Ensures integration and oversight of our DM for compiling and sealing final documents of each work package.
- Minimizes VDOT's design review efforts and provides quality design deliverables.

Our DQMP is the framework by which RK&K conducts their independent deliverable reviews. The design phase quality management process will be transparent to VDOT. RK&K follows this 9-Step Review Process:

### Step 1

**Originator:** Prepares the deliverable to be checked and is accountable for accuracy/adequacy per design code requirements. It is not intended that the Originator rely on the checking process to complete the deliverable.

### Step 2

**Checker:** Independent of the Originator and checks the deliverable. Reviews every aspect, including input for design programs that are a part of the calculation set. Marks up the stamped deliverable set with comments and returns it to the Originator. This is a senior staff member with the experience to check the design of the discipline they are reviewing.

### Step 3

**Back-Checker:** Reviews the checked deliverable, confirms items marked for revision are justifiable, and that corrections noted are appropriate. If the Back-checker disagrees with a Checker's correction,

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they must resolve it before the next step. If they cannot come to a resolution, the lead discipline engineer or DM resolves it.

**Step 4** **Corrector:** Addresses comments marked on the check print (original deliverable). This can be either the Originator or a CAD Technician.

**Step 5** **Verifier:** Reviews the corrected deliverable against the check print and verifies corrections marked on the plan sheet or calculation sheet were addressed. The Verifier is also the Checker. *Note: Steps 1 - 5 are ongoing as the design is being developed by team members.*

**Step 6** **Interdisciplinary Review:** Once the design deliverable is checked, the DM and D/CI organizes the lead discipline engineers (roadway, structural, drainage, utilities, etc.) to review the submittal.

**Step 7** **Contractor Review:** At this point in the review process and concurrent with the Interdisciplinary Review, Kokosing and the construction team review the plans for constructability, conformance to anticipated means and methods, and completeness of comment responses which is led by D/CI Aaron Straebel. If there are comments from the Interdisciplinary or Contractor Reviews, the checking procedure starts from the beginning for the affected portions of the deliverable.

**Step 8** **Quality Assurance:** Our design QA/QC manager audits/ensures the design team is following the QC checking process. In addition to the QA/QC design process outlined above, the design QA/QC manager and the DM may direct a design peer review on a discipline by a senior technical team member. Comments from this review will also be addressed by following the QC checking process.

**Step 9** **Submit to VDOT:** The lead discipline engineer signs a form for each milestone deliverable that QC efforts are compliant and transmits it to the DM and D/CI who signs off on it with the design QA/QC manager. VDOT (or other reviewing agencies) review the design and submit comments to the Kokosing Team. Comments are addressed by incorporating changes into the design for the next milestone submittal. This continues until final plans are submitted to VDOT and approved for construction. Final deliverables are signed and sealed by the lead discipline engineer (a Virginia PE), and the DBPM submits them to VDOT for final approval.

While RK&K is ultimately responsible for the quality of the design team deliverables and the Project design, our subconsultants perform the QC checks and reviews in accordance with the Project QA/QC Plan and confirm their deliverables meet, at a minimum, RK&K's quality requirement. Subconsultants submit to RK&K their QA checklist and documentation of their QC procedures. A QA/QC kickoff meeting is held with subconsultant team members to review the Project QA/QC Plan and expectations for delivery of design materials. RK&K completes periodic audits of subconsultant QA/QC documentation and processes.

What attributes to RK&K's success in delivering quality plans on fast-paced design-build projects are weekly design discipline meetings. Our design team will hold weekly meetings that provide an opportunity for design

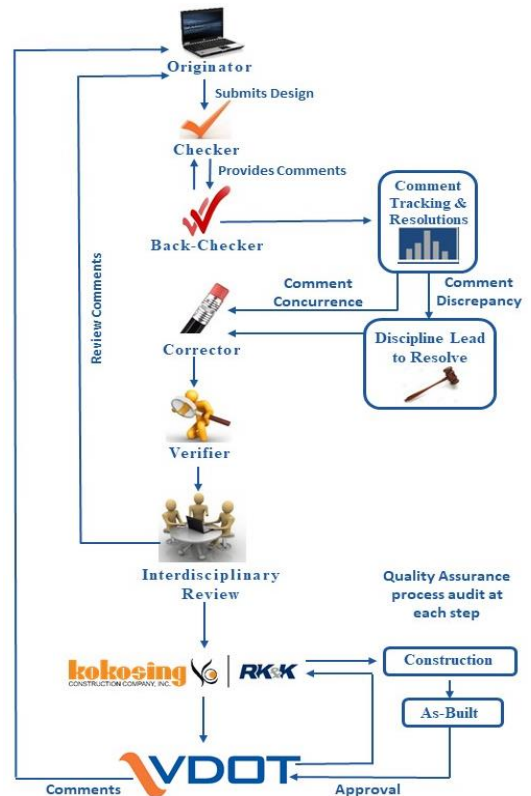


Figure 4.4.4-1: Design QA/QC Workflow

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disciplines and construction staff to coordinate between multiple design disciplines. This keeps us on track and ahead of potential issues and solves them before they become design or schedule conflicts.

**RK&K TESTAMENT:** On VDOT’s Route 29 Solutions design-build project in Albemarle County, there were countless hardscape and paving details critical to constructing the Rio Road grade-separated intersection. RK&K’s Design Team provided special design details that resulted in VDOT’s acceptance of the work while allowing Kokosing’s preferred methods of construction to be used.

RK&K’s Design QA/QC Plan and quality submissions facilitated quick VDOT reviews and approvals. Although VDOT committed to a nine-day submittal review average, VDOT’s average submittal review rate was actually five days. This undoubtedly contributed to completing this segment ahead of schedule.



Having this success in their project portfolios, the Kokosing Team will bring this same dedication to this Project which will minimize VDOT’s review time and effort.

**QA/QC APPROACH DURING CONSTRUCTION: Construction QC:** Quality Control Manager (QCM) Scott Clark, who is responsible for construction QC, oversees the independent certified QC testing/inspection personnel under CM Jonathan Smith. Our QC strategy inspects and tests the work as it progresses to control the level of quality:

1. Our QC team measures the quality characteristics and inspects those activities that impact production when we can quickly correct it to stay compliant.
2. We create the customized Construction Quality Management Plan (CQMP) that follows VDOT Quality Requirements for Quality, which includes verifying approved materials and compliance construction processes. It covers VDOT’s QC requirements and is organized in separate discipline and task sections for easy reference.
3. The Contract and VDOT’s referenced Quality Manual are used to identify minimum frequency of inspections and testing. Each definable feature of work is described with measures planned for quality and conformance with contract requirements.
4. Requirements for preparatory meetings, startup and production meetings and frequency of inspections, sampling, and testing are identified.
5. Construction team develops work plans for major activities and includes QC requirements. Formal preparatory meetings educate the field supervisors on work plans and are mandated for subcontracted work.
6. QC inspectors inspect construction work and our technicians conduct onsite QC tests, including standard proctors, Atterberg limits, and sieve analysis, CBR values, bearing capacity, concrete compressive strength, mortar cube tests, permeability, and soil classifications, among others.
7. Our QCM meets with our CM and DBPM to discuss quality issues and implements recommendations to address any concerns, deficiencies and/or non-conformances. He provides timely daily reports and other information to the CM for review, action and follow up.
8. For each test conducted, our QCM provides QC testing reports within 24 hours (or next business day). These and other required items, such as Non-Conformance Reports (NCRs), deficiencies and punch lists, are tracked in logs maintained by the QCM in our SharePoint site where VDOT and our QAM can review at any time.
9. Our QCM, superintendents, project engineers, and surveyors assist and work with the CM, QAM, and VDOT for dimensional checks, verification of conformance of proposed materials, and submittal of material certifications. Inspectors will hold current material certifications when testing hydraulic cement concrete, asphalt concrete, soils and aggregate compaction, surface and slurry treatments, and pavement markings.



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10. Included in our QMP is conformance to the many environmental constraints placed by the permitting agencies.
11. During construction, our inspectors review compliance with the permitting constraints and requirements (limits of clearing, no work outside of LOD, installation and maintenance of ESC devices, etc.).
12. Our QC process mandates following pre-activity checklists for every major task, including pre-pour checklists for concrete placement, checklists for roadway subgrade repairs, underdrain, grading, curb and drainage and erosion stabilization. To meet specifications, these checklists and work plans are reviewed at each preparatory meeting for each definable feature of work which are scheduled by the QAM and include the QCM, superintendent, foremen, project QC safety personnel, and an invitation for VDOT. Defining/reviewing the acceptance criteria gets everyone focused on a common goal and facilitates teamwork.
13. Inspectors photograph and document the work package; testing types, locations, and results; inspections and results; weather conditions; communications; delays; MOT/safety issues; and deficiencies and non-conforming work and corrective actions. Other documentation includes inspection checklists, materials testing reports, frequency of testing matrices, work zone checklists, ESC checklists, as-built information for updating SWPPPs, and information for deficiency and non-conforming report logs.

Open/honest communication with the QAM and VDOT is maintained by inviting them to preparatory meetings, weekly quality meetings during construction and, granting access to our databases containing quality records (materials certifications and testing records, NCRs, quality issue logs, corrective action records, etc.), and offers to attend morning QC scheduling meetings to raise awareness of our daily plan to cover operations. Weekly Quality meeting attendees are VDOT, QAM, DBPM, CM, lead inspectors, superintendents, and QCM. Quality is a standing topic at our progress meetings which includes a review status report of any NCRs, corrective actions taken, testing and material records.

Three-week schedules are updated at the weekly scheduling and planning meeting and used to forecast our design and field QC needs in a rolling timetable. This informs field, design, and QC personnel of their current duties. The QCM is an integral part of creating/updating our comprehensive and three-week schedules. By incorporating QC activities into the schedule, QC processes do not lag, lose effectiveness or hinder construction progress.

**Construction QA:** Our QAM, Avtar Singh, leads the Construction QA team, and confirms work conforms to the approved plans and VDOT specifications by reviewing QC data and verifying as per the VDOT Quality Manual. He is responsible for the independent QA inspection and testing of materials used and work performed to include monitoring our QC program. CES's inspectors carry out the QA program inspection/testing activities, including:

- Reviewing work plans and reference documents and the QA/QC Plan.
- Confirming submittals, sources, and materials are approved.
- Monitoring the CPM and look-ahead schedules to determine (and perform) the frequency of tests.
- Checking calibration and condition of testing equipment.
- Preparing daily diaries and logs, accept completed work, and document.
- Maintaining the materials notebook.
- Scheduling and leading Preparatory meetings.
- Monitoring QC staff to confirm work coverage.
- Coordinating laboratory testing.
- Assisting with coordinating witness and hold points
- Notifying the QAM of any corrective measures.



## 4.4 PROJECT APPROACH

→ Verifying unacceptable work is corrected.

The QA staff verifies QC functions are being completed and conducted properly. They perform QA testing and documentation per the approved plan. The QAM maintains the Project's Materials Book in accordance with the VDOT's Materials Division requirements.

Kokosing has an established and successful work history with CES based upon QA/QC procedures on VDOT design-build projects, such as Route 29 Solutions in Albemarle County where Avtar was the QAM. Our QA/QC team's experience, combined with lessons learned, provides VDOT seasoned professionals with a successful track record of administering QA/QC programs in Virginia. Avtar will manage his forces to meet the Project demands with the resources for compliance.

**Construction QA/QC Plan:** Our Construction QA/QC Plan establishes clear/complete procedures for inspecting construction and testing materials. Planning/conducting meetings contribute significantly to success including:



**Daily Communications:** During construction, the QAM communicates daily with key staff. Every day, he conducts a brief staff meeting with the QA staff to confirm work is covered and accurate records are kept, and communicates with our CM to ensure QC staff and construction operations are proceeding as planned. QC and QA team members also communicate each day to confirm inspection coverage of the work.



**Preparatory Inspection Meetings:** Prior to starting any work, the QAM leads these meetings to confirm Project personnel understand upcoming work. This provides coordination/communication among Kokosing's production, QA, and QC personnel, as well as VDOT's independent assurance and verification sampling and testing (IA/VST) personnel.



**Weekly QA/QC Meeting:** The CM, QCM, QAM, and the lead QA and QC inspectors discuss work progress. Any issues/concerns are addressed. Minutes are prepared and any outstanding issues are tracked until resolved. The VDOT project manager has an open-door invitation to attend.



**Monthly Progress Meetings:** QCM and QAM join these meetings to give an update on the QA/QC Program. Construction QA and QC inspection personnel perform construction inspection, sampling, and testing as required. This includes documentation of construction activities and acceptance of manufactured materials. The following phases are in place to verify work is performed in conformance with the contract:

1. **Utility Relocation Inspections:** Confirms utilities are relocated per the approved plan. Maintain UT-7 daily records of utility work relating to in-plan utility relocations.
2. **Start-up Phase Inspections:** Takes place as work begins. The QAM or his staff review the work for conformance to the plans and correct documentation is being forwarded to VDOT after review/acceptance.
3. **Production Phase Inspections:** Ensures the methods/procedures established in the start-up phase are maintained, and any deficiencies noted in the initial phase have been resolved/corrected.
4. **Intermediate Phase Inspections:** Throughout construction, the QA/QC team continues to inspect/test the work per procedures prescribed by the QA/QC Plan and other contract documents. Our Team accommodates VDOT's independent verification inspections as requested.
5. **Final Inspection and Punchlist:** QA/QC team is responsible for final inspection. The QAM maintains the punch list which is created as the Project approaches substantial completion. There are final inspections on definable work features against approved construction plans, specifications, and other construction documents, noting any discrepancies. As-built preparation follows VDOT requirements.

#### 4.4 PROJECT APPROACH

QA/QC documentation is maintained online accessible to Project personnel using Bentley's ProjectWise System and PlanGrid. Our QAM monitors the QC and QA staff for document control. He reviews the inspection staffs' diaries daily and makes them available for the VDOT project manager to review.

**ANTICIPATED CONSTRUCTION QA AND QC STAFFING:** For this Project, our QA/QC staff must be experienced and robust to deliver a final product that meets/exceeds the requirements. Our DBPM ensures that policies are implemented and that our Team is staffed with knowledgeable and dedicated professionals. Implementing QA/QC as prescribed by the Kokosing Team eliminates the need for VDOT to augment the quality effort.

We calculate having between two and five QC individuals involved in the Construction QC Program depending upon the number of crews actively working and the testing needs (concrete/earthwork) of the specific phases under construction at any one time. This does not include the field engineers or crew supervisors who ensure construction is per the plans/specifications.

Our QAM is dedicated to the Project full time and will be onsite one to two days a week and whenever needed or requested by VDOT throughout construction. Our QAM will assign a minimum of two Lead QA inspectors to the Project, one for bridge elements and one for roadway elements, and they will be on-site during all construction of their respective elements. The Lead QA inspectors will be supported by other QA inspectors depending upon the number of crews actively working and the testing needs (concrete/earthwork) of the specific phases under construction at any one time. Deputy QAM, Beau Gutridge, PE, PMP, DBIA will be gaining QAM experience on this Project under the direct supervision of the QAM and possess the necessary qualifications and appropriate skills to serve in that role. In total we anticipate having between three and four QA individuals involved in the Construction QA Program.

## **4.5 | Construction of the Project**

## 4.5 CONSTRUCTION OF THE PROJECT

### 4.5.1 SEQUENCE OF CONSTRUCTION

**CONSTRUCTION PHASING:** The greatest potential risks in meeting the completion date are ROW acquisition and utility relocation delays. Our proposed design minimizes the amount of ROW to be acquired and reduces the utility relocations to the greatest extent possible thus minimizing Project risk.

After an analysis of the scope of work of all Elements, a sequence of construction was selected that mitigates potential ROW acquisition and utility relocation delays while operationally completing the Project on-time:

1. Element C will be completed in the first year of construction. The majority of Elements A and E will be constructed concurrently with Element C, as well.
2. Early in 2025, construction starts on Element D in preparation for the summer 2025 shutdown of the Hydraulic/Hillsdale intersection. With all possible work being completed for Elements A, C and E in 2024, focus will be on Element D.
3. All feasible work for Element D that can be completed prior to the shutdown will occur in early 2025.
4. Once the shutdown is complete and the roundabout is in operation, the remaining work for Elements A, D and E will be completed leading up to Project completion, including constructing the islands that limit the left turn movements of Hydraulic Road, Brandywine Drive and Michie Drive, the final asphalt paving and permanent striping of the new traffic pattern.
5. The sequence of constructing Element C in the first year builds float into the schedule for the most critical Element - the roundabout construction and reconfiguration of Hydraulic Road traffic.
6. ROW acquisition and utility relocation for Element D has enough float guaranteeing this work will not be delayed. Also, if issues arise on other Elements of work, there are opportunities to re-sequence work and complete work on multiple Elements concurrently thus mitigating or eliminating any delays. Our sequence minimizes risk by anticipating and mitigating delays to the most critical Elements thus achieving the final completion date.

Another potential Project delay could be the time-of-year clearing restriction relative to the northern long-eared bat. To mitigate, we will prioritize clearing during the allowable time-frame and well in advance of the follow-on work taking place eliminating any potential delays.

Drilling down into more detail relative to the construction sequencing, the Kokosing Team identified areas where work can be completed that is not impacted by obtaining ROW and there are no utility conflicts. For example, the pedestrian bridge's pier and pier protection will be constructed first concurrently with utility relocations along the outsides of US 29. The US 29 median work will be completed early on as well. See a summary of our Sequence of Construction in **Figure 4.5.1-1**.

**KOKOSING OPERATIONAL STRATEGY:** By identifying areas where no conflicts exist, we will complete all possible work concurrently with the ROW acquisition and utility relocation processes.



4.5 CONSTRUCTION OF THE PROJECT

Hydraulic Road and US 29																																			
Time of Year Restrictions																																			
Bat (3" DHB Greater Tree Cutting)	11/14							4/1							11/14							4/1							11/14						
	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25			
NTP (5/23/23)	X																																		
Geotechnical	X	X	X	X	X	X																													
Roadway	X	X	X	X	X	X	X	X	X																										
Right of Way	X	X	X	X	X	X	X	X	X	X																									
Structures	X	X	X	X	X	X	X	X	X	X																									
Utility Relocation		X	X	X	X	X	X	X	X	X	X	X	X																						
Clearing (11/15/23 - 3/30/23)							X	X	X	X	X																								
Construction Start										X																									
ROUTE 29 / HYDRAULIC RD. INTERSECTION										X	X	X	X	X	X	X	---	---	---	---	X	X	X	X	---	---	X	X	X	X	X	X			
Construct Availabe Island Work, Curb/Sidwalk										X	X	X	X	X	X	X																			
Install Pedestrian Lighting and Signalization																					X	X	X	X											
Complete Raised Median Flatwork and Pave																											X	X	X	X	X	X			
ROUTE 29 PEDESTRIAN BRIDGE										X	X	X	X	X	X	X	X	X	X	X	X	X													
Procure Bridge Materials									X	X	X	X	X	X	X	X																			
Construct Pier and Pier Protection									X	X	X	X																							
Retaining Walls and Abutments														X	X	X																			
Superstructure																	X	X	X	X															
Road and Drainage Work														X	X	X	X	X	X	X	X														
HYDRAULIC ROAD / HILLSIDE DRIVE ROUNDABOUT																					X	X	X	X	X	X	X	X	X	X	X	X			
Closure Period (June 10 - July 25)																										X	X								
Install Drainage																					X	X	X	X	X										
Construct Availabe Island Work																									X										
Construct Roundabout During Shutdown																										X	X								
Punchlist																											X	X							
HYDRAULIC ACCESS IMPROVEMENTS									X	X	---	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	X	X							
Clearing								X	X																										
Retaining Wall, Drainage, Available Flatwork													X	X	X	X											X	X							
Complete Raised Median Flatwork																																			
Final Completion Date (11/5/25)																																X			
Required Completion Date (12/5/25)																																X			

Figure 4.5.1-1: General Sequence of Construction



## 4.5 CONSTRUCTION OF THE PROJECT

### Operational Construction Approach for Each Element

#### Element A | US 29 & Hydraulic Road Intersection Improvements

Construction of Element A begins with the US 29 median and the island on the southeast corner of the intersection. There are no ROW or utility conflicts and this work will be completed early on. Once ROW and utilities are cleared, the curb ramps and sidewalk work on all corners will be completed. Additionally, the pedestrian signalization system and lighting will be installed as soon as practicable. The remaining work of constructing the new full depth pavement and islands west of US 29 on Hydraulic Road will occur after the Hydraulic/Hillsdale roundabout is in operation. Once the islands and pavement are completed, the final asphalt surface and striping can be installed and vehicular and pedestrian traffic will be in the final configuration.

All work for this Element will be completed using night lane closures. Our approach to constructing the work will be with completely mobile operations. At night, MOT will be installed and the equipment and materials will be mobilized. At the end of each night shift, vehicular/pedestrian travel ways will be cleaned and equipment/materials removed from the work site and stored in laydown areas. During daytime hours, there will be no impact to the public caused by construction on this Element.

#### Element C | US 29 Pedestrian Bridge

**Phase 1:** The bridge pier and pier protection will be constructed behind temporary barrier wall. There are no utility conflicts or ROW to obtain so this work will be prioritized upon plan approval with the goal of completing all work in the median of US 29 concurrently with the ROW acquisition and utility relocations along the outsides of both northbound and southbound US 29. Equipment, construction materials and barrier wall will be mobilized during nightly lane closures and the work will take place behind barrier wall with periodic lane closures to facilitate the work. Once the pier is complete and pier protection in place, the area will be completely restored and the barrier wall removed.

**Phase 2:** After completion of the pier, work will shift to the abutment and retaining walls. Once the utility relocations have been completed, including relocation of the 8-in. and 12-in. sanitary sewer and 2-in. gas line, the abutment MSE walls will be prioritized to advance construction of the pedestrian bridge. Piles will be driven through pipes that are installed during MSE backfill operations. Construction of the ramp retaining walls and ramps will follow installation of the abutment walls and will precede construction of the bus turn-outs. The ramp construction and bus turn-out roadwork will be accomplished concurrently with the bridge superstructure construction. Although much of the work can be accomplished without impacting traffic, periodic lane closures will be required to facilitate construction in this phase.

#### Element D | Hydraulic Road at Hillsdale Drive Roundabout

**Pre-Shutdown:** All utility relocations take place during the first year of the Project allowing ample time to clear all conflicts. Prior to the shutdown in the summer of 2025, all work that is feasible to complete will be constructed in advance. This includes installation of the new drainage network required. Inlets and manholes that will eventually be in subsequently constructed curb lines or islands will be partially installed, plated and paved over for future completion. Pedestrian lighting facilities will be installed and existing islands can be demolished and paved in preparation for the shutdown. Traffic will remain in its existing pattern during this work and all work will be constructed during nightly lane closures. Equipment and materials will be staged nearby and brought to the work site on a nightly basis.

**Shutdown:** During a closure period of 46 days, construction of the new curb lines, medians, full depth pavement reconstruction and final drainage system installation will be completed to convert the intersection to roundabout

## 4.5 CONSTRUCTION OF THE PROJECT

operations. The traffic signal will be deactivated and equipment removed. All flatwork will be backfilled, graded and stabilized. Work will be completed in day shift and night shift operations to maximize the amount of work completed during the shutdown period.

**Post-Shutdown:** This will be limited to any punch list items using lane closures.

### Element E | Hydraulic Road Access Management Improvements

The majority of Element E can be completed early in the Project with only minor work remaining upon implementation of the roundabout traffic configuration. Installation of a retaining wall will precede new drainage piping installation. New shared use path and curb ramps with sidewalk will be installed along Hydraulic Road from Route 250 up to Brandywine Drive and new curb ramps/sidewalk will be installed at the Michie Drive intersection.

