



Technical Proposal for

A DESIGN-BUILD PROJECT ROUTE 29 WIDENING PHASE II

*From: 0.208 miles west of Union Mill Road
To: 0.460 miles east of Buckley's Gate Drive*

State Project No.: 0029-029-350, P101, R201, C501, D612

Federal Project No.: NHPP-5A01(917)

Contract ID Number: C00110329DB113



March 9, 2022





SECTION 4.1

Letter of Submittal



12001 GUILFORD ROAD | ANNAPOLIS JUNCTION, MD 20701
BALTIMORE 401.792.9400 | WASHINGTON 301.953.0900
FAX 301.953.0384

4.1 | Letter of Submittal

March 9, 2022

Sudha Mudgade, PE, PMP, DBIA
Alternative Project Delivery Division
Virginia Dept. of Transportation
1401 East Broad Street
Annex Building, 5th Floor
Richmond, VA 23219

RE: Request for Proposals | Design-Build | Route 29 Widening Phase II | State Project No.: 0029-029-350, P101, R201, C501, D612 | Federal Project No. NHPP-5A01(917) | Contract ID Number C00110329DB113

Dear Ms. Mudgade:

4.1.1 Corman Kokosing Construction Company (Corman Kokosing), 12001 Guilford Road, Annapolis Junction, MD 20701, is the legal entity who will execute the contract with Virginia Dept. of Transportation (VDOT).

4.1.2 Corman 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 I, Section 8,2, Corman Kokosing hereby declares that the offer represented by the Technical and Price Proposals will remain in full force and effect for 120 days after the date the Price Proposal is actually submitted to VDOT.

4.1.4 Point of Contact	Secondary Point of Contact	4.1.5 Principal Officer for Corman Kokosing
<p>Lou Robbins, PE, DBIA Vice President Alternative Delivery Corman Kokosing Construction Co. 12001 Guilford Road Annapolis Junction, MD 20701 703-772-8566 Cell 301-953-0384 Fax lrobbins@kokosing.biz</p>	<p>Scott Szympruch, PE Design-Build Project Manager Corman Kokosing Construction Co. 12001 Guilford Road Annapolis Junction, MD 20701 301-343-5476 Cell 301-953-0384 Fax sszympruch@kokosing.biz</p>	<p>Gregory A. Hamilton, PE, DBIA Regional Sr. Vice President Corman Kokosing Construction Co. 12001 Guilford Road Annapolis Junction, MD 20701 614-207-0716 Cell gah@kokosing.biz</p>

4.1.6 Final Completion Date: July 31, 2026. **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 Corman Kokosing is committed to achieving a 9% DBE participation goal for the entire value of the contract.

4.1.11 Corman Kokosing hereby 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 Dept. of Professional and Occupational Regulations (DPOR) are complete and accurate and that Corman 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,

CORMAN KOKOSING CONSTRUCTION COMPANY

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



SECTION 4.2

Offeror's Qualifications

4.2 | OFFEROR'S QUALIFICATIONS

4.2.1 Corman Kokosing hereby confirms the information contained in the Statement of Qualifications (SOQ) remains true and accurate. Per the Request for Proposal (RFP), the following deputy key personnel are now on our team (See Figure 1), designated by a ★ with resumes at the end of this section:

- Deputy Design-Build Project Manager (DDBPM) – Ren Persaud
- Deputy Design Manager (DDM) – Joe Powers, PE (who was considered *Value Added* in our SOQ)

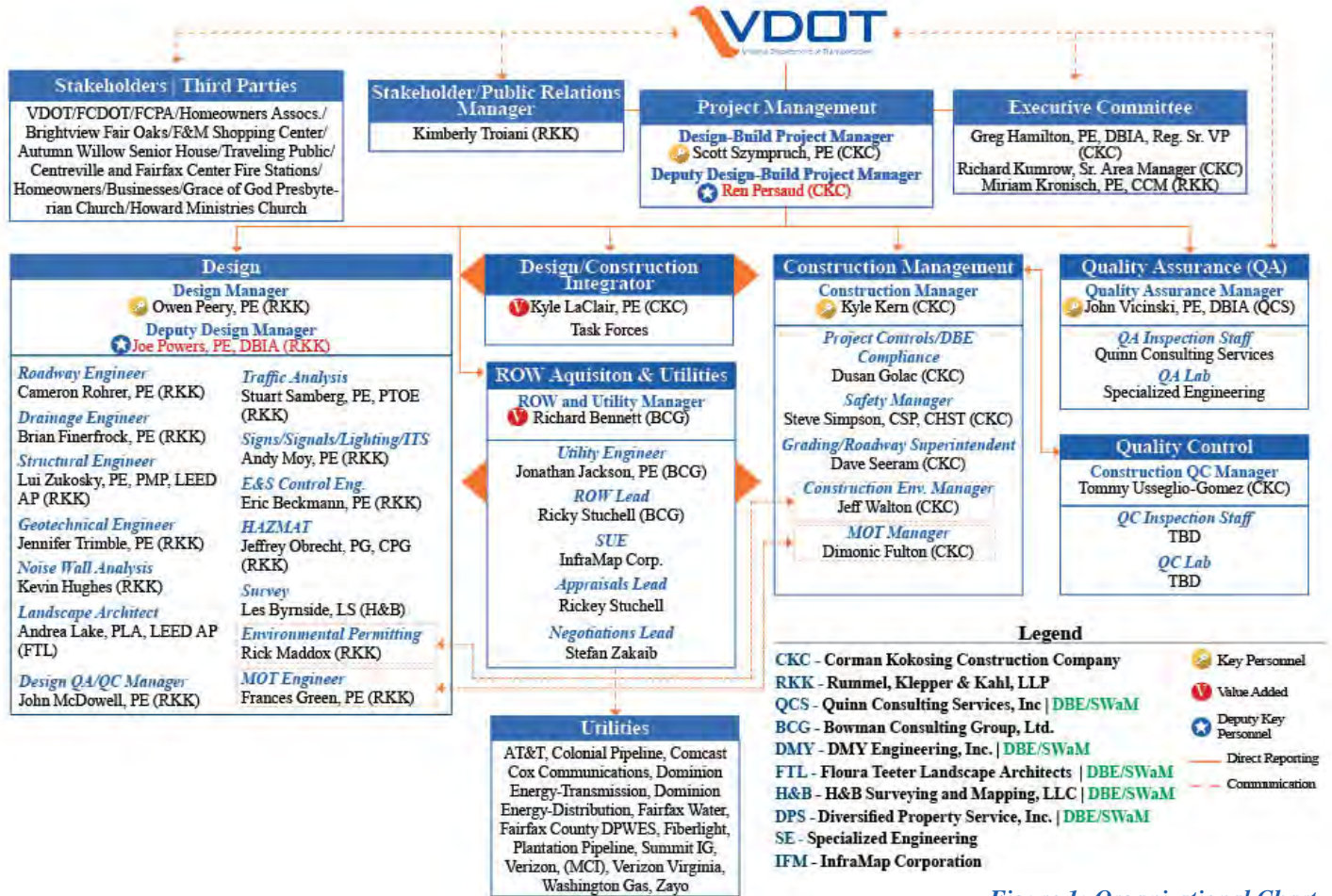


Figure 1: Organizational Chart

Revised from our SOQ: Deputy Key Personnel: Deputy Design Manager | Joe Powers, PE, DBIA (RKK&K).

Added from our SOQ: Deputy Key Personnel: Deputy Design-Build Project Manager | Ren Persaud (Corman Kokosing) reports to Design-Build Project Manager Scott Szympruch and alongside Scott will be responsible for design/construction, quality management, safety and environmental compliance, contract administration, and other services, including procuring/furnishing materials, equipment, services, labor per contract timely. He will attend monthly progress meetings and be available to VDOT. Ren has the expertise/experience to supervise/exercise control of the work and accepts responsibility for final work product. He will be VDOT's secondary point of contact and will coordinate, integrate, and administrate the Corman Kokosing/RK&K Team, including design, construction, QA, MOT, safety, ROW, and utilities. Ren will be responsible for meeting our contract obligations and avoiding/resolving disputes per the RFP. He will assist Scott in supervising the design manager, design/construction integrator, construction manager, ROW acquisition, utility manager, and quality assurance manager and manage/coordinate public outreach/meetings through our stakeholder/public relations manager. Ren will be involved with preconstruction, design, construction, and punch out and will answer questions from stakeholders, citizens, elected officials, etc. He will assist with constructability reviews, safety audits, and oversee the quality management program, purchasing, and construction.

ATTACHMENT 4.2.1

DEPUTY KEY PERSONNEL RESUME FORM

Brief Resume of Key Personnel anticipated for the Project.
a. Name & Title: Ren Persaud Project 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: Corman Kokosing Construction Company
d. Employment History: With this Firm <u>14</u> Years With Other Firms <u>1.5</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): Corman Kokosing Construction Company, Annapolis Junction, MD <i>Start Date: Oct. 2018 End Date: Present Position: Project Manager:</i> Ren oversees construction, manages the project team, equipment and material procurement, establishes objectives and goals, work plans, budgets and resources, procures/coordinates subcontractors, develops the project-specific safety program with the project team, monitors schedules, conducts progress meetings, evaluates/minimizes exposures and risks, mitigates issues, reviews/approves deliverables, RFIs, change orders, administers contracts, oversees budget, safety, and quality compliance, and steers projects to successful completion per contract. O’Connell & Lawrence, Olney, MD <i>Start Date: April 2017 End Date: Oct. 2018 Position: Construction Consultant:</i> Ren provided litigation support services for construction claims on heavy highway, industrial and public works projects to determine, quantify, and present expert opinions to client and Counsel. He provided construction consulting services (construction/engineering investigations, mediation preparation, project control preparation and analyses, and management consulting) on large scale design-build projects ranging \$60 Million to \$1 Billion. Corman Kokosing Construction Company, Annapolis Junction, MD <i>Start Date: June 2006 End Date: March 2017 Position: Project Engineer:</i> Ren provided project management, developed the project-specific safety program with the project team, managed construction, safety and quality standards, assisted in developing a site logistics plan, ensured conformance to plans/specifications, daily planning and CPM schedules, updated monthly schedules and reviewed two-week look ahead schedules with the Superintendent, attended onsite progress meetings, supervised and coordinated submittals/drawings, subcontractor/supplier coordination, material procurement, cost control, budgets, negotiated change orders, identified issues and field troubleshooting while minimizing costs and schedule impacts, and processed vendor invoices and subcontractor payment applications.
e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization: University of Maryland BS 2007 Civil Engineering
f. Active Registration: Year First Registered/ Discipline/VA Registration #:
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 ROUTE 1 IMPROVEMENTS AT FORT BELVOIR, LORTON, VA \$82.1 MILLION FHWA/VDOT <i>Firm: Corman Kokosing Construction Company Project Role: Project Manager</i> <i>Start Date: Nov. 2018 End Date: May 2019</i> Specific Responsibilities: Project Manager. Ren oversaw closing out the punch list work after project completion and ensured materials and work performed met the contract requirements. This project constructed new and/or widened Route 1 from four to six lanes to relieve heavy traffic near the Fort Belvoir military installation, including adding a multi-use trail/southwest both sides, improvements to accommodate bicycles/pedestrians, pedestrian signals, bicycle lanes and crosswalks on Telegraph Road from the intersection of Route 1 to Whernside Street. Relevancy: Design-Build; design/construction of roadways; survey; environmental; geotechnical; hydraulic/drainage; erosion & sediment control; traffic control devices; transportation management plan; ROW acquisition; utility coordination/relocations; public involvement/relations and stakeholder coordination; QA/QC; ITS; landscaping; lighting; construction engineer/inspection; project management

DESIGN-BUILD INTERCOUNTY CONNECTOR CONTRACT B, MONTGOMERY COUNTY, MD | \$560.9 MILLION | MDOT/SHA

Firm: Corman Kokosing Construction Company

Project Role: Field Engineer

Start Date: Sept. 2008

End Date: Oct. 2009

Specific Responsibilities: Field Engineer. Ren oversaw utility work, monitored/coordinated subcontractors, including, safety performance and training compliance, coordinated with utility companies regarding outages, tie ins, and work progress, conducted preconstruction meetings, reviewed/wrote work plans and was the liaison between subcontractors, third-party inspectors, owner and project team regarding scope of work and performing to specifications.

This project constructed a new 7.1 mile six-lane divided highway, automated toll way on new alignment, including phased construction of five arterial roadways with pedestrian access, relocated six side roads, and three miles of 10-ft. wide pedestrian/bicycle shared use path along the roadway. There was community outreach, stakeholder/third-party coordination (including over 10 utility companies for major utility relocations in highly-congested areas), working in/around active urban neighborhoods, and phased maintenance of traffic. Access was maintained with temporary roads, walkways and detours for pedestrians/vehicles. With residential properties so close to construction, communities were kept informed when working outside normal timeframes and mitigated inconveniences before they became issues. This project reroutes commuter traffic from clogged neighborhood streets onto six lanes of controlled-access highway, improves mobility and safety and reduces traffic on major arteries.

Relevancy: *Design-Build; design/construction of roadways; survey; environmental; geotechnical; hydraulic/drainage; erosion & sediment control; traffic control devices; transportation management plan; signing and pavement markings; ROW acquisition; utility coordination/relocations; public involvement/relations and stakeholder coordination; QA/QC; ITS; landscaping; lighting; construction engineer/inspection; project management*

DESIGN-BUILD MD 30 HAMPSTEAD BYPASS, HAMPSTEAD, MD | \$43.2 MILLION | MDOT SHA

Firm: Corman Kokosing Construction Company

Project Role: Project Engineer

Start Date: April 2008

End Date: Aug. 2008

Specific Responsibilities: Project Engineer. Ren provided project management, managed construction, safety and quality standards, ensured conformance to plans/specifications, daily planning and CPM schedules, updated monthly schedules and reviewed two-week look ahead schedules with the Superintendent, attended onsite progress meetings, supervised and coordinated submittals/drawings, subcontractor/supplier coordination, material procurement, cost control, budgets, negotiated change orders, identified issues and field troubleshooting while minimizing costs and schedule impacts, and processed vendor invoices and subcontractor payment applications. He was a liaison between owner, local governments, corporate headquarters, and the project team, was responsible for quantity reports, RFIs, monthly financial estimates, purchase orders, take-offs and scheduling. Ren monitored performance and budget, and assisted onsite with inspectors regarding quality control, overseeing subcontractors regarding work performance and safety compliance.

Project consisted of a new two-lane asphalt urban minor arterial roadway, including realigning/widening three local roads, new storm drainage, and worked with adjacent residents to maintain access, reset fences and rebuild driveways. An approved Alternative Technical Concept (ATC) shifted a roadway alignment to avoid a costly detour road which expedited construction and benefitted residents by shifting the final road location away from their homes. It allowed the profile over the bypass to be lowered improving the adjacent grading and driveway profiles over what was proposed in the conceptual plan and reduced relocation work required for electrical lines. This project significantly reduces traffic congestion, improves public safety and traffic mobility and encourages smart growth by limiting highway access.

Relevancy: *Design-Build; design/construction of roadways; survey; environmental; geotechnical; hydraulic/drainage; erosion & sediment control; traffic control devices; transportation management plan; signing and pavement markings; ROW acquisition; utility coordination/relocations; public involvement/relations and stakeholder coordination; QA/QC; landscaping; lighting; construction engineer/inspection; project management*

ATTACHMENT 4.2.1

DEPUTY KEY PERSONNEL RESUME FORM

Brief Resume of Key Personnel anticipated for the Project.							
a. Name & Title: Joseph D. Powers, PE Manager, Transportation							
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 <u>3</u> Years With Other Firms <u>28</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):							
RK&K <i>Start Date: Jan. 2019 / End Date: Present / Position: Manager, Transportation:</i> Joe is a Manager in RK&K's Fairfax office Transportation group. He has 29 years of experience in the design and management for a wide range of transportation projects including Design-Build and Design-Bid-Build delivery. Joe is responsible for the direction, coordination and completion of projects including the management of multi-disciplinary teams and subconsultants. He has extensive experience designing to VDOT and FHWA standards, as well as developing/implementing project Quality Control plans.							
WSP USA <i>Start Date: 1998 / End Date: 2019 / Position: Sr. Project Manager:</i> Joe led multi-disciplinary teams in the development of final design plans for roadway and transit projects including coordination with local government and VDOT clients as well as with FHWA, utility owners and other stakeholders. His experience includes both Design-Build and Design-Bid-Build projects and pursuits. Joe ensured that Quality Control procedures were followed and documented prior to any formal submissions.							
e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization: Georgia Institute of Technology-School, Atlanta Georgia / MSCE / 1994 / Construction Management Virginia Polytechnic Institute and State University, Blacksburg, VA / BS / 1989 / Civil Engineering							
f. Active Registration: Year First Registered/ Discipline/VA Registration #: 1988 / VA Professional Engineer / #0402032130 2017 / Envision Sustainability Professional / #19417 2019 / Design Build Institute of America / D-2856							
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> (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.							
<table border="0"> <tr> <td colspan="2">DESIGN-BUILD I-66 AND NUTLEY STREET ROUNABOUT INTERCHANGE, FAIRFAX COUNTY, VA \$4.5 MILLION (DESIGN) VDOT/FAM</td> </tr> <tr> <td><i>Firm:</i> RK&K</td> <td><i>Project Role:</i> Design Manager Design Quality Manager</td> </tr> <tr> <td><i>Start Date:</i> Jan. 2019</td> <td><i>End Date:</i> Present</td> </tr> </table>		DESIGN-BUILD I-66 AND NUTLEY STREET ROUNABOUT INTERCHANGE, FAIRFAX COUNTY, VA \$4.5 MILLION (DESIGN) VDOT/FAM		<i>Firm:</i> RK&K	<i>Project Role:</i> Design Manager Design Quality Manager	<i>Start Date:</i> Jan. 2019	<i>End Date:</i> Present
DESIGN-BUILD I-66 AND NUTLEY STREET ROUNABOUT INTERCHANGE, FAIRFAX COUNTY, VA \$4.5 MILLION (DESIGN) VDOT/FAM							
<i>Firm:</i> RK&K	<i>Project Role:</i> Design Manager Design Quality Manager						
<i>Start Date:</i> Jan. 2019	<i>End Date:</i> Present						
<i>Specific Responsibilities:</i> Design Manager responsible for the design and multi-discipline coordination of the Nutley Street interchange and one mile of the I-66 reconstruction for implementation of express lanes between the WMATA metro tracks and the reconstructed general-purpose lanes. Joe managed the design schedule and budget and held regular design team meetings to coordinate the design efforts for this fast-track project. In addition to the roadway/drainage design package, his responsibilities included the roadway design elements for the 17 retaining walls and eight noise barriers; day-to-day coordination and management of multiple disciplines; and coordination with the contractor to provide the design packages while ensuring QA as well as with adjacent project segment designers. Joe made all formal submissions using the project's electronic document control system, including the submittal of QA/QC documentation. He managed the determination of quantities at each design stage for comparison and reconciliation with contractor values. Joe worked with VDOT and the GEC consultant to resolve comments and coordinate the submission of design waivers and exceptions and to obtain Approved for Construction plans. He continued working with FAM and the design team through construction to provide reviews of shop drawings, respond to contractor requests for information							

and to obtain approvals for contractor-initiated Field Design Changes. This project was designed using MicroStation and OpenRoads Designer to current VDOT standards.

Relevancy: *Design-Build; roadway; survey; hydraulics; traffic control devices; TMP; noise analysis; noise/retaining wall design; public involvement/relations and stakeholder coordination; QA/QC; ITS; lighting; construction engineering; project management.*

DESIGN-BUILD I-66 ACTIVE TRAFFIC MANAGEMENT SYSTEM, ARLINGTON, FAIRFAX AND PRINCE WILLIAM COUNTIES, VA | \$34 MILLION | VDOT

Firm: WSP USA

Project Role: Design Manager | Responsible Charge Engineer

Start Date: March 2013

End Date: May 2016

Specific Responsibilities: **Design Manager | Responsible Charge Engineer** responsible for the first implementation of a fully integrated Active Traffic Management (ATM) solution on the east coast. The project was along one of the most congested corridors in the Northern Virginia Region, covering 34 miles of I-66 from the Washington, DC line on the east to Gainesville, VA on the west. In addition to implementation of ITS components, scope included roadway widening to provide staging areas, as well as utility relocations and drainage system modifications.

Joe managed all design disciplines and worked with the contractor to provide design packages working with the QAM to develop the design portion of the project Quality Assurance Plan and oversee QA and constructability reviews throughout design. He managed the design scope, schedule and budget and implemented regular design team, as well as designer/contractor meetings to ensure a coordinated effort. Joe managed the development of design quantities for the use and review of the contractor. This project used co-location of the contractor with the design team through the design phase to facilitate an accelerated team approach. He provided design services during construction, responded to RFIs and reviewed shop drawings, as well as developed as-built plans after construction completion. This project was designed using MicroStation and Geopak which were the VDOT standards.

Relevancy: *Design-Build; roadway; survey; geotechnical; hydraulics; traffic control devices; TMP; utility relocations/adjustments; QA/QC; ITS; lighting; construction engineering; project management.*

BRADDOCK ROAD WIDENING AND ROUTE 123 INTERSECTION, VA | \$350,000 (DESIGN) | FAIRFAX COUNTY

Firm: WSP USA

Project Role: Project Manager

Start Date: June 2013

End Date: June 2016

Specific Responsibilities: **Project Manager** for the preparation of design plans for at-grade intersection improvements for the Route 123 and Braddock Road intersection. Improvements consisted of pavement, median, curb & gutter, and striping modifications to add and extend turn lanes and modify lane configurations; signal modifications; and associated drainage, utility and signage modifications and pedestrian facilities.

Joe managed the scope, schedule and budget and ensured they conformed to the contract. He oversaw multiple disciplines to develop the design plans, coordinated with Fairfax County throughout design and with the County and VDOT to resolve design comments. Joe also oversaw implementation of the Quality Assurance plan to ensure quality submittals.

Relevancy: *Roadway; survey; geotechnical; hydraulics; traffic control devices; TMP; ROW acquisition; utility relocations/adjustments; public involvement/relations and stakeholder coordination; QA/QC; lighting; construction engineering; project management.*



SECTION 4.3

Design Concept

4.3 | DESIGN CONCEPT

In this section, the Corman Kokosing/RK&K DB Team presents our design concept for the Route 29 Widening Phase II design-build project. Since it recognizes and accepts the substantial work already completed by VDOT, we focused on analyzing design elements that enhance constructability and the project schedule. Through our review of the RFP, several site visits, and meetings with VDOT, utility owners and other stakeholders, coupled with our knowledge of the corridor, we integrated and achieved the project priorities as follows:




- ✓ **Reduced Construction Costs.** Our design reduces construction costs while meeting/exceeding the RFP’s requirements by focusing on design efficiencies that accommodate an effective sequence of construction while improving constructability. See **Table 1** for examples.
- ✓ **Provided an Efficient Design.** We have refined the design to avoid utility conflicts and consolidated storm sewer piping systems in conjunction with developing a robust and maintenance-friendly stormwater management plan. Our design approach reduces need for future inspection/maintenance resulting in long-term asset performance and durability.
- ✓ **Developed an Effective Construction Approach.** Our design considers construction phasing in conjunction with maintenance of traffic (MOT) provisions and accommodating pedestrian movements through the corridor. For example, our approach incorporates barrier separation for bi-directional traffic on Route 29, enhancing safety by minimizing risk for head-on collisions. See our approach to pedestrian access within our sequence of construction under **Section 4.5**.
- ✓ **Implemented a Robust Project Approach.** Our management approach ensures we construct and complete the project efficiently while implementing an effective right of way (ROW) acquisition plan, a targeted utility relocation plan and sequencing plan, and considering and maintaining public acceptance of the project. These items are fully integrated into our schedule, which will reduce project risk.

The Corman Kokosing/RK&K DB Team evaluated the RFP Concept Plan (a fairly prescriptive plan) and discussed potential design enhancements with the VDOT team in a one-on-one meeting. Based on VDOT’s feedback, we developed Roadway Design Enhancements (see **Table 1**) that provide value-added benefits to the project. These design enhancements are described in the proceeding sections and further depicted within the Roadway Concept Plans included in Volume II.

















CONCEPTUAL ROADWAY PLANS

Our Team’s Conceptual Design meets/exceeds the RFP requirements, including reference documents listed in Part 2, Section 2.1. The design stays within the proposed ROW and easements as required and does not need any Design Exception or Waivers beyond those listed in the RFP. **Table 1** illustrates our enhancements to avoid structures and develop an efficient design.

Table 1: Roadway Design Enhancements

No.	Design Enhancement*	Benefits	
01 Sheet 4	Redesigned curb ramp at intersection of Union Mill Road and Route 29 to retain existing signal pole.	Improves delivery certainty by avoiding relocating a 24-inch Fairfax Water water main. Improves safety by shortening the crosswalk at Union Mill Road and providing greater clearance from vehicles to the signal pole than the RFP design.	
02 Sheet 4	Added a 25-ft long retaining wall at Sta. 311+00 RT.	Avoids impacts to Parcel 003 building foundation (Verizon) preventing a potential hazard.	
03 Sheet 5	Relocated the asphalt connector from Maple Creek Lane.	Improves safety by providing ADA-compliant connection at 5% maximum grade compared with RFP design of 14.51%.	

4.3 | DESIGN CONCEPT

No.	Design Enhancement*	Benefits	
Sheet 7	Reversed the Shared Use Path (SUP) and buffer cross-slope to drain to the outside from Sta. 350+50 to Sta. 357+25 RT.	Reduces fill in a floodplain while keeping roadway stormwater in VDOT-maintained storm system.	
Sheet 7	Adjusted wing wall angle of proposed double box culvert.	Improves delivery certainty by accommodating temporary stream diversion within proposed easement limits providing more buffer from the live creek. This mitigates flooding impacts to the schedule.	
Sheet 7	Adjusted SUP alignment.	Improves delivery certainty and cost by eliminating the need to relocate a signal pole at Sta. 358+90.39 LT positively effecting the project schedule.	 
Sheet 7	Adjusted sidewalk tie-in length on Meadow Estates Drive.	Reduces cost by eliminating ROW impacts to Parcel 077, a residential property.	
Sheet 9	Adjusted SUP alignment.	Improves delivery certainty and cost by eliminating relocating a signal pole at Sta. 384+68.30 LT.	 
Sheet 9	Adjusted SUP alignment and curb ramps.	Improves safety by providing a buffer between the roadway and the SUP and aligns pedestrian movement across Buckleys Gate Drive.	
Sheets 9-10	Developed innovative Sequence of Construction and Maintenance of Traffic Plan.	Improves safety and delivery certainty by eliminating demolition and reconstruction of Route 29 median from Sta. 385+88.30 to Sta. 398+69.01 resulting in less worker exposure in the median and shorter work zone all contributing to schedule and cost efficiencies.	   
BENEFITS LEGEND:			
 COST  DELIVERY CERTAINTY  MOT BURDEN  SAFETY			
*For Storm Drain Enhancements, see Table 4			

a. General geometry including horizontal/vertical curve data, and associated design speeds, the number and widths of lanes, shoulders, sidewalks and shared use paths: Our design concept constructs this project according to the geometric standards shown in **Table 2**. Shared Use Paths are 10-ft. wide per VDOT Standard, except in locations where waivers were previously approved by VDOT for a reduced width of 8-ft. and reduced buffer width of 5-ft. Sidewalks are 5-ft. wide, except as needed to complete a transition to tie into existing sidewalks that are narrower than 5-ft. Geometric alignment information, lanes and widths, and pedestrian facilities are shown in Volume II of our Technical Proposal.

Table 2: Geometric Standards

Roadway	Classification	Geometric Standard	Design Speed
Lee Highway (Route 29)	Other Urban Principal Arterial	GS-5	45
Stringfellow Road	Urban Minor Arterial	GS-6	45
Clifton Road	Urban Minor Arterial	GS-6	45
Service Road 1	Urban Local Street	GS-8	25
Service Road 2	Urban Local Street	GS-8	25
Service Road 3	Urban Local Street	GS-8	25
Ramp A	Interchange Ramp	GS-R	45

4.3 | DESIGN CONCEPT

b. Horizontal/vertical alignments: The horizontal geometry in our proposal matches what is in the RFP Conceptual Plans, except at the recently completed Brightview Fair Oaks development.