The remaining work of constructing the islands restricting left turn movements will occur after the Hydraulic/Hillsdale roundabout is in operation. Once the islands are completed, the final asphalt surface and striping can be installed and vehicular and pedestrian traffic will be in the final configuration.

All work for this Element will be completed using nightly lane closures. The approach to constructing the work will be with completely mobile operations. At night, MOT will be installed and the equipment and materials used to complete the work will mobilize. At the end of each night shift, vehicular/pedestrian travel ways will be cleaned and all equipment and materials will be removed from the work site and stored in laydown areas. During daytime hours, there will be no impact to the public for the work on this Element.

**STAGING AND STORAGE:** Construction projects within an urban context can be challenging from a logistical perspective. Staging personnel/equipment and coupling those resources with material deliveries are critical issues to be addressed by the Project team. Strategic planning is a must in determining the correct approach that can affect the Project schedule and other factors, such as public/worker safety. Our operational approach includes a central project office location with a primary material staging area coupled with several local site adjacent staging areas. Given the urban context, the following key issues were considered in developing our approach:



- **Safe Ingress/Egress:** Staging/storage areas will consider vehicle entrance site distance for the safe movement of people, equipment and materials to/from the site.
- **Operational Efficiency:** Staging personnel, equipment and material near individual work areas will lead to an efficient construction plan.
- **Clear Zone Issues:** Removal from the travel ways when prohibited during non-working hours.
- **Adjacent Residential/Business Considerations:** Separation from local business and other commercial/residential establishments will be vital when considering light pollution, noise nuisance, and construction traffic, specifically, when a good portion of this Project will be constructed overnight.
- **Environmental Constraint Considerations:** The staging/storage locations must address environmental risks associated with the potential for spills and other pollutant-related incidents. Best management practices will be employed per local/state regulatory requirements.
- **Zoning/Local Land Use Restrictions:** City of Charlottesville local land use regulations will be accounted for in our staging/storage approach.
- **Site Security:** Staging/storage locations will also consider site security, including fencing and a security gate coupled with the ability to monitor.

## 4.5 CONSTRUCTION OF THE PROJECT

Primary staging/storage areas will be fenced and screened with temporary office trailers or storage containers. Since there will be night work, storage areas will also be illuminated, either by established electric service drop or with portable generators, depending on the location. The properties will have a stabilized entrance or existing paved entrance to reduce tracking mud onto public roads. ESC will be installed/ maintained if needed. Upon completion, staging/storage areas will be restored in accordance with lease requirements.

**Central Project Office Locations/Interim Storage/Staging Areas:** There are a few locations under consideration to serve as a central project office and staging/storage areas (*See Table 4.5.1-2*).

**TABLE 4.5.1-2 | POTENTIAL BRIDGE SITE STORAGE/STAGING AREAS**

AERIAL	STAGING AREA
	<p>Kokosing has contacted the landowner (Peyton Associates Partnership) of the property on the northwest corner of Hydraulic Road and Hillsdale Drive (Gold's Gym) and we already started coordinating to use a portion of this property for storing materials and equipment. This is an ideal location as it is in proximity to the Project. Timing of the proposed re-development of this property will be critical and will impact the amount of space available along with the duration of that availability.</p>
	<p>Potential storage/staging area along Hillsdale Drive across from Homewood Suites owned by Albemarle Suites, LLC.</p>

We will also review office space that is for lease adjacent to the Project corridor. The location will house the project management team during construction.

In regard to off-site storage, Kokosing also uses a just-in-time delivery strategy to reduce space requirements onsite. Long-lead and schedule critical materials are procured early and staged at the manufacturer's facility or our yard in South Chesterfield, Virginia for delivery at the jobsite when needed. Materials are conveniently on hand which eliminates risk of damage or loss.

Short-duration laydown areas will be established within the LOD to support immediate work activities. They will be compliant with environmental protection best practices and will be more transitory through the site as work progresses.

## 4.5 CONSTRUCTION OF THE PROJECT

**SAFETY:** The Kokosing Team has a proven track record in planning/executing work safely, and we have developed an approach that will address any safety concerns early and aggressively. Designs will be measured against public impacts, as well as cost and construction operations. Kokosing and RK&K have highly acclaimed reputations for being *good neighbors* -- this Project will be no exception. Our Temporary Traffic Control Plan (TTCP) will be continuously evaluated for effectiveness to minimize impacts.

Upon Notice of Award, we will meet individually with stakeholders, including VDOT, local emergency responders, and adjacent businesses to discuss their concerns and solicit input for our Traffic Management Plan (TMP) and Site-Specific Safety Plan. Key team members will be present to brainstorm ways to minimize impacts to each entity's operations while opening lines of communication for early identification/mitigation of potential impacts.

The Kokosing Team has planned and designed the Project with an emphasis on motorist, pedestrian and worker safety by limiting interaction of construction activities with motorists through our TTCP, and ensuring that all vehicular/pedestrian travel ways are clear for safe passage after each work shift. We paid particularly close attention to pavement edge drop offs, proper grading to promote drainage, limiting materials/equipment stored on-site and roadway and sidewalk cleanliness.

Worker safety is accomplished by providing a Site-Specific Safety Plan that incorporates Kokosing's *Zero-At-Risk Behavior* culture which places emphasis on human characteristics and focuses on each team member identifying and eliminating at-risk behaviors from their lives 24/7.

A Site-Specific Safety Plan will be developed by the Project team, along with Kokosing's Safety Manager, Aaron Rife, CSP, CHST, which applies our standard operating procedures for all aspects of the work. Additionally, Kokosing and subcontractor team members who work on the Project must attend a Site-Specific Orientation using the Safety Plan. Attendees receive a project-specific hard hat sticker to confirm that those who set foot onsite have been indoctrinated on the Project's safety culture.

Supervisory team members will be thoroughly trained on construction safety through *Kokosing University*, Kokosing's company education system. A robust blend of online, in-person and third-party instruction educates, as well as to certify Competent Person (CP) status in several key areas. Core curriculums are developed for each position. For example, a foreman's curriculum includes, but is not limited to OSHA 30-Hour, Excavation and Trenching CP, Utility Strike Prevention CP, First Aid/CPR, Confined Space CP, Fall Prevention CP, Heat Illness CP, Cold Weather CP and Silica CP.

Craft team members will receive task-specific training through detailed/documented Work Instructions. Examples include *Fall Protection Authorized Person*, *Scaffold Authorized User*, *Working Around Cranes*, *Portland Cement Hazards* and no less than 18 Work Instructions related to *Respirable Silica* hazards. Through weekly use of Work Instructions, and a robust library of applicable Safety Talks and Safety Concerns (lessons learned), the *Zero-At-Risk Behavior* safety culture is clearly and consistently conveyed to Kokosing workers on the Project.

Major work activities will have an Operational Hazard Analysis (OHA) completed and reviewed by the crew members prior to starting the work. Hazard identification, elimination or mitigation and controls are captured through an OHA. They are living documents to be adjusted as needed as the work progresses for any change of conditions, equipment or personnel. The foremen will use the OHAs to formulate a daily Morning Action Plan (MAP) and every crew will complete a MAP meeting prior to the work shift. If work tasks change during the shift, the foreman and crew will *re-MAP* before starting the new task. MAPs focus on three questions (*See Figure 4.5.1-1*).



## 4.5 CONSTRUCTION OF THE PROJECT

Being a local contractor with an office and shop near the Project gives us the advantage of having a full-time safety specialist team member. Aaron Rife will assist in the Site-Specific Safety Plan and building the Zero-At-Risk Behavior culture. He will make frequent visits completing documented inspections and audits. Kokosing's Mid-Atlantic Safety Manager, James Mann, GSP, CHST, will make project visits and inspections.

In addition to our Safety Department inspections and audits, the Project team will make weekly, documented safety inspections. All project managers, project engineers, field engineers and superintendents will be required to complete the weekly inspections. Inspection data will be entered into our central database and can be mined so the Project team can be proactive in handling any frequently occurring issues or trends.

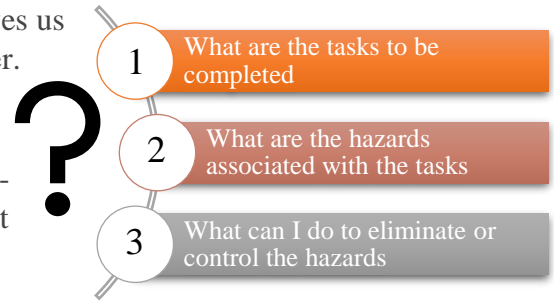


Figure 4.5.1-1: MAP Questions

### 4.5.2 TRANSPORTATION MANAGEMENT PLAN (TMP)

The Kokosing Team's approach to the TMP focuses on safety, mitigated travel disruptions, and expedited Project delivery. Kokosing's and RKK's success on VDOT's Route 29 Solutions design-build project is notable given the short duration, tight work areas, and limited ability to detour traffic. RK&K brings Culpeper District experience with success on Route 29 Solutions, and as part of the bid-build oversight team for the City of Charlottesville on the Route 250 Bypass/McIntire Interchange project. Many elements of this Project pose similar challenges, and the proven strategies on those projects will be implemented in our plan for all elements of this Project.

It is significant for each of the four Elements to be coordinated in a manner that delivers the Project efficiently and with minor traffic interruptions. Our Team will establish the schedule and phasing and with adequate capacity provided to work on multiple Elements concurrently. Working on multiple Elements at once also allows for smaller footprints during restricted lane closure hours while maintaining work progress. This will be key as the roundabout for Hydraulic Road at Hillsdale Drive must be operational before removing the left-turns movements from Hydraulic Road at US 29, Michie Drive, and Brandywine Drive.

One key aspect of the TMP is the Work Zone Traffic Impact Analysis (WZTIA). A work zone analysis will be completed for each phase and condition presented in the MOT plans. These analyses will be performed using Synchro and methodologies consistent with the Highway Capacity Manual and VDOT Traffic Operation Analysis Tool Guidebook. This analysis assures that our Team understands how the construction activities will impact traffic and allows us to plan for any adjustments or improvements to optimize safety and mobility. It will also identify areas of congestion and allows them to be addressed before they occur.

Measures of Effectiveness (MOE) as part of this analysis will be delays and queues. Queuing will be the primary MOE and our Team will ensure that queues along Hydraulic Road do not impact operations on US 29 or US 250. If the queuing exceeds our goals, adjustments will be made which may range from signal timing modifications to proposed design changes or through public outreach. This will limit disruptions to the traveling public and minimize delays.

Maintaining a safe environment for the traveling public and construction team is a significant priority. We will be implementing measures throughout the Project to increase safety. Clear sight lines and beyond adequate sight distance will be priorities for work zone signing placements. Temporary raised pavement markers and wider than



## 4.5 CONSTRUCTION OF THE PROJECT

minimum lane markings will better delineate travel lanes. Advanced signing and temporary pedestrian barriers in select locations will maintain clear paths for pedestrians through the Project areas that meet ADA requirements.

Our Team will maintain the existing routes necessary to facilitate safe access to/from local businesses and neighborhoods. This is particularly important near the roundabout construction at Hydraulic Road and Hillsdale Drive. This roundabout requires changes in grade and traffic patterns while maintaining access through the existing intersection. This Element is similar to the TMP RK&K developed and implemented for the North Main Street roundabout in Blacksburg, Virginia where high volumes of vehicles intermingled with bicycle/pedestrian traffic and commercial business access were major considerations. We will maintain all forms of traffic throughout construction. The following is a general approach to maintaining traffic at each Element and will be developed in further detail in our TTCP:

### Element A | US 29 & Hydraulic Road Intersection Improvements

Construction is completed through allowable night lane closures. Turn lanes are detoured if impacted during the closure. The pedestrian crossings of the south and west legs are constructed before improvements to the east leg. The current pedestrian crossing of the east leg of the intersection will be detoured to cross the south leg and then the west leg. If needed, we will use temporary CG-12s to maintain ADA access for detoured pedestrian routes. Coupled with completing Element C's pedestrian bridge, we will maintain continuous pedestrian access throughout the Project.

One-week advance notice will be given before removing the left-turn lanes from Hydraulic Road. We propose to remove the lane at the same time as the roundabout is opened for full operations to limit the changes the public has to adapt to.

### Element C | US 29 Pedestrian Bridge

*Phase 1* focuses on the median pier and BPPS which will be constructed behind barrier and periodic temporary lane closures for material deliveries. There may be lane width reductions to 10.5-ft to accommodate placing the barrier. Most utility relocations take place outside of the travel lanes, but there will be some night lane closures to relocate the sanitary sewer.

*Phase 2* constructs the shared use path ramps and bridge abutments. The existing sidewalk access will be maintained and separated from construction by orange safety fencing. The majority of the sidewalk improvements can be constructed without impacting the existing sidewalk. The final tie-in work is completed using temporary sidewalks and pedestrian flaggers, if needed. Nighttime short-duration stoppages using state police, not exceeding 15 minutes, is needed to install the bridge beams over US 29. There will be a minimum of one-week advanced notice before any planned stoppages. Widening the pavement for the bus pull-offs will be done with nightly right lane closures. Pedestrian access is maintained using a combination of the proposed sidewalk, temporary sidewalk, and pedestrian flaggers, if needed.

### Element D | Hydraulic Road at Hillsdale Drive Roundabout

While much of the improvements at this intersection is constructed during the allowable summertime closure, utility relocations and storm drain installation can take place before that window during permissible hours. During this phase, we will maintain pedestrian access on the existing network. During the summertime closure period, non-local traffic is detoured around the Hydraulic Road and Hillsdale Drive intersection using the RFP-identified route. Advisories to avoid Hydraulic Road and use Route 250 Bypass/US 29 Interchange as an alternate route will be posted to reduce Hydraulic Road traffic. Kokosing will coordinate with Kroger to maintain a delivery vehicle schedule and with Dominion to maintain access to the parking area adjacent to the intersection.

## 4.5 CONSTRUCTION OF THE PROJECT

Roundabout lighting will be installed before circulatory traffic operations start to enhance safety through the corridor.

### Element E | Hydraulic Road Access Management Improvements

Construction will be completed using night lane closures along Hydraulic Road. The initial work focuses on modifying the US 250 Spur to establish the proposed yield condition and changing the outside lane along WB Hydraulic Road to a right turn lane. A detour route during allowable hours will reroute traffic around the US 250 spur work zone. Most of the proposed shared use path can be constructed without impacting the existing sidewalk. The final tie-in work is completed using temporary sidewalks and pedestrian flaggers, if needed.

A flagger directs ingress/egress to Michie Drive and Brandywine Drive while those improvements are made. Left turns out of Michie Drive and Brandywine Drive will be closed shortly after opening the Hydraulic Road and Hillsdale Drive roundabout. This minimizes the changes the public has to adapt to and simplifies messaging. Our communication plan will include targeted statements to residents on these roadways with considerations for non-English speaking persons. Pedestrian access will be maintained while the sidewalk and handicap ramp improvements are made by temporary pedestrian ramps and connections.

**LANE CLOSURES:** Temporary lane closures will be used to construct each Element during the hours allocated by the RFP. We will coordinate with VDOT and provide the requested support throughout the public involvement process to confirm our proposed lane closures are needed, address public concerns, and enhance public safety.

**TEMPORARY DETOURS:** There will be temporary detours where a temporary lane closure impacts a turning movement, such as closing a left turn lane during the allowable lane closure hours. Non-local traffic will be detoured around the Hydraulic Road and Hillsdale Drive intersection during the allowable summertime closure period using the RFP-identified route.

**FLAGGING:** The Kokosing Team anticipates minimal need for flagging operations during construction. To reinforce the safety of our workers and travelling public, flaggers will be certified and adhere to stringent safety standards, such as using OSHA approved safety equipment and ISEA's *American National Standard for High-Visibility Apparel*, appropriate station locations with adequate visibility, and setting up advance warning signs. Uniformed flagging operations are needed when installing traffic signals.

**MINIMUM LANE WIDTHS:** During construction, the minimum lane width to be used on all Elements is 11-ft, except where additional room is needed for temporary barrier or the existing is narrower. In those instances, the existing lane widths will be maintained.

**WORK ZONE SPEED REDUCTIONS:** Our TMP is designed to meet the posted speed for each roadway and will not seek work zone speed reductions during construction.

**Business Access:** Our TMP details how existing access within the Project is maintained. We will incorporate wayfinding signs to provide clear indications to the traveling public during the extended detour periods. We will work with VDOT and the adjacent business owners to minimize disruptions, including grocery stores and the coordination of their deliveries.

**MAJOR STAKEHOLDERS:** The Kokosing Team will engage stakeholders and keep them informed during the Project, including Albemarle County, the City of Charlottesville, University of Virginia and UVA Medical Center, CARS, EMS, Fire, and Police. Stakeholders with the potential of being directly impacted by the Project include Kroger, Whole Foods, Dominion Energy, K-Mart, The Meadows, Brandywine Homeowners Association, Stonefield, Northrup Grumman, nearby residents and the motorists, pedestrians and bicyclists who use these roadways and corridors.

## 4.5 CONSTRUCTION OF THE PROJECT

**Keeping them Informed:** As we did during construction of the 29 Solutions Rio Road Grade Separated Intersection project, our Team will meet with the stakeholders listed above that are adjacent to and nearby the actual construction sites and keep them informed with updates and schedules. Additionally, as we did on Rio Road, we will make entrance signs for all businesses and residential entrances that fall within the Project limits of each Element.

Those traveling through the Project may get confused by changes to the existing conditions and on the proper path. Our TTCP will accommodate and mitigate impacts to all users while providing clear guidance to safely route them through the Project area. In part, it is easier to minimize impacts to these stakeholders because most construction and all temporary lane closures take place during nighttime work hours. Minimizing traffic pattern changes and advanced communication of upcoming activities will also offset impacts.

Our Incident Management Plan (IMP) will be modeled after our efforts on VDOT’s Route 29 Solutions design-build project and include responses to any type of incident. It will be developed with input and coordination from VDOT, Albemarle County, local EMS, state police, and stakeholders. Our Team will meet with VDOT and stakeholders to review the Plan prior to implementation.

Other stakeholders, such as utility companies, adjacent businesses, and residents, will be more affected by construction, including direct impacts to facilities, construction noise, or access that warrants early coordination, outreach, updates, and notification. Coordination begins before construction with utility owners and local businesses to identify and mitigate impacts. We will keep the public informed during construction as to our plans and sequences, traffic movement changes, Project status, and upcoming schedule to foster public support along with minimizing short term impact complaints because the public will know ahead of time what is happening.

The Kokosing Team’s Communication Plan will continue our outreach during construction to keep stakeholders up-to-date. We will collaborate with VDOT to engage stakeholders and distribute the *message* through VDOT’s public relations office, social media, and mailings. We will have regular meetings with first responders to coordinate routing, hold meetings with construction staff and other projects; as well as *Pardon our Dust* meetings to enhance communication and discrimination of the message.

The Kokosing Team has already launched outreach by discussing this Project with the owner of Parcel 401 at 1801 Hydraulic Road on the northwest corner of the Hydraulic Road/Hillsdale Drive intersection where Gold’s Gym is located (See **Figure 4.5.2-1**). We are aware of their plans for redevelopment of that parcel and how to work with them during construction. We will coordinate construction of this Project with the redevelopment project and identified the potential of using a portion of this parcel for staging during construction.



Figure 4.5.2-1: Plans from Developer for this Parcel

## 4.5 CONSTRUCTION OF THE PROJECT

***HOW OUR APPROACH CONSIDERS PUBLIC SAFETY AND INCLUDES MEASURES TO LIMIT DISRUPTIONS TO TRAFFIC IN THE WORK AREA AND ADJACENT FACILITIES:*** Our Communication Plan and TTCP are set with public safety at the forefront. Having a robust and continuous flow of information and dialog with the public and key stakeholders raises awareness of changing work zone conditions, the type of construction that can be expected and the actions impacted parties need to take. Having this information allows those entering the work areas to plan before entering the Project limits.

The TTCP is structured, and construction will be scheduled, to limit the number of changing elements during construction, optimize the construction process, and provide safe work zone configurations for the traveling public and construction team. This Project includes permanent traffic pattern changes at three Elements simultaneously instead of over several days and weeks, and avoids excessive driver confusion and frustration. Scheduling concurrent work between Elements reduces the number of temporary lane closures needed. We will incorporate Project lighting at the earliest feasible points in the Project and have it operating before the roundabout opens. Additionally, construction of the median pier behind barrier will protect motorists and our construction team.

## 4.6 | Proposal Schedule



## 4.6 PROPOSAL SCHEDULE

### 4.6.1 PROPOSAL SCHEDULE

The Kokosing Team knows the requirements and complexities of this Project and developed a strategy to deliver it on schedule. Our Project schedule in Volume II and our narrative explain how we will complete this Project successfully.

### 4.6.2 PROPOSAL SCHEDULE NARRATIVE

**PLAN TO ACCOMPLISH THE WORK:** The Kokosing Team developed the proposal schedule detailing our plan to accomplish the work in accordance with the contract documents. Our narrative goes into the sequencing, critical path, proposed means and methods, and other key assessments on which our schedule is based. We used Primavera P6 Professional to develop a Critical Path Method (CPM) schedule based on the RFP information, available resources, design concepts and construction methods we have chosen.

## SCHEDULE OVERVIEW

Notice of Intent to Award:	3/17/2023
CTB Approval/Notice of Award:	04/19/2023
Notice to Proceed:	05/23/2023
Design Activities:	May 2023 – February 2024
Construction:	February 2022 – November 2025
RFP Final Completion:	12/05/2025
Proposed Final Completion	11/05/2025



**Design:** Design phase includes preparation of construction plans, supporting documentation, necessary reports and QA/QC reviews in support of submitting two primary construction packages for approval including the following:

- Roadway Plans:** The roadway construction packages include the line and grade, profile, plan views, roadway elements, typical sections, MOT plans, drainage, ESC plans, retaining walls, signs, signals, lighting, ITS, ROW plans, environmental permitting and other supporting calculations and elements to support our construction plans.
- Bridge Plans:** Stage I and Stage II bridge plans will be prepared and submitted for review/approval with our schedule reflecting this approach. Included are the retaining walls associated with the construction of the bridge and approach ramps, required supporting calculations and documentation. Our schedule reflects the staged submittals for the pedestrian bridge and associated structural elements and includes the submission of all geotechnical design reports and recommendations over 90 days prior to the submission of final design / construction documents per Part II – Section 2.6 Geotechnical Work. Our schedule also includes the 21-day periods for VDOT reviews.



**Field Investigations and Geotechnical:** Upon receiving NTP, our design and construction teams start working on Scope Validation while field survey updates take place, including evaluating property information, validating existing pavement elevations/limits, and locating existing underground utilities. Concurrent with the field survey, geotechnical investigations start with submitting a Boring Plan for VDOT review and staking out the boring locations in the field. Roadway design also begins concurrently

## 4.6 PROPOSAL SCHEDULE

with the survey update and the geotechnical investigations and are adjusted to accommodate results of the field work.



**Environmental Permitting:** Our schedule contains environmental and permitting activities and allows time for information to be developed for the permit submittal process. All permitted construction activities are hold points to ensure no work is performed without permits in place. This project will require a Water Quality permit and a VPDES permit.



**Utility Protection and Relocation:** These will be coordinated to start at the NTP date with the progression of the construction plans and submitted with the roadway construction plans. Included in the schedule is time for coordination with and relocation of private utilities. In plan utility design of minor water, sewer and gas main relocations will run concurrently with the development of the roadway design and design coordination will include reviews of relocation designs by the respective utility owners.



**QA/QC:** QA/QC activities are performed as per contract and relevant tasks are included in our proposal schedule including:

- QA/QC Plan submittal.
- QA/QC Plan presentation.
- QA/QC review of design packages.
- Preparatory Inspection Meetings.
- Witness and hold points.
- VDOT inspections.



**Construction:** Our schedule reflects the sequence of construction that best limits potential exposure to ROW and utility relocation issues while ensuring completing the Project on time. Work occurs first at locations that do not have ROW to acquire or utilities in conflict.

For example, the pier and pier protection for the pedestrian bridge will be constructed first concurrently with utility relocations along US 29. Element C was chosen to construct during the first construction season to give enough time to clear ROW and utilities from Element D. This allows ample time to complete Element D's pre-shutdown work prior to the 46-day shutdown, in summer 2025. This inherently builds float into Element C construction as this portion of the Project is virtually unrelated to the other Elements.

Portions of Elements A, D and E will be built to the maximum extent practicable before the shutdown in 2025. The shutdown starts on the first allowable date maximizing the amount of time post-shutdown to complete the Project. Using this sequence, we will deliver the Project ahead of the required completion date as we are proposing a new completion date of November 5, 2025. For reference, we have included a schedule summary that depicts general sequence and durations (*See Figure 4.6.2-1*).



**Critical Path:** The critical path begins with geotechnical work and the geotechnical report flowing into bridge design. Once the bridge design is approved, procurement of the bridge beams is critical leading up to construction of the pedestrian bridge and completing Element C. After Element C is completed, Element D's drainage network installation becomes critical along with available median work that can be constructed before the shutdown. The shutdown takes place on or about June 10, 2025 and the critical path proceeds through completion and opening of the roundabout at the end of the shutdown window. The critical path then jumps to Element A to complete the median work on Hydraulic Road.



**Work Breakdown Structure (WBS):** This is a multi-level, hierarchical arrangement of the work to be completed. The Kokosing Team has laid out the WBS to break down the major phases by *Type of Work*

## 4.6 PROPOSAL SCHEDULE

and *Locations*. Level 1 was given to the Project name. A brief description of Level 2 is below, followed by **Table 4.6.2-1** showing the Level 2 – Level 6 WBS used on the Project.

- **Project Milestones:** Major milestones are included, such as NTP, ROW Certification and Construction NTP, Milestones for Element Completion, and Final Completion.
- **Design and Engineering:** Sections are included for major design components, including Environmental, Geotechnical, ROW Acquisition, and Roadway and Bridge designs. All design efforts with their respective submission and review/approval timeline are included. Further breakdown is shown in **Table 4.6.2-1**.
- **Administrative:** Includes the submission, review/approval, and fabrication/delivery of major offsite materials and construction work plans not provided by our designer.
- **Construction:** This section depicts construction activities grouped by *Type of Work* and *Locations* (See further breakdowns in **Table 4.6.2-1**)

TABLE 4.6.2-1: TYPE OF WORK AND LOCATIONS	
LEVEL 2 WBS	LEVELS 3-6 WBS
<b>Project Milestones</b>	Project Milestones
<b>General Conditions</b>	Scope Validation QC/QA <ul style="list-style-type: none"> <li>▪ Preparatory Inspection Meetings</li> <li>▪ Field Inspection Hold Points</li> </ul> Project Management
<b>Public Involvement</b>	Public Involvement
<b>Design and Engineering</b>	Environmental Geotechnical Incidental Survey ROW Acquisition Utility Relocations <ul style="list-style-type: none"> <li>▪ Element A</li> <li>▪ Element C</li> <li>▪ Element D</li> <li>▪ Element E</li> </ul> Roadway Design <ul style="list-style-type: none"> <li>▪ 30% Roadway Design</li> <li>▪ 60% Roadway Design/ROW</li> <li>▪ Final Roadway Design</li> </ul> Structure and Bridge Design In-Plan Utility Design (Water/Sewer)
<b>Administrative</b>	Submittals Procurement
<b>Construction</b>	General Element A   US 29 & Hydraulic Intersection Improvements Element C   US 29 Pedestrian Bridge <ul style="list-style-type: none"> <li>▪ MOT</li> <li>▪ Bridge                             <ul style="list-style-type: none"> <li>- Phase 1</li> <li>- Phase 2</li> </ul> </li> <li>▪ Roadwork                             <ul style="list-style-type: none"> <li>- SB US 29</li> </ul> </li> </ul>

4.6 PROPOSAL SCHEDULE

TABLE 4.6.2-1: TYPE OF WORK AND LOCATIONS	
LEVEL 2 WBS	LEVELS 3-6 WBS
	<ul style="list-style-type: none"> <li>- NB US 29</li> </ul> Element D   Hydraulic & Hillside Roundabout <ul style="list-style-type: none"> <li>■ Pre-shutdown Work</li> <li>■ Shutdown Work                             <ul style="list-style-type: none"> <li>- MOT</li> <li>- Grade Work</li> <li>- Flatwork</li> <li>- Asphalt</li> <li>- Miscellaneous</li> </ul> </li> <li>■ Post-shutdown Work</li> </ul> Element E   Hydraulic Road Access Management Improvements



**Calendars:** The following Project calendars were used in our schedule:

- Calendar Days:** Based on seven work days per week, with no holidays and zero non-work days due to inclement weather. This calendar is assigned to activities, such as Project Milestones, Design and Administrative submittal preparation and/or review periods, and concrete curing timeframes for construction activities.
- 5 Day w/ Holidays:** Based on five work days per week (Monday-Friday) with non-work days due to holidays observed by Kokosing, and zero non-work days due to inclement weather. This calendar is assigned to QA/QC and design activities not impacted by inclement weather.
- 5 Day w/ Holidays and Weather:** An extension of the 5 Day w/ Holidays calendar, with non-work days due to inclement weather accounted for as shown on *Table 4.6.2-2*. This calendar is assigned to most construction activities, including all work that must occur on night shift during allowable lane closure hours representing a Sunday through Thursday night work week.
- 6 Day w/ Holidays and Weather:** This is a reproduction of the 5 Day w/ Holidays and Weather calendar, except that Saturday is an allowable work day and it includes non-work days due to inclement weather. This calendar is assigned to the construction activities that take place during the Hydraulic/Hillside intersection shutdown period as there are no restrictions on working Friday day/night and Saturday day/night.
- 5 Day Week, Clearing TOYR:** This is a reproduction of the 5 Day w/ Holidays and Weather calendar, except that no work may take place from April 1 through November 15 due to the TOYR related to the long-eared bat.

TABLE 4.6.2-2: APPROX. MONTHLY NON-WORK DAYS DUE TO ADVERSE/INCLEMENT WEATHER BY CALENDAR

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All Calendars with Weather Days	7	7	7	6	7	9	6	7	6	7	7	6

Schedule Management



**Implementation:** Our proposal schedule will be updated and submitted to VDOT in the form of a formal Baseline Progress Schedule within 90 calendar days of the NTP date, to include all submittals as required, and a definable critical path. Key personnel represented by all disciplines (design, construction, safety, quality, controls, and procurement) will engage and start in-depth planning of the Project activities and schedule refinement.

## 4.6 PROPOSAL SCHEDULE

Our schedule will be constantly reviewed/maintained to avoid slippage, as well as impacts discussed as part of the monthly partnering process and finalize mitigation and recovery solutions, if needed. Systems to manage the design and construction sequencing will be clear/concise and include:

- Weekly design/construction scheduling and coordination meetings during the design phase.
- Weekly construction scheduling meeting during the construction phase.
- Utility relocation (public/private) tracking sheets during the design and construction phases
- Review/approval tracking spreadsheets of design element submittals.
- Shop drawings status tracking sheets.
- Material submittals and delivery schedules.
- Non-conformance logs by QC and QA for design and construction.
- RFI logs.
- Monthly progress/partnering meetings with major stakeholders, including VDOT, Kokosing Team's designers, major subcontractors/vendors, and local businesses.

At internal weekly meetings, issues/concerns are identified using the above tracking aids and action items and assigned to someone who can resolve them. Three-week and long-term *look-ahead schedules* are prepared and discussed to analyze schedule and quality impacts. Similar information is discussed, and action items assigned at the Monthly Progress/Partnering meetings with key stakeholders. Other stakeholders may be invited for anticipated issues during upcoming schedule activities.



**Updating Process:** Each month, starting with the month following NTP, the preliminary schedule is updated as we prepare, submit, and receive approval on the baseline schedule. It is then updated/submitted to VDOT for approval monthly until Project final completion. Each update is accompanied with a narrative report and tables as prescribed in the *Design-Build Project Schedule* special provision. The updated schedule and narrative reflect:

- Activities started or completed during the period.
- Actual start and finish dates.
- Ongoing activities during the period.
- Remaining duration for ongoing activities.
- Modified relationships to correct out-of-sequence progress.
- Modified relationships to reflect our plan for completing remaining work.
- Change orders.
- Relief events.
- Compensation events.



**Schedule Recovery:** If changes or unforeseen circumstances arise that impact the schedule, we will immediately notify VDOT (and other appropriate stakeholders) and set up a schedule recovery plan to recoup lost time, including increasing work shifts, adding crews/resources to construct critical path activities concurrently or modifying the design to remove activities from the critical path. If the impact is early on, schedule recovery may need adjustments by any or all the discipline managers, including design, permitting, utility relocations, and construction. In the event all other design-build disciplines have completed their tasks, re-sequencing the construction schedule by the CM will be the primary focus to mitigate impacts.



**Mitigating Risks:** The experience the Kokosing Team has from completing similar projects will be critical to the timeliness of resolving design and construction hurdles as they occur. We have used a rolling design process with much success on other jobs that enables critical construction phases and activities requiring



## 4.6 PROPOSAL SCHEDULE

normally long lead times to be under production simultaneously with final designs. We pride ourselves in solving construction and design issues rapidly without sacrificing quality.



**Material Lead Time:** The Kokosing Team identified schedule critical elements associated with longer lead time materials (i.e., bridge beams) and has shown when they are needed to prioritize their design. This will also expedite the shop drawing process to keep the project moving.

**KOKOSING TEAM COMMITMENT:** *The Kokosing Team developed a proposal schedule and narrative that demonstrates our understanding of the complexities and interrelationships of the Project's technical elements. It considers internal plan reviews, VDOT plan reviews/approvals, environmental permitting, utility relocations, and construction activities. We are positioned to continuously fine tune our schedule to better serve VDOT, stakeholders, and motorists. Once we receive NTP, we will band together to work and make this Project a success for the City of Charlottesville, Albemarle County and its citizens.*



# Appendix

**ATTACHMENT 4.0.1.1**  
**Transportation Improvements at**  
**Hydraulic Road and US 29**  
**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

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

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
<b>Technical Proposal Checklist and Contents</b>	Attachment 4.0.1.1	Section 4.0.1.1	no	Vol. I, 74-76
<b>Acknowledgement of RFP, Revisions, and/or Addenda</b>	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Vol. I, 77
<b>Letter of Submittal</b>	NA	Sections 4.1		
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	Vol. I, 1
Identify the full legal name and address of Offeror	NA	Section 4.1.1	yes	Vol. I, 1
Authorized representative's original signature	NA	Section 4.1.1	yes	Vol. I, 1
Declaration of intent	NA	Section 4.1.2	yes	Vol. I, 1
120 day declaration	NA	Section 4.1.3	yes	Vol. I, 1
Point of Contact information	NA	Section 4.1.4	yes	Vol. I, 1
Principal Officer information	NA	Section 4.1.5	yes	Vol. I, 1
Final Completion Date	NA	Section 4.1.6	yes	Vol. I, 1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.8	no	Vol. I, 78-81
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.9	no	Vol. I, 82-89
Commitment to DBE participation of 12%	NA	Section 4.1.10	no	Vol. I, 1

**ATTACHMENT 4.0.1.1**  
**Transportation Improvements at**  
**Hydraulic Road and US 29**  
**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
<b>Offeror's Qualifications</b>	NA	Section 4.2		
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any requested changes were previously approved by VDOT	NA	Section 4.2.1	yes	Vol. I, 2
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.1	yes	Vol. I, 2
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.1	yes	Vol. I, 2
Deputy Key Personnel	Attachment 4.2.1	Section 4.2.1	no	Vol. I, 90-95
<b>Design Concept</b>	NA	Section 4.3		Description Vol. I 3-16; Plans Vol. II 19-27
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	Description Vol. I 16-18; Plans Vol. II 28-31
<b>Project Approach</b>	NA	Section 4.4		
Environmental Management	NA	Section 4.4.1	yes	Vol. I, 32-36
Utilities	NA	Section 4.4.2	yes	Vol. I, 36-40
Geotechnical	NA	Section 4.4.3	yes	Vol. I, 41-43
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	Vol. I, 43-49
<b>Construction of Project</b>	NA	Section 4.5		

**ATTACHMENT 4.0.1.1**  
**Transportation Improvements at**  
**Hydraulic Road and US 29**  
**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Sequence of Construction	NA	Section 4.5.1	yes	Vol. I, 50-56
Transportation Management Plan	NA	Section 4.5.2	yes	Vol. I, 56-60
<b>Proposal Schedule</b>	NA	Section 4.6		
Proposal Schedule	NA	Section 4.6	no	Vol. II, 61-67
Proposal Schedule Narrative	NA	Section 4.6	no	Vol. I, 68-73
Proposal Schedule in electronic format	NA	Section 4.6	no	Separate
				Document



**ATTACHMENT 3.6**

**COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION**

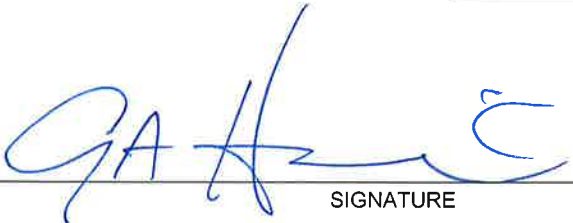
RFP NO. C00118880DB114  
PROJECT NO.: 0029-M03-371

**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 3, 2022  
(Date)
- 2. Cover letter of Addendum #1 – December 6, 2022  
(Date)
- 3. Cover letter of Addendum #2 – December 21, 2022  
(Date)
- 4. Cover letter of Addendum #3- January 6, 2023  
(Date)

  
SIGNATURE

1/16/23  
DATE

Gregory A. Hamilton, PE, DBIA  
PRINTED NAME

Regional Sr. Vice President  
TITLE

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

**THIS PROPOSAL PAYMENT AGREEMENT** (this “Agreement”) is made and entered into as of this \_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the Virginia Department of Transportation (“VDOT”), and Kokosing Construction Company, Inc. (“Offeror”).

**WITNESSETH:**

**WHEREAS**, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”) pursuant to VDOT’s April 19, 2022 Request for Qualifications (“RFQ”) (latest Addendum #1 May 10, 2022) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the **Transportation Improvements at Hydraulic Road and US 29, Project No. 0029-M03-371** (“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 **One Hundred Seventeen Thousand and 00/100 Dollars (\$117,000.00)** ("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: \_\_\_\_\_

KOKOSING CONSTRUCTION COMPANY, INC.

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

Name: Gregory A. Hamilton, PE, DBIA

Title: Regional Sr. Vice President



**ATTACHMENT 11.8.6(a)**  
**CERTIFICATION REGARDING DEBARMENT**  
**PRIMARY COVERED TRANSACTIONS**

**Project No.: 0029-M03-371**

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.

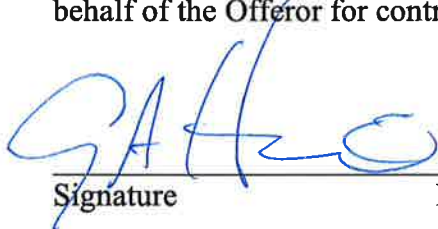
b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under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

	11/25/22	Regional Sr. Vice President
_____ Signature	_____ Date	_____ Title

Kokosing Construction Company, Inc.

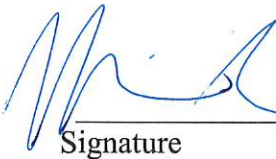
\_\_\_\_\_  
Name of Firm

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

**Project No.: 0029-M03-371**

- 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.

	11/18/22	
_____ Signature	_____ Date	_____ Partner _____ Title

Rummel, Klepper & Kahl, LLP

\_\_\_\_\_  
Name of Firm


**ATTACHMENT 3.2.7(b)**

**CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0029-M03-371**

- 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	12/08/2022 _____ Date	President _____ Title
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\_\_\_\_\_  
CES Consulting, LLC  
Name of Firm

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

**Project No.: 0029-M03-371**

- 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.

	11/21/2022	Director of Right of way and Utility Relocations
Signature	Date	Title
Bowman Consulting Group Ltd.		
Name of Firm		


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

Project No.: 0029-M03-371

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

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

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

	<u>11-21-22</u>	<u>Vice President</u>
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.: 0029-M03-371

- 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.

      December 9, 2022      President  
Signature                      Date                      Title

H & B Surveying and Mapping, LLC  
Name of Firm

ATTACHMENT 3.2.7(b)

CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS

Project No.: 0029-M03-371

- 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

12/9/22  
Date

Branch Manager  
Title

Froehling and Robertson, inc.  
Name of Firm


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

**Project No.: 0029-M03-371**

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

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

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

	<u>11/18/2022</u>	<u>Branch Manager</u>
Signature	Date	Title

T2 UES, Inc. dba T2 Utility Engineers  
Name of Firm

## ATTACHMENT 4.2.1

### DEPUTY KEY PERSONNEL RESUME FORM

#### Brief Resume of Key Personnel anticipated for the Project.

a. Name & Title: **Chris Rutkai, PE, Sr. Area Manager**

b. Project Assignment: **Deputy Design-Build Project Manager**

c. Name of the Firm with which you are employed at the time of submitting Technical Proposal:  
**Kokosing Construction Company, Inc.**

d. Employment History: With this Firm **15** Years With Other Firms **9.5** Years

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

**Kokosing Construction Company, Inc. | Start Date: 2019 | End Date: Present | Sr. Area Manager:** Chris manages, coordinates, and monitors transportation division operations for Kokosing’s southern region near Richmond, Virginia, including personnel (project managers, project engineers, support staff), oversees projects, manages equipment utilization, budgets, and schedules, ensures project reports are compiled/shared with stakeholders, including cost forecasting, assists project teams in resolving issues, ensures projects meet the schedule, company quality, and standard operating procedures (SOPs), and is a champion of project management standards, safety SOPs, and business processes to project teams, including daily quantity and time reporting, regular weekly internal progress meetings/cost reviews, review of work plans, and safety plans.

Chris coordinates with Kokosing’s Central Engineering Group, including developing/overseeing project budgets, developing monthly cost/revenue projections, quarterly cost, revenue projection packages and scheduling for executive Quality Project Review meetings. He assists in project closeout, reviews/approves project schedules, ensures project staff/equipment are scheduled, promotes jobsite safety and rectifies any hazards, coordinates with the Safety Department for regular inspections and oversight of all operations, and participates in developing project-specific safety plans and regular reviews for adherence.

**Start Date: 2015 | End Date: 2019 | Division Manager:** Chris oversaw project teams and assisted in managing Kokosing’s Southern division near Richmond, Virginia, including strategic planning, estimating, and financial performance. He also oversaw Kokosing South projects in Virginia on an executive level.

**Start Date: 2012 | End Date: 2015 | Project Manager:** Chris oversaw construction from Notice to Proceed to final completion, led the project team, equipment and material procurement, established/executed objectives and goals, completed work plans, maintained budgets and resources, procured/coordinated subcontractors, developed the project-specific safety program with the project team, including training needs, monitored schedules, conducted progress meetings, evaluated/minimized exposures and risks, mitigated issues, reviewed/approved deliverables, RFIs, change orders, administered contracts, oversaw budget, safety, and quality compliance, and steered projects to successful completion per contract.

**John R. Jurgensen Company | Start Date: 2006 | End Date: 2012 | Position: Project Manager/Construction Manager:** Chris managed projects from start up to close out, ranging \$1 Million to \$27 Million, and focused on transportation-related civil engineering work (e.g., roadways, airports) for state, county and private clients. As a Certified Professional in Erosion and Sediment Control, he created, certified, and enforced Stormwater Pollution Plans, and completed EPA weekly/monthly project inspections.

**Organizations:** Virginia Transportation Construction Alliance (VTCA) Member

**Award:** Chris received the Kokosing Owl Award in 2021 where he was nominated by his peers in developing team members and continuing their education.

e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization:  
**Ohio State University, Columbus/Ohio, BS/1997/Civil Engineering**

f. Active Registration: Year First Registered/ Discipline/VA Registration #:  
**2014/Professional Engineer/#0402053473**

g. Document the extent and depth of your experience and qualifications relevant to the Project.

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

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

Design-Build Bridges over I-95 Bundle, Richmond, Virginia, \$38.9M, VDOT

With Current Firm? Yes

Project Role: Deputy Design-Build Project Manager

Start Date: November 2021

End Date: November 2024

**Deputy Design-Build Project Manager.** Chris works alongside the design-build project manager responsible for design/construction, quality management, safety and environmental compliance, contract administration, and all other services, including procuring/furnishing materials, equipment, services, and labor in accordance with contract requirements. He attends monthly progress meetings and is VDOT's secondary point of contact. Chris coordinates, integrates, and administrates the design-build team, including design, construction, QA, MOT, safety, ROW, and utilities. Chris is responsible for meeting our contract obligations and avoiding/resolving disputes per the RFP. He supervises the design manager, design/construction integrator, construction manager, ROW acquisition/utility Manager, and QAM. He manages/coordinates public outreach/meetings through our public outreach coordinator and answers questions from stakeholders, citizens, elected officials, etc. He assists with constructability reviews, safety audits, and oversees the quality management program, purchasing, and construction.

This project designs/replaces five bridges over I-95 in downtown Richmond, VA with heavy pedestrian movement and includes reconfiguring traffic. Work consists of repairing substructure, demolishing bridge deck/steel girder, replacing girders, deck and parapets, lighting, drainage, modifying traffic signals, signing, pavement marking, stormwater management, maintenance of traffic, and erosion and sediment controls.

*Relevancy: VDOT Design-Build; Roadway; Survey; Bridges; Environmental; Geotechnical; Drainage, Erosion & Sediment Control; SWM; Traffic Control Devices; TMP; ROW; Utilities; Public Involvement/Relations; Signage, Lighting; QA/QC; Construction Engineering/Inspection; Safety; Project Management*

Design-Build I-64 Widening, Exits 200-205, Henrico & New Kent Counties, VA, \$46.6M, VDOT

With Current Firm? Yes

Project Role: Division Manager

Start Date: August 2017

End Date: August 2019

**Division Manager.** Chris oversaw the project team and the project on an executive level for this project that widened five miles of I-64, including adding a 12-ft. wide travel lane and a 10-ft. wide shoulder within the median in both directions, widened eastbound/westbound bridges, rehabilitated the concrete deck, constructed sound walls, reconfigured traffic. Extended the acceleration/deceleration lanes at two weigh stations and connected the pedestrian tunnels were connected. Primary power line adjustments to facilitate vertical clearance. Phased fiber optic installation to facilitate continuous CCTV coverage of project limits. Widened I-64 over sensitive high-pressure petroleum line. Coordinated with out of plan utilities to identify existing facilities and clear conflicts, including Virginia National Gas, Comcast, Cox Communications, Verizon, Summit IG and Dominion Energy. This project was completed ahead of schedule and relieves traffic congestion, enhances safety, and adds capacity to the I-64 corridor.