What we found: We identified—based on the developer’s approved site plan—that the RFP alignment for Service Road 3 did not match the construction baseline from the Brightview Developer.

What we accomplished: Our Team revised the Service Road 3 alignment to provide a smooth transition from the developer-built portion of the service road to the typical section in the RFP Conceptual Plans. We accomplished this *without* the need for additional easements or ROW. In addition, we modified the design of the Brightview development entrance to maintain the throat width as constructed by the developer per VDOT’s response to RFP question #45 which stated that “*The pavement constructed by the Developer is sufficient for this project...*”

Understanding the challenges associated with vertical sight distance, we did not alter the proposed vertical roadway alignments and our proposed grades match those provided in the RFP (See Table 3).

c. Maximum grade for all segments and connectors: Vertical alignments were designed to meet all design criteria to stay within the minimum/maximum grades in the RFP Conceptual Plans (See Table 3).

Table 3: Minimum/Maximum Grade Summary

Roadway	RFP Min. Grade	Min. Grade Provided	RFP Max. Grade	Max. Grade Provided
Lee Highway (Route 29)	0.48%	0.48%	5.34%	5.34%
Stringfellow Road	2.00%	2.00%	3.96%	3.96%
Clifton Road	1.30%	1.30%	2.11%	2.11%
Service Road 1	1.50%	1.50%	4.20%	4.20%
Service Road 2	0.74%	0.74%	4.63%	4.63%
Service Road 3	1.53%	1.53%	4.75%	4.75%
Ramp A	0.20%	0.20%	1.60%	1.60%

d. Typical sections of the roadway segments to include shared use paths and sidewalks, retaining walls and structures: Typical sections include features and the proposed minimum pavement sections as per the RFP. Route 29 will be constructed to accommodate three travel lanes in each direction with curb and gutter, and 10-ft. shared use paths on both sides of the roadway (See Figure 2). Retaining walls and noise barriers will be constructed as shown in our Proposed Concept Plans. Typical sections for all roadways within the project area are in our proposed Conceptual Plans sheet series 2A in Volume II of our Technical Proposal.

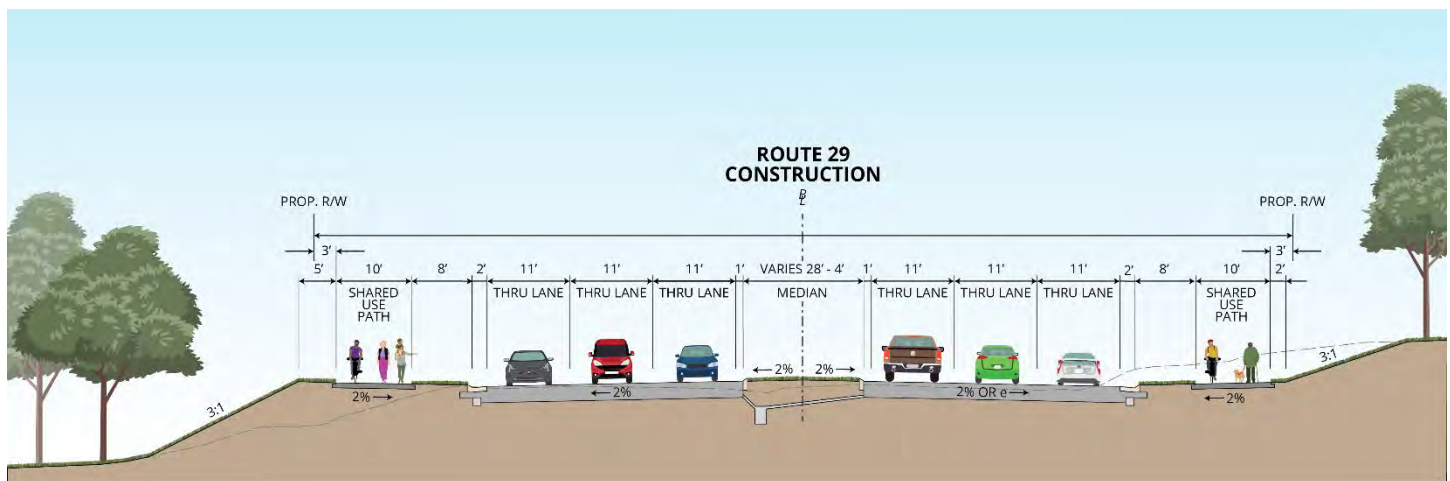


Figure 2: Route 29 Typical Section

4.3 | DESIGN CONCEPT

In addition to validating the design of the typical section in the RFP Conceptual Plan, our evaluation led us to investigate opportunities to enhance our design, particularly regarding private property, safety, and construction schedule impacts.

Design Impacts to Private Property:

Parcel 078 (Metropolitan Communication Properties, LLC): A large cut slope was shown in the RFP Concept to be causing a significant owner impact and requires removing a retaining wall. After considering constructing a short retaining wall next to the shared use path to hold back the slope, we determined that the stability of the existing retaining wall may be undermined, and it would create an additional maintenance requirement for VDOT.

Our Conclusion: Upon examining this impact, we concur with the RFP design.

Parcel 003 (Verizon Virginia, Inc.): The grade separation between the existing building and the roadway is significant as the 2:1 cut slope approaching the beginning of Noise Barrier D, as shown in the RFP Concept, will cause grading impacts to the building. **Our Conclusion:** We have included an additional 25-ft long retaining wall that begins near Sta. 311+00 RT which will tie into Noise Barrier D where it begins at Sta. 311+23.63 RT. **Figure 3** shows our retaining wall, with grading limits in black vs. the extents of a 2:1 cut slope that impacts the building, shown in green.

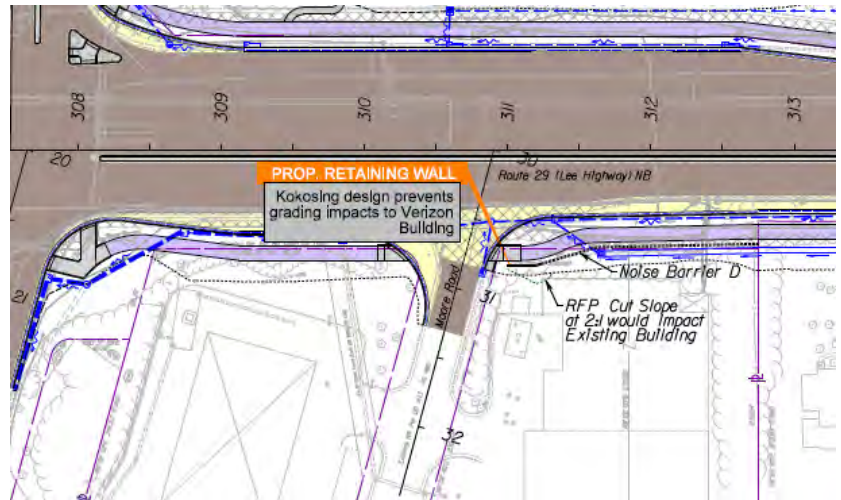


Figure 3: Retaining Wall at Parcel 003

Design Impacts to Construction Schedule and

Safety: We identified a significant enhancement by designing our MOT concept to avoid reconstructing the raised median from Route 29 Sta. 385+88 (Buckleys Gate Drive intersection) to 398+69. Not only does it reduce costs, it significantly minimizes worker exposure for temporary/permanent construction activities and traffic shifts for the traveling public.

e. Conceptual hydraulic, major drainage, and stormwater management design: The Corman Kokosing/RK&K DB Team’s drainage and stormwater management (SWM) design emphasizes the following strengths: 1) It minimizes future maintenance by reducing the BMPs required and using standard surface BMPs (no underground detention), 2) it eliminates several utility conflicts identified within the RFP Concept Plans, and 3) it reduces construction costs and promotes schedule efficiency by taking advantage of existing regional facilities and additional volume retainage within the watershed. These aspects are further described below:

Hydraulic Design (Storm Drain Layout): As a first step, the existing pipe inventory and inspection reports were reviewed, and its recommendations were incorporated into our proposed drainage design.

What we accomplished: We optimized the storm drain conveyance system by eliminating parallel systems and reducing structural requirements by using surface conveyance wherever feasible. An example of this drainage enhancement is located from Sta. 337+50 through Sta. 341+50. In this area, over 320 LF of pipe is removed from the design by conveying inlet outflows directly to a proposed ditch upstream of the culvert headwall without affecting the stormwater management approach. Additionally, by adjusting the drainage design in this area, we further eliminated a pipe crossing of Route 29 and potential utility conflicts with the 24-inch water and 6-inch gas lines running parallel to the corridor, resulting in cost and schedule efficiencies.

Table 4 lists our storm drain design enhancements.

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Table 4: Storm Drain Design Enhancements

No.	Design Enhancement*	Benefits	
11 Sheet 4	Removed a ditch along fill slope from Sta. 319+00 to Sta. 325+50 to reduce project limits.	Reduces long-term channel maintenance (mowing, sediment removal, etc.).	
12 Sheet 5	Removed inlet, pipe, and manhole connection at Sta. 322+25 RT.	Eliminates crossing and structure conflict with Verizon duct bank with saves time and money.	
13 Sheet 5	Diverted outfall to the other side of Stringfellow Road at Sta. 51+50 LT.	Consolidates outfalls to eliminate the need for a quality control BMP which saves money and reduces long-term maintenance.	
14 Sheets 5-6	Converted twin circular culverts to box culverts, removed junction boxes, and relocated downstream discharge points to manmade channels at Sta. 328+60 RT/LT, and Sta. 341+50 RT/LT.	Removes Route 29 pipe crossing which eliminates costs associated with junction boxes while shortening construction installation time and removing long-term maintenance burden.	
15 Sheet 6	Discharged inlets to ditch and removed road crossing at Sta. 337+50 and Sta. 341+00 RT.	Removes 280 LF of pipe and MOT hurdles associated with road crossing while reducing cost, long-term maintenance burden, and improving construction efficiencies.	
16 Sheet 6	Relocated pipe connection at Sta. 346+00 RT.	Removes conflict with Verizon duct bank which saves time and money.	
17 Sheet 7	Removed inlet and extended ditch to capture offsite before roadway at Sta. 349+00 RT.	Eliminates the need for inlet and Verizon duct bank conflict saving time and money.	
18 Sheet 7	Shifted inlet from Route 29 to Hampton Forest Way, increasing flow to proposed BMP at Sta. 360+50 RT.	Increases BMP function and eliminates Verizon duct bank conflict saving time and money.	
19 Sheet 8	Discharged inlets directly to proposed BMP to maximum extent possible from Sta. 360+50 to Sta. 366+00 RT.	Removes over 550 LF of proposed pipe running parallel to the Verizon duct bank, saving utility relocation costs and associated schedule impact while also reducing long-term maintenance.	
20 Sheets 8-9	Combined onsite/offsite flow along the north side of Route 29 to consolidate two road crossings at Sta. 364+20 and 365+75 into a single road crossing at Sta. 362+00.	Removes 381 LF of parallel pipe, including one road crossing, and eliminates Verizon duct bank conflict, saving utility relocation costs and associated schedule impact while reducing long-term maintenance.	
21 Sheet 8	Shifted the pipe trunk line and used minimum structure height at the inlet at Sta. 368+25 RT.	Eliminates Verizon duct bank which saves time and money.	
22 Sheet 8	Optimized use of the proposed ROW in the SWM facility design at Sta. 361+60 RT.	Reduces adjacent jurisdictional stream impacts by over 100 LF and eliminates permanent easement of 6,523 SF resulting in cost reductions and less long-term maintenance burden.	

BENEFITS LEGEND

COST DELIVERY CERTAINTY MOT BURDEN LONG-TERM MAINTENANCE

*For Roadway Design Enhancements, see Table 1

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Stormwater Management (Quality): The Corman Kokosing/RK&K DB Team has evaluated the SWM requirements per the Virginia Stormwater Management Program (VSMP) Part IIB regulations.

What we accomplished: Through the reduction of site area and evaluating the adjacent regional BMPs, we determined a Total Phosphorus (TP) removal of 15.7-lbs./year is required, which is an 18.8 percent reduction from the RFP Conceptual Plan associated drainage report. No nutrient credits are needed beyond what VDOT has already purchased. We reduced the project site area through these enhancements:

- **Reducing Median Construction.** The median reconstruction between approximate Sta. 386+00 and approximate Sta. 399+00 was eliminated since our MOT Plan does not impact it. This was discussed at our Proprietary Meeting and affirmed in VDOT’s accepted meeting minutes.
- **Using Sheet Flow in Strategic Areas.** Eliminating unnecessary ditches and promoting sheet flow from the site area reduces the project’s disturbed area and concentrated flow to the corresponding project outfalls.
- **Implementing VDOT IIM 195.12.** This memorandum allows the removal of the existing paving areas from the project SW site area analysis to reduce project SW requirements from what was estimated in the RFP design.
- **Incorporating Regional SWM Facilities.** Areas that are currently treated by existing regional facilities were removed from the project SWM analysis. This is standard practice and prevents new development/construction from taking credit for areas that are already contributing to an existing stormwater management plan. Our design maintains the existing drainage to the regional facilities to ensure they are not adversely impacted which is consistent with VDOT’s response to Question #82 in the RFP Q&As. Our approach using regional facilities are discussed further below.

Considering these enhancements, we propose a single Level II Wet Pond to provide water quality and quantity treatment (discussed in the following subsection) for the project. Our design combines the two proposed BMPs shown in the RFP Conceptual Plans into one single facility resulting in further reducing long-term maintenance for VDOT. This wet pond will provide 75 percent treatment of *total phosphorous (TP)* onsite. In addition, the single BMP facility optimizes the use of proposed ROW while also reducing impacts to the adjacent jurisdictional stream vs. the RFP Concept Design (**See Sheet 8 in Volume II for the location/layout of our proposed BMP**).

Regional Facility Analysis: As part of the Corman Kokosing/RK&K DB Team’s evaluation, four regional SWM facilities were identified along the project corridor that incorporated areas from the Route 29 ROW for water quality and quantity (**See Table 5**). The drainage areas of these facilities (total area and area of impervious land use) are maintained within our project site area with our team’s proposed design, consistent with VDOT response to Question #82 in the RFP Q&As, to ensure no adverse downstream impacts. Standard accepted regulatory practice precludes double-counting of disturbed areas already managed by an approved stormwater facility.

What we accomplished: Because the facilities identified below already provide treatment for portions of the project ROW, there is no benefit to providing additional treatment. If areas already managed by the downstream regional facilities were treated within project ROW, the resultant loss of water quality credits has to be accounted for in the affected downstream facilities. Identifying and excluding areas already treated by these downstream regional facilities reduces the TP requirements for the project, maintains hydraulic functionality and prevents loss of water quality credit associated with the downstream BMPs, and eliminates the need for subsequent jurisdictional coordination.

We obtained design plans/as-builts for these facilities from Fairfax County, which confirms the portions of the contributing drainage area planned for treatment in each, including site runoff from VDOT ROW along Route 29 (**See Table 5**).

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Table 5: Regional Facility Summary

Facility Name	Project Number	Facility Type	Total Route 29 Area Treated* (acres)	Total Route 29 Impervious Area Treated* (acres)	Maintained By
Townes at Fair Lakes Glen	8193-SP-01-3	Dry Pond	2.83	0.83	Fairfax County
Centerville Greens	7276-SP-06 LR81-0001-0378DP LR81-0002-0379DP	IIB Constructed Wetland	2.35	1.26	Fairfax County/ Homeowners Association
Regional Facility R-8 at Buckley's Reserve	0741-SP-01	Wet Pond	4.76	3.27	Fairfax County
Regional Facility R-17	8671-SP-005-3	Wet Pond	8.98	5.84	Fairfax County

*Drainage areas verified using County provided record documents, design/as-built plans, and survey data. We contacted Fairfax County to obtain records for the identified existing facilities owned or maintained by others that receive flow from project area.



Figure 4: Regional SWM Facilities within Project Limits

Stormwater Management (Quantity): The entire project resides within the Little Rocky Run watershed with Willow Springs Branch being a contributing tributary. The Corman Kokosing/RK&K DB Team identified 15 outfalls along the project corridor where six drain to existing regional SWM facilities designed to detain and treat the area from the VDOT ROW of Route 29. The stormwater runoff to these outfalls will be maintained in the proposed condition, as directed by VDOT in response to Question #82 in the RFP Q&As, to preserve the existing water quality and quantity functioning of the regional facilities. The remaining outfalls will be consolidated to discharge most of the project runoff into Little Rocky Run, or through manmade channels leading to Little Rocky Run, where energy balance is met with detention provided via the proposed Level II Wet Pond. Every outfall designated as a natural channel will be evaluated per the Virginia Stormwater Management Program (VSMP) Part IIB regulations and energy balance applied.

What we accomplished: Our quantity approach is to store additional stormwater volume within upper portions of the Little Rocky Run watershed so stormwater outfalls with designated **manmade channels** leading to Little Rocky Run will not require any additional quantity control (See Table 6 and Figure 5).

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Table 6: SWM Quantity Summary

Outfalls	Manmade/Natural Channel	Quantity Control	Map Legend
2, 4, 5, 12, 14, 15	Outfalls to Regional Facility	Maintain drainage area and impervious area to regional facilities.	●
9	--	Drainage diverted away.	○
6	Manmade Channel	The majority of site flow diverted away; meets energy balance without detention.	●
1, 7, 10	Manmade Channel	Analyze manmade channel for capacity/erosion; channel conveys flow to Little Rocky Run/Willow Springs Branch where energy balance is met.	●
3, 8, 11, 13	Natural Channel (Direct Discharge to Little Rocky Run/Willow Springs Branch)	Site drainage discharges to Little Rocky Run/Willow Springs Branch. The proposed Wet Pond (located in the contributing drainage area to Outfalls 3, 8, 11, 13) provides detention for these outfalls, which allows them to meet energy balance where flow leaves the ROW (See Figure 5 Outfall Drainage Area Map).	●

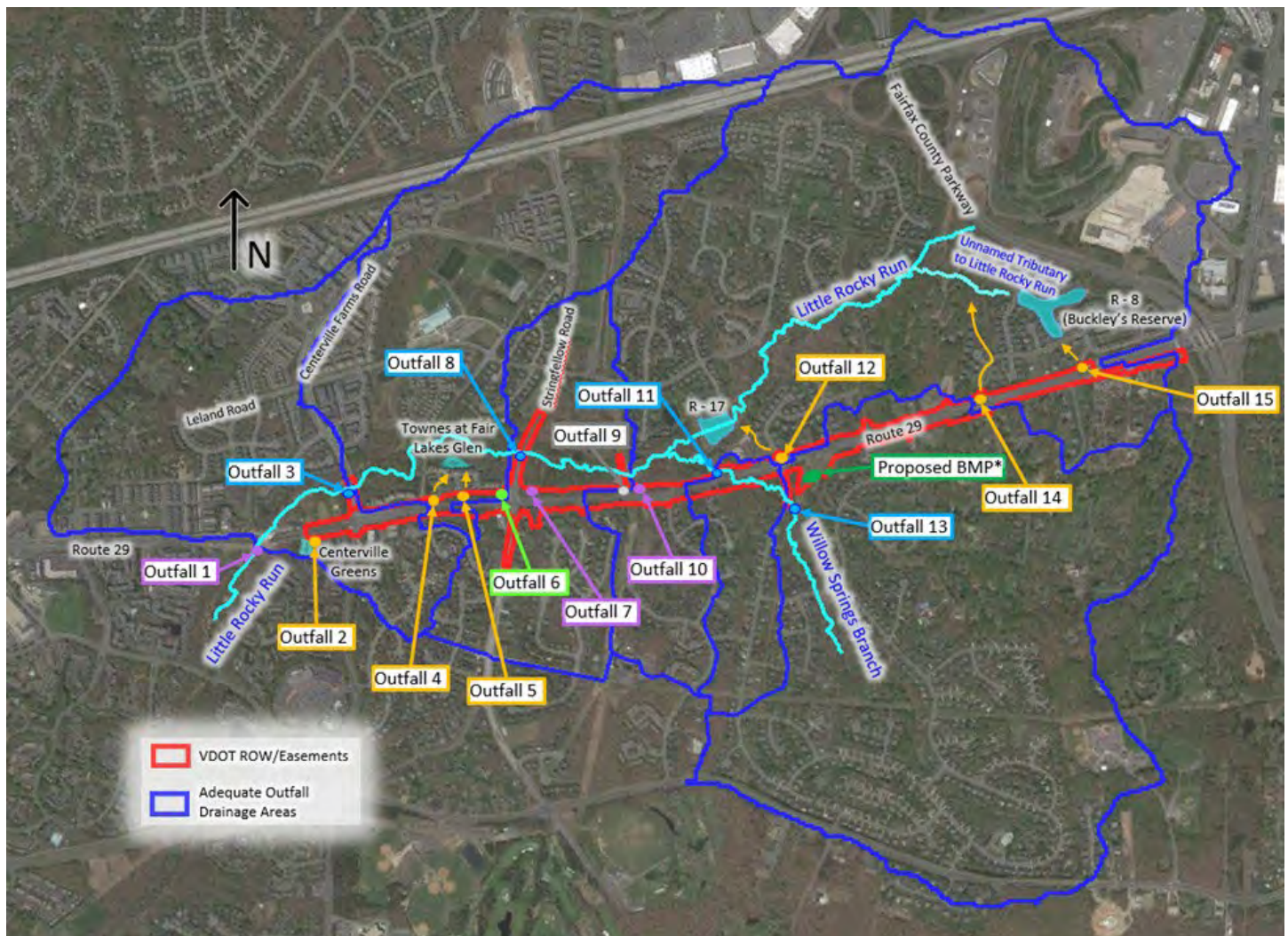


Figure 5: SWM Outfall Identification Map

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Going above and beyond: With our unique water quantity approach, we have eliminated structural/underground detention or additional ROW acquisition. Additionally, long-term maintenance for VDOT is minimized with the use of only one SWM facility and no underground facilities.

Willow Spring Branch Hydrologic and Hydraulic (H&HA) Modeling: We performed an updated independent hydrologic and hydraulic analysis of the Willow Spring Branch culvert crossing which resulted in using acceptable VDOT hydrologic methodologies to determine a revised hydrologic condition, which accounts for detention of a flood control facility at Ashleigh Drive. This pond is a regulated facility, whereby the owner is under state dam regulatory requirements to ensure proper maintenance and the flow detention is maintained for the safety of downstream properties, such as the Willow Spring Branch culvert crossing under Route 29.

Our Team has also determined the existing pedestrian trail bridge down gradient of the existing Route 29 over Willow Spring Branch culvert, provides a hydraulic constraint against the performance of the existing culvert, thus our analysis shows a slight increase in the headwater performance of the existing crossing, due to the pedestrian bridge.

What we accomplished: With a higher existing conditions evaluation and the updated hydrology, per the VDOT Drainage Manual, the refined analysis of the proposed double 8-ft x 8-ft box culvert with 6-inches of counter-sinking reduces the 100-year water surface elevation (See Table 7). The reduction has the further benefit of reducing the proposed easement required on Parcel 042 by 285 SF (See Sheet 7 in Volume II). Additionally, the proposed double box culvert crossing will be designed to not cause any additional impacts to Willow Pond Park, which eliminates additional coordination with Fairfax County Park Authority.

Table 7: H&HA Analysis Summary

Analysis	Cross-Section ID	Ex. 100-yr Water Surface Elevation (ft)	Prop. 100-yr Water Surface Elevation (ft)	Delta (ft)
Refined H&HA	26362	353.77	353.09	-0.68
Total reduction in 100-yr Water Surface Elevation = 0.68 ft				

A revised culvert alignment was considered to reduce the skew angle and additional pipe length, as well as impacts to MOT and construction schedule; however, we maintained the RFP alignment to mitigate potential long-term scour and maintenance concerns resulting from sharp changes in flow direction entering the culvert.

To further mitigate scour and reduce culvert length and site impacts, the proposed wingwalls at the upstream end of the culvert have been modified to accommodate refined site grading and reduce culvert length. Using the RFP alignment also eases construction and maintenance of stream flow by ensuring that support of excavation for installation does not adversely impact the condition of the adjacent existing crossing.

Willow Spring Branch Scour Analysis: We propose to replace the hybrid crossing of Willow Spring Branch with a double 8-ft x 8-ft reinforced concrete box culvert, which will provide grade control to Willow Spring Branch. Considering the replacement structure is a box culvert, no scour analysis is required.

Erosion and Sediment Control Design: The Corman Kokosing/RK&K DB Team knows the importance of erosion control during construction and the complexity of implementing control measures while maintaining traffic flow. The corridor parallels the environmentally sensitive Little Rocky Run, Willow Spring Branch floodplains, Park Properties, and residential and commercial areas. Larger stream flow diversions that run parallel to Route 29 at the proposed Willow Spring Branch Culvert crossing will be managed through open channel conveyance using temporary channel diversions, with an impervious liner that provides non-erosive conditions with greater capacity than temporary diversion pipes.

What we accomplished: We will use the existing culvert crossing and phased installation of new culverts during construction for efficient/effective maintenance of stream flow through the project ROW. Where needed, at

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stream crossing locations, measures, such as sand bag diversions, silt fence, pump arounds and temporary diversion pipes, will be employed for maximum flexibility within the work zone and maintain clear water flow through the project site.

No natural resources have been identified at this time; however, should any impacted resource be discovered during design and permitting, a mitigation or relocation plan will be developed. Due to the limited ROW beyond the construction limits, we will release flow from the site area as sheet flow where feasible and design ditches/check dams that convey small amounts of flow to avoid concentration of sediments and higher velocities of water. Clear water diversions will be installed to limit locations where offsite areas drain towards the project site to minimize off-site run on and volume of water to be managed on-site.

Our Team will maximize protection measures within the active work zones by conveying runoff to existing or proposed structures. This eliminates the need for multiple large sediment traps/basins within the project area. We will use silt fence in areas of fill, ditch and check dams within cut sections, inlet protection, and small-scale portable filtering/settling practices, such as sediment filter bags within work zones to avoid larger structural practices/additional ROW/temporary easement acquisitions. We have eliminated ditch areas along fill slopes to reduce the limits of construction and unnecessary concentration of flow. Our Team has evaluated temporary drainage patterns for each MOT phase and our plan maintains adequate drainage conveyance throughout construction. Additionally, we have identified existing and proposed structures that will be used to capture properly managed temporary drainage during interim construction phases while also minimizing temporary structures needed.

Going above and beyond: Our erosion and sediment control approach is further enhanced by reducing the project site area MOT phases.

Utility Conflict Avoidance and Minimization Measures: We have evaluated potential utility conflicts throughout the corridor and rerouted the conveyance system to reduce these impacts. Avoidance/minimization measures were analyzed for the existing Verizon 9-way duct bank that runs parallel to the Route 29 corridor.

What we accomplished: Our approach realigns the proposed storm sewer system to avoid or minimize direct conflicts based upon available information on the depth and location of the duct bank.

ADDED SAVINGS

This eliminates 8 of 13 (61%) conflict locations resulting in project cost and time savings.

Going above and beyond: Our design further eliminates 11 additional utility crossings (five fiber, three water, two gas, one electric). These enhancements are further identified within Volume II for reference.

f. Proposed ROW limits (i.e., shown as an overlay of our proposed ROW limits and VDOT's RFP Conceptual ROW limits, highlighting the differences between the two): Our conceptual design resides within the proposed ROW and permanent easements as shown on the RFP Conceptual Plans.

What we accomplished: We have removed the ROW impacts on Parcel 077 (Sheet 7 of the Volume II Conceptual Plans) eliminating fee and easement impacts.