*Relevancy: VDOT Design-Build; Roadway; Survey; Structure/Bridge; Environmental; Geotechnical; Drainage, Erosion & Sediment Control; SWM; Traffic Control Devices; TMP; Soundwalls; ROW; Utilities; Public Involvement/Relations; Signage, Lighting; QA/QC; Construction Engineering/Inspection; Safety; Project Management*

Design-Build I-64 To Route 623 Widening & Improvements, Short Pump, Virginia, \$34.7M, VDOT

With Current Firm? Yes

Project Role: Division Manager

Start Date: May 2015

End Date: December 2015

**Division Manager.** Chris oversaw the project team and the project on an executive level, attended onsite progress meetings, tracked the schedule, safety compliance, and allocated/reviewed crew and equipment resources for this project that widened 4.5 miles of I-64, including adding a 12-ft. through lane and 12-ft. shoulder constructed to the inside of I-64 east and westbound. Upgraded the traffic signal at the Route 623 interchange, widened the ramp from I-64 westbound to Route 623 for an additional turn lane, added a left turn lane on Route 623 southbound to access I-64 eastbound, and widened the I-64 eastbound off ramp to Route 623 for an additional turn lane.

Twin replacement bridges were designed/constructed for I-64 over a creek. The new 130-ft. simple span pre-stressed concrete girder bridges replaced the three-span steel girder bridges using pre-stressed concrete Bulb T girders and a deck slab extension which provided VDOT with new, low maintenance structures accompanied by a 75-year design life at a lower cost than the original scope rehabilitation option. Our stormwater management design reduced the linear foot distance of water quality swales and wetland impact, which minimized environmental impacts, construction costs, and long-term maintenance needs. This project reduces congestion and improves level of service of the Route 623 interchange, improves access for residents, and provides faster commutes to Richmond, VA.

*Relevancy: VDOT Design-Build; Roadway; Survey; Structure/Bridge; Environmental; Geotechnical; Erosion & Sediment Control; SWM; Traffic Control Devices; TMP; Public Involvement/Relations; Signage, QA/QC; Construction Engineering/Inspection; Safety; Project Management*



**ATTACHMENT 4.2.1**

**DEPUTY KEY PERSONNEL RESUME FORM**

<b>Brief Resume of Key Personnel anticipated for the Project.</b>							
a. Name & Title: <b>Beau Guttridge, PE, PMP, DBIA, Project Engineer</b>							
b. Project Assignment: <b>Deputy Quality Assurance Manager</b>							
c. Name of the Firm with which you are employed at the time of submitting Technical Proposal: <b>CES Consulting, LLC</b>							
d. Employment History: With this Firm <u>5</u> Years With Other Firms <u>&lt;1</u> Years Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):  <b>CES Consulting, LLC   Start Date: 2021   End Date: Present   Position: Project Engineer</b> Manages daily QA and QC field inspection, testing, and project records management services and facilitates solutions to field issues for design-build projects. Conducts constructability reviews; develops contract time determination reports and CPM schedules; reviews baseline schedules and schedule updates; and analyzes schedule impacts.  <b>CES Consulting, LLC   Start Date: 2016   End Date: 2018   Position: Construction Inspector</b> Conducted construction inspections and testing including critical operations such as mass concrete pours, girder erections, and drilled shaft and driven steel pile foundations, and more. He monitored MOT; conducted ESC inspections; and updated the SWPPP.							
e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization: <b>University of Virginia/2020/ Civil Engineering</b>							
f. Active Registration: Year First Registered/ Discipline/VA Registration #: <b>2022/Professional Engineer/VA #0402065687</b> Certifications: <b>Soils &amp; Aggregate Compaction   12/2026; Asphalt Field Levels I &amp; II   12/2026; Pavement Marking   12/2026; Surface Treatment   12/2026; Slurry Treatment   12/2026; ACI Concrete Field   02/2026; Intermediate Work Zone &amp; Flagger   02/2024; Nuclear Gauge Safety   11/2025; DEQ ESC Inspector   11/2024; DEQ SWM Inspector   12/2024; OSHA 30-Hour for Construction</b>							
g. Document the extent and depth of your experience and qualifications relevant to the Project. 1. <i>Note your role, responsibility, and specific job duties for each project, not those of the firm.</i> 2. <i>Note whether experience is with current firm or with other firm.</i> 3. <i>Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.</i>  <b>(List only three (3) relevant projects for which you have performed a similar function. On-call contracts with multiple task orders (on multiple projects) should not be listed as a single project.</b> <table border="1" style="width: 100%;"><tr><td colspan="2">Design-Build Albemarle Bundled Projects, Albemarle County, VA, \$28.5M, VDOT</td></tr><tr><td>With Current Firm? Yes</td><td>Project Role: Lead QA Project Inspector</td></tr><tr><td>Start Date: Aug. 2019</td><td>End Date: Mar. 2023</td></tr></table> <b>Lead QA Project Inspector.</b> Beau supervises daily QA inspections, testing, and documentation to support the construction of six intersection improvements projects that were combined into one DB contract with combined construction value of \$28.5M, including I-64 at Exit 118 Interchange Modifications; I-64 at Exit 124 DDI; Fontaine Avenue Ramp Improvements; Roundabout at Route 250 and Route 151; Roundabout at Route 20 and Route 649; and Rio Mills Road / Berkmar Drive Connection. Beau approved, rejected, and recommended alternatives to materials based on analyses of proposed use, type of material, supplier, and manufacturer. He analyzed and monitored contracts, specifications, standards, special provisions, construction plans, schedule, and estimated quantities. Beau maintained the QA/QC plan, which involved creating inspection and testing plans and writing project decision-making and documentation processes. He conducted C-107 P.I and P.II inspections to monitor compliance with the Construction General Permit, USACE Nationwide Wetland Permits, and individual permits. He facilitated solutions to many challenges. For example, for the Fontaine Avenue Ramp Improvements, Beau suggested alternative pavement structures in areas of shoulder repair, which were approved by the Engineer. This resulted in improved pavement strength for VDOT and cost savings by the contractor. When field conditions did not allow for penetration of grounding rods for signal electrical service, Beau suggested an alternative grounding design, which was approved by the Engineer. This alternative resulted in electrical resistance values that met specifications and prevented delays to the schedule's critical path. The QC team was minimally staffed and unqualified at times to inspect the work, so Beau conducted additional testing and inspection to document construction and trained QC staff and provided feedback on QC reports and inspection documentation.		Design-Build Albemarle Bundled Projects, Albemarle County, VA, \$28.5M, VDOT		With Current Firm? Yes	Project Role: Lead QA Project Inspector	Start Date: Aug. 2019	End Date: Mar. 2023
Design-Build Albemarle Bundled Projects, Albemarle County, VA, \$28.5M, VDOT							
With Current Firm? Yes	Project Role: Lead QA Project Inspector						
Start Date: Aug. 2019	End Date: Mar. 2023						

*Relevancy: VDOT Design-Build; Roadway; Survey; Environmental; Geotechnical; Drainage, Erosion & Sediment Control; SWM; Traffic Control Devices; TMP; ROW; Utilities; Public Involvement/Relations; Signage, Lighting; QA and QC Inspections; Safety; Project Management*

Design-Build Route 29 Solutions, Charlottesville, VA, \$129M, VDOT

With Current Firm? Yes

Project Role: QA Construction Inspector

Start Date: Feb. 2015

End Date: July 2017

**QA Construction Inspector.** Beau conducted QA inspection and testing services for the simultaneous construction of 3 segments along the Route 29 corridor: (1) accelerated bridge construction (ABC) of a grade-separated intersection at Rio Road/Route 29; (2) widening of a 3-mile segment of Route 29 from 4 to 6 lanes; (3) a 2.3-mile extension of Berkmar Drive, including a new 715-foot-long bridge crossing over the Rivanna River. Beau monitored QC testing frequency, filled out testing forms, updated the materials notebook, reviewed QA and QC daily diaries, and updated the SWPPP book. He performed C-107 P.I and P.II inspections to monitor environmental compliance with the Construction General Permit, USACE Nationwide Wetland permits, and individual permits. He approved redline as-built E&S and SWM controls plans. Beau also worked with the QC team to generate and maintain punch list and deficiency checklists. He helped to resolve discrepancies between the plans and the subcontractor’s signal and lighting material quantities by performing quantity takeoffs based on the approved plan set. When a subcontractor continuously struggled to install CG12 ramps according to federal and state maximum slope standards, Beau was assigned to directly work with the subcontractor and used a smart level to check the slope while the concrete was still wet so adjustments could be made.

*Relevancy: Design-Build; Roadway; Survey; Structure/Bridge; Environmental; Geotechnical; Drainage, Erosion & Sediment Control; SWM; Traffic Control Devices; TMP; Soundwalls; ROW; Utilities; Public Involvement/Relations; Signage, Lighting; QA and QC Inspection; Safety; Project Management*

Design-Build Jones Branch Connector, Fairfax County, VA, \$41.8M, VDOT

With Current Firm? Yes

Project Role: Project Engineer

Start Date: Dec. 2016

End Date: Aug. 2020

**Project Engineer.** Beau inspected the construction of a new connector road from the I-495 Express Lanes / Jones Branch Drive interchange to Scotts Crossing Road, and improvements along the access road from Jones Branch Drive to the I-495 Express Lanes and along Scotts Crossing Road. The project included two travel lanes along with on-street bike lanes in each direction; three bridges over the I-495 Express and general-purpose lanes, and more. Beau supervised inspection of bridge and roadway construction, including critical operations, such as mass concrete pours; girder erections over a busy interstate; and drilled shaft and driven steel pile foundations. He independently coordinated inspections with the contractor; tested materials; resolved field issues (including field engineering to resolve many unknown utility conflicts); reconciled daily pay quantities; conducted C-107 P.I and P.II inspections to monitor compliance with the Construction General Permit, USACE Nationwide Wetland Permits, and individual permits. He conducted ESC inspections and updated the SWPPP. The contractor was not incentivized to maintain environmental controls, therefore, Beau met with the contractor several times per week to make sure ESCs were properly maintained and participated in conflict resolution meetings between VDOT and the contractor. As a result of Beau’s careful monitoring, the project’s environmental score went from an ‘orange’ to a ‘green’ score within six months.

*Relevancy: VDOT Design-Build; Roadway; Survey; Structure/Bridge; Environmental; Geotechnical; Drainage, Erosion & Sediment Control; SWM; Traffic Control Devices; TMP; Soundwalls; ROW; Utilities; Public Involvement/Relations; Signage, Lighting; QA/QC; Construction Engineering/Inspection; Safety; Project Management*

**ATTACHMENT 4.2.1  
DEPUTY KEY PERSONNEL RESUME FORM**

**Brief Resume of Key Personnel anticipated for the Project.**

a. Name & Title: **Ryan Masters, PE, DBIA**

b. Project Assignment: **Deputy Design Manager**

c. Name of the Firm with which you are employed at the time of submitting Technical Proposal:  
**Rummel, Klepper & Kahl, LLP (RK&K)**

d. Employment History: With this Firm **24** Years With Other Firms **0** Years  
Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):

**RK&K | Start Date: 1999 | End Date: Present | Position: Project Delivery Leader** | Ryan has been the project manager and/or the lead project engineer on many transportation and civil engineering projects, including design build, for VDOT and local transportation agencies. He manages in-house engineering staff, client and owner/agency coordination, the direction of design by in-house staff and subconsultant personnel, leads innovative design solutions resulting in capital and maintenance cost reductions, implements/maintains an QA and QC program, public interaction, including public hearings and workshops, and manages budgets/schedules. He develops preliminary and final roadway designs for roadway rehabilitation, widening and projects on new alignment. Management includes highway design, MOT/TMP, drainage design, hydrologic/hydraulic analyses, stormwater management, erosion/sediment control, environmental compliance, geotechnical, ROW, utility impact studies and design, striping, signing and structure plan coordination. He has managed design teams in developing RFP Conceptual plans and Technical Requirements for VDOT to advertise design-build projects.

**RK&K | Start Date: 2002 | End Date: 2010 | Position: Sr. Project Engineer** | Specialized in developing/preparing roadway design plans for state and municipal transportation projects, including interstate, primary and secondary roadways, urban roadways, roundabouts, major intersection improvements, capacity improvement and widening. Directed the work of teams that included designers, technicians, and other engineers, as well as coordinating with other disciplines and agencies. Ryan’s successful management of multifaceted projects contributed to consistently meeting his clients’ needs and achieving or exceeding the project objectives.

e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization:  
**Virginia Tech, Blacksburg, VA / BS / 1998 / Civil Engineering**

f. Active Registration: Year First Registered/ Discipline/VA Registration #:  
**2003 / Professional Engineer / VA #0402038025**

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

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

Route 220 Intersection Improvements, Franklin & Henry Counties, VA   \$15M, VDOT	
With Current Firm? Yes	Project Role: Sr. Engineer – Roadway Task Manager
Start Date: March 2020	End Date: Ongoing

**Sr. Engineer-Roadway Task Manager.** Providing preliminary engineering and design services to assist VDOT in developing ROW and construction plans for safety and operational improvements to seven primary intersections and six ancillary intersections along Route 220. The proposed improvements will improve safety and reduce congestion by using an innovative intersection design known as a thru-cut. This will modify the travel pattern of 1% of the overall traffic volume, but increases the green time for all movements. The Route 220 green time increases between 20 and 24%. Three intersections use access management waivers to balance design requirements with existing conditions and driver usability. Pedestrian improvements are included at the four intersections in Roanoke County.

Ryan is overseeing the design and development of intersection improvements to reduce congestion/travel times, and improve safety along Route 220 by implementing innovative intersection designs while minimizing project cost. Improvements include a thru-cut intersection to convert six signalized intersections from four-phase signalized intersections to three-phases and a RCUT intersection at two unsignalized intersections and six thru-cut intersections. Designing two of the intersections and performing traffic analysis and traffic design. He oversees design of the other intersections by our subconsultant and coordinating all design elements, communications, submittals, and QA/QC. The project provides pedestrian accommodations at the urban intersections and minimizes need for ROW and utility relocations.

*Relevancy: Roadway; Environmental; Drainage, Erosion & Sediment Control; SWM; Traffic Control Devices; TMP; ROW; Utilities; Public Involvement/Relations; Signage, Lighting; QA/QC; Project Management*

Design-Build Route 29 Solutions, Albemarle County, VA | \$129M, VDOT

With Current Firm? Yes

Project Role: Lead Roadway Engineer

Start Date: Feb. 2015

End Date: Feb. 2017

**Lead Roadway Engineer.** This project is a major investment into Charlottesville/Albemarle County's infrastructure to improve mobility/reduce congestion on Route 29, a major corridor which included a Route 29/Rio Road grade separated intersection, widening Route 29 for 1.8 miles, and extending Berkmar Drive 2.3 miles on new alignment. Traffic now moves more smoothly through the Route 29/Rio Road intersection, one of the most congested intersections of the corridor. Constructed the intersection that carries 29 thru traffic beneath Rio Road via a modified Single Point Urban Interchange (SPUI). Two thru lanes in each direction were constructed underneath Rio Road to carry Route 29 north/southbound. Four local lanes outside the thru lanes were constructed for local access to/from Route 29 and Rio Road. Rio Road Bridge was a single-span overpass of the new Route 29 thru lanes with most of the substructure constructed under live traffic. Performed structural engineering of the intersection via a design method never constructed in Virginia. Placed the abutments on top of the soldier pile retaining wall which minimized the bridge's footprint and kept Route 29 traffic open throughout construction. Modified profile of depressed roadway section which reduced length by 30% and the transition length/shift at the north/south end of Route 29 which minimized business/utility impacts, reduced pavement reconstruction, and ROW/easement acquisitions. Rio Road crossover was closed for 57 days (103 days allowed) to complete the SPUI, bridge/retaining walls across Route 29, and thru lanes. Worked six days a week, including constructing sidewalks and pedestrian crossings/hardware around the intersection, and improved the pedestrian signals at the intersection. The intersection was reopened 46 days ahead of schedule. Before, travelers blended with local traffic accessing shopping malls/businesses. With this new intersection, they are separated from local traffic, making businesses more accessible. It also reduced crashes/improved safety. Widened Route 29, including reconstructing the northbound lanes and a shared-use path/sidewalk on one side. A pedestrian crosswalk guides users to a sidewalk on the west side of the road. Extended Berkmar Drive, including a 716-ft. long steel girder bridge with a concrete deck and replacing an intersection with a single-lane roundabout for free traffic flow. There are two travel lanes, a sidewalk on the west side, and a shared-use path on the east side.

Ryan managed the Route 29/Rio Road grade separated intersection design, coordinated the individual design disciplines, including roadway, traffic, drainage/SWM, structures, and geotechnical, coordinated with the Design-Build contractor and VDOT throughout design and construction, managed the development of a design and MOT approach which satisfied contract requirements and allowed the project to finish ahead of schedule.

*Relevancy: Design-Build; Roadway; Survey; Structure/Bridge; Environmental; Geotechnical; Drainage, Erosion & Sediment Control; SWM; Traffic Control Devices; TMP; ROW; Utilities; Public Involvement/Relations; Signage, Lighting; QA/QC; Safety; Project Management*

Route 250 Bypass Interchange at McIntire Road | \$30M, City of Charlottesville

With Current Firm? Yes

Project Role: Lead Roadway Engineer

Start Date: Sept. 2005

End Date: July 2015

**Lead Roadway Engineer.** Engineering services for planning/design of this new interchange on the Route 250 Bypass, a Limited Access ROW, at the intersection with McIntire Road. The context sensitive interchange minimized impacts to the adjacent park, historic properties, residential neighborhoods, a private school, and regional rescue squad facility. Phase I developed 14 interchange alternatives and prepared the NEPA and environmental documents (including noise analysis). Phase II (Final Design) included detailed design of the interchange and coordinating the design of the bridge, two box culverts, landscaping, and six traffic signals, along with gas, power, sewer, and water utility relocations. MOT was complicated by constructing the interchange on top of the existing intersection while relocating a gas regulator station, installing a 30" sanitary sewer 25-ft. deep and maintaining the rescue squad's 24/7 access. Those relocations involved large diameter jack and bore and directional drilling operations under the Limited Access ROW and stream. The project had limited ROW and we found innovative ways to meet the SWM requirements and reduce the footprint, such as retrofitting older BMPs from an adjacent project.

Ryan provided engineering services to the owner for this project which was part of VDOT's Urban Construction Initiative (First Cities) program. He developed the roadway design and TMP, and led the team of engineers and technicians under his direction. Ryan coordinated with the other disciplines to identify/resolve conflicts and he assembled the project plans, specifications and estimate. He ensured work was reviewed in accordance with RK&K's QA/QC Plan and coordinated plan reviews with the City and VDOT. Ryan supported development of the EIS and other permits and ensured that the design complied with the conditions of the final permits. He was heavily involved in public outreach, including coordinating with City Staff, City Council, community meetings and Citizen Informational Meetings. Ryan worked with the Construction Engineering Team to solve issues during construction and ensure the project was completed on time.

*Relevancy: Roadway; Survey; Structure/Bridge; Environmental; Geotechnical; Drainage, Erosion & Sediment Control; SWM; Traffic Control Devices; TMP; ROW; Utilities; Public Involvement/Relations; Signage, Lighting; QA/QC; Construction Engineering/Inspection; Safety; Project Management*



# TRANSPORTATION IMPROVEMENTS AT HYDRAULIC ROAD AND US 29

## TECHNICAL PROPOSAL | VOLUME II

VIRGINIA DEPARTMENT OF TRANSPORTATION

January 24, 2023



A DESIGN-BUILD PROJECT  
State Project No.: 0029-M03-371, C501, P101, R201  
Federal Project No.: STP-5104 (299)  
Contract ID Number: C00118880DB114

**kokosing**   
CONSTRUCTION COMPANY, INC.  
6235 WESTERVILLE ROAD  
WESTERVILLE, OH 43081



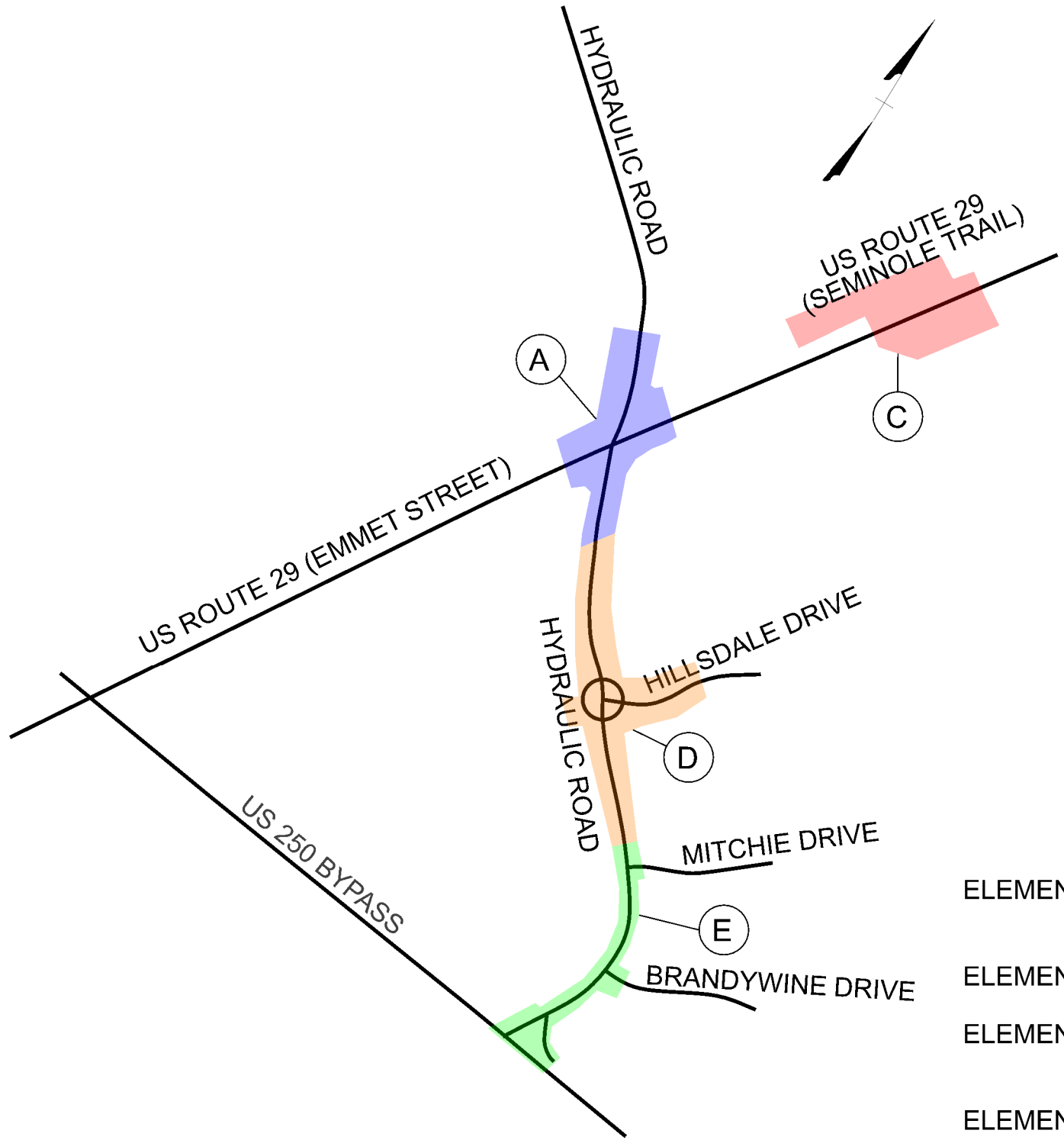
### 4.3.1 | Design Concept | Conceptual Roadway Plans