A review was conducted on Parcel 078 to reduce impacts to existing parking and other site features via constructing a low wall adjacent to the proposed SUP instead of excavating a 3:1 side slope. However, due to soil conditions and impacts to the existing retaining wall, we found this approach was not feasible.

g. Utility impacts associated with the proposed design: In preparing our conceptual design, the Corman Kokosing/RK&K DB Team with our utility partner Bowman Consultants (Bowman) reviewed the utility facilities along the corridor evaluating potential conflicts and possible design solutions. We considered the 24-inch water

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main, Colonial and Plantation Pipeline crossings and Verizon’s 9-way duct bank as the top priority utilities to avoid where possible, due to high cost and long relocation durations.

What we accomplished: Our conceptual design reduces the amount of 24-inch water main relocations using the existing traffic signal support and shifting parallel storm drainage. At the Plantation Pipeline crossing, no relocation is necessary, however, because the test hole information provided was not entirely conclusive, we devised a design that eliminates part of the cut slope by adding a retaining wall, if needed. We also save much of the 9-way Verizon duct bank through changing inlet types and parallel storm drainage pipes. During the final design when additional test hole information is secured, we will review avoidance possibilities for all utilities.

Table 12 in Section 4.4.2 is our initial determination of the utility relocations needed to construct the road widening and shared use paths. Also, in that section is our approach to making final utility conflict determinations and having any required utility relocations performed in coordination with the project schedule.

h. Noise barrier locations: The Corman Kokosing/RK&K DB Team will not be modifying the noise barrier locations as shown in the RFP Conceptual Plans nor do we propose any significant roadway alignment alterations that would change the conclusions of the Final Design Noise Analysis (FDNA) Report dated April 2020. Our noise analysis engineer will confirm that the final noise wall design plans match or improve the acoustic profile provided in the FDNA Report.

ADDED BENEFIT

Per our sequence of construction, the C1 and C2 S barriers will be placed early in the phased construction, which our design accommodates.

i. Other key project features

Removed Share Use Path/Signal Pole Conflicts: At the northeast quadrants at the intersections of Route 29 with Buckleys Gate Drive and Meadow Estates Drive, the Corman Kokosing/RK&K DB Team adjusted the SUP around two existing signal poles for them to remain (See **Table 1, Design Enhancements**).

What we accomplished: This reduces project cost and simplifies the traffic signal sequence of construction.

ADA-Compliant Shared Use Path Connection: Pedestrian accessibility remains a top priority to our team. We identified in the RFP concept an asphalt connector that provided pedestrian connectivity from Maple Creek Lane to the Route 29 and Stringfellow Road intersection. The proposed grade failed to meet accessibility requirements with a proposed profile grade of 14.51 percent.

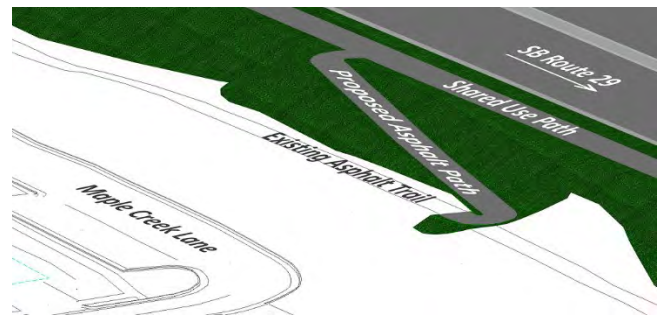


Figure 6: Shared Use Path Connection

What we accomplished: For ADA-compliant access between these two locations, we modified the design and location of this connector to provide a 5 percent maximum grade, which uses a portion of the existing asphalt path to complete the connection.

Existing Waterline Avoidance and Minimization: Our Team has also enhanced the design for pedestrians at the Route 29 and Union Mill Road intersection.

What we accomplished: We shortened the crosswalk over NB Union Mill Road by reconfiguring the crosswalk alignment and curb ramps. This avoids a major utility conflict with an existing 24-inch FWA water main by retaining an existing signal pole. As a result, we can shorten construction time within this major intersection as well as improve safety for pedestrians crossing the roadway.



SECTION 4.4

Project Approach

4.4 | PROJECT APPROACH

4.4.1 ENVIRONMENTAL MANAGEMENT

Environmental Management Approach during Design and Construction: The Corman Kokosing/RK&K DB Team recognizes the importance of a comprehensive and environmentally conscious approach to navigate the project's unique characteristics. Environmentally sensitive features throughout the corridor include:



Since managing environmental impacts is critical to project success, we have identified risks and developed mitigation strategies. Our experience and knowledge of environmental challenges ensures that we will not only circumvent potential pitfalls, but also uphold environmental commitments during design and construction.

Managing environmental risk requires 1) a strong partnership with VDOT's environmental management team; 2) conducting over the shoulder meetings with VDOT and regulatory agencies including a fully integrated CPM schedule showing permit application packages, regulatory agency coordination, Time-of-Year restrictions (TOYR) and mitigation; and 3) closely monitoring permit submittals, comments, approvals, coordination of field revisions and commitment compliance.

Our Team launched an environmental management approach during the procurement phase and will continue throughout design, agency coordination, and construction. We will obtain the environmental clearances and that associated commitments are compiled and tracked during project delivery. Our approach is tailored to the requirements of the project by identifying environmental risk management strategies, constraints mapping, complying with legal requirements, and having environmental technical support during project implementation.

Our environmental management approach is easy to implement, is integrated with our quality and safety programs, and provides the following benefits:

- Identifies/evaluates strategies for managing environmental resources and risks.
- Fosters partnerships with regulatory agencies.
- Invests resources to coordinate/communicate the environmental commitments throughout the project's lifespan.
- Employs recognized industry standards, best management practices, incident reporting procedures, staff training, site inspections, defined records keeping, and documentation retention and maintenance protocols.

The Corman Kokosing/RK&K Environmental Team, under Design-Build Project Manager Scott Szympruch, will achieve the goals outlined in **Table 8**.

During the design phase, Environmental Permitting Lead Rick Maddox will coordinate with Construction Environmental Manager Jeff Walton, who will review for constructability. During construction, Jeff is responsible for environmental controls working with QA/QC erosion & sediment (E&S) control inspectors and in coordination with Rick.

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Table 8: Environmental Management Team

Position	Team Member	Environmental Responsibilities
Environmental Permitting	Rick Maddox (RK&K)	Develops/implements our Environmental Management Plan. Develops/manages environmental permit applications. Coordinates with regulatory agencies. Ensures environmental compliance.
National Environmental Policy Act (NEPA)	Travis Comer (RK&K)	Coordinates with federal/state environmental agencies and environmental documentation.
E&S Control Designer	Erin Beckman (RK&K)	Develops E&S Control Plans. Submits as certified Dept. of Environmental Quality (DEQ) E&S Control Plan Reviewer.
Stormwater Pollution Prevention Plan (SWPPP)	Erin Cox (RK&K)	Develops SWPPP. Submits as certified DEQ SWM Reviewer.
Construction Environmental Manager	Jeff Walton (CKC)	Maintains DEQ Responsible Land Disturber and VDOT E&S Control certifications. Manages construction compliance of SWPPP/E&S Controls.
QA/QC E&S Control Inspectors		Verifies permitting hold points, E&S controls and SWPPP compliance.

Table 9 summarizes the permit conditions/commitments we will meet/exceed during design and construction.

Table 9: Permit Conditions/Commitments

Condition/Commitment	Resource or Topic	Environmental Responsibilities
Mitigation for Tree Loss for Section 4(f) De Minimis Impact	Willow Pond Park	VDOT coordinates with Fairfax County Park Authority on final design plans and to mitigate for tree loss through compensation to the Park Authority. Our Team constructs a 10-ft shared use path and salvages the existing park trail bridge for Park Authority to reuse.
Willow Pond Park – Tree Clearing Boundary	Willow Pond Park	Before clearing, our Team installs orange safety fence along the limits of disturbance.
Time-of-Year Restrictions (TOYR)	Northern Long-eared Bat	Our Team monitors for potential listing changes to the bat for water quality permitting and the future need for TOYRs.
Species Avoidance	Northern Long-eared Bat	If bats are observed roosting on a structure, our Team immediately notifies VDOT and suspends work nearby until authorized to continue.
Environmental Due Diligence Documentation	NEPA, Water Quality, Cultural Resources, Hazardous Materials, Protected Species	Our Team sends Final Environmental Certification/Commitments Checklist to VDOT.
Preliminary Jurisdictional Determination (PJD)	Wetlands/other jurisdictional waters	Since the PJD obtained by VDOT is valid until 10/21/26, our design manages risk of potential schedule delays by not extending outside of the area covered by the previous PJD.
Nationwide Permit 6	Wetlands/other jurisdictional waters	Our Team obtains the water quality permit authorizations for survey activities and provides to VDOT.
Nationwide Permit 23	Wetlands/other jurisdictional waters	Our Team obtains the water quality permit authorizations for construction and provides to VDOT.

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Condition/Commitment	Resource or Topic	Environmental Responsibilities
Tidal Wetlands Permit	Tidal Wetlands	We anticipate a <i>No Permit Required</i> response from Fairfax County Wetlands Board because there are no tidal wetlands.
Virginia Marine Resources Commission (VMRC) Habitat Management Permit	Tidal Wetlands, Subaqueous Bottoms, Streams with drainage areas greater than 5 sq. miles in size	We anticipate a <i>No Permit Required</i> response from VMRC due to no crossing of regulated river bottoms due to no crossing of these resources.
Virginia Water Protection (VWP) Permit	Wetlands/other jurisdictional waters	We anticipate no VWP permit issued with use of NWP23 and NWP6. The DB will certify that the project meets the conditions for use of NWP23 per the updated DEQ permitting process and anticipates that issuance of a VWP permit would not be necessary with issuance of a NWP23 from the USACE.
Mitigation	Wetlands/other jurisdictional waters	Mitigation to be paid by our Team per RFP.
Virginia Stormwater Management Permit	Land Disturbance	Our Team obtains permit authorization for land disturbing activities.
Restore Temporary Disturbances within 7 Days	Erosion & Sediment Control Project Stormwater	Our Team stabilizes temporary disturbances not at final grade within seven days.
Immediate Slope Stabilization	Erosion & Sediment Control Project Stormwater	Our Team provides immediate permanent stabilization of steep slopes to limit sediment runoff during construction.
Stream Relocation in the Dry	Erosion and Sediment Control Project Stormwater	Our Team uses stream diversion techniques and provides stable conveyance prior to relocation for stream channels.
Noise Barriers	Benefitted Receptors	Our Team constructs Barriers C, D, and G and confirms that the final noise wall design plans match or improve upon the acoustic profile provided in the FDNA Report.

Our approach promotes active discussions between environmental, design, and construction teams ranging from informal reviews between specific team disciplines to formal technical design milestone meetings with all disciplines. This participation is invaluable in identifying and evaluating avoidance/minimization efforts as the design is refined. Our established working relationships carry over to our construction team where we can make field adjustments to remain compliant with the environmental commitments, such as implementing post-construction restoration activities for temporary impacts.

Planned Efforts during Design and Construction: Our environmental team developed a list of commitments based on the NEPA document, special provisions, and other documentation to develop an environmental constraints map for specific areas to minimize and/or avoid impacts. They will use this information 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 enables us to investigate avoidance/minimization efforts early on. A preliminary assessment of environmental processes and/or constraints follows:

 **Environmental Document Reevaluation:** We anticipate no changes in project scope or footprint from that approved in the FHWA Categorical Exclusion Decision; no additional NEPA environmental studies are anticipated.

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Willow Pond Park: We anticipate no changes in project scope or footprint from that approved in the FHWA Categorical Exclusion (CE) Decision and will adhere to the environmental commitments preventing unauthorized encroachment on this Section 4(f) protected property.



Cultural Resources: We do not anticipate changes to the Project scope or footprint approved by the CE; therefore, this project is consistent with the RFP Virginia Department of Historic Resources (VDHR) determinations.



Water Quality Permits and Mitigation: Our Team has experience negotiating with environmental agencies to acquire permits for transportation projects and is prepared to secure the following authorizations:

- United States Army Corps of Engineers (USACE) – Nationwide Permit 23
- VDEQ Virginia Stormwater Management Program (VSMP)
- VDEQ Coastal Zone Management Area (CZMA) Consistency Determination



Threatened and Endangered (T&E) Species: According to the CE, this project will result in a *may affect* determination for T&E species. Our Team will update the T&E species information and coordinate to ensure no adverse effects will occur to these resources not previously considered with the CE.



Hazardous Materials: We do not anticipate changes to the project scope or footprint covered by the completed Phase I and Phase II Environmental Site Assessments; therefore, no additional hazardous materials investigation is warranted for acquired ROW. We will monitor for natural asbestos in soils known to exist between Stringfellow Road and Willowmeade Drive with proper containment, removal, and legal disposal, as needed. We will also perform an asbestos inspection of the bridge to be removed and determine if asbestos abatement is needed.



Air Quality: Our project is within the scope and footprint of the air quality technical studies, analysis, or evaluation performed for the CE and will adhere to the limitations outlined in the RFP Special Provisions for Volatile Organic Compound Emissions Control and the DEQ air pollution regulations dealing with open burning, cutback asphalt, and fugitive dust precautions. A practical way to lessen particulate dispersion affecting air quality is to limit fugitive dust. Control measures include minimizing off-tracking of mud onto public roads and/or limiting construction traffic on the highways, etc. In addition, watering exposed soils via water spray truck, especially in areas of high construction traffic areas is extremely effective.



Erosion & Sediment Control and Stormwater Management: Our Team understands the environmental sensitivity of this project and our work will be in accordance and/or as applicable with VDOT requirements, Fairfax County Land Development Services (LDS), VDOT Drainage Manual, VDOT IIMs, as well as the Virginia Erosion and Sediment Control (ESC) Handbook and Regulations. As part of our Quality Control Plan, these E&S control designs will be reviewed by an independent, DEQ-certified plan reviewer team member, as well as the construction staff. These reviews focus on constructability, specifically the proposed phased approach to erosion & sediment control implementation. This minimizes field changes and maximizes environmental protection measures to the receiving waters resulting in reducing environmental risk during construction.

This project will be delivered in accordance with the VSMP General Construction permit. The project-specific SWPPPs prepared by the Design Team will be updated as construction progresses to document the in-field decisions made to maintain compliance. **Our Team will develop/maintain an up-to-date Pollution Prevention Plan (P2 Plan), adjusting features as construction progresses and creates changes in field conditions. Inspections will be documented and logged into the SWPPP book per**

4.4 | PROJECT APPROACH

VDOT VSMP permit requirements and will be available for review at any time for confirmation inspections and compliance checks are being performed.

Environmental Compliance during Construction: Once plans are released for construction and the Environmental Management Plan has been executed, our environmental team starts permit monitoring activities. Before initiating any construction, the environmental and construction teams mark the limits of jurisdictional wetlands/streams which are not to be impacted. These areas will then be circled with safety fence or marked silt fence to ensure unpermitted impacts are avoided and sensitive areas are clearly identified in the field. They continue making regular site visits to provide compliance assistance and any regulatory reports as required by the permit documents.

Monitoring/inspections throughout construction ensures compliance with permits and current VDOT requirements. Construction erosion & sediment control inspectors inspect the site regularly, focusing on the effectiveness of installed E&S control and stormwater management devices. Field reviews are conducted after each *major* event as defined by current VDOT requirements, and any damaged or deteriorated measures are repaired or reinstalled before initiating additional work within the drainage area of the E&S control device. Monitoring/inspections of environmental compliance during construction includes assessing any changes in design, construction, operation, maintenance, or modified controls to ensure any amendments to conditions are identified and accounted for in the SWPPP.

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 location and provide letters of instruction for each environmental clearance with the requirements to comply with Air, Noise, Cultural Resources, Section 4(f) Resources, Threatened and Endangered Species, Hazardous Materials, and Water Quality Permits.

A primary area of concern along the project corridor is constructing the new double 8-ft x 8-ft box culvert and relocating Willow Springs Branch. Establishing/monitoring E&S controls and maintenance of stream flow are critical in conveying clear water through the site and preventing transport of construction generated sediment downstream. Discussion of proposed E&S controls and maintenance of stream flow is in Section 4.3 Erosion and Sediment Control Design.

Potential Solutions: Based on the project’s environmental commitments, we **identified strategies to reduce environmental risk by each resource (See Table 10)**. They are crafted to improve environmental performance and ensures we will deliver an environmentally compliant project.

Table 10: Environmental Risk Reduction

Resource/ Permit	Impact	Risk Management Reduction Strategy
NEPA	Project Authorization Delays	<ul style="list-style-type: none"> As design progresses, ensure the limits of disturbance and ROW do not expand beyond those evaluated in the CE; thereby avoiding the need for additional NEPA studies and project delays due to 4(f) issues (Willow Pond Park) or additional reviews by VDHR. Communicate the environmental commitments to the design team at the bi-weekly design status meeting.

ENVIRONMENTAL INITIATIVES

- *Establish an environmental clearance and commitment tracking database.*
- *Provide letters of instruction to disseminate environmental commitment requirements to design and contractor personnel.*

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Resource/ Permit	Impact	Risk Management Reduction Strategy
		<ul style="list-style-type: none"> ▪ Create constraints mapping for environmental resources. ▪ Perform QA review of plans, reports, and outside agency coordination to ensure environmental commitments have been incorporated. ▪ Implement the environmental commitments tracking database.
Water Quality Permitting	Wetlands/ Streams	<ul style="list-style-type: none"> ▪ Coordinate with USACE and VDEQ throughout design/ construction for avoidance/minimization of impacts to regulated resources, i.e., Willow Spring Branch, and permit authorization for unavoidable impacts. ▪ Identify mitigation requirements and start negotiations with Wetland Mitigation Banks at Notice to Proceed. ▪ Incorporate TOYRs, if required, and permit acquisition timeframes into the project schedules. ▪ Optimize use of proposed ROW in the SWM facility design to reduce adjacent jurisdictional stream impacts by up to 100 LF (see Sheet 8 of Volume II Plan).
Hazardous Materials	Hazardous Material	<ul style="list-style-type: none"> ▪ Asbestos monitoring and containment removal of natural asbestos soils per VDOT Special Provisions. ▪ Perform an asbestos inspection of the existing bridge structure to be removed and determine if asbestos abatement is needed. ▪ Prepare and implement Spill Prevention, Control, and Countermeasure Plan. ▪ Develop an incident emergency management plan that addresses if unknown materials are encountered.
Erosion & Sediment Controls and Stormwater Management/ Environmental Compliance	Sediment release during Construction and replacement of Stream Crossings	<ul style="list-style-type: none"> ▪ Focus on constructability with phased E&S and stormwater controls. ▪ Perform QA plan review to minimize field changes and maximize environmental protection measures to the receiving waters. ▪ Train staff in all compliance related requirements before entering the site. ▪ Consistently monitor the temporary measures and required restoration. ▪ Provide nutrient credits to provide compensation for the water quality impacts. ▪ Keep SWPPP updated throughout construction. ▪ Track/document environmental commitments as the project is constructed.

During design, our environmental team coordinates through a series of review points and meetings, including Informal Reviews, Peer Reviews, Regulatory and Resource Agencies Reviews, Technical Design Meetings, and Quality Assurance Reviews. This has been invaluable in identifying/evaluating avoidance and minimization efforts as the design is refined and carries over to our construction team so we can make field adjustments to remain compliant with the environmental commitments.

When transitioning from design to construction, our environmental lead provides environmental resource information to the construction team and discusses the environmental permits/clearance requirements. This emphasizes the environmental team as a resource to answer questions and resolve environmental issues which sets the stage to deliver an environmentally compliant project.

During construction, the team manages potential solid waste, and hazardous waste/materials per applicable federal, state, and local environmental regulations and implements good housekeeping, waste minimization and pollution prevention practices.

After construction, the environmental team makes one site visit to document the final site conditions and prepares the permit close-out documentation for the regulatory agencies and VDOT.

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Integrating Environmental Management into the Project Schedule: We have integrated the environmental clearances into our schedule by starting the environmental work at Notice to Proceed, including preparing our Environmental Management Plan which is reviewed semi-annually and updated as needed in coordination with 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 fully vetted and accurately represented when the environmental clearances are requested and anticipated to be received. For example, we included the wetland and stream locations from the provided Jurisdictional Determination in our plans to refine avoidance/minimization opportunities to wetland and streams. Activities particularly sensitive to the environment (e.g., clearing, stream relocation, pump-arounds) are recognized in the schedule and planned to provide as much float as possible to not incur delays or 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 is provided to VDOT to assist in completing the EQ103, EQ200, and EQ201, **saving them time and effort.**

During construction, our Team uses work plans for activities in/near environmental resources. Pre-activity meetings are conducted, including an environmental commitment review. The environmental manager, environmental 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. The following steps will be taken to reduce the risk of an environmental incident or non-compliance:

- Inspecting work areas at the end of each work shift for trash, spills, and unsecured equipment.
- Securing work areas prior to major storm events.
- Repairing work areas after major storms and before starting new construction activities.

Design and construction teams will use measures, such as flagging sensitive resources so resources to be identified easily in the field. To avoid/minimize environmental resource impacts, and as described in Section 4.3.1(e) above, an E&S Control Plan has been developed to contain sediment on site using best management practices, such as silt fence, super silt fence, temporary sediment traps and/or basins, rock check dams, and inlet and outlet protection. In addition, turbidity curtains and periodic turbidity testing will be used at each crossing location to protect the downstream resources. we will install orange safety fence to clearly demarcate adjacent environmentally sensitive areas, such as wetlands and streams and Willow Springs Park to minimize the risk of unintended impacts. Heavy equipment will be placed on mats or geotextile fabric when working in any temporary wetland impact areas. Temporary disturbances within the Resource Protection Area as a result of construction will be reestablished per local regulations/requirements. If TOYRs are required at permitting, we will communicate with VDOT, providing documentation from the resource agencies where they are implemented and incorporated into the construction schedule. These TOYRs will be detailed to our Team (**See Table 9: Permit Conditions/ Commitments**).

4.4.2 UTILITIES

Approach for Utility Coordination, Adjustments, and Relocations: The Corman Kokosing/RK&K DB Team has employed Bowman Consulting (Bowman) as a core team member to assist in the utility coordination and relocations. Bowman 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) extremely well as both firms have developed extensive relationships through decades of performing utility

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relocation services to VDOT which have created an environment that positively affects projects from a schedule and budget perspective.

For this project, VDOT has held the preliminary utility meetings, developed relocation concepts for most utility companies with several having started the relocation design in support of their respective plan and estimates (P&Es). In support, VDOT has advanced some of the easement acquisitions for proposed relocations, with remainder easements to be acquired by the design-build team. Our proactive approach is to continue our coordination efforts, which we have already started, with all utilities including, but not limited to AT&T, Comcast, Colonial Pipeline, Cox, Dominion Energy, Verizon, Fiberlight, Plantation Pipeline, Fairfax Water, Fairfax County DPWES (sewer), Shentel, Summit IG, Washington Gas and Zayo. The key is to clearly highlight the conflict changes to our design update, to clearly outline our project schedule, and to identify where relocations fall within the sequence of construction, while following VDOT procedures and policy.

General Approach to Utility Relocations: Since utility relocations increase project costs and can have disastrous impacts to the project schedule when they hit the critical path, we have refined a design concept that minimizes utility impacts to the greatest extent practical considering constructability parameters and project schedule coupled with our sequence of construction. There are significant overhead utility facilities along the south side of Route 29 throughout the project limits. Unfortunately, many utility poles carrying the overhead facilities are currently within the shared use path or clear zone of Route 29 and need to be relocated regardless of the final detailed design concept chosen by the design-build team. Because relocating these overhead utilities is unavoidable, we focused on minimizing impacts to the underground utilities, specifically as it relates to the proposed storm drain system. In addition, we will have the utility companies perform relocations in phases in conjunction with the easement acquisition process and sequence of construction for the road improvements. The rationale is to allow for major construction activity (i.e., clearing, grubbing, earthwork, temporary widening) to start earlier in the project. Some areas can commence while utility conflicts are being cleared in other areas.

Upon contract award, Utility Manager Richard Bennett of Bowman, with over 50 years of experience in transportation project design; development; utility coordination; and construction, will be proactive from Notice to Proceed by developing continuous positive working relationships through the design, conflict analysis, utility relocations, and construction. He worked with VDOT for 37 years and for part of his tenure, served as VDOT's State Utilities Engineer responsible for the utility relocation program.

Below is our approach we plan to employ, which is an abbreviated process given the level of effort already completed for this project.

Validation Phase

Although VDOT has collected and provided significant subsurface utility engineering (SUE) and utility as-built information, our Team will conduct a quick Designation Validation Phase to confirm certain areas (i.e., Plantation Pipeline crossing).

Utility Manager Richard Bennett assembles previous utility information and prepares a Utility Investigation Plan to confirm all utilities are completely identified. It includes extending SUE location in areas needed and determining any utility company's planned capital improvements that may need to be coordinated with the proposed roadway improvements.

To implement our Utility Investigation Plan, we recontact each utility owner to secure more detailed information about the size of the facilities and any extraordinary relocation requirements. We verify information obtained during the additional SUE work and the original data to prepare a status report. Bowman verifies the existing utility information with the utility companies for completeness at the end of this phase.

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Having this additional information on hand, Richard works with Design-Build Project Manager Scott Szympruch and Construction Manager Kyle Kern to update the project schedule to reflect any new adjustment or relocation construction schedule information.

Preliminary Design Phase

Richard works with the design engineers to evaluate potential utility conflicts and solutions and the need for additional test holes at critical points to complete the conflict analysis and relocation design. Early interactions between the Design and Utility Teams avoids more conflicts and refines the project schedule.

Final Design Phase

Using the 60 percent design plans, Richard distributes the plans to the utility companies and schedules a Supplemental Utility Field Inspection (UFI) to review the utility conflicts, utility relocation design already drafted and potential areas for relocation. A UFI report and other customary documents is prepared and distributed. Schedules for the utility companies' submission of easements and plans, specifications, and estimates (PS&E) for the relocations will be established.

Richard continues to work with each utility owner to ensure their final PS&Es are progressing on schedule and to resolve any issues between the project plans and the utility plans. As the utility company's plan and estimates are submitted, he reviews them in accordance with federal/state regulations and procedures; finalizes the cost responsibility determination; and recommends approving the reimbursement. There will be a utility relocation agreement, which is executed by the utility company and submitted to VDOT as part of the PS&E assembly.

Once VDOT approves the PS&E, the utility owner is authorized to proceed with the utility relocation, pending availability of required ROW or easements. Richard monitors the utility adjustment or relocation schedule, providing the affected utility companies with advance notices about the available ROW or easements needed to start their work. He continues to monitor the utility relocation progress to ensure utility companies are completing the work per the approved schedule. Richard uses the monthly Utility Status Report to confirm work is proceeding as scheduled.

Construction Phase

Richard reviews and implements solutions to any utility facility-related issues that arise during the road construction. He, along with Design and Construction Team personnel are involved in reviewing the issues and agreeing to the solution, which is then implemented timely.

As the utility adjustments or relocations are completed, Richard prepares the as-builts drawings, secures final billings, and sees that the utility owners receive any applicable VDOT land use permits.

Avoid/Mitigate Utility Conflicts by Design: As noted in Section 4.3.g., our Team zeroed in on avoiding or mitigating utility conflicts. Since relocating overhead utilities is unavoidable, we focused our conceptual design changes on minimizing impacts to the underground utilities on the north and south side of Route 29.

Conflict: On the south side, the major facility is the Verizon 9-way concrete duct bank that contains multiple copper and fiber optic cables and a directionally drilled 4-way Fiberlight duct system with multiple fiber optic cables, some of which are owned by AT&T.

How we mitigated it: Our Team reviewed the inlets that can be used and modified the design in some areas to shift the truck line between inlets to a parallel location away from the duct bank. Smaller diameter pipes will carry the flow over the duct bank to the shifted system. Where the manhole cover may conflict with the curb and gutter, we will work with Verizon to install an adjacent parallel tunnel manhole to shift the cover location, leaving the existing manhole and cables in place.

We also looked for situations where significant portions of the 4-way Fiberlight ducts could remain in place with mostly needing to shift the

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A part of the 9-way is near the proposed curb and gutter line and associated drainage inlets. handholes boxes out of the shared use path. We will continue working with Fiberlight to determine their and AT&T splice points and where a new relocation is more economical.

Conflict: Telecommunication facilities on the north side are mostly on a Verizon overhead pole line that is shared with Verizon (MCI) and Comcast. **How we mitigated it:** While the pole line is in horizontal conflict, we set our design so portions of the direct buried ducts can remain in place. Final consideration will be based on available splice points.

Conflict: At the Plantation Pipeline crossing, the potential conflict was on the north side where the road widening created a 9-foot cut section. Based on the test hole data provided by VDOT, the pipeline is low enough to clear under the shared use path. The test holes farther out in the cut slope failed to find the pipeline, but the information found would indicate it remains below the slope line. **How we avoided it:** Because of the test hole findings from VDOT this is not a conflict. This will be confirmed through scope validation process.

Conflict: In discussing the 90% RFP water and sanitary sewer relocation plans with the utility owners and engineers, we determined that some sections of the proposed relocations can be eliminated or reduced. **How we avoided and mitigated it:** Our design eliminated the entire 24-inch watermain relocation at the Union Mill/Centreville Farms intersection by re-using an existing traffic signal pole and we still meet the project requirements. This eliminated significant utility relocations across Route 29 and these side roads. Other sections can be reduced by providing the minimum clearance needed to parallel storm drainage pipes. The sanitary sewer plans were modified to redesign the crossing just east of Stringfellow Road to extend the pipe vs. replacing all the way across Route 29.

Challenging Conflict: Our Team did not find any design solutions that avoids the Colonial Pipeline casing extensions, or various drainage pipe conflicts with Washington Gas main.

While the precise elevation of some of these facilities will not be known until additional utility test hole information is secure, our hydraulic engineers have determined that there is sufficient depth at the outfall for main storm drainage pipes to cross over or under the utilities without conflicts. This detail analysis of utility crossing will continue as a part of the final design.

See **Table 11** for our utility conflict mitigations and are also highlighted in our Volume II Concept Plans.

Table 11: Utility Challenges and Accommodation Matrix

Utility	Utility Location	ROW Acquired by	Challenge (C)/Accommodation (A)
Verizon VA	9-way duct bank along south edge pavement Sta. 301+00 to Sta. 370+50 (Eight locations)	Existing ROW	C: Reduce cost and lengthy utility relocation duration resulting from storm inlets. A: Our design eliminated several conflicts by shifting parallel trunk line away from ducts and using a manhole and short pipe section.
Verizon VA	9-way duct bank along south edge pavement Sta. 301+00 to Sta. 370+50	Existing ROW	C: Reduce cost and lengthy utility relocation duration resulting from undercut in duct bank area. A: Our design uses chemical stabilization or close excavation for the duct bank to remain in place.
Plantation Pipeline	Crossing at Sta. 357+40	Corman Kokosing/RK&K DB Team	C: Slope excavation and casing on north side. A: The pipeline was lower than expected. However, test holes did not find line. If line is found to be higher, we will

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			construct a retaining wall to reduce cut slope and allow line to remain in place.
Fairfax Water	24-inch watermain at Union Mill / Centreville Farm Intersection Sta. 305+75 to Sta. 308+25	Existing ROW	C: Reduce cost and major utility relocation through an intersection. RFP conflict with proposed traffic signal pole. A: Our design re-uses an existing pole and foundation eliminating a new foundation at the 24-inch watermain and avoids the conflict. This eliminates the RFP planned watermain relocation and it remains in place.
Fairfax Water	24-inch watermain at Stringfellow Road Intersection Sta. 326+25 to Sta. 328+25	Existing ROW	C: Reduce cost of major utility relocation through intersection. RFP conflict with proposed double line 48-inch pipe culverts. A: Our design proposes to install a single barrel box culvert meeting all hydraulic requirements and placing a narrower structure over the existing 24-inch watermain and avoids the conflict. This eliminates the RFP planned watermain relocation.
Fairfax Water	24-inch watermain along north edge pavement Sta. 371+00 to Sta. 376+60	Existing ROW	C: Reduce cost and lengthy utility relocation duration resulting from storm inlets. A: Our design eliminated several conflicts by shifting parallel trunk line away from the watermain and reducing the length of the RFP planned watermain relocation.
Verizon MCI Comcast	Various fiber optic cables Northeast Centreville Farm Road Intersection – Sta. 308+15	Existing ROW	C: Reduce cost and lengthy utility relocation duration resulting from sound barrier construction. A: Our sound barrier design spaces the support posts so the multiple utility crossings are in between eliminating the need for a utility relocation.

Utility Conflicts that Require Relocation: Although we will continue evaluating alternatives to eliminate utility conflicts during detail design, we have determined the utilities in **Table 12** do require relocations. We have proactively engaged all the utility companies to fully understand their relocation intentions and summarized the locations in **Table 12**. These are the line and 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 12: Utility Conflicts and Relocation Plan

Utility Owner	Utility Location	ROW Acquired By	Type of Conflict	Relocation Plan
Dominion, Shentel & Cox	Overhead (OH) 299+90 to 318+50 RT	VDOT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement.
Verizon (MCI)	Underground (UG) Fiber 312+00 to 318+50 LT	Corman Kokosing/RK&K DB Team	Grading/Shared Use Path/ Drainage	Relocate UG fiber to new utility easement.
Comcast	UG Fiber 312+00 to 318+50 LT	Corman Kokosing/RK&K DB Team	Grading/Shared Use Path/ Drainage	Relocate UG fiber to new utility easement.

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Utility Owner	Utility Location	ROW Acquired By	Type of Conflict	Relocation Plan
Verizon (MCI)	UG Fibers 312+10 to 313+60 RT	Corman Kokosing/RK&K DB Team	Drainage	Relocate UG fibers within existing ROW.
Fairfax Water	24-inch Watermain 315+75 to 318+50 LT	Existing	Roadway Fill	Relocate 24-inch watermain within existing ROW.
Fairfax Water	8-inch Watermain 310+70 Crossing	Existing	Drainage	Relocate 8-inch watermain connection to Moore St. within existing ROW.
Shentel	OH with Dominion 315+60 Crossing	Existing	Shared Use Path/Clear Zone	Relocate OH line to new utility easement, replace crossings.
Fiberlight & AT&T	UG Ducts 307+65 to 318+50 RT	VDOT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement.
Verizon (MCI)	UG Fiber 318+50 to 332+50 LT	Corman Kokosing/RK&K DB Team/VDOT	Grading/Shared Use Path/ Drainage	Relocate UG fiber to new utility easement.
Comcast	UG Fiber 318+50 to 327+50 LT	Corman Kokosing/RK&K DB Team	Grading/Shared Use Path/ Drainage	Relocate UG fiber to new utility easement.
Fairfax Water	24-inch Watermain 318+50 to 326+25 LT	Existing	Roadway Fill/ Drainage	Relocate watermain within existing ROW.
Fairfax DPWES	8-inch Sanitary Sewer 330+00 Crossing	Existing	Roadway Fill/ Drainage	Relocate sanitary sewer within existing ROW.
Dominion & Cox	OH 318+50 to 332+50 RT	VDOT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement.
Fiberlight & AT&T	UG Ducts 318+50 to 326+20 RT	VDOT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement.
Fiberlight & AT&T	UG Ducts 327+20 to 332+50 RT	VDOT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement.
Summit IG	UG 325+55 to 52+05 SF Rd LT	Existing	Route 29 widening/ Shared Use Path	Expose and relocate UG ducts and 3 fibers to back of shared use path.
Summit IG	UG 325+55 to 42+25 SF Rd RT	Existing	Shared Use Path/Drainage	Expose and relocate UG ducts and 3 fibers to back of shared use path.
Verizon VA	9-way Duct Bank 320+45 RT	Existing	Curb & Gutter	Add an offset manhole to move cover from gutter.
Verizon VA	9-way Duct Bank 326+00 to 329+50 RT	Existing	Drainage/Shared Use Path	Relocate duct banks and fibers within existing ROW. Eliminate manhole in intersection.
Washington Gas	6-inch Plastic 328+00 to 331+50 RT	Existing	Drainage/Roadway Fill	Relocate gas main within existing ROW.
Washington Gas	4-inch Plastic 328+40 to 329+90 RT	Existing	Drainage/Service Road	Relocate gas main within Existing ROW.

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Utility Owner	Utility Location	ROW Acquired By	Type of Conflict	Relocation Plan
Zayo Comm.	UG Ducts 326+05 to 329+50 RT	VDOT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement.
Verizon (MCI)	UG Fiber 332+50 to 346+50 LT	VDOT	Grading/Shared Use Path/ Drainage	Relocate UG fiber to new utility easement.
Colonial Pipeline	32-, 36-, and 6-inch Gas 340+80 to 341+20 LT	VDOT	Roadway Fill	Utility to extend casing pipes.
Fairfax Water	24- and 12-inch Watermains 337+75 to 346+50 LT	Existing	Roadway Fill/ Drainage	Relocate watermain within existing ROW.
Dominion & Cox	OH 332+50 to 342+00 RT	VDOT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement.
Dominion & Cox	Overhead 342+00 to 346+50 LT	VDOT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement
Fiberlight & AT&T	UG Ducts 332+50 to 335+85 RT	VDOT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement.
Fiberlight & AT&T	UG Ducts 340+25 to 346+50 RT	VDOT	Drainage/Shared Use Path	Relocate UG ducts and fiber to new utility easement.
Verizon VA	9-way Duct Bank 340+50 to 342+70 RT	Existing	Drainage	Relocate duct banks and fibers within existing ROW. Eliminate Manhole in intersection.
Washington Gas	6-inch Plastic 340+00 to 342+20 LT	Existing	Drainage/Roadway Fill	Relocate gas main within existing ROW.
Verizon (MCI)	UG Fiber 346+50 to 360+25 LT	VDOT	Grading/Shared Use Path/ Drainage	Relocate UG Fiber to new utility easement.
Fairfax Water	24-inch Watermain 346+50 to 356+80 LT	Existing	Roadway Fill/ Drainage	Relocate watermain within Existing ROW.
Fairfax DPWES	12-inch Sanitary Sewer 353+00 Crossing	Existing	Roadway Fill	Extend casing within existing ROW.
Dominion & Cox	OH 346+50 to 360+25 RT	VDOT/Corman Kokosing/RK&K DB Team	Shared Use Path/Clear Zone	Relocate OH line to new utility easement.
Fiberlight & AT&T	UG Ducts 346+50 to 360+25 RT	VDOT/Corman Kokosing /RK&K DB Team	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement.
Verizon VA	9-way Duct Bank 352+50 to 355+50 RT	Existing	Drainage	Relocate duct banks and fibers within existing ROW.
Washington Gas	6-inch Plastic 352+80 to 357+25 LT	Existing	Drainage	Relocate gas main within existing ROW.

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Utility Owner	Utility Location	ROW Acquired By	Type of Conflict	Relocation Plan
Verizon (MCI)	UG Fiber 360+25 to 373+15 LT	Corman Kokosing/RK&K DB Team	Grading/Shared Use Path/ Drainage	Relocate UG fiber to new utility easement.
Fairfax Water	24-inch Watermain 363+25 to 371+00 LT	Existing	Roadway Fill	Relocate watermain within existing ROW.
Fairfax DPWES	Sanitary Sewer Lateral 360+15 to 361+70 LT	Existing	Roadway Fill	Extend lateral to building connection within existing ROW.
Dominion & Cox	OH 360+25 to 374+50 RT	Corman Kokosing/RK&K DB Team	Shared Use Path/Clear Zone	Relocate OH line to new utility easement.
Fiberlight & AT&T	UG Ducts 360+25 to 374+50 RT	Corman Kokosing/RK&K DB Team	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement.
Washington Gas	4-inch Plastic Willowmeade Drive	Existing	Drainage/ Underdrains	Relocate gas main within existing ROW.
Dominion & Cox	OH 374+50 to 384+80 RT	Corman Kokosing/RK&K DB Team	Shared Use Path/Clear Zone	Relocate OH line to new utility easement.
Fiberlight & AT&T	UG Ducts 374+50 to 386+05 RT	Corman Kokosing/RK&K DB Team	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement.
Washington Gas	8-inch Plastic 374+40 to 378+25 RT	Existing	Drainage	Relocate gas main within existing ROW.
Washington Gas	Service Lines 380+15 Crossing	Existing	Drainage	Relocate gas mains within existing ROW.
Washington Gas	8-inch Plastic 382+00 to 384+00 RT	Existing	Drainage/Service Road Cut	Relocate gas main within existing ROW.
Washington Gas	8-inch Plastic 401+30 to 402+75 RT	Existing	Retaining Wall	Relocate gas main within existing ROW.

Mitigation Strategy: The Corman Kokosing/RK&K DB Team in partnership with Bowman routinely coordinates and performs relocations for these impacted private/public utilities: AT&T, Comcast, Colonial Pipeline, Cox, Dominion Energy, Verizon, Fiberlight, Plantation Pipeline, Fairfax Water, Fairfax County DPWES (sewer), Shentel, Summit IG, Washington Gas and Zayo. An early focus on the utility schedule, inspecting relocation efforts, and performing clearing, grading and survey in advance of utility relocation can mitigate potential utility delays.

With every design-build project, our Team thoroughly evaluates the corridor for unknown utilities and potential new utilities to avoid delays and identify issues as quickly as possible. In the event a utility is discovered, we are prepared to pivot the construction efforts to maintain project schedule and delivery. Our construction approach addresses issues related to private utility relocation efforts by coordinating for expedited relocations or by sequencing

ADDED FLEXIBILITY

Relocating the utility in phases gives added flexibility by providing a level of contingency within the relocation itself.

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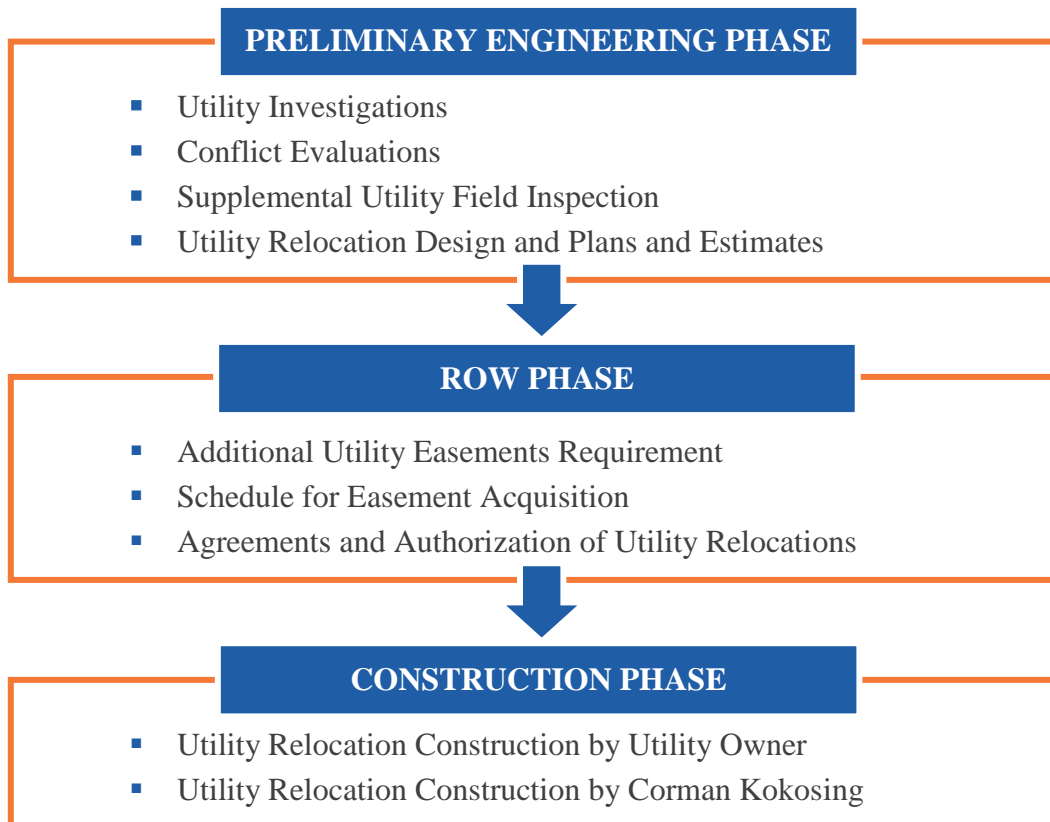
our work accordingly if timeframes exceed estimated. This is the benefit of our General Utility Relocation Approach.

Anticipated utility relocation schedules and milestones have been integrated in our schedule to minimize delays and evaluate potential risk. Our construction approach accounts for potential delays as it is understood the private utility relocations may occur concurrent with construction. Our schedule shows that we will keep relocations ahead of the construction activity to avoid this scenario.

Avoid/Mitigate by Construction Means and Methods: 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 utility relocation plans and schedules for all relocations. They will plan operations 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: The Corman Kokosing/RK&K DB Team updates and validates the SUE data provided by VDOT to ensure all utility facilities are identified and evaluated for potential conflicts with the design. During construction, if we encounter any unexpected utility facilities, we immediately bring the utility owners and appropriate team members to the site where potential solutions are reviewed and determine how to handle it. This includes whether Corman Kokosing or the utility performs the relocation and cost responsibilities.

Integrating into the Project Schedule: We have integrated interactions with utility companies with facilities located within the project into the pre-construction and construction schedules. The schedule reflects the fact that the utility companies need certain information before they can evaluate the final impact and the actions it takes to relocate a utility facility. This includes acquiring any additional utility easement needed for the relocation. The schedule includes the following major activities:



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Prioritizing Utility Relocations to Expedite Construction Sequencing: Overhead power line and underground telecommunication facility relocations that definitely conflict with project construction significantly impact the construction schedule.

Along the south side of Route 29, there is a Verizon 9-way and larger duct bank with large copper cables and multiple fiber optic cables and a 4-way fiber optic duct system. Relocations require placing new manholes, new duct bank or ducts, cables, and coordinated splicing and removals which will have the greatest time impact.

Along the north side, there are overhead/underground telecommunications lines requiring relocation which affect the road construction schedule. The overhead electric line and underground telecommunication relocations require that the replacement easements be acquired before completing the relocation.

As VDOT is providing all but a few parcels of the proposed ROW and easements between the start of the project and Willow Spring Branch, our utility relocation authorizations will be scheduled to take advantage of this available ROW. Dominion, Cox, Shentel, Fiberlight will proceed on the south side and Verizon (MCI), Comcast and Verizon VA with the facilities on the north side when the ROW is available. Also, during that time, work within the existing ROW on the Verizon VA 9-way duct bank and longer Washington gas relocations will start. The objective is to clear the north side for Phase 1 road construction.

Our Team will prioritize acquiring the remaining utility parcels on the north side so that the Verizon (MCI) and Verizon VA relocations can continue and clear that side completely. As the ROW and easements on the south side are completed, the Dominion, Cox, Fiberlight and AT&T relocations will be completed clearing the project of all relocations, except those that have to be coordinated with roadway construction.

Confirmation of Utility Relocation in Correct Place: Our utility manager will monitor and coordinate during utility relocations, including having a pre-construction meeting with the utility contractor and verifying stakeout for the relocated poles and underground lines. He will inspect periodically and complete notes for the record.

4.4.3 GEOTECHNICAL

General Geotechnical Approach to Managing Risk: The geology and soil conditions present throughout the project corridor pose unique geotechnical design and construction related risks. The Corman Kokosing/RK&K DB Team understands the varying geotechnical characteristics that span the project site and will tap into RK&K's experience with VDOT and NOVA to identify and mitigate these risks. Our geotechnical field engineer will coordinate and supervise additional subsurface explorations during the design phase to gain a first-hand understanding of the project site geology. As part of our thorough supplemental subsurface exploration, this will allow us to identify unsuitable soils and mitigate impacts during design.

Our geotechnical engineers from RK&K will perform an independent peer review of the geotechnical design, assumptions, and contract documents.

Following design, our geotechnical engineer has a continued role reviewing submittals and responding to RFIs. During construction, RK&K will observe and approve exposed pavement, and foundation subgrades for construction, and assist Corman Kokosing in mitigating geotechnical risks or concerns during construction. Collectively, we devise strategies to stabilize or improve areas of soft, loose, or saturated soils that exhibit excessive pumping, weaving or rutting during proof rolling activities. Additionally, unexpected soil or rock conditions may result in design issues that are not apparent until excavation started. RK&K is available to consult throughout the project with Corman Kokosing and the construction team.

Construction Methods: During construction, there is coordination in regard to excavated sub-grades and foundations, undercut conditions and limits, and embankment construction techniques where our geotechnical engineer or a competent representative observes critical construction activities. Training the QC inspectors what

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to look for will further reduce risk. The inherent geotechnical characteristics of the site, typical soil condition, water table, and other geotechnical and geological aspects will be included in our QC program. Another aspect to reduce risk is through in situ chemical treatment of unsuitable soils, which will be a decision point considering the location, the soil conditions and impacts to the schedule.

Geotechnical Risks and Challenges: The key to mitigating geotechnical risk is to conduct a comprehensive subsurface exploration and laboratory testing program. This consists of reviewing historic published geologic data, information from as-builts, and subsurface data in the RFP, and incorporating the results of the additional subsurface exploration and laboratory testing program required to meet Chapter III of VDOT Materials Division, Material of Instructions for Geotechnical Engineering (MOI Chapter III). Since mitigating geotechnical risk is a major factor in completing our plans and starting construction, we have incorporated in our schedule that all accessible borings will be completed within the scope validation period in order to identify problem areas early in the project in order to have plenty of time to mitigate problem areas.

The Corman Kokosing/RK&K DB Team has reviewed the Geotechnical Data Report (GDR) produced by VDOT Materials Northern Virginia District, dated October 20, 2021 and additional Reports/Memorandums prepared for roadway/pavements, retaining walls, sound barrier walls, and various drainage facilities by VDOT Materials Northern Virginia District between November 23, 2020 and February 9, 2021.

Based on our review of the contractor documents, critical geotechnical risks include **unsuitable soils, excavation in Intermediate Geomaterial (IGM) and variable depth to bedrock.**

- **Identifying and Managing Unsuitable Soils:** The boring and test data in the GDR included in the RFP indicate the presence of existing fill and unsuitable soils containing varying amounts of organics, high plasticity clays or elastic silts, wet and soft/loose subgrade soils, and other types of unsuitable soils as defined by VDOT. Unsuitable material was identified at pavement subgrade and at the bearing elevation for structures in approximately half of the soil test borings in the GDR. Over 50% of unsuitable material is anticipated when excavating for drainage structures. Unsuitable materials require remediation during construction and includes undercutting and replacement for structures. Unsuitable soils below the new full depth pavement section include undercutting and replacement in narrow areas and chemical treatment for the portion of the alignment not within a diabase geologic formation. The limits of mapped diabase geology within the alignment and areas proposed for chemical treatment are illustrated in **Figure 7**.

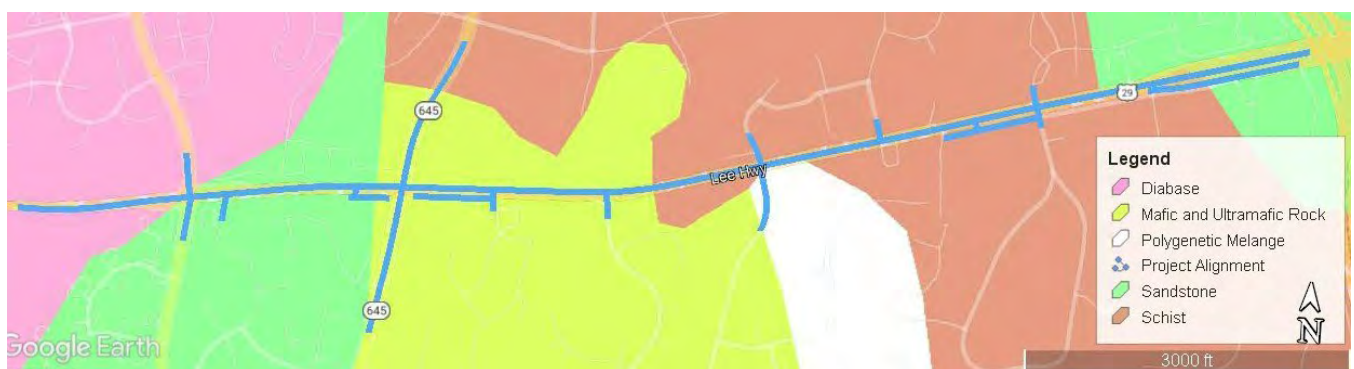


Figure 7: Limits of Mapped Diabase Geology within the Alignment and Areas Proposed for Chemical Treatment

- **Excavation Intermediate Geomaterial (IGM):** Based on our review of the GDR, excavations for installation of utilities and drainage structures will encounter IGM. The designs will be reviewed to confirm depths are optimized, and during construction the team will be aware of the anticipated conditions so that the appropriate equipment is on site to complete the excavations without delay.

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- **Variable Bedrock Depths:** Excavations in bedrock are not anticipated for construction of utilities, drainage structures, or grading. We do anticipate encountering bedrock when constructing the drilled shafts for the combination retaining wall/sound barrier between Sta. 313+75 and Sta. 316+00, for approximately the first 250-ft. To confirm the variability of the top of rock in this area and which soldier piles will need to be cored into rock, we will mobilize air track drilling equipment to verify which post require a rock socket before mobilizing drilled shaft equipment.

4.4.4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

One of the most important aspects of a VDOT design-build project is the successful completion of the QA/QC program. To meet our mission and objectives, we assembled a team of highly qualified and experienced professionals to comply 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 Quinn Consulting who will lead the Construction QA team under the leadership of John Vicinski, PE, DBIA.

The Corman Kokosing/RK&K DB Team's QA/QC approach creates a partnering environment between VDOT, our field staff and QC inspectors/testers, and Quinn's QA staff. Forming this partnership with a proactive/robust QA/QC testing and inspection program starts with a project-specific QA/QC Plan which:

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

Below is our QA/QC approach for design and construction, including our processes, staffing levels, and non-conformance to achieve VDOT full acceptance of the facilities:

Approach to QA/QC during Design: Lead Designer RK&K provide QC and QA at all levels of our Team's organization. They have a corporate Quality Management Plan (QMP) that involves every team member, from the partners to the engineering technicians. Their corporate QMP, along with VDOT's Minimum Requirements for QA/QC on design-build projects, is the basis for our project-specific Design Quality Management Plan (DQMP). Our DQMP defines the processes by which the design deliverables comply with the design-build contract (including good industry practice); the technical requirements; the approved QA/QC Plan; and applicable specifications, special provisions, and standards, as well as applicable law and government approvals.

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 provide efficient execution and documentation of the design quality.
- Integrates the design and construction teams to leverage lessons learned and refine the design.
- Ensures integration and oversight of our design manager for compiling and sealing final documents of each work package.
- Minimizes VDOT's design review efforts and provides quality design deliverables.

Our DQMP provides the framework by which RK&K conducts their independent deliverable reviews. The design phase quality management process will be transparent to VDOT.

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RK&K follows this 9-Step Review Process:

Step 1

Originator: Prepares the deliverable to be checked and is accountable for accuracy and 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 the items marked for revision are justifiable, and that corrections noted are appropriate. If the Back-checker disagrees with a Checker's correction, they must resolve it prior to the next step. If it cannot be resolved, the lead discipline engineer or design manager 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.

Step 6

Interdisciplinary Review: Once the design deliverable is checked, the design manager and D/CI organizes the lead discipline engineers (roadway, structural, drainage, utilities, etc.) to review the submittal. Concurrently, the construction manager and QC group reviews the submittal for constructability. If there are comments from the Interdisciplinary Review, the checking procedure starts from the beginning for the affected portions of the deliverable.

Step 7

Quality Assurance: The design QA/QC manager audits and ensures the QC checking process is being followed by the design team. In addition to the QA/QC design process outlined above, the design QA/QC manager and the design manager 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 quality control checking process.

Step 8

Contractor Review: As a final deliverable review before submitting to VDOT, the Corman Kokosing/ RK&K DB Team again reviews the plans for constructability, conformance to anticipated means and methods, and completeness of comment responses. This is led by Design/Construction Integrator Kyle LaClair, PE.