TRANSPORTATION IMPROVEMENTS AT HYDRAULIC ROAD AND US 29  
 COUNTY OF ALBEMARLE AND CITY OF CHARLOTTESVILLE, VIRGINIA  
 PROJECT NO. 0029-M03-371, P101, R201, C501

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-M03-371 P101, R201, C-501	1

INDEX OF SHEETS

SHEET	DESCRIPTION
1	TITLE SHEET / LOCATION MAP / INDEX OF SHEETS
2A - 2C	TYPICAL SECTION SHEETS
3	ELEMENT A: US 29 & HYDRAULIC RD. INTERSECTION IMPROVEMENTS PLAN SHEET
4	ELEMENT C: US 29 PEDESTRIAN BRIDGE PLAN SHEET
5	ELEMENT D: HYDRAULIC RD. @ HILLSDALE DR. ROUNDABOUT PLAN SHEET
5A	ELEMENT D: HYDRAULIC RD. @ HILLSDALE DR. ROUNDABOUT PROFILE SHEET
6	ELEMENT E: HYDRAULIC RD. ACCESS MANAGEMENT IMPROVEMENTS PLAN SHEET



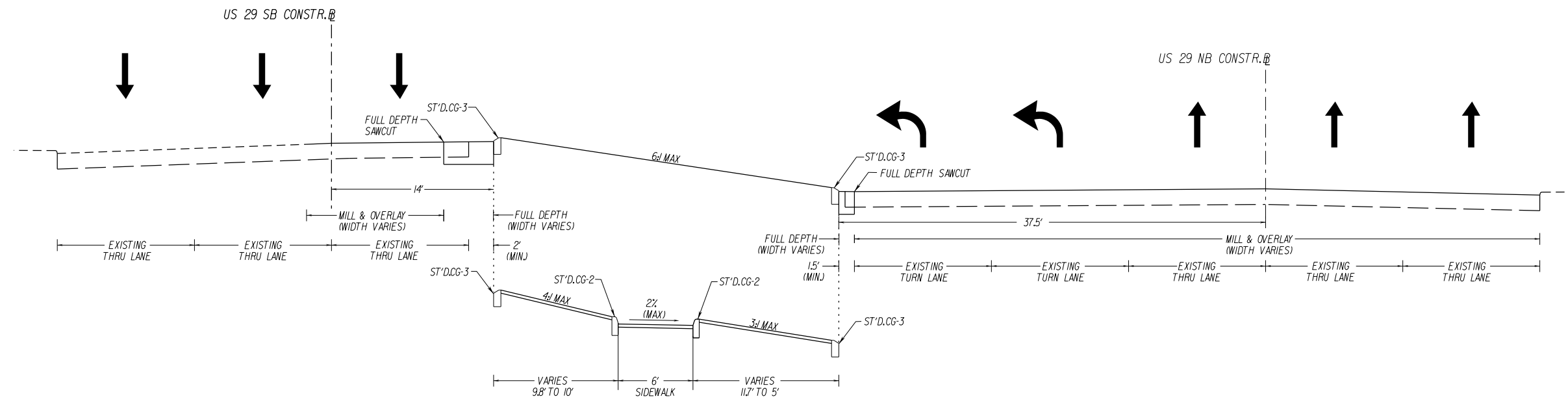
- ELEMENT A : US 29 & HYDRAULIC RD. INTERSECTION IMPROVEMENTS
- ELEMENT C: US 29 PEDESTRIAN BRIDGE
- ELEMENT D: HYDRAULIC RD. @ HILLSDALE DR. ROUNDABOUT
- ELEMENT E: HYDRAULIC RD. ACCESS MANAGEMENT IMPROVEMENTS

# TYPICAL SECTIONS

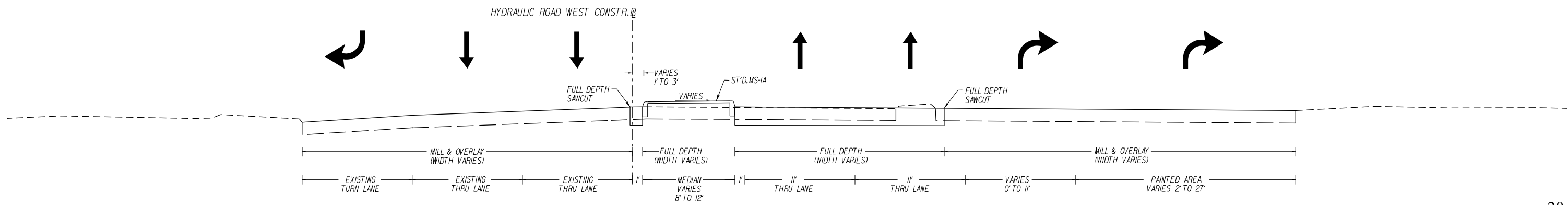
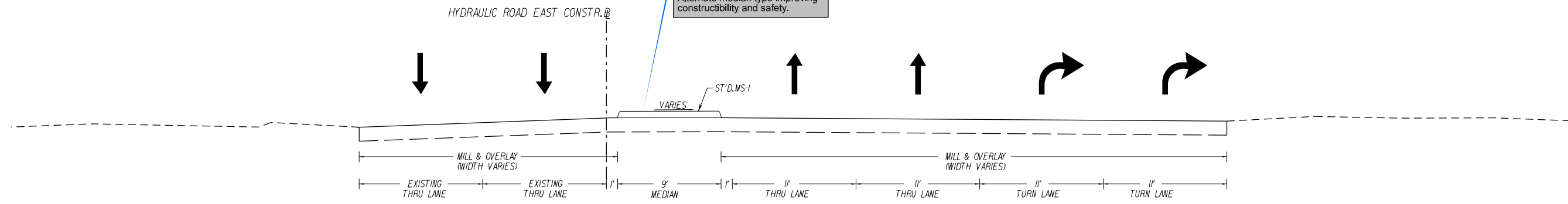
REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-M03-371 PI01, RW-201, C-501	2A

**kokoosing** CONSTRUCTION COMPANY, INC. **RK&K Bowman**

**ELEMENT A**  
US 29 & HYDRAULIC ROAD INTERSECTION IMPROVEMENTS



**DESIGN ENHANCEMENT**  
Alternate median type improving constructibility and safety.

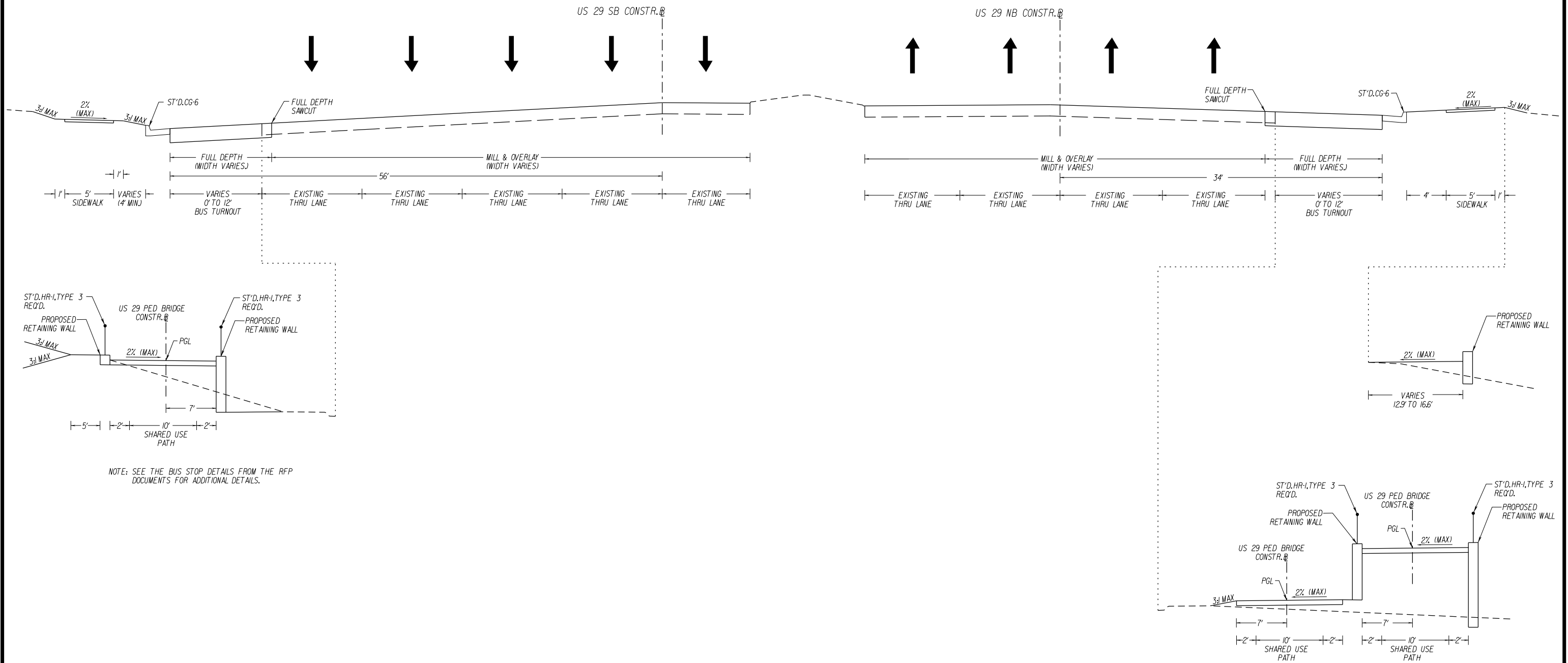


# TYPICAL SECTIONS

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-M03-371 PIOI, RW-20I, C-50I	2B

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**ELEMENT C**  
**US 29 PEDESTRIAN BRIDGE**

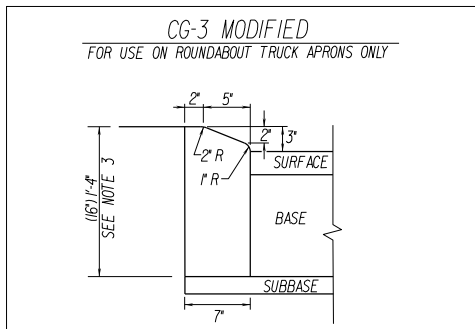
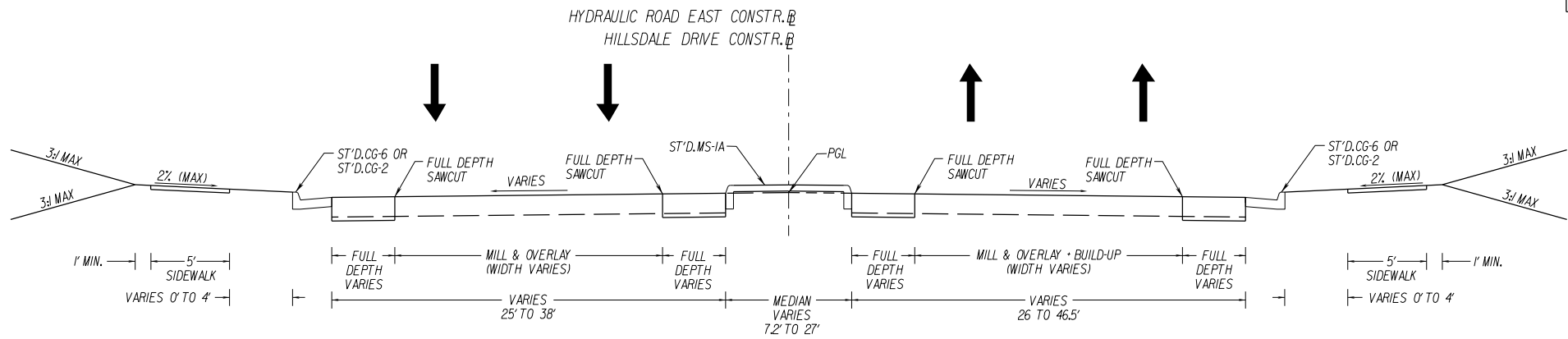


NOTE: SEE THE BUS STOP DETAILS FROM THE RFP DOCUMENTS FOR ADDITIONAL DETAILS.

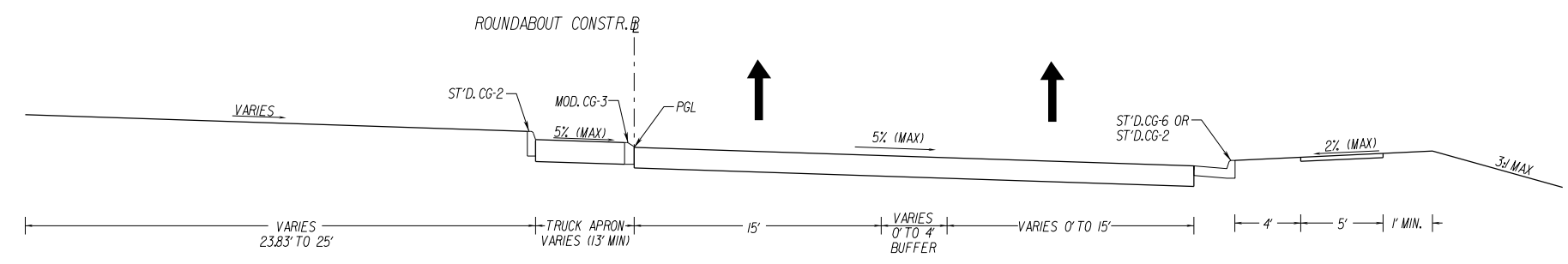
# TYPICAL SECTIONS

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-M03-371 PIOI, RW-20I, C-50I	2C

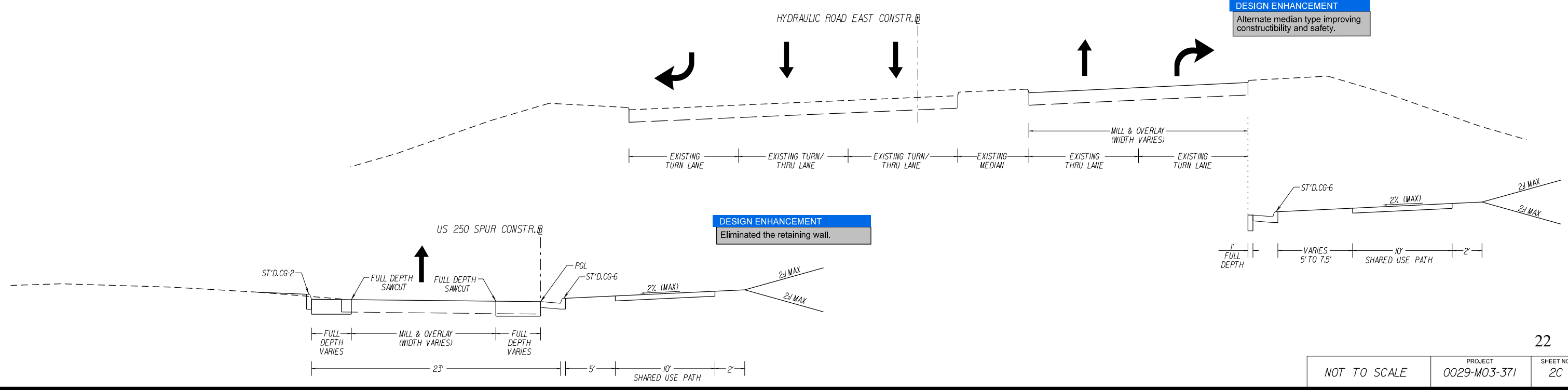
## ELEMENT D HYDRAULIC ROAD AT HILLSDALE DRIVE ROUNDABOUT



- 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" (1 1/2" DEPTH) OR INCREASED AS MUCH AS 3" (1 1/2" DEPTH) IN ORDER THAT THE BOTTOM OF THE CURB WILL COINCIDE WITH THE TOP OF A COURSE OF THE PAVEMENT SUBSTRUCTURE. OTHERWISE, THE DEPTH IS TO BE 16" AS SHOWN.
  4. THE MODIFICATION TO THE STANDARD CG-3 IS TO REDUCE THE EXPOSED HEIGHT OF THE CURB AS SHOWN.



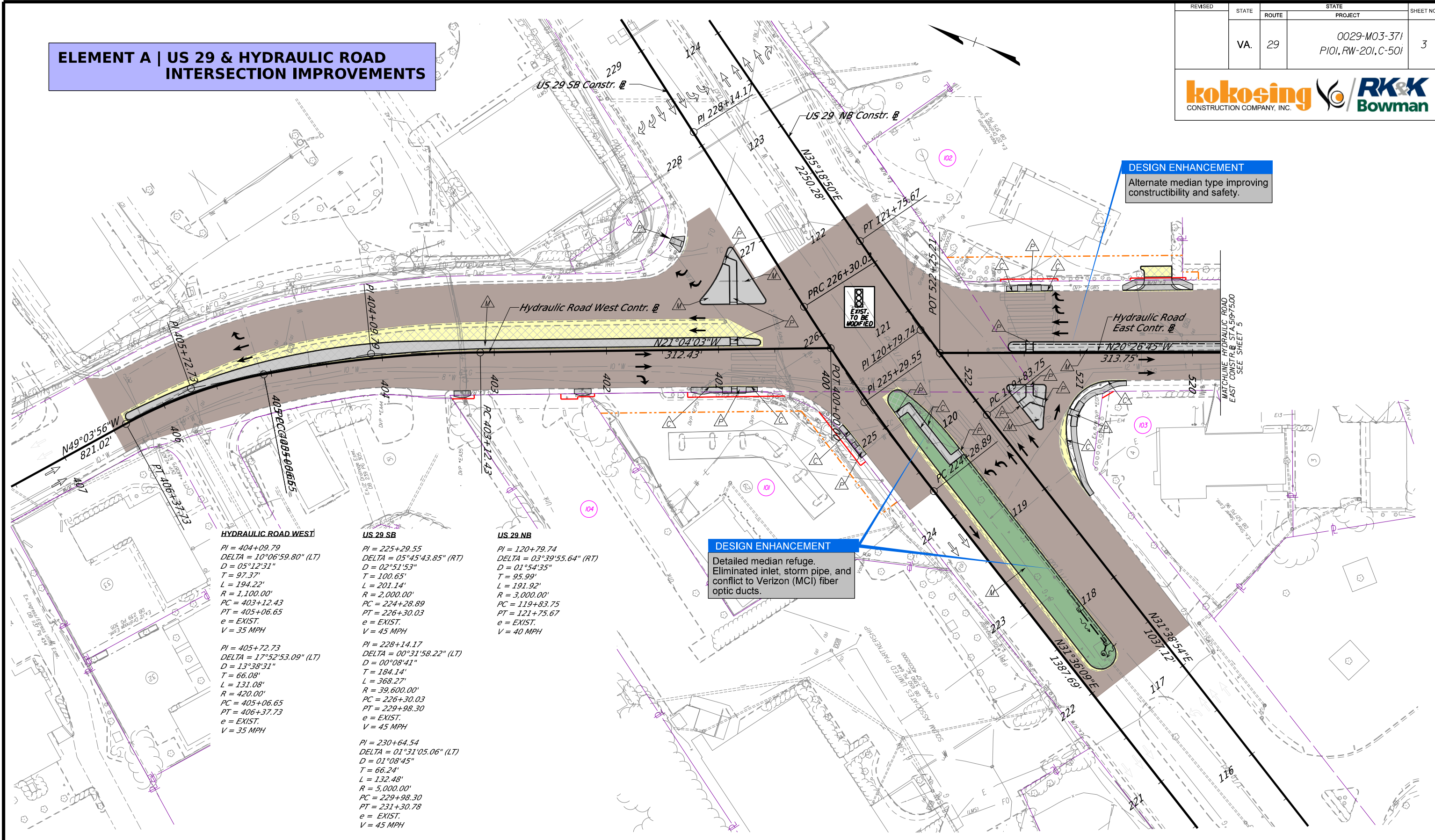
## ELEMENT E HYDRAULIC ROAD ACCESS MANAGEMENT IMPROVEMENTS





# ELEMENT A | US 29 & HYDRAULIC ROAD INTERSECTION IMPROVEMENTS

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-M03-371 PI01, RW-201, C-501	3



**DESIGN ENHANCEMENT**  
Alternate median type improving constructibility and safety.

**DESIGN ENHANCEMENT**  
Detailed median refuge. Eliminated inlet, storm pipe, and conflict to Verizon (MCI) fiber optic ducts.