Step 9

Submit to the Department: The lead discipline engineer signs a form for each milestone deliverable that QC efforts are compliant and transmits it to the design manager and design/construction integrator who signs off on it with the QA/QC manager. Final deliverables are now ready to be

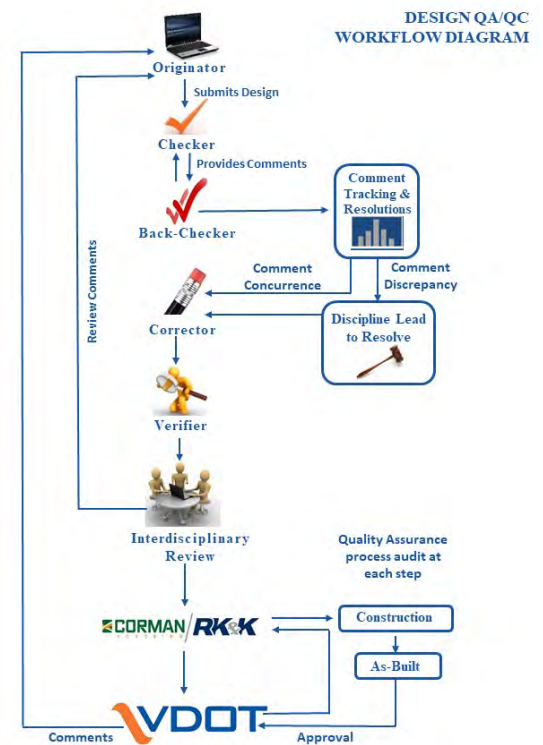


Figure 8: Design QA/QC Workflow Diagram

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signed and sealed by the lead discipline engineer (a Virginia PE), and the DBPM submits it to VDOT for review and/or approval. VDOT (or other reviewing agency) reviews the design and submits comments to the Corman Kokosing/ RK&K DB Team. Comments are addressed by incorporating changes into the design for the next milestone submittal. This continues throughout design until final plans are submitted to VDOT and approved for construction.

Approach to QA/QC during Construction

Construction QC: Quality Control Manager (QCM) Tommy Usseglio-Gomez is responsible for construction QC and oversees the independent QC testing and inspection personnel. DBPM Scott Szympruch, PE, directs the construction management effort. QC technicians and inspectors will possess the required VDOT certifications throughout the project.

The QC function is to inspect and test the work as it progresses to control the level of quality being produced in the project. The QC team measures those quality characteristics and inspects those activities that impact the production at a time when corrective action can be taken to preclude the occurrence of nonconforming material or work.

As part of the QA/QC Plan, our Team provides VDOT with a QC Plan that describes the testing and inspection activities and frequencies that meet/exceed the frequencies outlined in the minimum requirements.

Construction QA: Quinn leads the Construction QA team with the primary role of confirming the work conforms to the approved plans and VDOT specifications by reviewing QC data. As the Quality Assurance Manager (QAM), John Vicinski, PE, DBIA is responsible for the independent QA inspection and testing of materials used and work performed to include monitoring our QC program. Under his supervision, Quinn's inspectors carry out the inspection and testing activities of the QA program, including the following:

- Review work plans and reference documents and the QA/QC Plan.
- Confirm submittals, sources, and materials are approved.
- Monitor the CPM and look-ahead schedules to determine (and perform) the frequency of tests.
- Check calibration and condition of testing equipment.
- Prepare daily diaries and logs, accept completed work, and document.
- Maintain the materials notebook.
- Monitor QC staff to confirm work coverage.
- Coordinate laboratory testing.
- Assist with coordination of witness and hold points.
- Notify the QAM of any corrective measures.
- Verify that unacceptable work is corrected

The QA staff verifies that QC functions are being performed and conducted properly. They also 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.

Corman Kokosing has an established and successful work history with Quinn based upon QA/QC procedures on VDOT design-build projects, such as Route 1 Improvements at Fort Belvoir and Fall Hill Avenue and Mary Washington Boulevard Extension where John Vicinski was the QAM. Our QA/QC team's experience, combined with lessons learned, provides VDOT the distinct advantage of seasoned professionals with a successful track record of administering QA/QC programs in Virginia.

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QA/QC Plan: The Construction QA/QC Plan establishes clear/complete procedures for inspection of construction and testing of materials. Meetings and communication are key to an effective QA/QC program outlined in the Plan. Proper planning and conducting project 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. The QC and QA staff also communicates 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 thoroughly understand upcoming work. The objective is to provide coordination/communication among Corman 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 senior QA and QC inspectors meet to 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 update attendees on the QA/QC Program. Construction QA and QC inspection personnel perform construction inspection, sampling, and testing prescribed by the Minimum Requirements and other applicable contract documents. This includes documentation of construction activities and acceptance of manufactured materials. The following phases are in place to verify work is performed in substantial conformance with the contract:

- 1. Utility Relocation Inspections:** Ensures 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 reviews the work to verify conformance to the plans and the correct documentation is being forwarded to VDOT after his 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 Punch-list:** 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 all definable features of the work against approved construction plans, specifications, and other related construction documents, with any discrepancies noted.

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

Anticipated Construction QA and QC staffing: For a project of this size, scope, and complexity, our QA/QC staff must be experienced and robust to deliver a final product that meets/exceeds the requirements. The DBPM ensures that project policies are implemented and that our Team is staffed with knowledgeable and dedicated

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professionals who are committed to designing and constructing this project. Implementing QA/QC as prescribed by the Corman Kokosing/RK&K DB Team eliminates the need for VDOT to augment the quality effort.

The Corman Kokosing/RK&K DB Team calculates having between two and five QC and two to five QA individuals involved in the Construction QA/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 number does not include the field engineers or crew supervisors who ensure construction is per the plans/specifications. The QCM is dedicated to the project full time. The QAM to be onsite one to two days a week and will be adjusted as needed throughout construction.



SECTION 4.5

Construction of the Project

4.5 | CONSTRUCTION OF THE PROJECT

4.5.1 SEQUENCE OF CONSTRUCTION

The Corman Kokosing/RK&K DB Team’s sequence of construction considers the complex interrelationships between ROW acquisition, utility relocations, and construction. Navigating these core areas is central to avoiding any potential delays and successfully completing the project per contract. Our approach is to prioritize activities that reduce or remove other activities from being considered critical path. Our Team has spent significant time planning out each activity to identify those that would have adverse effects on the project schedule if delayed. The following is our sequence of construction:

General Sequence of Construction: We developed a general sequence of construction related to the roadway work then built predecessor activities to complete each phase (i.e., ROW acquisition and utility relocations). The following guidelines were used to determine our general sequence of construction:

Minimizes Phasing while Maximizing Construction: Our sequence of construction includes four major phases to construct Route 29, which is the most efficient approach while minimizing the phases required.

→ **Phase 1** employs temporary widening of the existing southbound (SB) travel lanes. Once completed, move traffic onto the previously widened SB lanes to accommodate northbound (NB) and SB traffic within the former SB traffic lanes.

Construct the temporary extension of drainage pipes, temporary pavement, and existing trail adjustments to accommodate the temporary widening. This allows NB lane final grades to be built in Phase 2 to the maximum extent allowing early beneficial use.

→ **Phase 2** reconstructs the NB lanes fully building out, to the extent possible, the right curb line and shared use path. Employ temporary pavement within the proposed median area for future use. This allows final construction of the right curb line and shared use path, including drainage features (i.e., inlets). Building these features assist in maintaining not only good drainage practices during construction, but also pedestrian/bicycle traffic during the next construction phase.

→ **Phase 3** moves traffic onto the newly constructed NB lanes using the temporary pavement in the median to accommodate NB/SB traffic. Construct the future SB lanes to final elevations, including the left curb, shared use path, and drainage features. Once completed, direct traffic into the final NB/SB lane configuration.

→ **Phase 4** moves traffic onto the newly constructed NB lanes using the temporary pavement in the median to accommodate NB/SB traffic. Construct the future SB lanes to final elevations, including the left curb, shared use path, and drainage features. Once completed, direct traffic into the final NB/SB lane configuration.

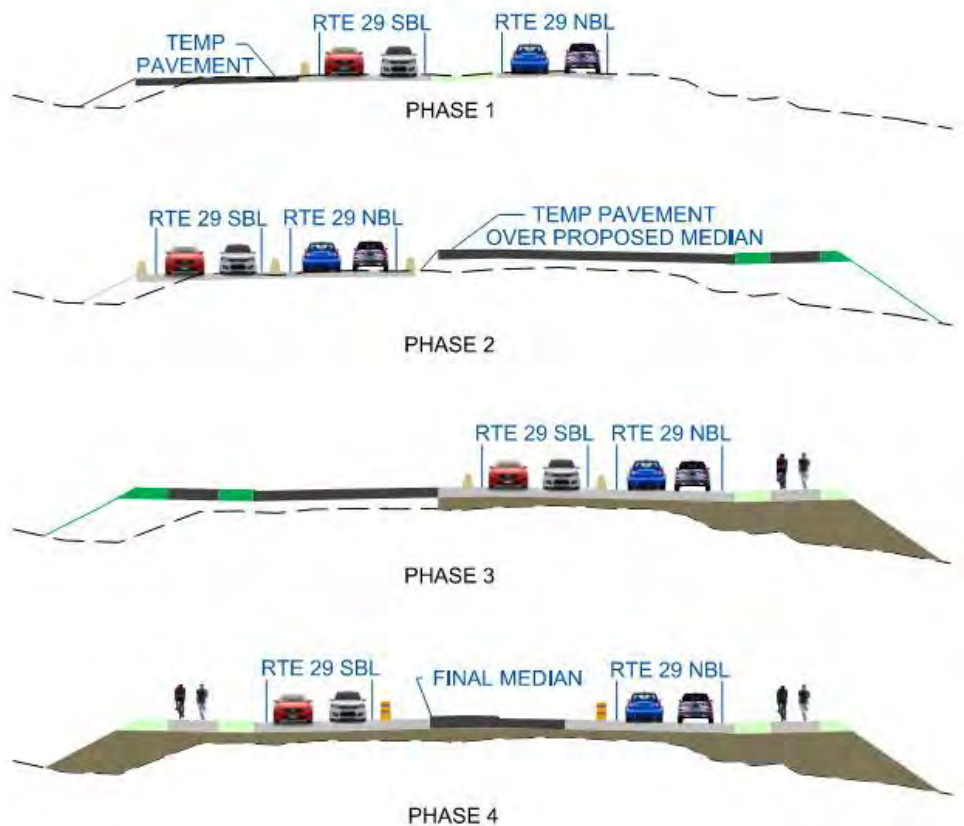


Figure 9: Construction Sequence Typical Sections

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→ **Phase 4** represents the final construction phase which constructs the median and other pertinent features to complete the project (See **Figure 9**).

Maintains Allowable Travel Lane Configurations and Widths: Our sequence of construction maintains two NB and SB lanes each while, at the same time, maintains existing storage lengths for left turn movements at intersections. During construction, divided, 11-ft travel lanes are maintained throughout the corridor, while also providing safety features, including a barrier to separate directional traffic with required shy distances.

Provides Pedestrian/Bicycle Routes: Our sequence maintains existing pedestrian/bicycle connectivity during all construction phases by using a combination of existing, temporary, and proposed facilities. The primary facility to be maintained is the Willow Pond Trail between Meadow Estates Drive and Stringfellow Road.

In Phase 1, a temporary trail is established near the easement limits. During Phase 2, pedestrians use the temporary trail while the permanent shared-use path adjacent to the Route 29 NB lane is constructed. In Phase 3, pedestrians use the permanent shared use path adjacent to Route 29 NB lane while the permanent shared use path adjacent to Route 29 SB lane is constructed. This is a major improvement to shared use path users in Phase 3, prior to substantial project completion, when the permanent, continuous shared use path is available.

Accommodates the Proposed Willow Spring Branch Box Culvert Structure: Our general sequence of construction was also developed for the proposed Willow Spring Branch box culvert at Sta. 354+00 (See **Figure 10**). The skewed alignment of this box culvert presents construction challenges when considering the MOT on Route 29. Staged culvert construction requires to expose a square end between stages and that more space is needed to account for the skew. The sequence of construction for this box culvert coincides with the general sequence of construction described above.

→ **Phase 1** constructs the temporary extension of the existing hybrid culvert/bridge structure using double 60-inch pipes through the existing opening and extending to the grading limits. This allows for the temporary pavement widening and embankment construction in this area (creek flow is maintained through the existing structure).

→ **Phase 2** culvert construction starts with building the upgradient half of the box culvert first. Demolish the inlet portions of the existing hybrid structure at this time and place double temporary 60-inch pipes in its place.

Construct a temporary stream diversion to the temporary pipes to construct the wing wall on the inlet side of the box culvert. This wing wall was adjusted to better accommodate the stream diversion as part of our constructability improvements.

Employ support of excavation at the interface with the shifted traffic lanes located on the SB lane corridor. Once the inlet portion of the box culvert is complete, backfill the temporary pipes and box culvert to support the traffic switchover to the NB lanes in preparation for Phase 3. Maintain creek flow

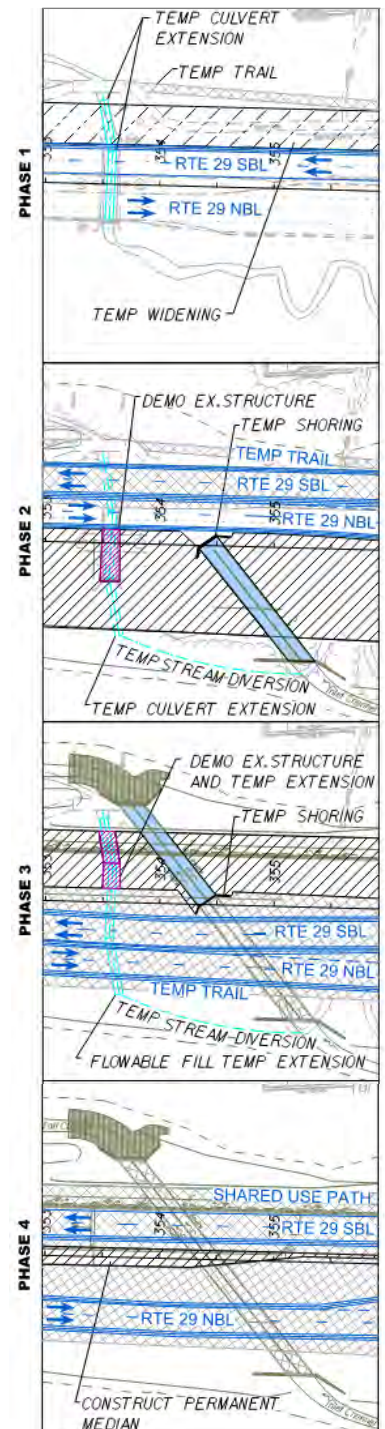


Figure 10: Willow Spring Branch Culvert Construction Sequence

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through the temporary pipes connected to the remaining portions of the existing hybrid structure with the extended temporary pipes on the outlet side.

→ **Phase 3** culvert construction includes the remaining outlet portions of the box culvert. Once the downgradient portion of the box culvert is constructed, redirect creek flow through the new box culvert. At this point, demolish and remove the remaining portion of the existing combination culvert/bridge hybrid structure (including down outlet pipe extension). The inlet temporary pipes are bulk headed off and abandoned in place with flowable fill. Temporary pedestrian trail is maintained adjacent to the NB lanes.

→ **Phases 4 and 4A** constructs the median and curb, gutter, and shared-use path to their final conditions.

Pavement milling/overlay operations, side street reconstruction, and entrance/driveway work that takes place outside of the active travel lanes is performed with lane closures or right shoulder closures with drums.

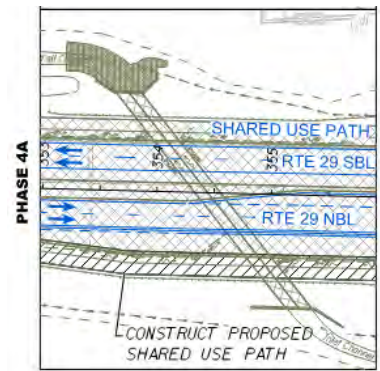


Figure 10: Willow Spring Branch Culvert Construction Sequence (Cont'd.)

ROW Acquisition Sequence: Since our sequence of construction highly depends on the ROW acquisition process, which is evident within the summary schedule (See **Figure 11**), and within our project schedule in Volume II, we will sequentially phase parcel acquisitions with the top priority ones occurring first. These initial acquisitions allow consequential utility relocations to begin in strategic locations to expedite construction activities. Based on our plan, there are three ROW packages that will be advanced through the VDOT approval process (See **Table 13**).

Table 13: ROW Packages

ROW Package	Parcel No.	Notes
VDOT	002, 003, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 033, 034, 041, 050, 058, 072, 084, 085, 086, 087	All parcels to be available by December 31, 2022 as per the RFP.
A	001, 005, 044	Expedited to be cleared by March 2023 . These parcels, coupled with VDOT's Package, allows a significant portion of utility relocations to start between Union Mill Road/Centreville Farms Road and Hampton Forest Way/Meadow Estates Drive intersections. This is consistent with the Utility Relocation Approach.
B	046, 047, 049, 051, 054, 070, 074, 077, 078, 079	These parcels complete acquisitions for the SB lanes and allow the remainder of utilities to be relocated opening up Phase 1 construction. These parcels are expected to be cleared by May 2023 .
C	038, 039, 040, 042, 043, 045, 048, 052, 056, 057, 059, 061, 063, 065, 066, 068, 069, 075, 082	These parcels represent the remainder of the acquisitions adjacent the NB lanes. They are not critical to the schedule, but will be expected to be cleared by July 2023 .

Utility Relocation Sequence: Our approach to utility relocation is supported by our ROW acquisition approach described above in that a phased method was selected to move into construction activities as early as possible. Per our Summary Schedule (See **Figure 11**), the Notice to Proceed for utility relocations starts immediately upon clearing the ROW and associated utility easements. We have identified several utilities that are critical to initiating the Phase 1 construction. The first round of utility relocations is on the south end of the project near Sta. 325+00

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to Sta. 360+00, roughly between Union Mill Road/Centreville Farms Road and Hampton Forest Way/Meadow Estates Drive intersections. These correspond to the VDOT Package and Package A for ROW acquisitions listed in **Table 13**. Our Team has been coordinating with the utility owners, in addition to getting insight from team member Bowman on how to phase this work. The benefit is the ability to start construction on one end of the project while utilities continue relocations on the other end on the same side (NB vs. SB side). **Table 14** indicates what construction phase and ROW package is associated with the area of utility relocation.

Table 14: Utility Relocation Locations Associated with Right-of-Way Packages

Location**	Side	Associated ROW Package	Proceeding Construction Phase*
Union Mill Road/Centreville Farms Road to Hampton Forest Way/Meadow Estates Drive (Sta. 325+00 to Sta. 360+00)	LT/RT	VDOT/A	Phase 1 (including Service Roads 1 and 2)
Meadow Estates Drive to Buckleys Gate Drive (Sta. 360+00 to Sta. 385+00)	LT	B	Phase 1 (remaining portions)
Hampton Forest Way through Ramp A (Sta. 360+00 through Ramp A)	RT	C	Phase 2
*Utilities will be cleared in advance prior to Phases 3 and 4			
**Locations and distances will be refined in final design			

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Route 29 Widening Phase II

	2nd QRT 2022			3rd QRT 2022			4th QRT 2022			1st QRT 2023			2nd QRT 2023			3rd QRT 2023			4th QRT 2023			1st QRT 2024			2nd QRT 2024			3rd QRT 2024			4th QRT 2024			1st QRT 2025			2nd QRT 2025			3rd QRT 2025			4th QRT 2025			1st QRT 2026			2nd QRT 2026			3rd QRT 2026		
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep											
NOI to Award (04/21/22)																																																						
NTP (6/17/22)																																																						
Engineering/Permitting (Incorporates Advance Packages)																																																						
Design/Permitting																																																						
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VDOT ROW Acquisitions																																																						
ROW Acquisitions - Package A (3 Parcels)																																																						
ROW Acquisitions - Package B (10 Parcels)																																																						
ROW Acquisitions - Package C (19 Parcels)																																																						
Utility Relocations (SB Lanes)																																																						
Utility Relocations (NB Lanes)																																																						
Phase 1 - Southbound (Temporary Widening)																																																						
Sta. 301+28 to Sta. 327+00 (Clifton/Stringfellow)																																																						
Sta. 327+00 to Sta. 359+50 (H. Forest Way/Meadow Estates)																																																						
Sta. 359+50 to Sta. 386+00 (Buckley's Gate Drive)																																																						
Shift Traffic to Phase 1 Temporary Widening																																																						
Phase 2 - Northbound (Permanent Construction)																																																						
Sta. 301+28 to Sta. 327+00 (Clifton/Stringfellow)																																																						
Sta. 327+00 to Sta. 359+50 (H. Forest Way/Meadow Estates)																																																						
Sta. 359+50 to Sta. 386+00 (Buckley's Gate Drive)																																																						
Shift Traffic to Phase 2 Work Area																																																						
Phase 3 - Southbound (Permanent Construction)																																																						
Sta. 301+28 to Sta. 327+00 (Clifton/Stringfellow)																																																						
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Sta. 359+50 to Sta. 386+00 (Buckley's Gate Drive)																																																						
Shift Traffic SB Traffic to New SB Lanes																																																						
Phase 4 - Final Median Construction (Ancillary Work)																																																						
Sta. 301+28 to Sta. 327+00 (Clifton/Stringfellow)																																																						
Sta. 327+00 to Sta. 359+50 (H. Forest Way/Meadow Estates)																																																						
Sta. 359+50 to Sta. 386+00 (Buckley's Gate Drive)																																																						
Open Route 29 All Lanes																																																						
Final Completion (7/31/26)																																																						

Figure 11: Route 29 Summary Schedule

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General Mitigation Approach: In addition to using the above approaches to accelerate the project, our Team has also analyzed other possible delays which informed our sequence of construction and our schedule preparation. Below are highlighted areas that could affect the project schedule:

1. Seasonal constraints as it relates to over winter construction (i.e., concrete curing; asphalt plant closures).
2. ROW acquisition delays can adversely affect the schedule and may alter the sequence of construction. Our phasing plan includes a phased approach for property acquisition.
3. Utility relocation constraints; i.e., Fairfax Water seasonal constraints.
4. Weather day and flooding constraints at Willow Spring Branch.
5. Fabrication constraints or supply chain issues.

Since this project has unique challenges that can cause unknown or unexpected delays, we identified our approach for each highlighted area above:

1. Seasonal Constraints

Winter weather conditions can hinder a schedule and make construction inefficient. Concrete curing, asphalt placement, and earthwork, are highly affected by the weathers, especially cold temperatures. In our review of the project and associated milestones, paving, including temporary cross-over paving, can be subject to time-of-year constraints due to paving in late winter, which is dependent on asphalt plant supplier availability and the temperature outside. Earthwork can also be delayed, particularly in December through February, when stabilization becomes more problematic, and earthwork take more work to achieve compaction requirements within moisture limits.

Mitigation Strategies: 1) Our schedule includes paving and earthwork calendars which excludes periods where seasonal sensitive activities will not be scheduled reducing the risk of delays. 2) Integrate prefabricated materials (i.e., precast structures and inlets) which have huge advantages for not only quality consistency, but also allowing construction that would otherwise be hindered by seasonal influences (i.e., cold weather concrete pours, etc.) and can cause schedule uncertainty.

Testament: On the Intercounty Connector Contract A project for Maryland Dept. of Transportation/State Highway Association, it was the fourth wettest year in Maryland and the Corman Kokosing joint venture construction team was severely impacted in the earthwork phase. This delay pushed asphalt-concrete paving into temperature-restricted winter timeframes. The alignment included 1.1 miles of widening/overlay on I-370 and constructing two major interchanges in phases to accommodate the two lanes of existing traffic in each direction while widening the roadway. We worked with MDOT SHA by developing an agreement that provided for a phased opening. As a result, the road opened to tolled traffic while non-critical construction activities continued.



2. ROW Acquisition Delays

ROW acquisition can be arduous and must follow a prescriptive order of events to clear the acquisition. VDOT is acquiring several takes associated with ROW and easements that were clearly outlined in the RFP and are planned to be available by the end of December 2022. To compliment these acquisitions, we have identified an acquisition plan that complements our construction phasing approach. A delay in the acquisition process can impact the project schedule and delay the initial start of construction. Furthermore, the acquisitions are directly tied to expediting utility relocations, which make it significant in completing acquisitions on time.

Mitigation Strategy: 1) We will recognize the work VDOT has already completed by expediting the ROW plan approval process. Since we do not anticipate any changes to the ROW line work or any of the associated

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permanent or temporary easements depicted in the RFP Concept Plans, we can move forward in getting plan approvals and authorization to acquire. We will complete title searches and upfront paperwork during plan reviews to further expedite the process. 2) Our Team will phase the acquisitions to expedite subsequent utility relocations and areas of early construction. We already have identified our initial acquisition request as Package A (Parcels 001, 005, and 044). These parcels need to be cleared early to advance the Verizon/MCI utility relocation discussed further under Utility Relocation Constraints. Our Team will submit these parcels under an Advanced ROW Plan to obtain the authorizations to make offers and negotiate the takes. Less critical parcels will be included in subsequent ROW plans under a Package B and Package C submittals.

Testament: On VDOT's Military Highway project, over 62 ROW acquisitions or easements were planned for and managed by the Corman Kokosing design-build team, with nine completed by VDOT. Of the 62 potential impacts, less than 40 were eventually needed through our improved designs and construction sequencing planning. This reduced project risks and cost to VDOT.



3. Utility Relocation Constraints

Utility relocations include out-of-plan (private) and in-plan (public) utilities where they are the prerequisite to roadway and drainage improvement construction. Third-party utility contractors performing out-of-plan relocations can create a cascading affect throughout the project schedule.

In reviewing the RFP plans and project schedule, we have identified a critical schedule activity associated with the Verizon/MCI out-of-plan utility relocations adjacent to the SB lanes. This utility is identified as an early relocation task to expedite construction in Phase 1, specifically, MSE Retaining Wall A between Sta. 314+50 LT and Sta. 318+75 LT. This portion of the work within the SB lanes corridor is critical to getting traffic shifted onto the temporary widening as it sets the course for the remainder of the project.

The FWA 24-inch waterline relocation has specific requirements in regard to number and timing of tie-ins. These parameters must be considered including mitigation strategies to ensure schedule certainty.

Mitigation Strategy: 1) Use the data and design that VDOT has already completed. VDOT has a fairly progressed design that identified the required out-of-plan relocations. This will jump start the utility relocation process with our Team needing to communicate minor design changes to that plan. Our design changes do not require any additional modifications to major out-of-plan utility relocations anticipated under the RFP Concept Plan.

2) Our secondary strategy is a phased approach for utility relocations. We will expedite the critical utility relocations that allow the earliest construction activities to begin in critical areas. For example, Verizon/MCI is planned to be relocated in two phases, which expedites MSE Retaining Wall A construction.

In lieu of awaiting the entire corridor to be relocated, our phasing and schedule accounts for an initial relocation (one-half of the corridor initially) followed by the remainder of the corridor. Although this may require an interim tie-in roughly near Meadow Estates Drive for Verizon/MCI to maintain service within the corridor and will be coordinated with the utility owners to determine the exact location, it expedites MSE Wall Retaining Wall A construction.

To summarize, our approach clears the western end (south end by lane direction) of the project and allows construction to start earlier, while the eastern end (north end by lane direction) continues on with the Verizon/MCI relocation activities.

4. Weather Days and Flooding Constraints

Adverse weather can account for significant weather-related delays on any construction project. Given the high-priority reestablishment of the Willow Spring

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Branch crossing from the perspective of scheduling, MOT, and sequencing Route 29 roadway work, accounting for this constraint is a top priority in expediting the project.

Mitigation Strategy: We accounted for weather days within the schedule for the 5-day work week calendar. This leaves Saturdays as a potential make-up day in maintaining/expediting the project schedule. Regarding the Willow Spring Branch crossing, in case of any flooding, we have modified the upstream headwall/wingwalls to provide additional space for temporary stream diversion into the existing culvert hybrid structure during construction. This will divert flood water away from the work zone.

Testament: Although historic river levels and rain affected the in-river substructure work on the bridge and roadway activities, by accelerating construction, the VDOT's Design-Build Bottom's Bridge project was completed two days ahead of schedule and under budget even with adding 50% more sound wall square footage.



5. Fabrication Constraints or Supply Chain Issues

Given the current supply chain situation, there are limited guarantees in getting your order delivered on time. Items now have to be preordered to ensure they are delivered on time. This applies to contractor acquired materials, as well as those acquired by the out-of-plan utility owners.

Mitigation Strategy: 1) We will expedite critical procurement elements. Since the RFP Concept Plans have been thoroughly vetted and any changes identified for constructability, we have solid quantities to request placeholder orders with a scheduled delivery date early in the project. The objective is to get our reservation into the vendors to hold our delivery dates.

2) Another strategy is to source prefabricated elements, such as precast structures. This takes multiple elements of a structure (i.e., rebar, concrete, aggregate) and sources the material at one location through a single vendor who readily has the material in stock to support their core business vs. Corman Kokosing sourcing the individual materials over multiple vendors.

Testament: On the I-95/I-695 Interchange project for Maryland Transportation Authority, material costs skyrocketed to an unprecedented high. The economic impact and potential time delay amounted to millions of dollars. The Corman Kokosing joint venture, owner, and steel subcontractor discussed ways to save time and money. The subcontractor proposed the owner pay for raw steel, a practice they have never done before as typically, payment is made when structural steel is fabricated. Purchasing the steel as needed allowed the subcontractor to pay for it when they were paid by the owner, enabling them to fabricate seven miles of steel for 11 bridges.

Given our approach, we propose to achieve an early completion date of **July 31, 2026**.

Addressing Safety during Construction: The Corman Kokosing/RK&K DB Team has a proven track record in planning/executing work safely, and has developed an approach that addresses any safety concerns early and aggressively. Designs will be measured against public impacts, as well as cost and construction operations. Corman 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 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 are present to brainstorm ways to minimize impacts to each entity's operations while opening lines of communication for early identification/mitigation of potential impacts.



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The Corman Kokosing/RK&K DB Team has planned and designed the project with an emphasis on motorist, pedestrian and worker safety. This is accomplished by limiting interaction of construction activities with motorists through our TTCP and construction phasing plan, as well as providing a Site-Specific Safety Plan that incorporates Corman Kokosing's *Zero-At-Risk Behavior* culture. This philosophy places an emphasis on human characteristics and focuses on each team member identifying/eliminating at-risk behaviors from their lives 24/7.

As detailed in **Section 4.5.2** below, the following eliminates/limits interaction between construction activities and the public.

→ **Protecting Pedestrian Routes:** Pedestrians have an open/safe route through the work zone via temporary trails at the perimeter of disturbance and or routes barricaded from traffic. **Figure 15** on page 47 reflects the scenarios for Phases 1 and 2 construction. In Phase 3, pedestrians are moved onto the permanent Shared Use Path adjacent to the future NB lanes. This route will be clearly conveyed to pedestrians and the work areas barricaded to avoid intruding onto the work zones.

Value-Added: Corman Kokosing/RK&K DB Team will prepare an alternative route map to communicate alternative trail routes around the work zone. For example, recreational users for the Fairfax County Park Authority Trail that parallels Route 29 can be diverted away from the work zone (if they so choose) through alternative trails through the Park (See **Figure 12**). Again, although our approach does accommodate pedestrians through the work zone, we want to divert them away as much as possible. These alternative routes will be incorporated into a robust communication plan as an alternative option.



Figure 12: Alternative Trail Route in Park

→ **Barrier Separation between Bi-Directional Lanes:** During construction, NB/SB lanes will be shifted together to run adjacent to compress the corridor width to the extent possible. To improve safety, our approach barrier within the appropriate buffers to physically segregate the bi-directional traffic. This greatly lowers the risk of head on collisions during construction and provides a clear direction to motorists.



Figure 13: Barrier Separation of Bi-Directional Traffic

→ **Temporary Signals:** The wide traffic shifts being used to construct the improvements require temporary traffic signals on span wire. This allows the Corman Kokosing/RK&K DB Team to construct temporary signals during Phase 1 and use them through Phase 3 with head shifts between phases. In Phase 3, the permanent traffic signals are constructed and put into service during Phase 4. One key temporary traffic signal feature is maintaining the presence of high-visibility signal backplates which, in a temporary condition, enhances the navigability of the work zone with their distinctive appearance. Our Team will also maintain existing CCTVs with these temporary signals throughout construction.

Addressing Operations during Construction: Corman Kokosing prides itself about our Zero At-Risk Behavior culture. A Site-Specific Safety Plan is developed by the project team, along with Corman Kokosing's Safety Manager, **Steve Simpson CSP, CHST**, which applies our standard operating procedures for the work. All

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Corman Kokosing and subcontractor team members who work on the project must attend a Site-Specific Orientation using the Safety Plan. Upon completion, they receive a hard hat sticker confirming they have been indoctrinated which then qualifies them to enter the jobsite.

Supervisory team members are trained on construction safety through *Kokosing University*, Corman Kokosing's company education system. A robust blend of online, in-person and third-party instruction educates these team members, as well as certifies them to Competent Person (CP) status in several key areas. Core courses 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 receive task-specific training through documented Work Instructions, including *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 Safety Talks and Safety Concerns (lessons learned), our Zero-At-Risk Behavior safety culture is clearly and consistently conveyed to Corman Kokosing team members on the project.

Major work activities will have a Job Hazard Analysis (JHA) completed and reviewed by the crew members prior to starting the work. Hazard identification, elimination or mitigation and controls are captured through a JHA. They are living documents to be adjusted as needed as the work progresses to reflect any change of conditions, equipment or personnel. The foremen use the JHAs to formulate a daily Morning Action Plan (MAP), and every crew completes a MAP meeting before the work shift. During the shift, if work tasks change, the foreman and crew *re-MAP* before starting the new task. MAPs focus on three questions (See Figure 14).

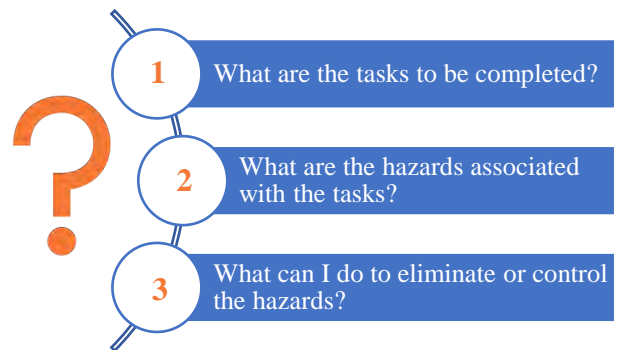


Figure 14: MAP Questions

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

Addressing Staging and Storage during Construction: Construction projects within an urban context are challenging from a logistical perspective. Staging personnel/equipment and coupling those resources with material deliveries are critical issues to be addressed by our Team. Strategic planning will determine the correct approach that can affect the project schedule and other factors, such as public/worker safety. Our approach includes a central project office location with a primary material staging area coupled with just-in-time delivery protocols. 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. These sites must consider equipment parking and short-term material storage.
- **Operational Efficiency:** Staging personnel, equipment and material near individual work areas lead to an efficient construction plan.
- **Clear Zone Issues:** Remove equipment and stored materials from the travel ways during non-working hours.

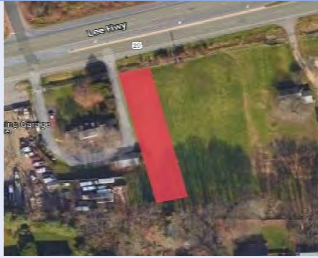
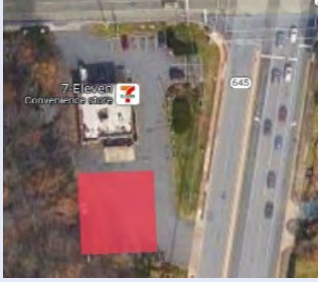
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- **Adjacent Residential/Business Considerations:** Separation from local business and other commercial/residential establishments is vital when considering light pollution, noise nuisance, and construction traffic, specifically, when portions of this project are overnight.
- **Environmental Constraint Considerations:** The staging/storage locations must address environmental risks associated with the potential for spills and other pollutant-related incidents. We will employ best management practices per local/state regulatory requirements.
- **Zoning/Local Land Use Restrictions:** Fairfax County 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.

Primary staging/storage areas will be fenced and screened with temporary office trailers or storage containers. Any offsite storage areas will have a stabilized entrance to reduce tracking mud onto public roads. Erosion & sediment controls will be installed/maintained. Upon completion, staging/storage areas will be converted as shown on the final plans near the work area and off-project areas will be restored per lease requirements.

Central Project Office Locations/Interim Storage/Staging Areas: There are a few locations under consideration to serve in the capacity of a central project office and staging/storage areas (See Table 15).

Table 15: Viable Site Storage and Staging Areas

Location	Aerial	Staging Area
Parcel 052		This property includes multi-parcel with a portion being occupied by an automotive repair shop. Cleared portions may afford an opportunity to locate staging/storage areas. The cleared area is zoned R-1, which requires an Administrative Permit for temporary contractor staging/storage yard. This site would be a central depository and gathering place for workers and equipment. It is subject to negotiation with the property owner.
Parcel 010 (7-Eleven Back Lot)		The area behind the 7-Eleven may be used for short-term storage and is subject to property owner negotiation and agreement.

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

In regard to off-site storage, Corman 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.

Each side of the roadway will also have an interim storage/staging area as the demolition, rehabilitation and construction progresses. Short-duration laydown areas will be established within the limits of disturbance (LOD) to support immediate work activities. They will be compliant with environmental protection best practices and

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will be more transitory through the site as work progresses. Any work within the clear zone of any highway will be protected by temporary concrete barrier for public/construction worker safety or be outside the clear zone.

Strategic methodology to provide early beneficial use of project elements, while minimizing impacts to the communities along the corridor: Our sequence of construction allows several aspects of the project to be used by the public and adjacent property owners in the early phases. Early beneficial use includes elements of the project that can be used in its final proposed condition; however, we will also highlight temporary elements that will also have a beneficial use by the community completed within early phases.

- **Early Sound Barrier Installations:** Sound Barriers C1 and C2 are early activities within Phase 1 construction. Reviews indicated minimal impacts to existing utilities; impacted utilities will be relocated as part of the initial utility relocation packages. Installing these barriers early generates an immediate benefit as it relates to noise impacts to the adjacent residences (See our schedule for the anticipated timing of these installations). Sound Barrier D will be constructed as an early activity within Phase 2, while Sound Barrier G will be constructed early in Phase 3.
- **Early Pedestrian/Bicycle Facility Implementation:** To accommodate pedestrian/bicycle traffic, our Team is providing trail facilities throughout the corridor. This is accomplished through temporary facilities coupled with permanent facilities being constructed early in the phasing to the extent possible. Phase 1 construction includes temporary trail construction on the perimeter of the construction limits (See Figure 15). This allows pedestrian movements during Phase 1 and Phase 2 construction. Once Phase 2 is complete, pedestrian movements are placed on the final Shared Use Path adjacent to the NB lanes for most of the corridor. This allows early beneficial use by the public while providing a dedicated means for pedestrians to navigate the work zone.

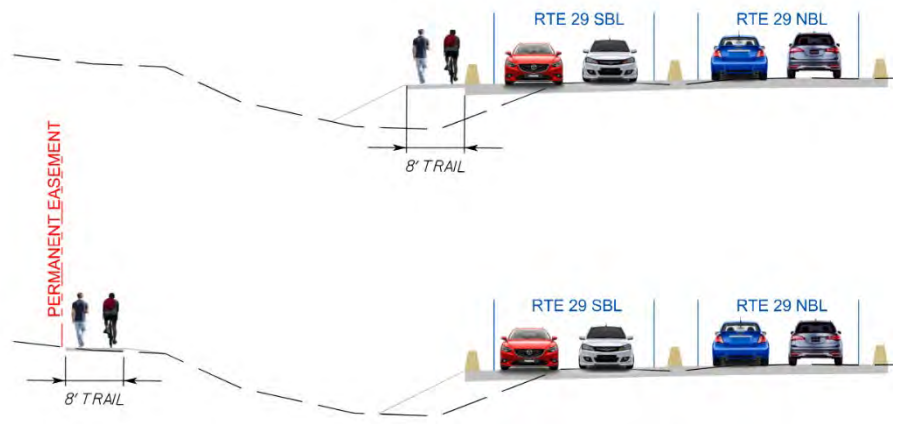


Figure 15: Pedestrian/Bicycle Routes During Construction (Phase 1/2 Shown)

- **Early Service Road Construction:** We will construct Service Roads Nos. 1 and 2 as an early construction activity within Phase 1. This has an immediate benefit for Parcels 007, 008, 010, 012, 014, 015, and 033 as it will provide a consolidated access back to Route 29 which is safer and more efficient for these homeowners. It also enhances safety during construction by removing multiple conflict points from the NB lanes in favor of one single access. In regard to Service Road No. 2, the turn-around (hammer head) will also be constructed giving delivery trucks and buses a place to turn around.

Figures 16-19 demonstrate the sequence of construction and handling of traffic for each phase:

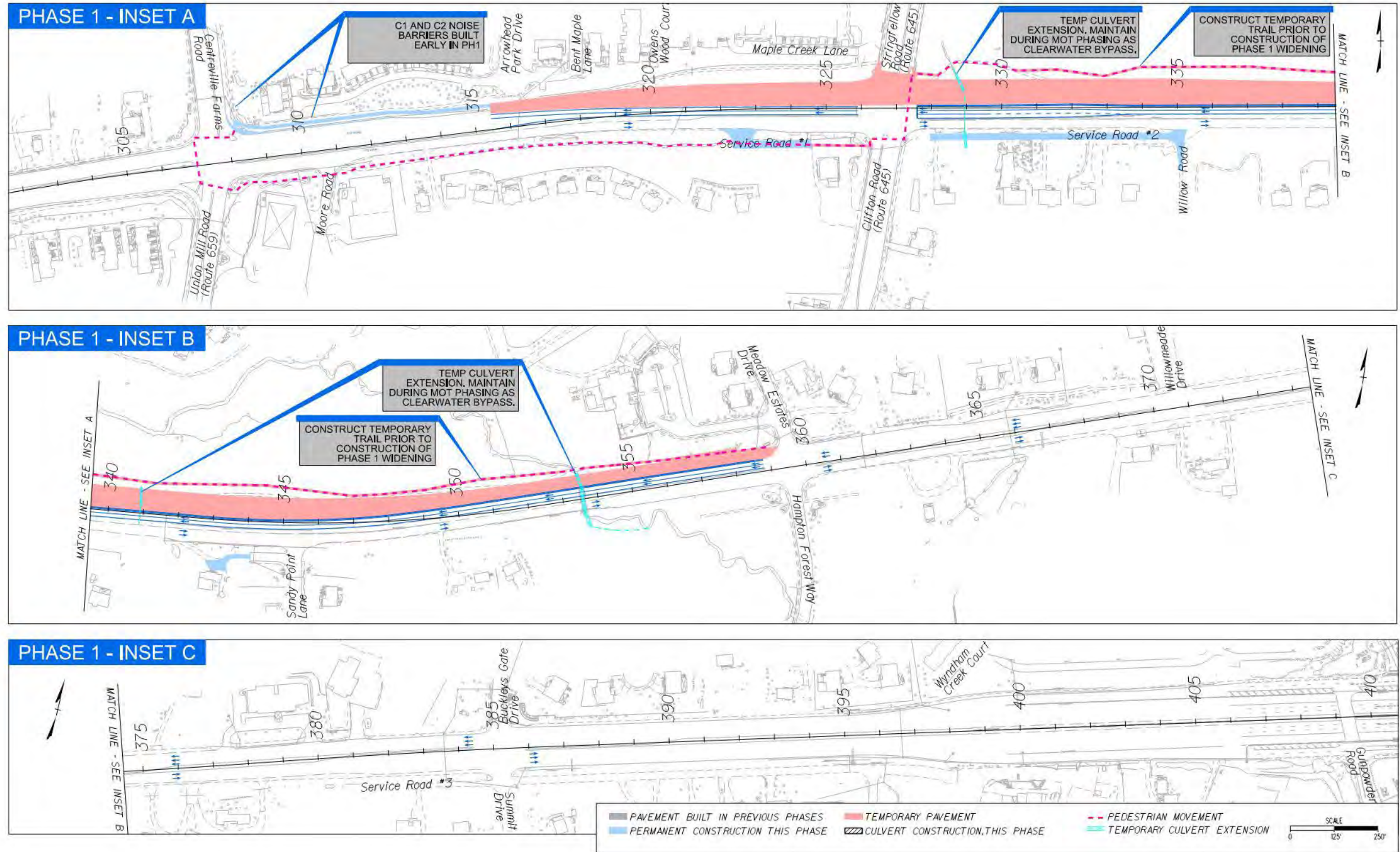


Figure 16: Sequence of Construction Plan – Phase 1

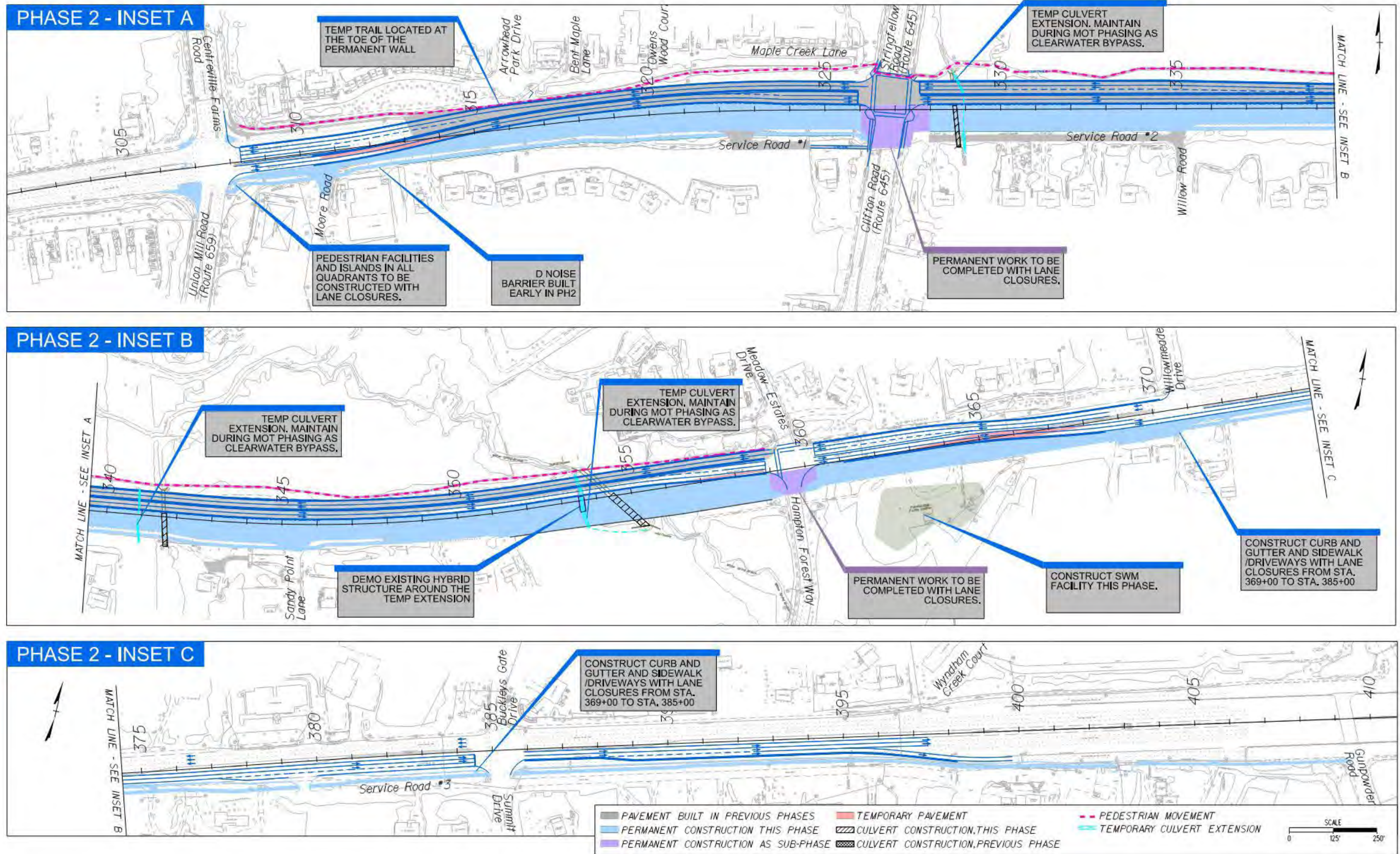


Figure 17: Sequence of Construction Plan – Phase 2

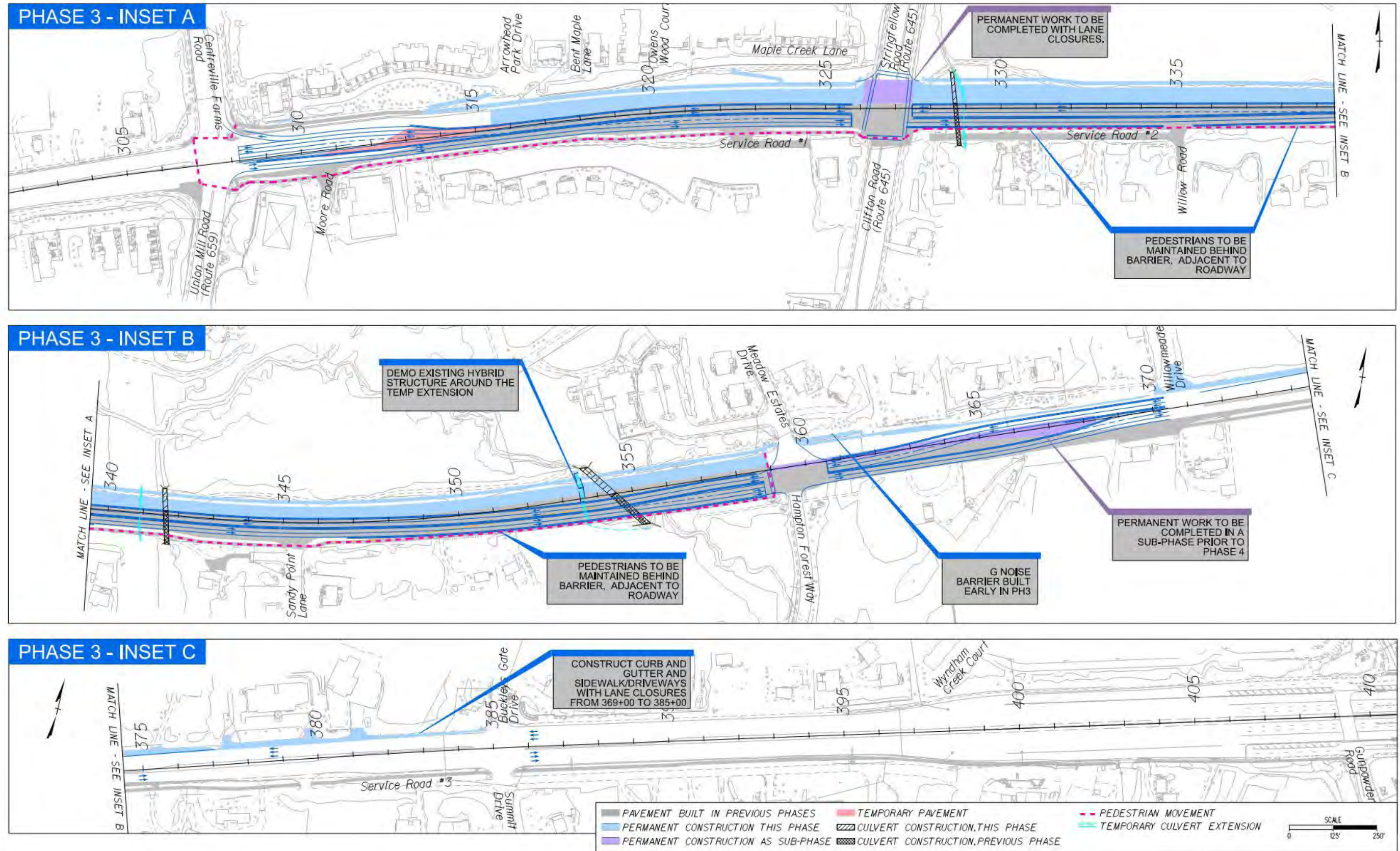


Figure 18: Sequence of Construction Plan – Phase 3

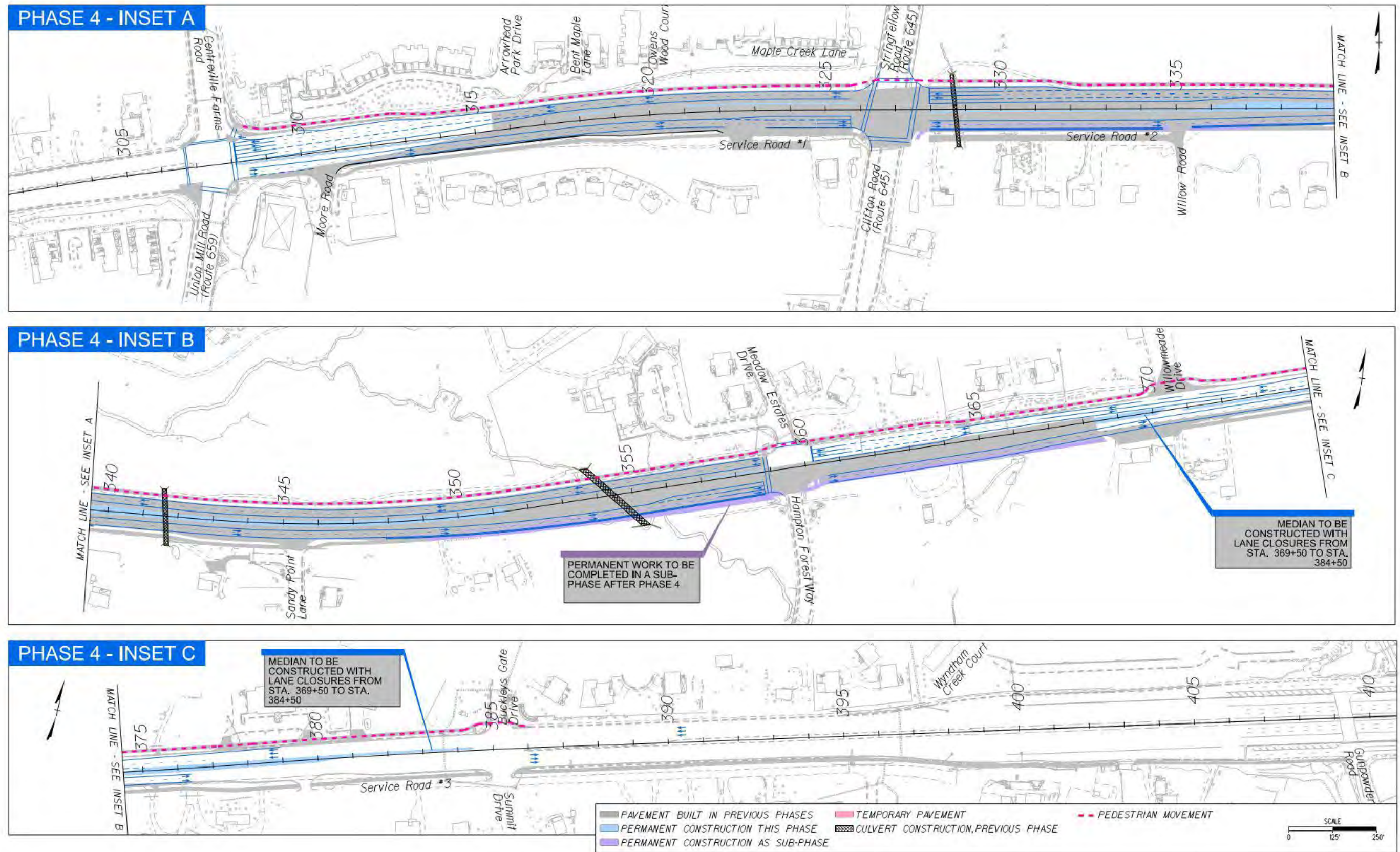


Figure 19: Sequence of Construction Plan – Phase 4

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4.5.2 TRANSPORTATION MANAGEMENT PLAN

Maintaining Traffic through all Phases of Construction: The Corman Kokosing/RK&K DB Team has developed a constraint driven solution to maintaining vehicular/pedestrian traffic through the Route 29 corridor during construction. This stretch of highway represents the dichotomy of rural/urban characteristics throughout the entire corridor which present challenges when upgrading the road to a standard urban section. For example, the existing divided roadway has a bifurcated median limiting the ability to use it for MOT purposes. In addition, the perimeter constraints include utility and environmental, and reside near residential and park properties. Considering these characteristics and constraints, the MOT drives the sequence of construction and the number of phases it takes to build the project. **Figure 20** illustrates typical sections for each construction phase, which reveals how traffic (including pedestrians) will be maintained throughout construction.