<p><b>HYDRAULIC ROAD WEST</b></p> <p>PI = 404+09.79 DELTA = 10°06'59.80" (LT) D = 05°12'31" T = 97.37' L = 194.22' R = 1,100.00' PC = 403+12.43 PT = 405+06.65 e = EXIST. V = 35 MPH</p> <p>PI = 405+72.73 DELTA = 17°52'53.09" (LT) D = 13°38'31" T = 66.08' L = 131.08' R = 420.00' PC = 405+06.65 PT = 406+37.73 e = EXIST. V = 35 MPH</p>	<p><b>US 29 SB</b></p> <p>PI = 225+29.55 DELTA = 05°45'43.85" (RT) D = 02°51'53" T = 100.65' L = 201.14' R = 2,000.00' PC = 224+28.89 PT = 226+30.03 e = EXIST. V = 45 MPH</p> <p>PI = 228+14.17 DELTA = 00°31'58.22" (LT) D = 00°08'41" T = 184.14' L = 368.27' R = 39,600.00' PC = 226+30.03 PT = 229+98.30 e = EXIST. V = 45 MPH</p> <p>PI = 230+64.54 DELTA = 01°31'05.06" (LT) D = 01°08'45" T = 66.24' L = 132.48' R = 5,000.00' PC = 229+98.30 PT = 231+30.78 e = EXIST. V = 45 MPH</p>	<p><b>US 29 NB</b></p> <p>PI = 120+79.74 DELTA = 03°39'55.64" (RT) D = 01°54'35" T = 95.99' L = 191.92' R = 3,000.00' PC = 119+83.75 PT = 121+75.67 e = EXIST. V = 40 MPH</p>
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**LEGEND**

<p>Prop. Full Depth Asphalt Pavement</p> <p>Prop. Mill And Overlay</p> <p>Prop. Concrete Sdwlk/Entr/Med</p> <p>Prop. Raised Grass Median</p> <p>Prop. Retaining Wall</p>	<p>Prop. Shared Use Path</p> <p>Prop. Pedestrian Bridge</p> <p>Prop. Pavement Demolition</p> <p>Right of Way Savings From RFP</p>	<p>Proposed Right of Way</p> <p>Proposed Temporary Easement</p> <p>Proposed Permanent Easement</p> <p>Denotes Existing Property Boundary</p> <p>Denotes Existing Right of Way</p>	<p>Proposed Drainage</p> <p>Construction Limits In Cut</p> <p>Construction Limits In Fill</p>	<p>Proposed Pter Protection Barrier Req'd.</p> <p>Proposed Guardrail Req'd.</p> <p>Proposed Retaining Wall Req'd.</p>	<p>Proposed Curb Req'd.</p> <p>Proposed Pedestrian Ramp Req'd.</p> <p>Proposed Median Req'd.</p>
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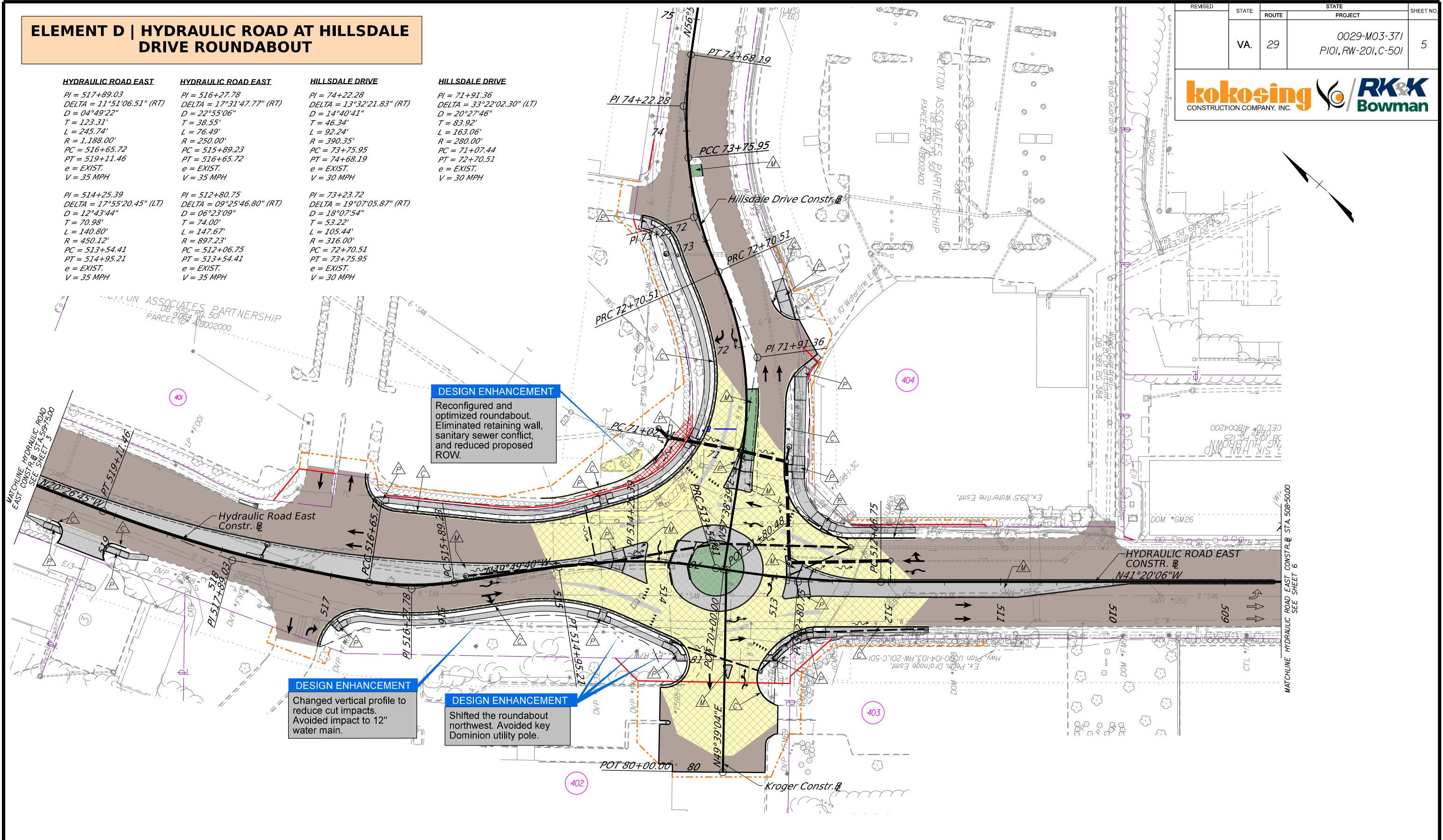


# ELEMENT D | HYDRAULIC ROAD AT HILLSDALE DRIVE ROUNDABOUT

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-M03-371 PIOI, RW-20I, C-50I	5



<b>HYDRAULIC ROAD EAST</b> PI = 517+89.03 DELTA = 11°51'06.51" (RT) D = 04°49'22" T = 123.31' L = 245.74' R = 1,188.00' PC = 516+65.72 PT = 519+11.46 e = EXIST. V = 35 MPH  PI = 514+25.39 DELTA = 17°55'20.45" (LT) D = 12°43'44" T = 70.98' L = 140.80' R = 450.12' PC = 513+54.41 PT = 514+95.21 e = EXIST. V = 35 MPH	<b>HYDRAULIC ROAD EAST</b> PI = 516+27.78 DELTA = 17°31'47.77" (RT) D = 22°55'06" T = 38.55' L = 76.49' R = 250.00' PC = 515+89.23 PT = 516+65.72 e = EXIST. V = 35 MPH  PI = 512+80.75 DELTA = 09°25'46.80" (RT) D = 06°23'09" T = 74.00' L = 147.67' R = 897.23' PC = 512+06.75 PT = 513+54.41 e = EXIST. V = 35 MPH	<b>HILLSDALE DRIVE</b> PI = 74+22.28 DELTA = 13°32'21.83" (RT) D = 14°40'41" T = 46.34' L = 92.24' R = 390.35' PC = 73+75.95 PT = 74+68.19 e = EXIST. V = 30 MPH  PI = 73+23.72 DELTA = 19°07'05.87" (RT) D = 18°07'54" T = 53.22' L = 105.44' R = 316.00' PC = 72+70.51 PT = 73+75.95 e = EXIST. V = 30 MPH	<b>HILLSDALE DRIVE</b> PI = 71+91.36 DELTA = 33°22'02.30" (LT) D = 20°27'46" T = 83.92' L = 163.06' R = 280.00' PC = 71+07.44 PT = 72+70.51 e = EXIST. V = 30 MPH
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**DESIGN ENHANCEMENT**  
 Reconfigured and optimized roundabout. Eliminated retaining wall, sanitary sewer conflict, and reduced proposed ROW.

**DESIGN ENHANCEMENT**  
 Changed vertical profile to reduce cut impacts. Avoided impact to 12" water main.

**DESIGN ENHANCEMENT**  
 Shifted the roundabout northwest. Avoided key Dominion utility pole.

**LEGEND**

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Drainage	Proposed Pter Protection Barrier Req'd.	Proposed Curb Req'd.
Prop. Mill, Overlay and Buildup	Prop. Pedestrian Bridge	Proposed Temporary Easement	Construction Limits In Cut	Proposed Guardrail Req'd.	Proposed Pedestrian Ramp Req'd.
Prop. Concrete Sdkwk/Entr/Med	Prop. Pavement Demolition	Proposed Permanent Easement	Construction Limits In Fill	Proposed Retaining Wall Req'd.	Proposed Median Req'd.
Prop. Raised Grass Median	Right of Way Savings From RFP	Denotes Existing Property Boundary			
Prop. Retaining Wall		Denotes Existing Right of Way			

SCALE: 0 40' 80'

PROJECT: 0029-M03-371

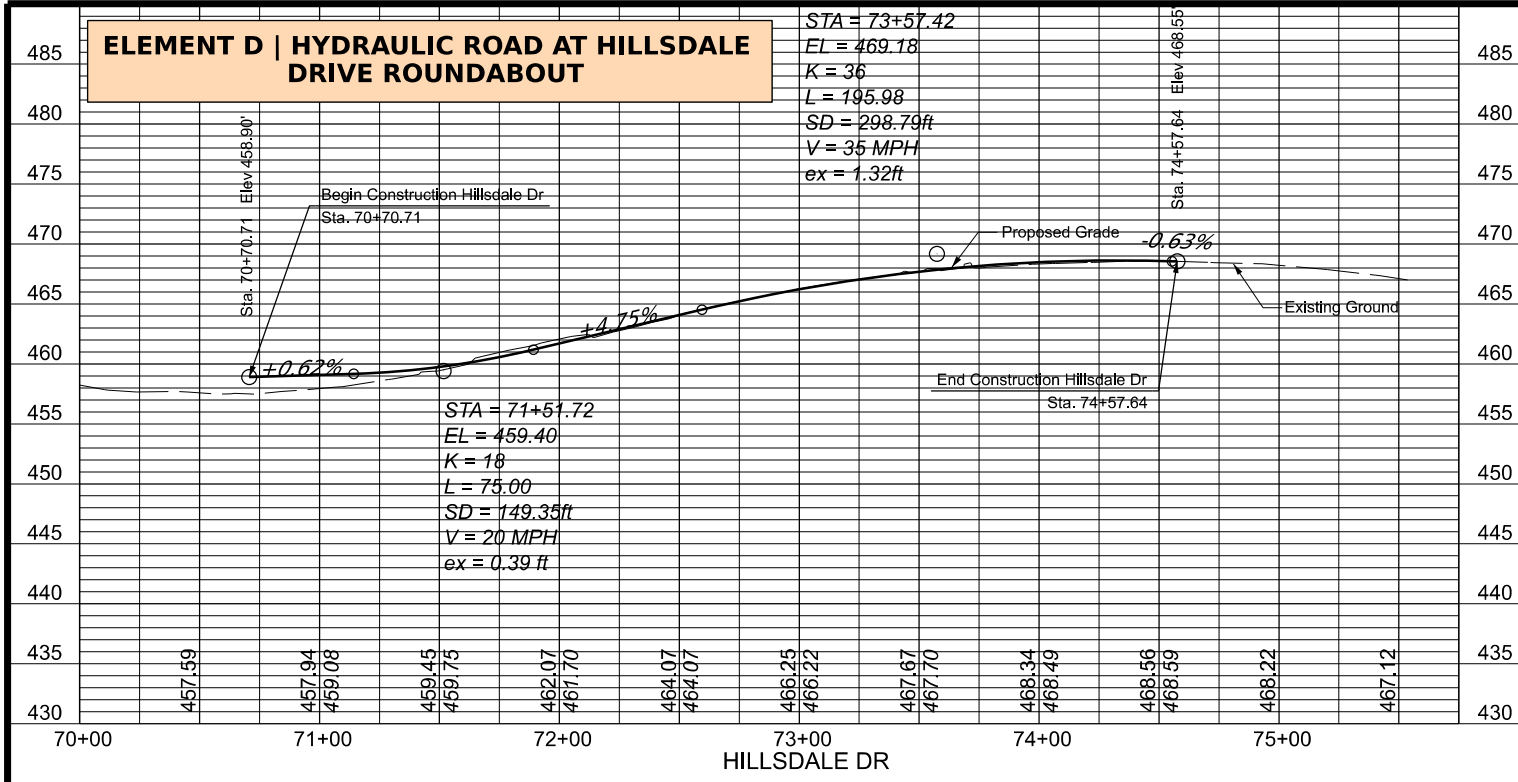
SHEET NO.: 5



**ELEMENT D | HYDRAULIC ROAD AT HILLSDALE DRIVE ROUNDABOUT**

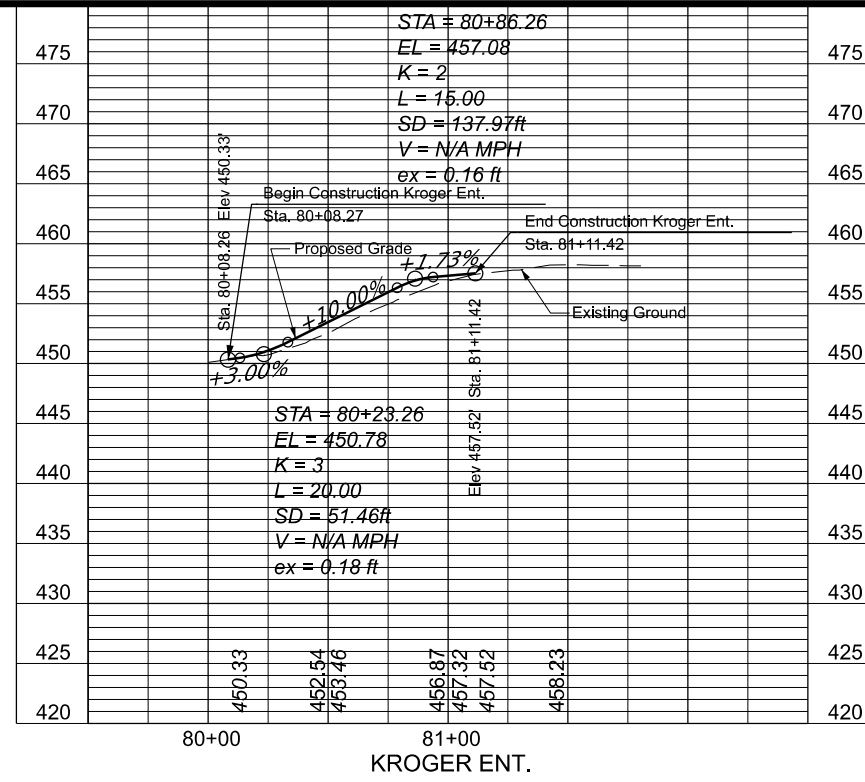
STA = 73+57.42  
 EL = 469.18  
 K = 36  
 L = 195.98  
 SD = 298.79ft  
 V = 35 MPH  
 ex = 1.32ft

STA = 71+61.72  
 EL = 459.40  
 K = 18  
 L = 75.00  
 SD = 149.35ft  
 V = 20 MPH  
 ex = 0.39 ft



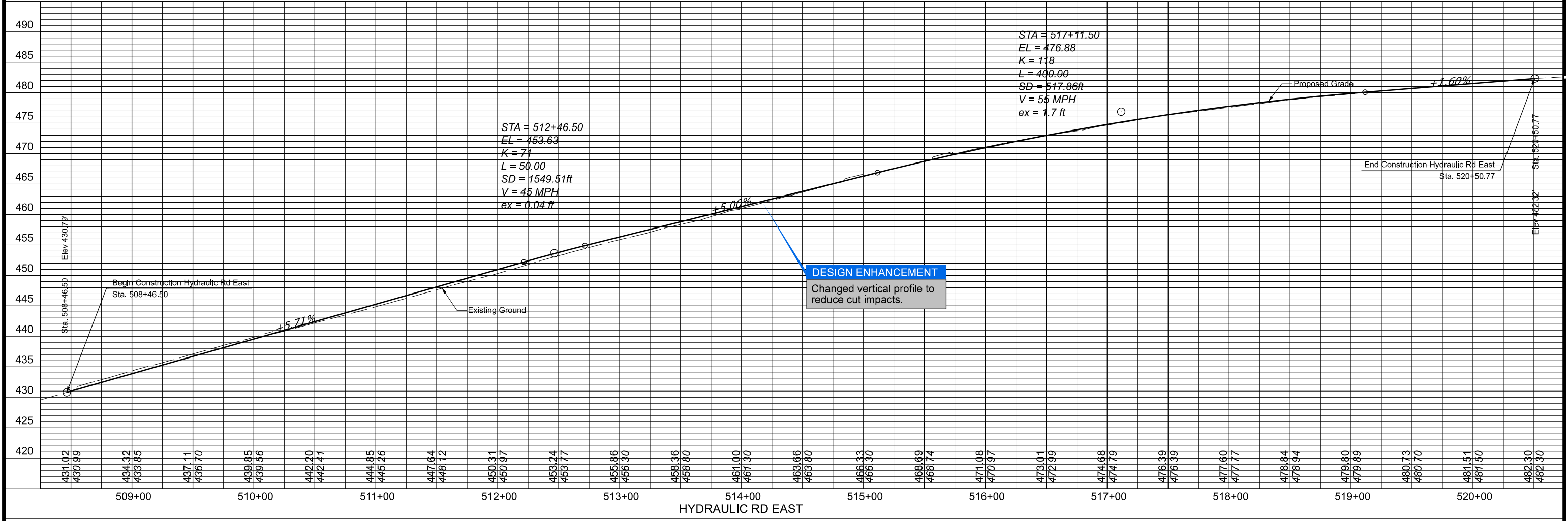
STA = 80+86.26  
 EL = 457.08  
 K = 2  
 L = 15.00  
 SD = 137.97ft  
 V = N/A MPH  
 ex = 0.16 ft

STA = 80+23.26  
 EL = 450.78  
 K = 3  
 L = 20.00  
 SD = 51.46ft  
 V = N/A MPH  
 ex = 0.18 ft



REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-M03-371 PIOI, RW-20I, C-50I	5A

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**LEGEND**

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Drainage	Proposed Pter Protection Barrier Req'd.	Proposed Curb Req'd.
Prop. Mill And Overlay	Prop. Pedestrian Bridge	Proposed Temporary Easement	Construction Limits In Cut	Proposed Guardrail Req'd.	Proposed Pedestrian Ramp Req'd.
Prop. Concrete Sdwk/Entr/Med	Prop. Pavement Demolition	Proposed Permanent Easement	Construction Limits In Fill	Proposed Retaining Wall Req'd.	Proposed Median Req'd.
Prop. Raised Grass Median	Right of Way Savings From RFP	Denotes Existing Property Boundary			
Prop. Retaining Wall		Denotes Existing Right of Way			

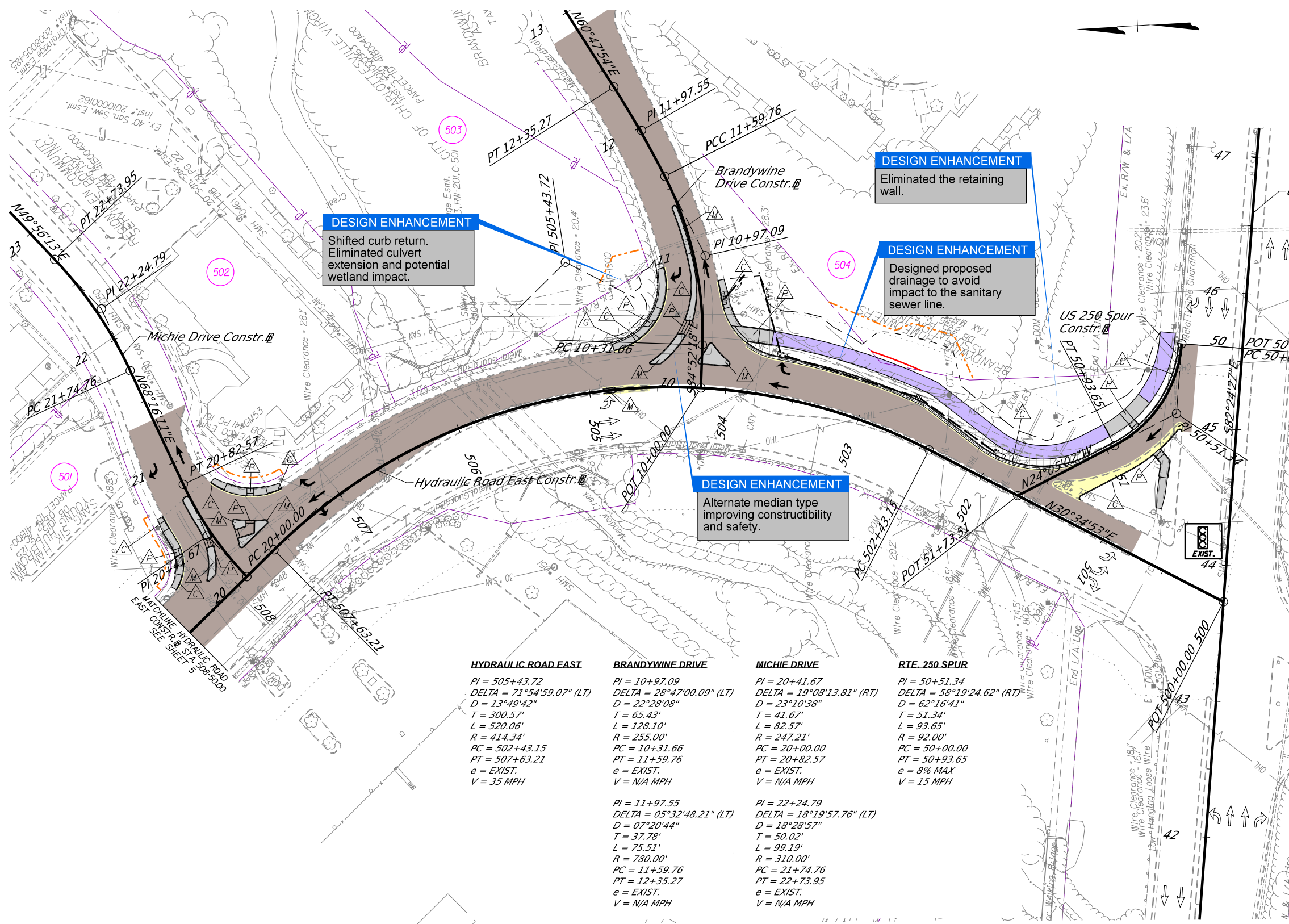
SCALE: 0 40' 80'

PROJECT: 0029-M03-371 SHEET NO.: 5A

# ELEMENT E | HYDRAULIC ROAD ACCESS MANAGEMENT IMPROVEMENTS

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-M03-371 PIOI, RW-20I, C-50I	6

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**DESIGN ENHANCEMENT**  
Shifted curb return. Eliminated culvert extension and potential wetland impact.

**DESIGN ENHANCEMENT**  
Eliminated the retaining wall.

**DESIGN ENHANCEMENT**  
Designed proposed drainage to avoid impact to the sanitary sewer line.

**DESIGN ENHANCEMENT**  
Alternate median type improving constructibility and safety.

HYDRAULIC ROAD EAST	BRANDYWINE DRIVE	MICHIE DRIVE	RTE. 250 SPUR
PI = 505+43.72	PI = 10+97.09	PI = 20+41.67	PI = 50+51.34
DELTA = 71°54'59.07" (LT)	DELTA = 28°47'00.09" (LT)	DELTA = 19°08'13.81" (RT)	DELTA = 58°19'24.62" (RT)
D = 13°49'42"	D = 22°28'08"	D = 23°10'38"	D = 62°16'41"
T = 300.57'	T = 65.43'	T = 41.67'	T = 51.34'
L = 520.06'	L = 128.10'	L = 82.57'	L = 93.65'
R = 414.34'	R = 255.00'	R = 247.21'	R = 92.00'
PC = 502+43.15	PC = 10+31.66	PC = 20+00.00	PC = 50+00.00
PT = 507+63.21	PT = 11+59.76	PT = 20+82.57	PT = 50+93.65
e = EXIST.	e = EXIST.	e = EXIST.	e = 8% MAX
V = 35 MPH	V = N/A MPH	V = N/A MPH	V = 15 MPH
	PI = 11+97.55	PI = 22+24.79	
	DELTA = 05°32'48.21" (LT)	DELTA = 18°19'57.76" (LT)	
	D = 07°20'44"	D = 18°28'57"	
	T = 37.78'	T = 50.02'	
	L = 75.51'	L = 99.19'	
	R = 780.00'	R = 310.00'	
	PC = 11+59.76	PC = 21+74.76	
	PT = 12+35.27	PT = 22+73.95	
	e = EXIST.	e = EXIST.	
	V = N/A MPH	V = N/A MPH	

RTE.250 SPUR

470	Begin Construction Rte. 250 Spur	470
	Sta. 50+00.00 Elev. 448.67	
465		465
460	STA = 50+70.21	460
	EL = 442.34	
	K = 25	
455	L = 20.00	455
	SD = 1332.43ft	
	V = 30 MPH	
450	ex = 0.02 ft	450
	L = 35.00	
	SD = 40.77ft	
	V = <15 MPH	
445	ex = 0.52 ft	445
440	Proposed Grade	440
	Existing Ground	
435		435
	STA = 50+35.21	
430	EL = 447.22	430
	K = 5	
425	L = 50.00	425
	SD = 134.98ft	
	V = 15 MPH	
420	ex = 0.62 ft	420
	End Construction Rte. 250 Spur	
	Sta. 51+55.08 Elev. 433.93	
415		415
410		410
	50+00	51+00
	448.67	445.02
	448.67	445.05
	445.02	437.83
	445.05	437.94
	437.83	434.14
	437.94	434.09

LEGEND

- Prop. Full Depth Asphalt Pavement
- Prop. Shared Use Path
- Prop. Mill And Overlay
- Prop. Pedestrian Bridge
- Prop. Concrete Sdwk/Entr/Med
- Prop. Pavement Demolition
- Prop. Raised Grass Median
- Right of Way Savings From RFP
- Prop. Retaining Wall
- Proposed Right of Way
- Proposed Temporary Easement
- Proposed Permanent Easement
- Denotes Existing Property Boundary
- Denotes Existing Right of Way
- Proposed Drainage
- Construction Limits In Cut
- Construction Limits In Fill
- Proposed Pter Protection Barrier Req'd.
- Proposed Guardrail Req'd.
- Proposed Retaining Wall Req'd.
- Proposed Curb Req'd.
- Proposed Pedestrian Ramp Req'd.
- Proposed Median Req'd.