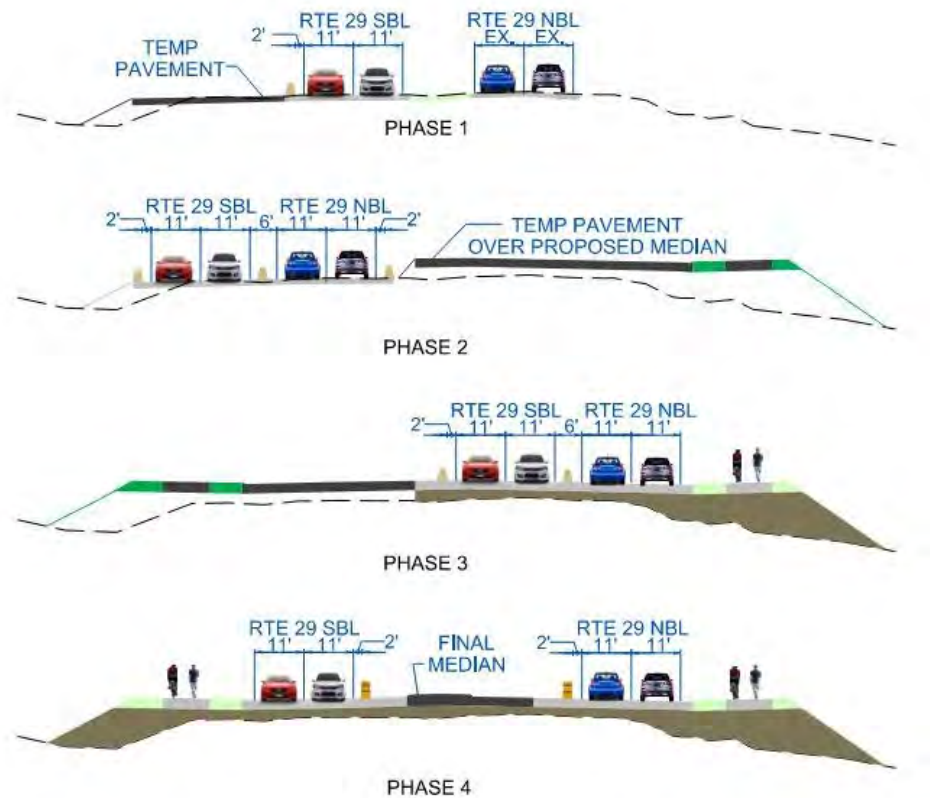


Figure 20: MOT Typical Section

- **Lane or Ramp Closures/Temporary Detours:** Our Team developed a Temporary Traffic Control Plan that maintains two lanes NB and SB through the work zone. There will be lane closures during allowable hours for short-term construction activities only in accordance with the RFP. Lane closures are submitted to LCAMS to be communicated to the traveling public via their channels, such as the 511 system. There are long-term closures on the outside lanes where a three-lane configuration is present mainly north of the Willowmeade Drive for the SB lanes and on the approach to Ramp A for the NB lanes. The long-term lane closures will be implemented using a Group 2 channelization device.
- **Time-of-Day Restrictions:** We will follow the RFP requirements for short-term lane and shoulder closures. This is included in our Traffic Management Plan.
- **Flagging Operations:** Will not be employed on Route 29 given the multi-lane configuration; however, flagging operations will be employed for intersection pavement reconstruction and on service roads and conducted per TTC-30.1 under allowable hours for temporary lane closures.
- **Minimum Lane Widths:** Will be as per the RFP, specifically to through lanes being no less than 11-ft wide.
- **Work Zone Speed Reductions:** All elements for our TMP, and, specifically, any temporary cross-overs, lane closures, and lane shifts will be designed for the posted speed limits per the RFP and Virginia Work Area Protection manual. No speed reductions are proposed for this project or during construction.

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Major Project Stakeholders: Since the project and our sequence of construction affects stakeholders, we will minimize the impact through mitigation. The Corman Kokosing/RK&K DB Team understands these groups, is sympathetic to how they will be impacted, and is prepared to mitigate them (See Table 16).

Table 16: Major Project Stakeholders

Stakeholder	Direct Impact	Mitigation Strategy
Commuter Traffic	<ul style="list-style-type: none"> Increased travel times Changing traffic configurations 	<ul style="list-style-type: none"> Review traffic volumes before, during, and after construction. Provide optimized signal timings in the field to improve operations. Deploy portable changeable message sign (PCMS) ahead of work zone to make travelers aware of changing conditions.
Local Communities/Residents <ul style="list-style-type: none"> Buckley’s Reserve HOA Hampton Forest HOA Estates at Fairfax Fair Lakes Glen Clifton Crest Centreville Farms CA Sully Manor Union Mills CA 	<ul style="list-style-type: none"> Changes in access to adjacent properties Loud construction noise 	<ul style="list-style-type: none"> Communicate detour routes, present timely updates to public outreach media, use PCMSs ahead of detour. Comply with Special Provision for Noise Control to minimize noise during the evening/overnight. Switch to <i>white noise</i> back-up alarms during the day to minimize noise. Construct noise walls early. Construct service road early.
Emergency Services <ul style="list-style-type: none"> Fire Stations 17 and 40 Sully and Fair Oaks Police Districts 	<ul style="list-style-type: none"> Increased travel times Changing traffic configurations 	<ul style="list-style-type: none"> The project’s location straddles police/fire coverage areas. To maintain public safety, include appropriate parties when planning major traffic shifts/detours. Include emergency services in stakeholder meetings regarding planned detours, develop a communication plan and point of contact with EMT, Police, Fire, Fairfax County, and Corman Kokosing to keep them informed.
Fairfax County Public Schools <ul style="list-style-type: none"> Colin L. Powell Elementary Willow Springs Elementary Centreville Highschool 	<ul style="list-style-type: none"> Bus route changes Parent drop-off 	<ul style="list-style-type: none"> Engage Fairfax County School Transportation services prior to traffic shifts and any planned detour route to safely accommodate stops within the construction area and delays are accounted for in their planning. Provide adequate turning radius and lane widths.
Mail Service (i.e., FedEx, UPS, and the postal service)	<ul style="list-style-type: none"> Changes to property access 	<ul style="list-style-type: none"> Maintain access to driveways/mailboxes and clearly sign when changes occur. Identify MOT staging plans, post detours on 511 system, and ensure GPS mapping services include up-to-date construction information. Maintain adequate turning radii for delivery vehicles.
Fairfax County Park Authority	<ul style="list-style-type: none"> Existing trail adjacent Route 29 	<ul style="list-style-type: none"> Positive guidance for trail users where alternate routes are available and where to access alternative routes.
Fairfax County Staff and Board of Supervisors	<ul style="list-style-type: none"> Perceptions/issues raised by residents, motorists, and business owners 	<ul style="list-style-type: none"> Hold regularly scheduled updates for Board of Supervisor officials and staff members to ensure project information is current, address public concerns, and refine public outreach materials.

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Stakeholder	Direct Impact	Mitigation Strategy
VDOT Public Safety and Traffic Operations Center (PSTOC)	<ul style="list-style-type: none"> Changes to CCTV coverage Construction lane closures 	<ul style="list-style-type: none"> Maintain CCTV coverage and coordinate with PSTOC prior to camera relocations. Input lane closures notifications in LCAMS as required.
Local Businesses and Care Facilities <ul style="list-style-type: none"> Foundations (Care Facility) Beatty’s Azalea Ranch Garden Center Willow Spring Garage Katherine K. Hanley Family Shelter 7-Eleven Brightview Fair Oaks Senior Facility F&M Shopping Center (Future Development) 	<ul style="list-style-type: none"> Changes in entrances/access points Construction noise Emergency response Property impact/temporary easements 	<ul style="list-style-type: none"> Communicate detour routes, present timely updates to public outreach media, use PCMSs ahead of detour. Comply with noise ordinances to minimize noise in the evening/overnight. Switch to <i>white noise</i> back-up alarms during the day to minimize noise. Minimize construction duration impact by installing perimeter controls, including stabilization early. Already coordinated with the F&M Shopping Center site developer and will coordinate with their construction which is anticipated to take place in 2023.
Adjacent Projects <ul style="list-style-type: none"> Retaining wall repairs at Route 29 (Lee Highway) and Route 286 (Fairfax County Parkway) Route 28 Widening 	<ul style="list-style-type: none"> Conflicts between traffic control plans 	<ul style="list-style-type: none"> Establish points of contact and organize and attend coordination meetings whenever significant traffic shifts or project milestones are approaching.
Fairfax Connector <ul style="list-style-type: none"> Routes 630 and 631 	<ul style="list-style-type: none"> Impacts to stop and routes 	<ul style="list-style-type: none"> Establish point of contact with Fairfax Connector to communicate/coordinate traffic pattern changes, detours, and impacts to stops. Maintain routes and stops at all times.

Approach to public outreach, including keeping stakeholders informed: Public outreach is the critical link in communicating project activities and progress to stakeholders. Frustrations arise when the project conditions change and they are not communicated clearly and timely. Generally, the public is tolerable of short-term inconvenience related to road construction if there is a clear end to it and they are made aware of it in advance.

We will build public trust through clear leadership from our side of the project. First and foremost, we will ensure Fairfax County citizens understand that this project is a partnership between Corman Kokosing, VDOT and the County by openly discussing the incentives/disincentives. This brings accountability. Second, we will show clear leadership to the public by having our DBPM, our D/CI, and DM involved in the public outreach. This also provides direct accountability and leads to achieving results. Third, understanding methods of communication serve different purposes, we will engage stakeholders through a multi-faceted program including, but not limited to, the following:



Project Website: Considered our primary method to provide specific and in-depth project information, including upcoming events, announcements, and citizen information meetings. Our Team provides content to the existing VDOT websites which include figures, exhibits, timelines, and progress updates. It encompasses project updates (two-week look ahead) and other announcements as approved by VDOT.



E-Mailers: These call attention to the project and also direct concerned citizen to a central location for information. E-mailers are advertised on the project website, if VDOT so chooses to implement) with an

4.5 | CONSTRUCTION OF THE PROJECT

invitation to sign up for recurring emails. This is subject to VDOT approval and presented on VDOT standard templates.



Social Media Blasts: This announces project milestones and upcoming traffic pattern changes (i.e., completion of major elements and upcoming roadway lane shifts or restrictions). We will send VDOT these types of announcements for their Twitter account which allows them to follow and re-Tweet information from the project.



Variable Message Signage: This notifies the normal commuter who may not reside in the corridor and, in some cases, in the County. These signs will be strategically placed on each end of the project limits to alert motorists of closures and upcoming changes one month prior to any roadway geometry changes.



“Pardon Our Dust” Meetings: These are held with the public safety officials, residences, and other stakeholders one month prior to the start of major lane shifts on Route 29. This forum is ideal in addressing stakeholder questions and for personal interaction between team members, VDOT, the County, and stakeholders. These relationships prove valuable during the course of the project. If needed, this meeting can also be expanded for advance utility work.



Weekly Updates: Provided by the project team to VDOT’s Local Traffic Operation Center and include a two-week look-ahead for media postings by VDOT. Updates are specific to traffic impacts and major milestone progress.

How our Approach considers Public Safety and limits disruptions to Vehicular/Pedestrian Traffic through the Work Area and Adjacent Public Transportation Facilities/Roadways:

Public Safety Consideration: By far the highest consideration for public safety is moving vehicles through this corridor within a constrained work area in the midst of multiple access points for residential/business entities while ensuring equitable priority to pedestrian/bicycle traffic. The following is our approach to enhance public safety through the corridor to the extent possible:



Motorist Safety. One aspect of our TMP is implementing barrier separated bi-directional traffic during construction. The barrier will be between the NB and SB lanes with 2 ft buffers on either side. Impact attenuators will be incorporated at intersections and where ends of the barriers are exposed.



Pedestrian Safety. Another area of concern is maintaining the pedestrian traffic through the corridor. We have a two-pronged approach to provide safe passage through and around work zone areas. First, we provide a temporary trail and or direct pedestrians onto newly constructed Shared Use Paths throughout each phase of the project. This is the primary effort to make sure pedestrians have access through the corridor. Secondly, if and when we need to temporarily encroach near a trail or any other pedestrian area, flaggers will monitor pedestrians with the authority to temporarily stop work while they pass. Thirdly, there will be concrete barriers where pedestrians will be parallel and adjacent to traffic. Lastly, we will have a robust communication plan to alert about the construction work zone and provide mapping for alternative routes. This is an important low-cost option that will enhance pedestrian/bicycle safety. Pedestrian/bicycle traffic will also need to be monitored, protected, and rerouted as necessary.



Local Resident/Business Safety. A concern that is often overlooked is safe access to/from adjacent residential and business properties via driveways and commercial entrances. We will maintain safe access throughout construction for residences and local businesses.



SECTION 4.6

Proposal Schedule

4.6 | PROPOSAL SCHEDULE

4.6.1 PROPOSAL SCHEDULE

The Corman Kokosing/RK&K DB Team thoroughly understands the requirements and complexities of this project and developed a solution to deliver it on schedule. Our project schedule in Volume II and the following narrative explains how we will successfully complete this project.

4.6.2 PROPOSAL SCHEDULE NARRATIVE



Plan to Accomplish the Work: The Corman Kokosing/RK&K DB Team developed the proposal schedule detailing our plan to successfully accomplish the work in accordance with the contract documents. Our narrative explains 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:	April 21, 2022
Notice to Proceed:	June 17, 2022
Design Activities:	April 21, 2022 through September 09, 2024
Construction:	December 27, 2022 through July 31, 2026
RFP Final Completion:	August 31, 2026
Proposed Final Completion:	July 31, 2026

Below are descriptions for major activities highlighted within the proposed schedule:

Field Investigations and Geotechnical: Upon receiving Notice to Proceed, 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 additional existing underground utilities. Concurrent with the field survey, geotechnical investigations start with submitting a Geotechnical Exploration Plan (GEP) which includes a Boring Location Plan and a schedule of Boring depths for VDOT's review and approval. Staking out the boring locations in the field will be conducted concurrently as VDOT's review is progressing. Roadway design also begins concurrently with the survey update and the geotechnical investigations and will be adjusted as necessary to accommodate results of the field work.

Survey: Activities associated with surveying include recovering survey control, verifying property lines/owners, field staking utility test hole and geotechnical boring locations, while also obtaining recently constructed infrastructure due to recent development.

Design: Design phase includes preparation and QA/QC reviews in support of submitting for approval two primary construction packages including the following:

- **Utility Field Inspection (UFI) Confirmation:** This package will be an early submission built upon the vast work that the Department has already completed, in addition to, confirmation test holes and field investigations performed as part of scope validation. The UFI meeting will be held and final UT-9s prepared with confirmation of utility easements and accompanied plans and estimates.
- **Roadway Plans:** The roadway construction packages will include the line and grade, profile, plan views, and roadway elements and typical sections. This package will also include the maintenance of traffic plans, E&S control plans, SWM plans, Signing, Lighting, Signalization, Landscaping, and other supporting calculations and elements required to support the construction plans. The plans will be prepared as one

4.6 | PROPOSAL SCHEDULE

package which will lessen the workload for VDOT to review and process the submittal packages. It should be noted that Maintenance of Traffic Plans (including temporary signal plans) will be included in this package.

- **Retaining Wall & Noise Barrier Plans:** In addition to the design submissions listed above, the schedule also indicates separate design submittals associated with Retaining Wall A (MSE wall), the combination retaining wall/noise barrier (adjacent Parcels 006 and 007), and Retaining Wall A. The noise barrier design submission will include Noise Barriers C1, C2, and G.

Our schedule also includes the 21-day periods for VDOT reviews.

ROW Plans and Acquisition: Our construction approach and associated sequence of construction requires advance ROW acquisition; therefore, we propose to submit three (3) ROW packages for approval including Packages A, B, and C. Package A would be considered an advance package as Parcels 001, 005, and 044 will be critical to keeping the Verizon/MCI utility relocation off the critical path as our schedule currently reflects. All other package will be submitted as the design progresses for the other areas in accordance with the published schedule.

Environmental Permitting: Our schedule contains environmental and permitting activities and allows time for information to be developed as needed for the permit submittal process. All permitted construction activities are a hold point to ensure no work is performed without permits in place. Permits include, but are not limited to, the Notice of Planned Change for the JPA (if required), the Virginia Pollution Discharge and Elimination System (VPDES) Permit, and the VSMP.

Utility Protection and Relocation: These begin at the Notice to Proceed date with the progression of the construction plans and submitted with the roadway construction plans. Included in the schedule are the private utility relocations as identified during discussions with all the utilities to date. In addition, the schedule also includes the in-plan relocation of the 24-inch water line for the FWA and an adjustment to a gravity sewer line located at Sta. 330+00 on Route 29. Our schedule includes a phase approach for the out-of-plan (dry) utilities to ensure more efficiently advance construction activities starting with Phase 1 construction. In addition, our schedule also anticipated sequential relocations as would be required for utilities cohabitating on overhead pole line. Case in point, is the Dominion Energy distribution pole line adjacent the NB lanes. Dominion Energy will require the electric infrastructure to be relocated prior to any cohabitated utilities being relocated. In other words the durations get quite lengthy when considering this reality. Our schedule reflects this reality with appropriate durations for each cohabitating utility.

QA/QC: QA/QC activities are performed as per contract with relevant tasks 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

Hold Points: There are several required “hold points” within the schedule that will be assigned within the baseline schedule. These activities must be satisfied prior to following successor activities can comments. Below are several hold points accounted for.

- Willow Spring Branch H&HA Approval

4.6 | PROPOSAL SCHEDULE

- VPDES Permit Coverage (including all permitted construction activities)

In addition, our schedule accounts/will account for project hold points including Preparatory Inspection Meetings and Witness Points as required.

Construction: The schedule reflects three (3) general work areas with three (3) primary phases within each of those work with a fourth phase covering the whole project corridor. The work areas are described below:

- **Area A**, from the south end of the project to the Stringfellow Road/Clifton Road intersection.
- **Area B**, from Stringfellow Road/Clifton Road intersection to the Meadows Estates Drive/Hampton Forest Drive intersection.
- **Area C**, from the Meadows Estates Drive/Hampton forest Drive intersection to the northern project limits.

Although the work will progress with each phase and represents the general sequence of the project. The phased sequence is listed below for reference:

- **Phase 1:** Temporary widening adjacent the SB lanes. This will also include the MSE Retaining Wall A initial construction (final topping to be built in Phase 3). This phase will also include temporary extensions of existing culverts as well to accommodate the temporary widening. Sound Barriers C1 and C2 get built early in this phase.
- **Phase 2:** Shift both NB and SB lanes onto the formal SB lanes with temporary widening. Build the proposed NB lanes including the Shared Use Path, permanent outside curb and associated drainage features. This phase will also construct temporary pavement within the proposed median to accommodate the next phase traffic switch. Sound Barrier D get built early in this phase.
- **Phase 3:** Shift both the NB and SB lanes into the new NB lanes including onto the temporary pavement within the proposed median area. Construct the proposed SB lanes to line and grade including topping out MSE Retaining Wall A. Sound Barrier G get built early in this phase as well.
- **Phase 4:** Upon the completion of major construction elements, this phase will include the removal of the temporary pavement within the median and final installation of the proposed median including curb underdrains and fine grading.

Important aspects within our schedule are highlighted below as additional information to reflect our thought process and approach to achieving our proposed completion date with an eye to completing even earlier.

Critical Path: The critical path of this project is generally shown below.

Utility Design → Dominion Relocations → Phase 2 Area B → Phase 3 Area B → Phase 4 Area A&B Median

As depicted above, the critical path begins with preparing design plans sufficient to satisfy the Utility Field Inspection (UFI) process. In the case for this project, much work has already been completed; therefore, our Team can achieve a UFI submittal to utility owners fairly quickly. The purpose of this UFI is to only update areas where efficiency was built into the project (i.e. storm drainage modifications, phasing approach). The UFI will also be used to disclose to the utility owners our overall schedule and construction sequencing and phasing.


From the UFI and overall utility coordination process, the critical path runs through the Dominion Energy (including Cox and Shentel) overhead relocations adjacent the NB lanes. There are several scenarios that can easily switch the critical path through another utility. Case in point, the Verizon/MCI utility relocation adjacent the SB lanes are highly dependent on the ROW acquisition of Parcels 001, 005, and 044. We have accelerated these acquisitions within the schedule in order to keep the construction moving in Phase 1, in order to keep Phase 1 construction elements off the critical path as well.


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From utility relocations, the critical path runs through Phase 2 construction, specifically, Area B, then naturally through Phase 3 in the same Area B.

Lastly, the critical path terminates through Phase 4 with median construction including final paving and fine grading.

Work Breakdown Structure (WBS): This is a multi-level, hierarchical arrangement of the work to be completed. The Corman Kokosing/RK&K DB Team has laid out the WBS to break down the major phases of the project by *Type of Work* and *Locations*. Level 1 was given to the project name. A brief description of Level 2 is below, followed by **Table 17** showing the Level 2 – Level 5 WBS used on the project.

 **Contract Milestones:** Major project milestones are included as per the RFP, such as Notice of Award, Notice to Proceed, proposed phased Traffic Switchover dates, and Final Completion.

 **Engineering & Design:** Major activities under this heading include Scope Validation, Environmental Permitting, Geotechnical Investigations and Design, and Survey. This work also includes engineering and design effort in support of the utility relocation and ROW coordination, as well as all design efforts with their respective submission and review/approval timelines. Further breakdown of this division is shown in **Table 17** where major activities are presented including utility relocation efforts for each utility owner.

 **Administrative:** Work activities associated with our contractual obligation to administer the project are included, Public Relations and QA/QC activities to satisfy VDOT’s minimum requirements for design-build projects. The project requirements include a public outreach component that is a multi-faceted approach to inform the public, County, and VDOT service providers in regard to traffic lane reconfigurations and closures. This activity also includes the submission, review/approval, and fabrication/delivery of major offsite materials and construction work plans not provided by the designer.


 **Construction:** This section depicts construction activities grouped by *Type of Work* and *Locations* (See further breakdowns in **Table 17**).

Table 17: Type of Work and Locations

Level 2 WBS	Level 3-5 WBS
Contract Milestones	Project Milestones Traffic Switches <ul style="list-style-type: none"> ▪ Phase 2 Traffic Switch ▪ Phase 3 Traffic Switch ▪ Phase 4 Traffic Switch
Engineering & Design (including Out-of-Plan Utility Relocation)	Scope Validation Environmental <ul style="list-style-type: none"> • Specific Permits and Associated Tasks Geotechnical Design <ul style="list-style-type: none"> • Retaining Wall GER • US 29 Roadway GER • SWM and Drainage GER • Noise Barrier GDR • Sign Structure GDR Survey Utility Design & Dry Utilities Construction <ul style="list-style-type: none"> • General Utility Design • Dominion Energy (includes Cox & Shentel)

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Level 2 WBS	Level 3-5 WBS
	<ul style="list-style-type: none"> • Fiberlight (AT&T) • Verizon Virginia (includes Zayo) • Summit • Verizon Business/MCI (includes Comcast) • Colonial Pipeline • Washington Gas • Fairfax Water (FWA) • Fairfax County Sewer • Plantation Pipeline <p>Right of Way Package</p> <p>Retaining Wall Package</p> <p>Roadway Design Package</p> <p>Noise Barrier Design Package</p> <p>Right of Way Acquisition/Easements</p> <ul style="list-style-type: none"> • VDOT Coordinated Acquisitions • Package A (3 HOA parcels) • Package B (10 parcels) • Package C (16 parcels)
Administrative	<p>Preliminaries</p> <ul style="list-style-type: none"> • Public Involvement & Relations • Quality Assurance / Quality Control <p>Procurement</p> <ul style="list-style-type: none"> • Submittals • Review & Approve <p>Fabricate & Deliver</p>
Construction	<p>Area A: South End of Project to Clifton/Stringfellow Road</p> <ul style="list-style-type: none"> • Phase 1 Southbound – Area A: South End to Clifton/Stringfellow <ul style="list-style-type: none"> - Phase 1 Southbound – Area A: Noise Barrier C1 & C2 • Phase 2 Northbound – Area A: South End to Clifton/Stringfellow • Phase 3 Southbound – Area A: South End to Clifton/Stringfellow <p>Area B: Clifton/Stringfellow Road to Hampton Forest Way/Meadow Estates Drive</p> <ul style="list-style-type: none"> • Phase 1 Southbound – Area B: Clifton/Stringfellow Road to Hampton Forest Way/Meadow Estates Drive • Phase 1 Northbound – Area B/C: Service Road No.'s 1 and 2 at Clifton <ul style="list-style-type: none"> - Service Road No. 1 at Clifton - Service Road No. 2 at Clifton • Phase 2 Northbound – Area B: Clifton to Hampton Forest • Phase 3 Southbound – Area B: Stringfellow Road to Meadow Estates Drive <p>Area C: Hampton Forest Way/Meadow Estates Drive to North End of Project</p> <ul style="list-style-type: none"> • Phase 1 Southbound – Area C: Meadow Estates Drive to North End <ul style="list-style-type: none"> - Meadow Estates Drive to Willowmeade Drive • Phase 2 Northbound – Area C: Hampton Forest Way to North End • Phase 3 Southbound – Area C: Meadow Estates Drive to North End <ul style="list-style-type: none"> - Southbound – Willowmeade Drive to North End <p>Project Wide Median Construction & Topsoil/Seeding beyond SUP & Curb: Phase 3 and 4 (as indicated)</p> <ul style="list-style-type: none"> • Phase 4 Median – Area A: South End to Clifton/Stringfellow

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Level 2 WBS	Level 3-5 WBS
	<ul style="list-style-type: none"> Phase 4 Median – Area B: Clifton/Stringfellow to Hampton Forest/Meadow Estates Phase 3 or Phase 4 Median – Area C: Hampton Forest Way/Meadow Estates to North End

Calendars: The following project calendars were used in the schedule:

- 7 Day Calendar:** Based on seven work days per week, with zero 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, Public Involvement activities, and concrete curing timeframes for construction activities.
- 5 Day Design Calendar:** This calendar is based on a normal five-day work week with non-work periods set for w/ Holidays. This calendar is primarily used for design activities.
- 5 Day Construction Calendar:** This calendar is based on a normal five-day work week with non-work periods set for holidays and anticipated inclement weather. This calendar is assigned to the majority of construction activities.
- Earthwork/Paving/Concrete:** This calendar is based on a normal five-day work week with non-work periods set for holidays and anticipated inclement weather. Additional non-work periods have been set for the peak winter months of January & February. This calendar is assigned to excavation, embankment, subbase, paving, and concrete activities that are historically hindered during the winter months.
- Fairfax Water:** This calendar is based on a normal five-day work week with non-work periods set for holidays and anticipated inclement weather. Additional non-work periods have been established based on dis-allowed tie-in periods. This calendar is assigned to the watermain relocation tie-in work.