SCALE 0 40' 80'

PROJECT 0029-M03-371 SHEET NO. 6

## 4.3.2 | Design Concept | Conceptual Structural Plans



STATE	FEDERAL AID	STATE	SHEET NO.
VA.	STP-5104(299)	N/A	0029-M03-371, B601
Federal Structure No. 0000000000XXXX		FHWA Construction and Scour Code: X281-SN	
Federal Oversight Code:		UPC No. 118880	

**ELEMENT C | US 29 PEDESTRIAN BRIDGE**

**DESIGN EXCEPTION(S):**

None

**GENERAL NOTES:**

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

Width: 14'-0" face-to-face of curb.  
Span layout: 94'-6" - 99'-10" prestressed concrete 37" deep bulb-T beams continuous for live load.  
Capacity: 90 psf pedestrian live load or H10 truck loading.

- Specifications:
- Construction: Virginia Department of Transportation Road and Bridge Specifications, 2020.
  - Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017 and VDOT Modifications.
  - LRFD Guide Specifications for the Design of Pedestrian Bridges, 2009 with 2015 Interim Revisions, and VDOT Modifications.
  - Standards: Virginia Department of Transportation Road and Bridge Standards, 2016, including all current revisions.

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

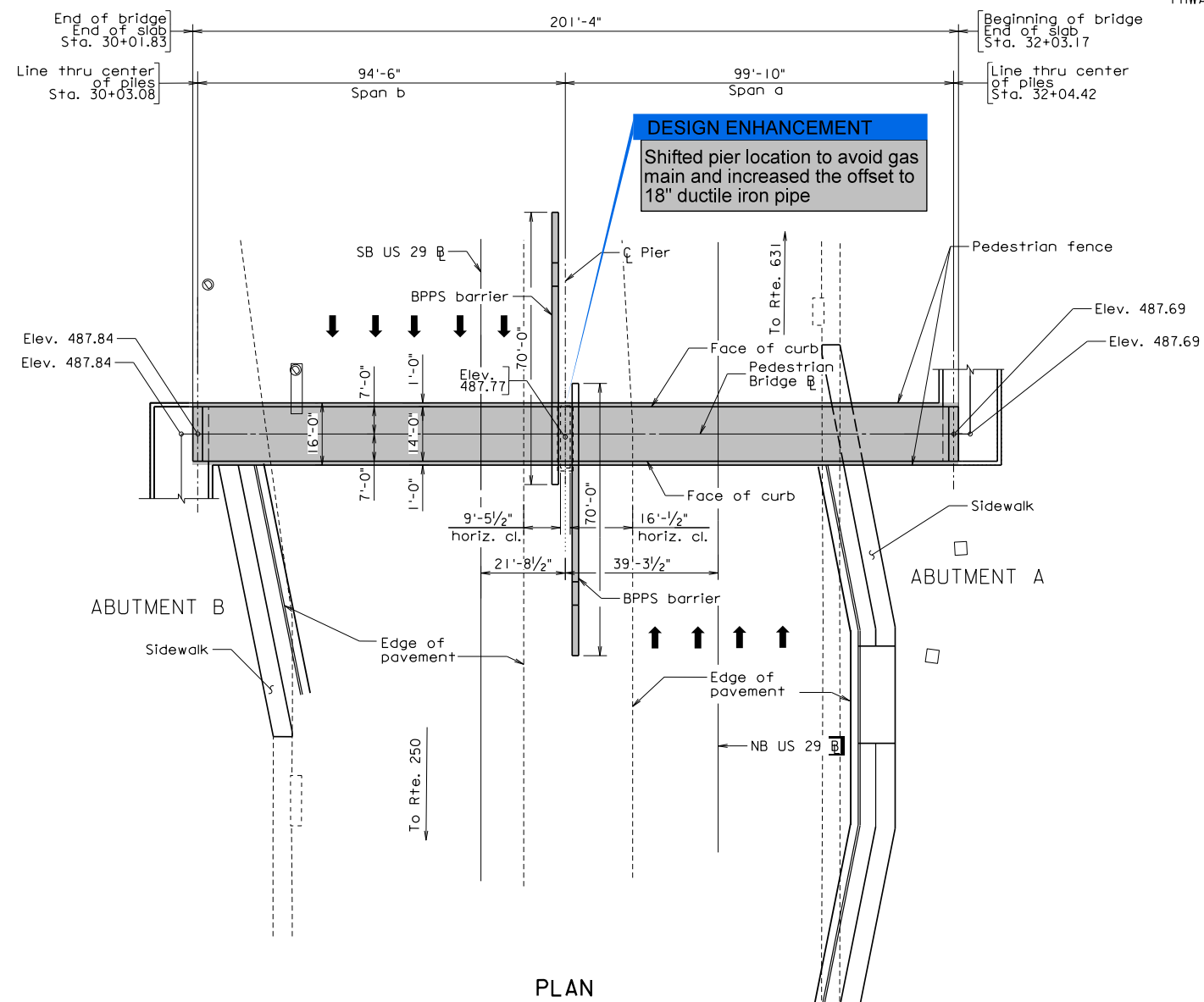
Design loading includes 20 psf allowance for construction tolerances and construction methods.

Concrete in prestressed bulb-Ts shall be Class A5. Concrete in superstructure and curbs shall be Low Shrinkage Class A4 Modified; in abutments, piers Class A3.

All reinforcing steel shall be deformed and shall conform to ASTM A615 Grade 60 except for reinforcing steels noted as CRR (Corrosion Resistant Reinforcement) which shall conform to Section 223 of the Specifications. All reinforcing bar dimensions on the detailed drawings are to centers of bar except where otherwise noted and are subject to fabrication and construction tolerances.

Prestressing strands shall be uncoated, seven-wire, low-relaxation steel strands conforming to ASTM A416 Grade 270.

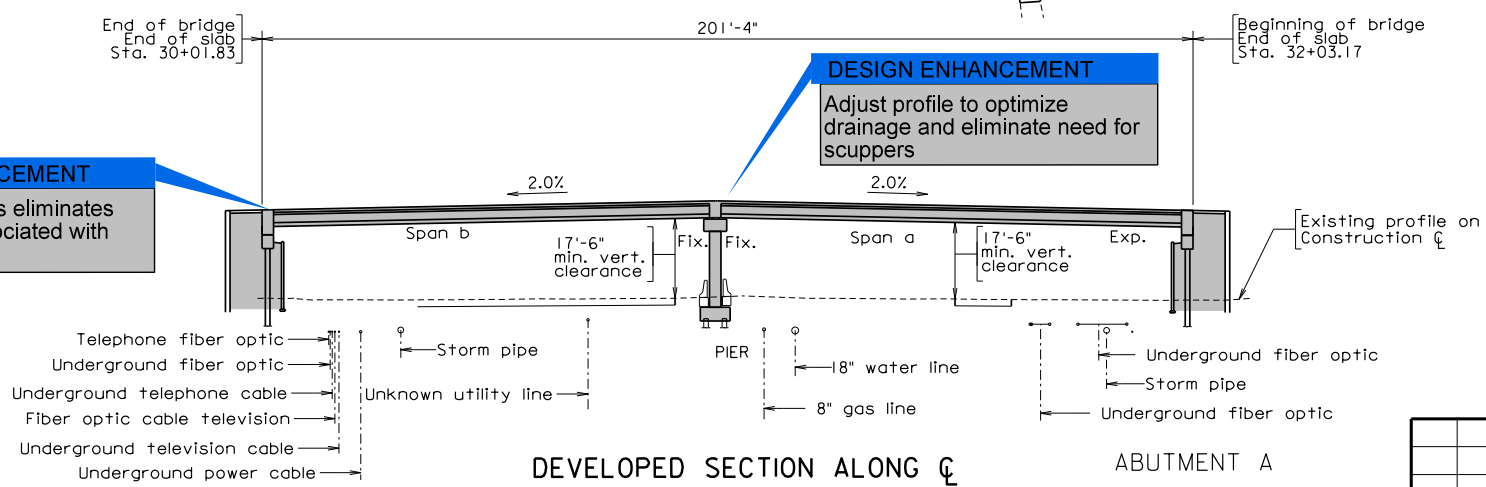
The Bridge Date Plate shall be installed in accordance with VDOT's Road and Bridge Standards and obtained from the District Structure and Bridge Office.



PLAN

**DESIGN ENHANCEMENT**  
Integral abutments eliminates maintenance associated with bearings

**DESIGN ENHANCEMENT**  
Adjust profile to optimize drainage and eliminate need for scuppers



DEVELOPED SECTION ALONG C-C

B:\18800\_01\_rkk.dgn

Rummel, Klepper & Kahl, LLP  
RICHMOND, VA  
STRUCTURAL ENGINEER

PLANS BY:	RK&K
COORDINATED:	
SUPERVISED:	RM
DESIGNED:	DAC
DRAWN:	MNR
CHECKED:	SPA

No.	Description	Date
REVISIONS		
For Table of Revisions, see Sheet 2.		

Scale: 1"=20'-0"



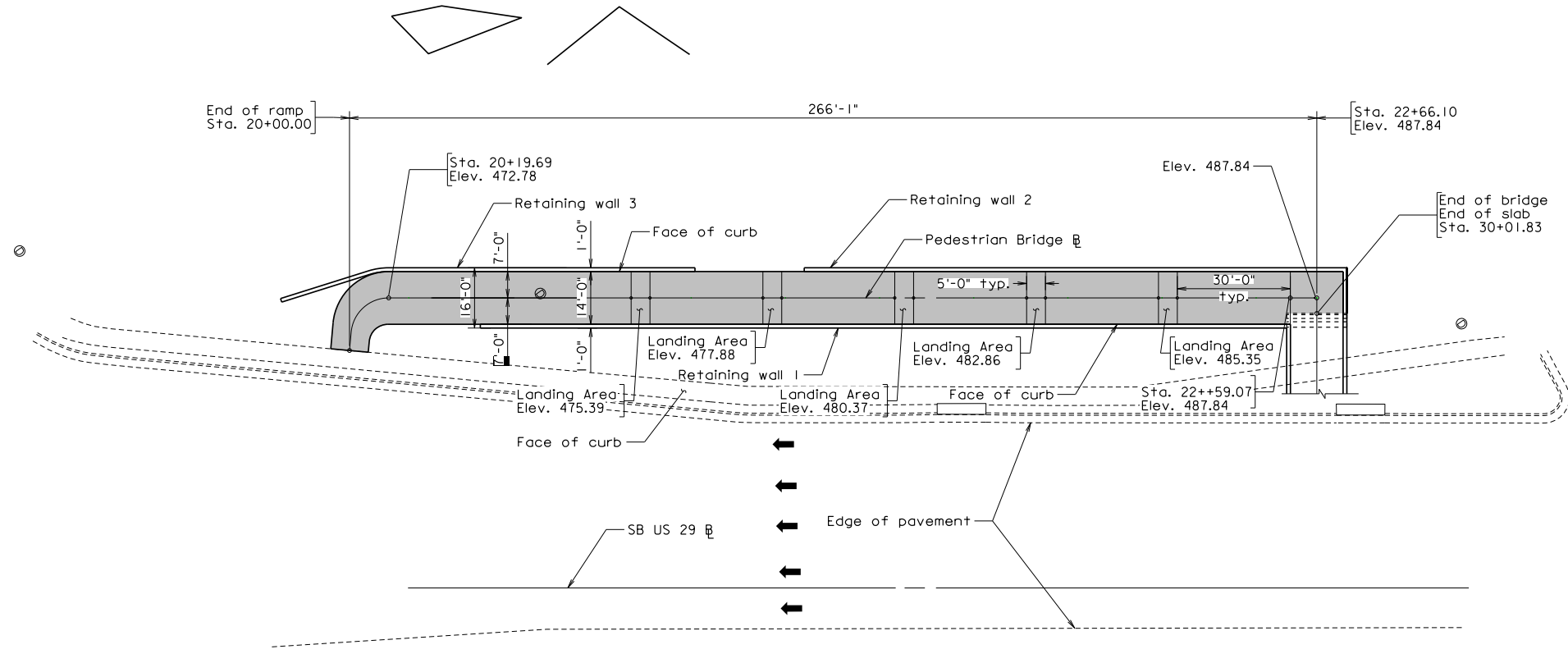
COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
PROPOSED PEDESTRIAN BRIDGE

US 29 NORTH OF HYDRAULIC ROAD  
ALBEMARLE COUNTY  
PROJECT 0029-M03-371, B601

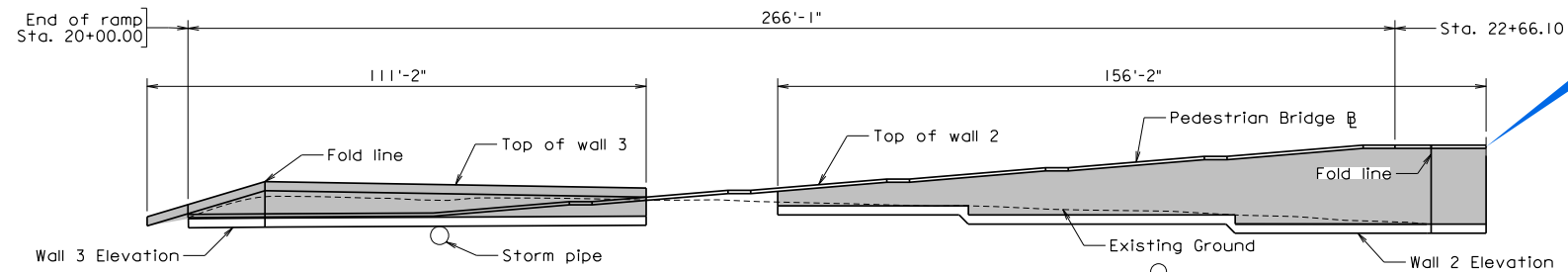


STATE	FEDERAL AID		STATE		SHEET
ROUTE	PROJECT		ROUTE	PROJECT	NO.
VA.			29	0029-M03-371, B601	2

**ELEMENT C | US 29 PEDESTRIAN BRIDGE**

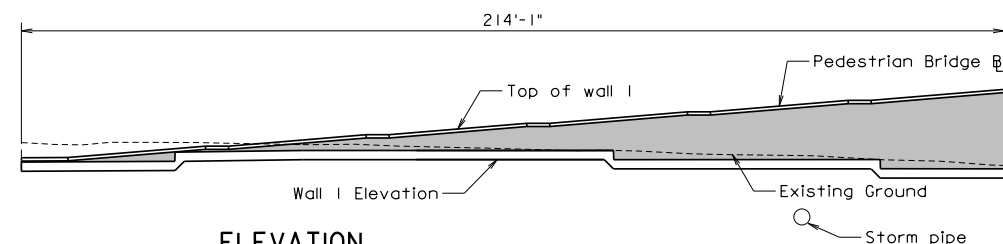


**PLAN**



**ELEVATION  
(MSE Walls 2 and 3)**

**DESIGN ENHANCEMENT**  
Optimized vertical clearance,  
shortening ramp length



**ELEVATION  
(MSE Wall 1)**

Scale: 1"=20'-0"



COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION				
STRUCTURE AND BRIDGE DIVISION				
WEST RAMP PLAN AND ELEVATION				29
No.	Description	Date	Designed: MNR	Sheet No.
			Drawn: MNR	2 of 4
			Checked: DAC	
Revisions			Date: Jan. 2023	Plan No.

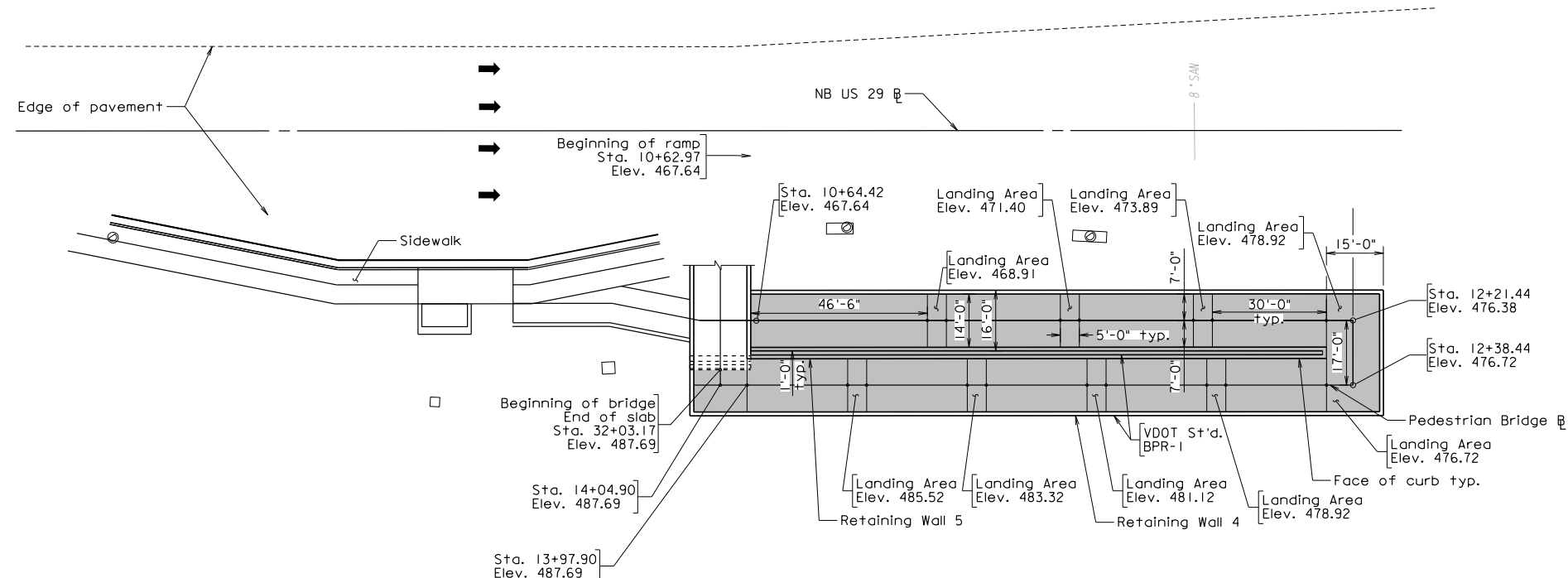
B118800\_02\_rkk.dgn

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RICHMOND, VA  
STRUCTURAL ENGINEER

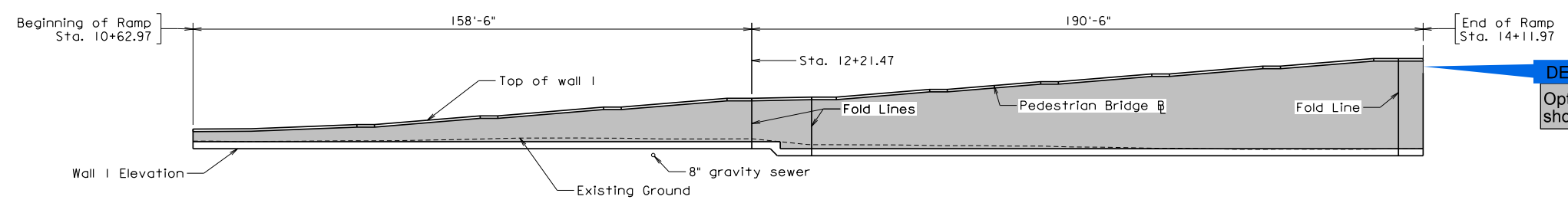
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STATE	FEDERAL AID	STATE	SHEET
ROUTE	PROJECT	ROUTE	PROJECT
VA.		29	0029-M03-371, B601
			3

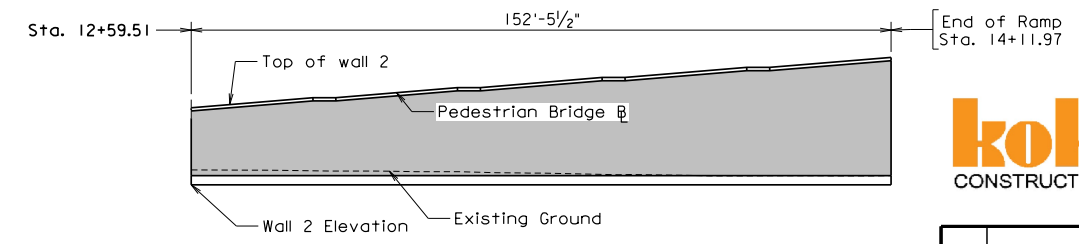
ELEMENT C | US 29 PEDESTRIAN BRIDGE



PLAN



ELEVATION (MSE Wall 4)



ELEVATION (MSE Wall 5)



COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION			
STRUCTURE AND BRIDGE DIVISION			
EAST RAMP PLAN AND ELEVATION			30
No.	Description	Date	Designed: ...MNR... Drawn: ...MNR... Checked: ...DAG...
Revisions		Date	Plan No.
		Jan. 2023	Sheet No. 3 of 4

B118800\_03\_rkk.dgn

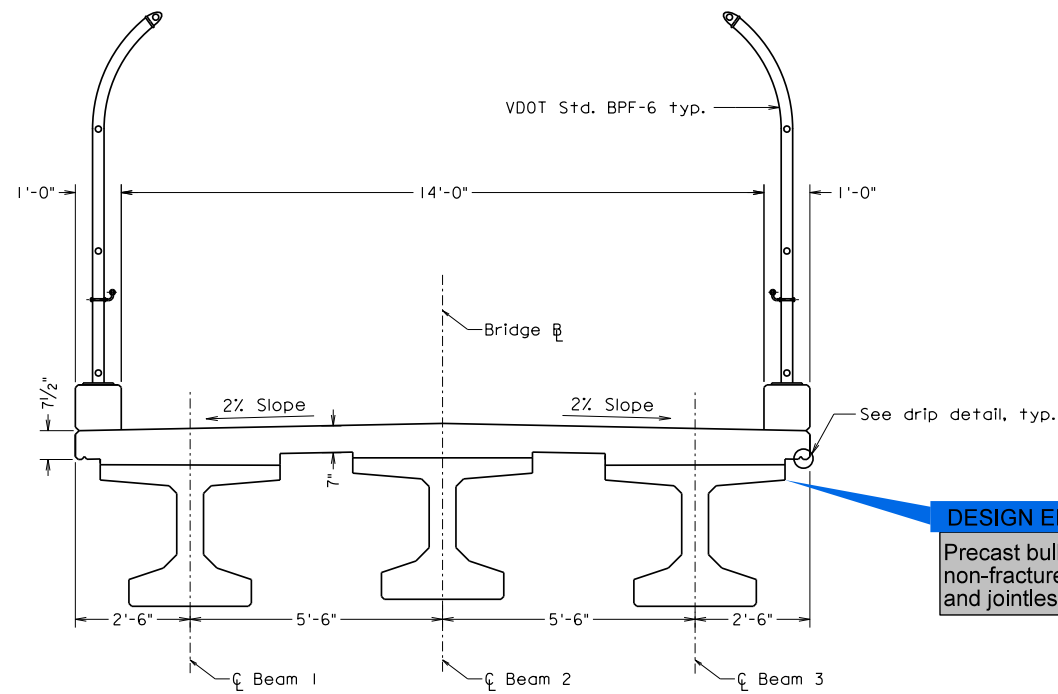
Rummel, Klepper & Kahl, LLP  
RICHMOND, VA  
STRUCTURAL ENGINEER

Scale: 1"=20'-0"

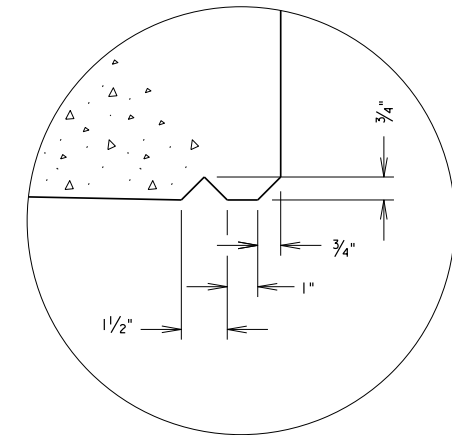
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STATE	FEDERAL AID	STATE	SHEET
ROUTE	PROJECT	ROUTE	PROJECT
VA.		29	0029-M03-371, B601
			4

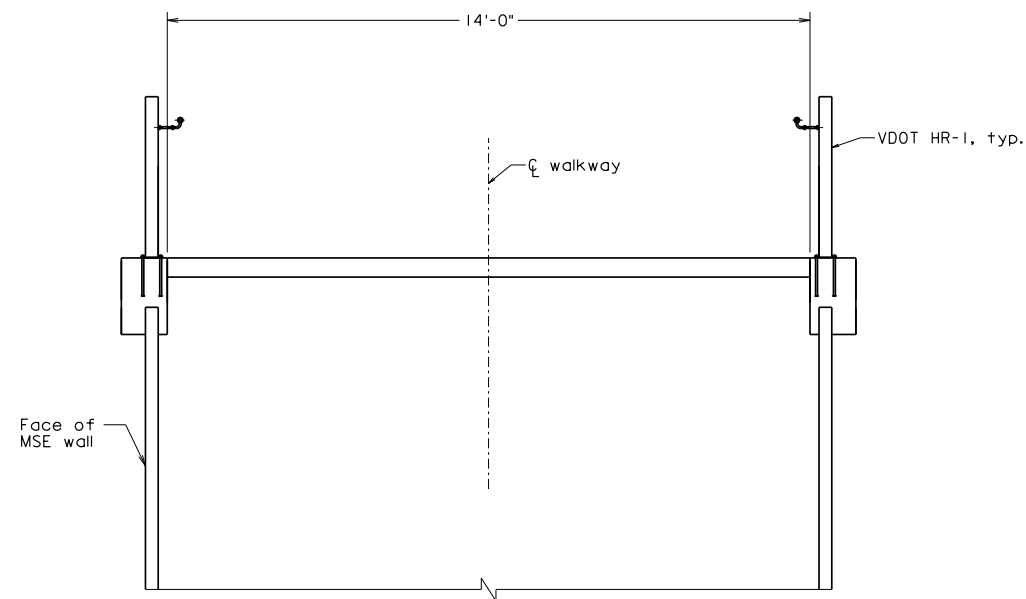
ELEMENT C | US 29 PEDESTRIAN BRIDGE



**DESIGN ENHANCEMENT**  
 Precast bulb-T superstructure  
 non-fracture critical, paint free,  
 and jointless



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



TRANSVERSE SECTION  
 Approach Walkways



		COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION	
		STRUCTURE AND BRIDGE DIVISION	
		TRANSVERSE SECTION	
		31	
No.	Description	Date	Designed: ...DAC... Date Drawn: ...MNR... Checked: ...SPA... Revisions
		Jan. 2023	Plan No. Sheet No. 4 of 4

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Rummel, Klepper & Kahl, LLP  
 RICHMOND, VA  
 STRUCTURAL ENGINEER

Scale: 1/2" = 1'-0" unless otherwise noted

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## 4.6.1 | Proposal Schedule



Activity ID	Activity Name	Original Duration	Start	Finish	2023												2024												2025												2026														
					A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A										
<b>Hydraulic Road and US 29 Improvements Proposal Schedule</b>					473	17-Mar-23	05-Dec-25	05-Dec-25, Hydraulic Road and US																																															
<b>Project Milestones</b>					711	17-Mar-23	05-Dec-25	05-Dec-25, Project Milestones																																															
1	Notice of Intent to Award	0	17-Mar-23		▶ Notice of Intent to Award																																																		
2	Notice To Proceed	0	23-May-23*		◆ Notice To Proceed																																																		
30	Final Geotechnical Report Approval	0		04-Oct-23	◆ Final Geotechnical Report Approval																																																		
60	Right of Way Authorization	0		15-Nov-23	◆ Right of Way Authorization																																																		
15	Water Quality Permit Acquired	0		16-Jan-24	◆ Water Quality Permit Acquired																																																		
99	Construction Authorization	0		24-Jan-24	◆ Construction Authorization																																																		
100	Construction Authorization Bridge	0		12-Feb-24	◆ Construction Authorization Bridge																																																		
71	Right of Way Certification & NTP for Construction	0		21-Feb-24	◆ Right of Way Certification & NTP for Construction																																																		
A1260	Element C Complete	0		08-Jan-25	◆ Element C Complete																																																		
A1290	Element D Complete	0		26-Aug-25	◆ Element D Complete																																																		
A1300	Element E Complete	0		08-Sep-25	◆ Element E Complete																																																		
A1270	Proposed Project Completion	0		05-Nov-25	◆ Proposed Project Completion																																																		
A1280	Element A Complete	0		05-Nov-25	◆ Element A Complete																																																		
A2580	Contractual Project Completion	0		05-Dec-25*	◆ Contractual Project Completion																																																		
<b>General Conditions</b>					284	23-May-23	06-Jan-25	▶ 06-Jan-25, General Conditions																																															
<b>Scope Validation</b>					155	23-May-23	24-Oct-23	▶ 24-Oct-23, Scope Validation																																															
5	Scope Validation Investigation	115	23-May-23	14-Sep-23	■ Scope Validation Investigation																																																		
A2510	Prepare and Submit Scope Validation General Notice	5	15-Sep-23	19-Sep-23	■ Prepare and Submit Scope Validation General Notice																																																		
A2610	Submit Scope Validation Supporting Documentation	21	20-Sep-23	10-Oct-23	■ Submit Scope Validation Supporting Documentation																																																		
A2520	Scope Validation Discussions and Resolution with VDOT	14	11-Oct-23	24-Oct-23	■ Scope Validation Discussions and Resolution with VDOT																																																		
<b>Quality Control/Quality Assurance</b>					284	23-May-23	06-Jan-25	▶ 06-Jan-25, Quality Control/Quality Assurance																																															
A2530	Prepare QA/QC Plan	10	23-May-23	01-Jun-23	■ Prepare QA/QC Plan																																																		
A2660	Kickoff Meeting / Present QA/QC Plan	1	02-Jun-23	02-Jun-23	■ Kickoff Meeting / Present QA/QC Plan																																																		
A2540	Submit QA/QC Plan	1	03-Jun-23	03-Jun-23	■ Submit QA/QC Plan																																																		
A2550	VDOT Review QA/QC Plan	21	04-Jun-23	24-Jun-23	■ VDOT Review QA/QC Plan																																																		
A2560	Revise QA/QC Plan	5	25-Jun-23	29-Jun-23	■ Revise QA/QC Plan																																																		
A2570	VDOT Review and Approve QA/QC Plan	21	30-Jun-23	20-Jul-23	■ VDOT Review and Approve QA/QC Plan																																																		
A2930	VDOT Bridge Safety Inspection	2	03-Jan-25	06-Jan-25	■ VDOT Bridge Safety Inspection																																																		
<b>Preparatory Inspection Meetings</b>					118	13-Feb-24	16-Oct-24	▶ 16-Oct-24, Preparatory Inspection Meetings																																															
A2750	E&S PIM	1	13-Feb-24	13-Feb-24	■ E&S PIM																																																		
A2740	Maintenance of Traffic PIM	1	14-Feb-24	14-Feb-24	■ Maintenance of Traffic PIM																																																		
A2710	Pile PIM	1	28-Feb-24	28-Feb-24	■ Pile PIM																																																		
A2700	Substructure Concrete PIM	1	06-Mar-24	06-Mar-24	■ Substructure Concrete PIM																																																		
A2910	Flatwork PIM	1	18-Apr-24	18-Apr-24	■ Flatwork PIM																																																		
A2770	Guardrail PIM	1	19-Apr-24	19-Apr-24	■ Guardrail PIM																																																		
A2790	Gas Line PIM	1	05-Jun-24	05-Jun-24	■ Gas Line PIM																																																		
A2820	Drainage PIM	1	01-Jul-24	01-Jul-24	■ Drainage PIM																																																		
A2780	Sanitary Sewer PIM	1	10-Jul-24	10-Jul-24	■ Sanitary Sewer PIM																																																		
A2800	Signals and Lighting PIM	1	16-Jul-24	16-Jul-24	■ Signals and Lighting PIM																																																		
A2720	Prestressed Beam PIM	1	27-Aug-24	27-Aug-24	■ Prestressed Beam PIM																																																		
A2730	Superstructure Concrete PIM	1	29-Aug-24	29-Aug-24	■ Superstructure Concrete PIM																																																		
A2810	Paving PIM	1	07-Oct-24	07-Oct-24	■ Paving PIM																																																		
A2760	Striping PIM	1	16-Oct-24	16-Oct-24	■ Striping PIM																																																		
<b>Field Inspection Hold Points</b>					115	20-Feb-24	16-Oct-24	▶ 16-Oct-24, Field Inspection Hold Points																																															
A2880	Survey Stakeout and Environmental Delineation	1	20-Feb-24	20-Feb-24	■ Survey Stakeout and Environmental Delineation																																																		
A2890	E&S	1	20-Feb-24	20-Feb-24	■ E&S																																																		
A2840	VTM - Select Backfill	1	07-Jun-24	07-Jun-24	■ VTM - Select Backfill																																																		
A2870	Rebar Dry Run	1	01-Oct-24	01-Oct-24	■ Rebar Dry Run																																																		

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



Activity ID	Activity Name	Original Duration	Start	Finish	2023												2024												2025												2026																																																																															
					A				M				J				Jul				A				S				O				N				D				J				F				M				A				M				J				Jul				A				S				O				N				D				J				F				M				A				M				J				Jul				A			
					i				A				M				J				Jul				A				S				O				N				D				J				F				M				A				M				J				Jul				A																																															
69	Refusals Approved by VDOT	40	28-Dec-23	21-Feb-24	■ Refusals Approved by VDOT																																																																																																																			
70	Closings	10	11-Jan-24	24-Jan-24	■ Closings																																																																																																																			
72	Deliverables Submitted to VDOT	20	25-Jan-24	21-Feb-24	■ Deliverables Submitted to VDOT																																																																																																																			
<b>Utility Relocations</b>		<b>244</b>	<b>23-Jun-23</b>	<b>29-May-24</b>	▼ 29-May-24; Utility Relocations																																																																																																																			
3	Utility Kickoff & Status Meeting (Within 45 Days of NTP)	1	23-Jun-23	23-Jun-23	Utility Kickoff & Status Meeting (Within 45 Days of NTP)																																																																																																																			
102	Utility Field Inspection	10	07-Sep-23	20-Sep-23	■ Utility Field Inspection																																																																																																																			
<b>Element A</b>		<b>10</b>	<b>21-Sep-23</b>	<b>05-Oct-23</b>	▼ 05-Oct-23; Element A																																																																																																																			
104	Utility Coordination Element A	10	21-Sep-23	04-Oct-23	■ Utility Coordination Element A																																																																																																																			
105	Utility Certification for Construction	0	05-Oct-23	05-Oct-23	Utility Certification for Construction																																																																																																																			
<b>Element C</b>		<b>180</b>	<b>21-Sep-23</b>	<b>29-May-24</b>	▼ 29-May-24; Element C																																																																																																																			
107	Utility Coordination Element C	10	21-Sep-23	04-Oct-23	■ Utility Coordination Element C																																																																																																																			
108	Establish Utility Easements	15	21-Sep-23	11-Oct-23	■ Establish Utility Easements																																																																																																																			
109	Utility Preparation of Plan and Estimate	50	21-Sep-23	29-Nov-23	■ Utility Preparation of Plan and Estimate																																																																																																																			
110	VDOT PS&E Review & Authorization	10	30-Nov-23	13-Dec-23	■ VDOT PS&E Review & Authorization																																																																																																																			
111	Right of Way Clear for Utility Construction	5	22-Feb-24	28-Feb-24	■ Right of Way Clear for Utility Construction																																																																																																																			
112	Utility Relocation Construction	65	29-Feb-24	29-May-24	■ Utility Relocation Construction																																																																																																																			
<b>Element D</b>		<b>165</b>	<b>21-Sep-23</b>	<b>08-May-24</b>	▼ 08-May-24; Element D																																																																																																																			
114	Utility Coordination Element D	10	21-Sep-23	04-Oct-23	■ Utility Coordination Element D																																																																																																																			
115	Establish Utility Easements	15	21-Sep-23	11-Oct-23	■ Establish Utility Easements																																																																																																																			
116	Utility Preparation of Plan and Estimate	50	21-Sep-23	29-Nov-23	■ Utility Preparation of Plan and Estimate																																																																																																																			
117	VDOT PS&E Review & Authorization	10	30-Nov-23	13-Dec-23	■ VDOT PS&E Review & Authorization																																																																																																																			
118	Right of Way Clear for Utility Construction	5	22-Feb-24	28-Feb-24	■ Right of Way Clear for Utility Construction																																																																																																																			
119	Utility Relocation Construction	50	29-Feb-24	08-May-24	■ Utility Relocation Construction																																																																																																																			
<b>Element E</b>		<b>165</b>	<b>21-Sep-23</b>	<b>08-May-24</b>	▼ 08-May-24; Element E																																																																																																																			
121	Utility Coordination Element E	10	21-Sep-23	04-Oct-23	■ Utility Coordination Element E																																																																																																																			
122	Establish Utility Easements	15	21-Sep-23	11-Oct-23	■ Establish Utility Easements																																																																																																																			
123	Utility Preparation of Plan and Estimate	50	21-Sep-23	29-Nov-23	■ Utility Preparation of Plan and Estimate																																																																																																																			
124	VDOT PS&E Review & Authorization	10	30-Nov-23	13-Dec-23	■ VDOT PS&E Review & Authorization																																																																																																																			
125	Right of Way Clear for Utility Construction	5	22-Feb-24	28-Feb-24	■ Right of Way Clear for Utility Construction																																																																																																																			
126	Utility Relocation Construction	50	29-Feb-24	08-May-24	■ Utility Relocation Construction																																																																																																																			
<b>Roadway Design</b>		<b>177</b>	<b>23-May-23</b>	<b>24-Jan-24</b>	▼ 24-Jan-24; Roadway Design																																																																																																																			
<b>30% Roadway Design</b>		<b>47</b>	<b>23-May-23</b>	<b>26-Jul-23</b>	▼ 26-Jul-23; 30% Roadway Design																																																																																																																			
38	Roadway Design	25	23-May-23	26-Jun-23	■ Roadway Design																																																																																																																			
39	Drainage / Stormwater Mgt / Erosion and Sediment Control	25	23-May-23	26-Jun-23	■ Drainage / Stormwater Mgt / Erosion and Sediment Control																																																																																																																			
40	Preliminary Drainage and Stormwater Report	20	23-May-23	19-Jun-23	■ Preliminary Drainage and Stormwater Report																																																																																																																			
41	Traffic Engineering (Markings / Signs)	15	30-May-23	19-Jun-23	■ Traffic Engineering (Markings / Signs)																																																																																																																			
42	Maintenance of Traffic / TMP (30%)	15	06-Jun-23	26-Jun-23	■ Maintenance of Traffic / TMP (30%)																																																																																																																			
43	QA/QC 30% Submission	7	27-Jun-23	05-Jul-23	■ QA/QC 30% Submission																																																																																																																			
44	VDOT Review of 30% Plans	15	06-Jul-23	26-Jul-23	■ VDOT Review of 30% Plans																																																																																																																			
<b>60% Roadway Design / FI / Right of Way</b>		<b>95</b>	<b>06-Jul-23</b>	<b>15-Nov-23</b>	▼ 15-Nov-23; 60% Roadway Design / FI / Right of Way																																																																																																																			
46	Roadway Design	40	06-Jul-23	30-Aug-23	■ Roadway Design																																																																																																																			
47	Drainage / Stormwater Mgt / Erosion and Sediment Control	40	06-Jul-23	30-Aug-23	■ Drainage / Stormwater Mgt / Erosion and Sediment Control																																																																																																																			
48	Semifinal Drainage and Stormwater Report	30	13-Jul-23	23-Aug-23	■ Semifinal Drainage and Stormwater Report																																																																																																																			
49	Traffic Engineering (Markings / Signs)	30	13-Jul-23	23-Aug-23	■ Traffic Engineering (Markings / Signs)																																																																																																																			
50	Maintenance of Traffic / TMP / WZTIA (60%)	30	13-Jul-23	23-Aug-23	■ Maintenance of Traffic / TMP / WZTIA (60%)																																																																																																																			
51	Preliminary Design Retaining Walls	30	13-Jul-23	23-Aug-23	■ Preliminary Design Retaining Walls																																																																																																																			
52	Preliminary Landscape Design	25	13-Jul-23	16-Aug-23	■ Preliminary Landscape Design																																																																																																																			
53	Prepare Right of Way Plans	30	13-Jul-23	23-Aug-23	■ Prepare Right of Way Plans																																																																																																																			
54	QA / QC 60% Submission	10	31-Aug-23	13-Sep-23	■ QA / QC 60% Submission																																																																																																																			
55	VDOT Review of 60% Plans / Reports / ROW Plans	15	14-Sep-23	04-Oct-23	■ VDOT Review of 60% Plans / Reports / ROW Plans																																																																																																																			
56	Revise and Resubmit Final Drainage and Stormwater Report	10	05-Oct-23	18-Oct-23	■ Revise and Resubmit Final Drainage and Stormwater Report																																																																																																																			
58	Revise and Resubmit ROW Plans	15	05-Oct-23	25-Oct-23	■ Revise and Resubmit ROW Plans																																																																																																																			

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











Activity ID	Activity Name	Original Duration	Start	Finish	2023												2024												2025												2026											
					A				M				J				Jul				A				M				J				Jul				A				M				J				Jul			
					A	M	J	Jul	A	M	J	Jul	A	M	J	Jul	A	M	J	Jul	A	M	J	Jul	A	M	J	Jul	A	M	J	Jul	A	M	J	Jul	A	M	J	Jul												
<b>Shutdown Work</b>																																																				
<b>Maintenance of Traffic</b>																																																				
A1810	Hydraulic/Hillsdale Intersection Shutdown	46	10-Jun-25*	25-Jul-25																																																
A1820	Final Installation of Detour and Shutdown Intersection	1	10-Jun-25*	10-Jun-25																																																
A2070	Open Roundabout and Remove Detour	1	24-Jul-25	24-Jul-25*																																																
<b>Gradework</b>																																																				
A1850	Demo Existing Curb/Gutter/Sidewalk	3	12-Jun-25	17-Jun-25																																																
A1870	Demo Existing Pavement	2	18-Jun-25	20-Jun-25																																																
A1860	Grade and Install Stone Base NW Corner	2	21-Jun-25	23-Jun-25																																																
A1910	Complete Drainage System Final Installation	4	21-Jun-25	26-Jun-25																																																
A1880	Grade and Install Stone Base SW Corner	2	25-Jun-25	26-Jun-25																																																
A1890	Grade and Install Stone Base NE Corner	2	28-Jun-25	01-Jul-25																																																
A1920	Grade and Install Stone Base Hydraulic/Hillsdale Intersection	2	28-Jun-25	01-Jul-25																																																
A1900	Grade and Install Stone Base SE Corner	2	02-Jul-25	03-Jul-25																																																
A2050	Install Topsoil and Grade Turf Areas	3	11-Jul-25	14-Jul-25																																																
<b>Flatwork</b>																																																				
A1970	Install Curb/Gutter/Sidewalk/Curb Ramps NW Corner	5	25-Jun-25	02-Jul-25																																																
A1940	Install Median Island Hydraulic West of Hillsdale	5	28-Jun-25	05-Jul-25																																																
A1960	Install Curb/Gutter/Sidewalk/Curb Ramps SW Corner	5	28-Jun-25	05-Jul-25																																																
A1930	Install Roundabout Flatwork Islands	6	02-Jul-25	11-Jul-25																																																
A1980	Install Curb/Gutter/Sidewalk/Curb Ramps NE Corner	5	02-Jul-25	09-Jul-25																																																
A1990	Install Curb/Gutter/Sidewalk/Curb Ramps SE Corner	3	05-Jul-25	09-Jul-25																																																
A1950	Install Median Island Hydraulic East of Hillsdale	5	07-Jul-25	14-Jul-25																																																
<b>Asphalt</b>																																																				
A2020	Install Asphalt Base and Intermediate Courses	2	12-Jul-25	14-Jul-25																																																
A2030	Mill/Overlay and Place Surface Asphalt Course	2	15-Jul-25	17-Jul-25																																																
<b>Miscellaneous</b>																																																				
A2100	Demolish Existing Signals	4	12-Jun-25	20-Jun-25																																																
A2000	Final Install Lighting Facilities	10	18-Jun-25	03-Jul-25																																																
A2040	Install Permanent Signage	3	15-Jul-25	19-Jul-25																																																
A2060	Install Seed and Mulch	1	15-Jul-25	15-Jul-25																																																
A2080	Install Permanent Striping	2	19-Jul-25	22-Jul-25																																																
<b>Post-Shutdown Work</b>																																																				
A2110	Punchlist	15	28-Jul-25	26-Aug-25																																																
<b>Element E - Hydraulic Access Improvements</b>																																																				
A2440	Install E&S Measures	5	22-Feb-24	01-Mar-24																																																
A2450	Clearing (TOYR)	5	04-Mar-24	12-Mar-24																																																
A2390	Demo Existing Curb and Sidewalk	4	10-May-24	16-May-24																																																
A2370	Excavate For Retaining Wall at Power Pole	2	20-May-24	21-May-24																																																
A2380	F/P/C Retaining Wall	8	22-May-24	07-Jun-24																																																
A2430	Install Drainage 502+00 to 504+00	6	11-Jun-24	24-Jun-24																																																
A2400	Grade for New Sidewalk and Curb Ramps	10	26-Jun-24	15-Jul-24																																																
A2410	Install Sidewalk and Curb Ramps Rte. 250 to Brandywine	4	16-Jul-24	22-Jul-24																																																
A2420	Install New Sidewalk and Curb Ramps Brandywine and Michie	4	24-Jul-24	30-Jul-24																																																
A2500	Install Topsoil, Seed and Mulch	4	02-Aug-24	08-Aug-24																																																
A2460	Install Median Islands at Brandywine	8	28-Jul-25	11-Aug-25																																																
A2470	Install Median Islands at Michie	8	12-Aug-25	28-Aug-25																																																
A2480	Mill and Pave Surface Asphalt	3	29-Aug-25	03-Sep-25																																																
A2490	Install Permanent Striping	2	05-Sep-25	08-Sep-25																																																

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