Estimated Monthly Weather Days

Inclement Weather days were estimated using 30-Year Climate Normals Average from locally available NOAA data. This data is updated every 10 years (updated this year; we are using 1991-2020 Normals).

Table 18: Estimated Monthly Weather Days

Description	Average Precipitation Greater than 0.25"											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Probability	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3
Days of precipitation for 7-day week	4.0	5.0	6.7	6.8	6.4	5.0	7.1	5.6	4.8	3.8	4.0	4.9
Non-work periods in calendars for 5-day week	3	2	2	3	3	2	3	2	3	2	2	3

For the purpose of calculating lost work days per month, it was assumed that Saturdays were available as a makeup day in the event of weather, and approximately 50% of the lost days would be made up on Saturdays. Therefore, the calendar shows no Saturdays as working days, and about ½ the number of lost days at the lost day probability would indicate.



Schedule Management

Implementation: Our proposal schedule will be updated and submitted to VDOT within 15 days of Notice to Proceed as our preliminary schedule. The Baseline Schedule will be finalized and submitted to VDOT within 90 calendar days of the Notice to Proceed date, to include cost/resource loading and all submittals as

4.6 | PROPOSAL SCHEDULE

required, as well as 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.

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 and private) tracking sheets during the design and construction phases
- Review/approval tracking spreadsheets of design element submittals
- Shop drawing 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, Corman Kokosing/RK&K DB 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 it. 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 Notice to Proceed, the preliminary schedule is updated as we prepare, submit, and receive approval on the baseline schedule. Once approved, it is 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 *Contract*. 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

4.6 | PROPOSAL SCHEDULE

construction. In the event all other design-build disciplines have completed their tasks, re-sequencing the construction schedule by the Construction Manager will be the primary focus to mitigate impacts.

Mitigating Risks: The experience the Corman Kokosing/RK&K DB Team obtained in working on similar projects will be critical to the timeliness of resolving design and construction hurdles as they occur. We have successfully used a rolling design process on other jobs that enables critical construction phases and activities requiring 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. Based on our preliminary knowledge of the proposed scope of work and our experience on similar projects, the following risks or issues may cause schedule delay and may need to be mitigated.

→ **Utility Relocations:** Utility relocations are on the critical path. There is a risk in schedule delay if the utility companies take longer than anticipated to relocate their utilities. Early utility coordination is a must to mitigate potential damages.

Mitigation: We will aggressively work to design and coordinate the utility relocation process to avoid project schedule impacts. We have already met with each affected utility to determine feasibility of the proposed design, with anticipated durations provided directly from the utility. The proposal plans incorporate feedback from the utilities to minimize the areas where the project is directly waiting for relocation activities.

→ **Right of Way:** Right-of-way acquisition/relocations can take several months to negotiate and if eminent domain is necessary, even longer.


Mitigation: We will hit the ground running as soon as we receive Notice to Proceed and aggressively complete the right-of-way and relocation process. In the event of delays in this area, we will shift the design focus to other areas of the project to avoid final project completion date impacts. To mitigate this risk, we propose preparing advanced ROW packages to expedite certain parcels.

→ **Design Approvals:** The design approval process could exceed what is anticipated in our CPM schedule which can shorten the time available for construction.

Mitigation: To fully take advantage of the design-build process, we must develop the construction plans in a manner conducive to staying *one step ahead* of construction. Since plans must be approved and signed for construction by VDOT before anything can start, our plans will be developed/submitted to VDOT as detailed on our CPM. By breaking up the design into packages, we can obtain signature for construction sooner to avoid delays. We also will take advantage and will recognize the significant work that has already been prepared by the Department to date, which will accelerate certain aspects of the project.

→ **Environmental Impacts and Permits:** Permit review period restrictions can extend the approval period causing a delay in the schedule. Early submission for permits is vital to allow as much time as possible for approvals. Acquiring permits from affected agencies takes diligence by the team and VDOT.

Mitigation: A proactive approach will help to incorporate those agencies as stakeholders and generate a partnering approach. Also, submitting registration statements and other process driven permits will be expedited to the extent possible.

 **Material Lead Time:** The Corman Kokosing/RK&K DB Team identified schedule critical elements associated with longer lead time materials, especially considering the current supply-change challenges (i.e., concrete pipe, traffic barrier, signals, etc.). Several these items were previously not considered long-lead items, but now are. In many cases, we prioritize design and, in some cases, have vendors/suppliers prepare

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required shop drawings immediately once sufficient design information is available in lieu of waiting until final approvals. This will expedite the shop drawing process to ensure there are no project schedule delays.

COMMITMENT

The Corman Kokosing/RK&K DB Team developed a proposal schedule and narrative that demonstrates our understanding of the complexities and interrelationships of the technical elements of the project. Our schedule considers internal plan reviews, VDOT plan reviews/approvals, environmental permitting, utility relocations, and construction activities.

We are committed to continuously fine tune our schedule to better serve VDOT, stakeholders, and motorists. Once we receive Notice-to-Proceed, we will band together to work and make this project a success for VDOT and its citizens.



APPENDIX

ATTACHMENT 4.0.1.1
Route 29 Widening Phase II
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

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

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Technical Proposal Checklist and Contents	Attachment 4.0.1.1	Section 4.0.1.1	no	Vol. I 101-103
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Vol. I 104
Letter of Submittal	NA	Sections 4.1		Vol. I 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
Any Unique Milestone dates introduced by the Offeror	NA	Section 4.1.7	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 105-108
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.9	no	Vol. I 109-118
Written statement of percent DBE participation	NA	Section 4.1.10	no	Vol. I 1

ATTACHMENT 4.0.1.1

Route 29 Widening Phase II

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Confirmation on commercial and professional registration requirements	NA	Section 4.1.11	no	Vol. I 1
Offeror's Qualifications	NA	Section 4.2		Vol. I 2-2d
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 identifying the changes	NA	Section 4.2.1	yes	Vol. I 2
Organizational chart shall identify the names of the individuals selected for the positions of Deputy KeyPersonnel (if applicable).	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
Design Concept	NA	Section 4.3		Vol. I & II 3-38
Conceptual Roadway Plans and description	NA	Section 4.3	yes	Vol. I & II 3-38
Project Approach	NA	Section 4.4		Vol. I 39-60
Environmental Management	NA	Section 4.4.1	yes	Vol. I 39-45
Utilities	NA	Section 4.4.2	yes	Vol. I 45-54

ATTACHMENT 4.0.1.1
Route 29 Widening Phase II
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Geotechnical	NA	Section 4.4.3	yes	Vol. I 54-56
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	Vol. I 56-60
Construction of Project	NA	Section 4.5		Vol. I 61-80
Sequence of Construction	NA	Section 4.5.1	yes	Vol. I 61-76
Transportation Management Plan	NA	Section 4.5.2	yes	Vol. I 77-80
Proposal Schedule	NA	Section 4.6		Vol. I & 2 81-100
Proposal Schedule	NA	Section 4.6	no	Vol. 2 81-91
Proposal Schedule Narrative	NA	Section 4.6	no	Vol. I 92-100
Proposal Schedule in electronic format	NA	Section 4.6	no	Submitted Electronically

ATTACHMENT 3.6

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION**

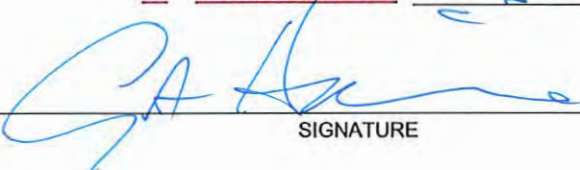
RFP NO. C00110329DB113
PROJECT NO.: 0029-029-350

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 16, 2021
(Date)
- 2. Cover letter of RFP Addendum No. 1 – February 14, 2022
(Date)
- 3. Cover letter of RFP Addendum No. 2 – March 2, 2022
- 4. Cover letter of RFP Addendum No. 3 – March 4, 2022
(Date)



 SIGNATURE

3/8/22

 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 Corman Kokosing Construction (“Offeror”).

Company

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”) pursuant to VDOT’s July 27, 2021 Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the **Route 29 Widening Phase II, Project No. 0029-029-350, P101, R201, C501, D612** (“Project”), under a design-build contract with VDOT (“Design-Build Contract”); and

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

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

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

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

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

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

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

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

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

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

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

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

9. Miscellaneous.

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

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

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

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

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

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

VIRGINIA DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

[Insert Offeror's Name] Corman Kokosing Construction Company

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.: 0029-029-350, P101, R201, C501, D612

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

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

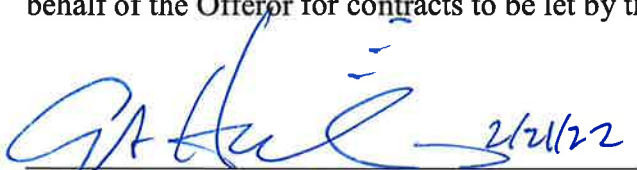
b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under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

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

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

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

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



Signature

2/21/22

Date

Regional Sr. Vice President

Title

Corman Kokosing Construction Company

Name of Firm

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

Project No.: 0029-029-350, P101, R201, C501, D612

- 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.

	2-22-2022	Partner
_____ Signature	_____ Date	_____ Title

Rummel, Klepper & Kahl, LLP

Name of Firm

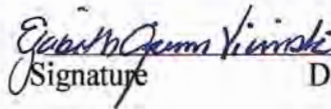
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0029-029-350, P101, R201, C501, D612

- 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	2/22/22 Date	President Title
---	-----------------	--------------------

Quinn Consulting Services, Inc.
Name of Firm

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

Project No.: 0029-029-350, P101, R201, C501, D612

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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

02/23/2022

Date

Director of ROW and Utility Coordination Service

Title

Bowman Consulting Group Ltd. (Bowman)

Name of Firm


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

Project No.: 0029-029-350, P101, R201, C501, D612

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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.

	February 24, 2022	President and CEO
Signature	Date	Title

DMY Engineering Consultants Inc.
Name of Firm

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

Project No.: 0029-029-350, P101, R201, C501, D612

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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.

JAM 2.25.22 President
Signature Date Title

Flaura Teeter Landscape Architects
Name of Firm

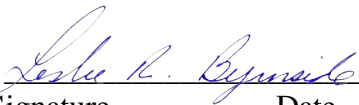
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0029-029-350, P101, R201, C501, D612

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- 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.

	02/21/2022	Vice President
Signature	Date	Title

H & B Surveying and Mapping, LLC
Name of Firm

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

Project No.: 0029-029-350, P101, R201, C501, D612

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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>Janette Dallock</u>	<u>2/24/2022</u>	<u>President</u>
Signature	Date	Title

Diversified Property Services, Inc.
Name of Firm

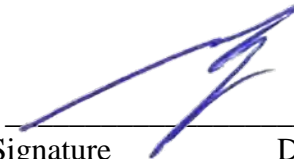
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0029-029-350, P101, R201, C501, D612

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- 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>February 28, 2022</u>	<u>VP of Business Development</u>
Signature	Date	Title

DIW Group, Inc. t/a Specialized Engineering
Name of Firm

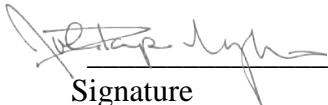
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0029-029-350, P101, R201, C501, D612

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

 _____
Signature Date

John Pope Midyette

Vice President - Business Development
Title

InfraMap Corp.
Name of Firm



Technical Proposal for
A DESIGN-BUILD PROJECT
ROUTE 29 WIDENING PHASE II

From: 0.208 miles west of Union Mill Road
To: 0.460 miles east of Buckley's Gate Drive

State Project No.: 0029-029-350, P101, R201, C501, D612

Federal Project No.: NHPP-5A01(917)

Contract ID Number: C00110329DB113



March 9, 2022





SECTION 4.3

Design Concept | Conceptual Roadway Plans

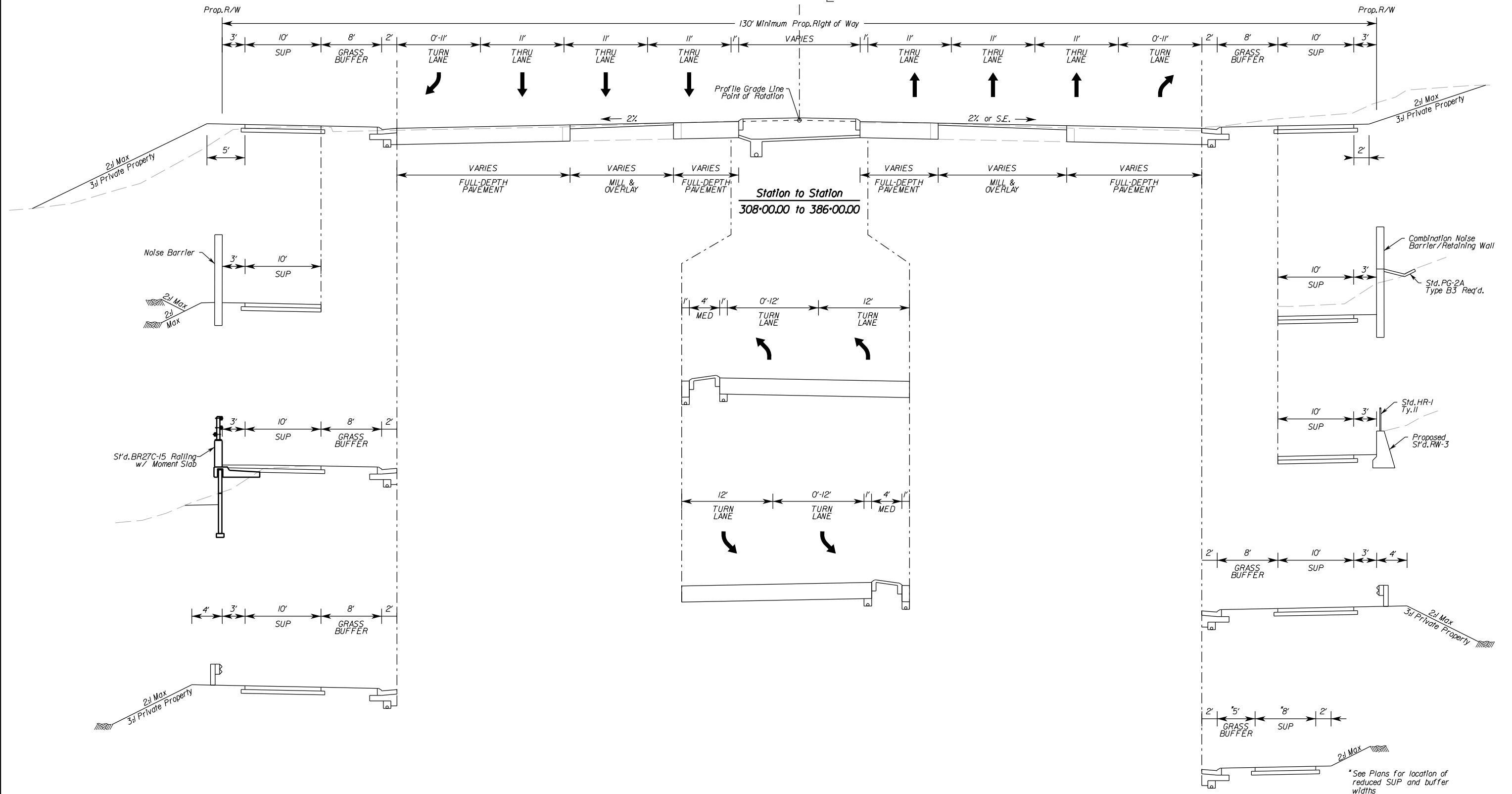
PAVEMENT SECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH MINIMUM PAVEMENT SECTIONS PER RFP PART II, SECTION 2.6.I.

TYPICAL SECTIONS

Route 29 (Lee Highway)
Urban Principal Arterial (GS-5)
Constr. \square

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-20I,C-50I	2A(1)

CORMAN / RK&K
K O K O S I N G / Bowman



Station to Station
308-00.00 to 386-00.00

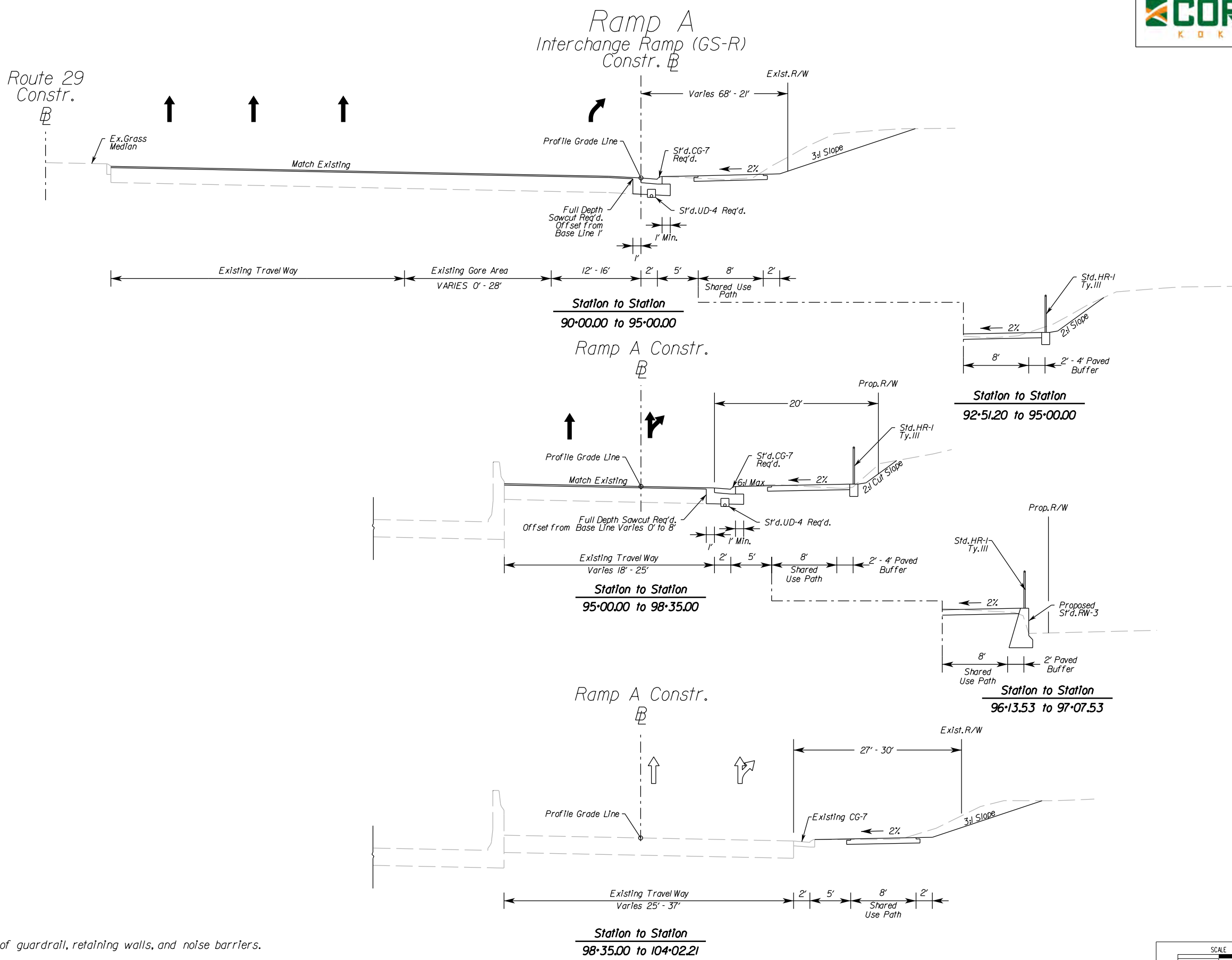
Note: See Plans for locations of guardrail, retaining walls, and noise barriers.

SCALE 0 5' 10'	PROJECT 0029-029-350	SHEET NO. 2A(1)
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PAVEMENT SECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH MINIMUM PAVEMENT SECTIONS PER RFP PART II, SECTION 2.6.I.

TYPICAL SECTIONS

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-20I,C-50I	2A(2)




Note: See Plans for locations of guardrail, retaining walls, and noise barriers.

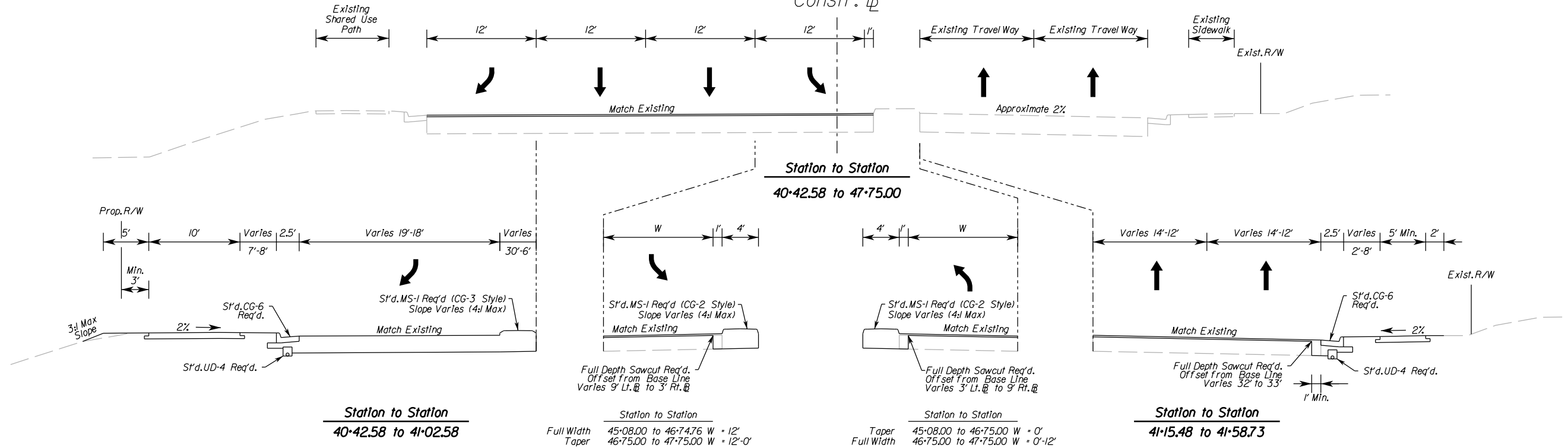
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PAVEMENT SECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH MINIMUM PAVEMENT SECTIONS PER RFP PART II, SECTION 2.6.I.

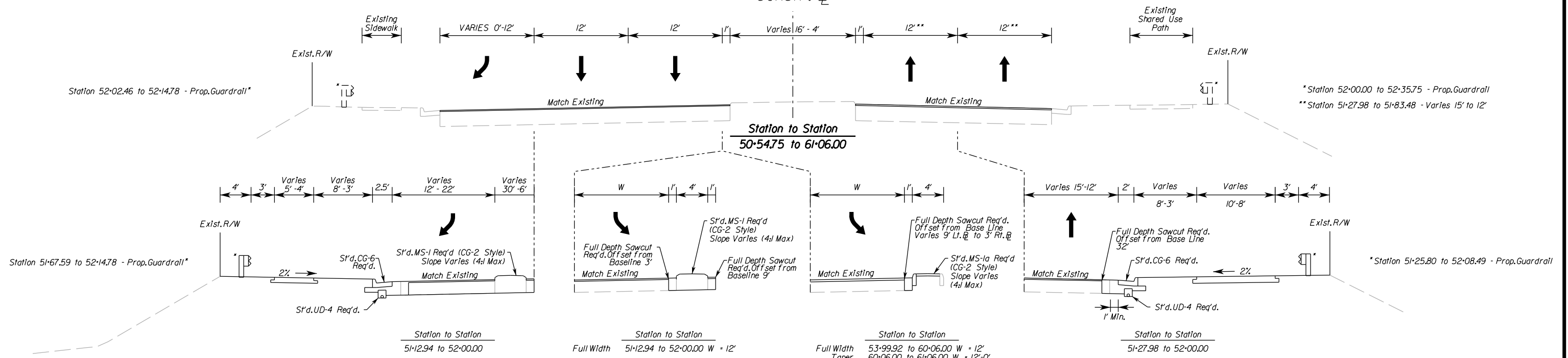
TYPICAL SECTIONS

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-20I,C-50I	2A(3)
				

Clifton Road Urban Minor Arterial (GS-6) Constr. \mathbb{B}



Stringfellow Road Urban Minor Arterial (GS-6) Constr. \mathbb{B}



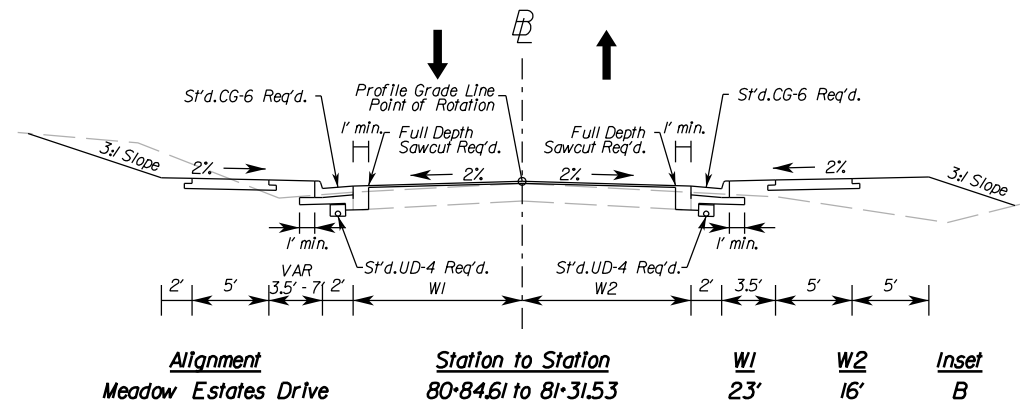
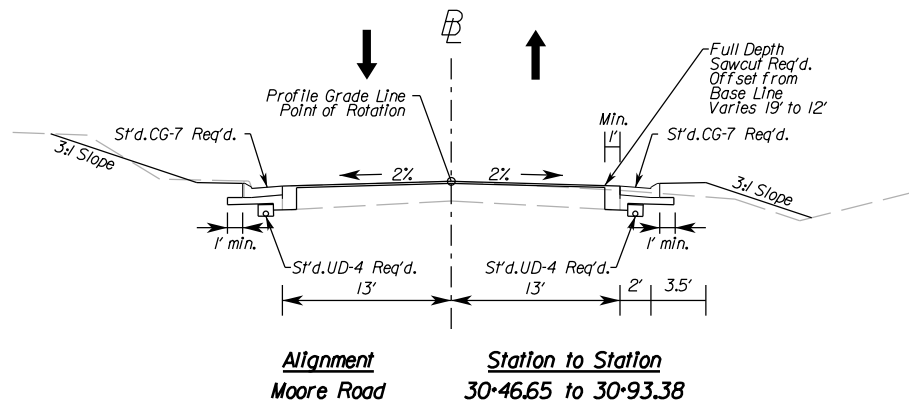
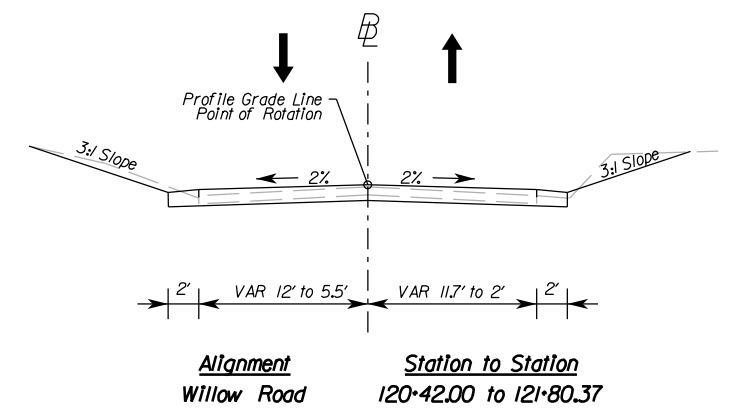
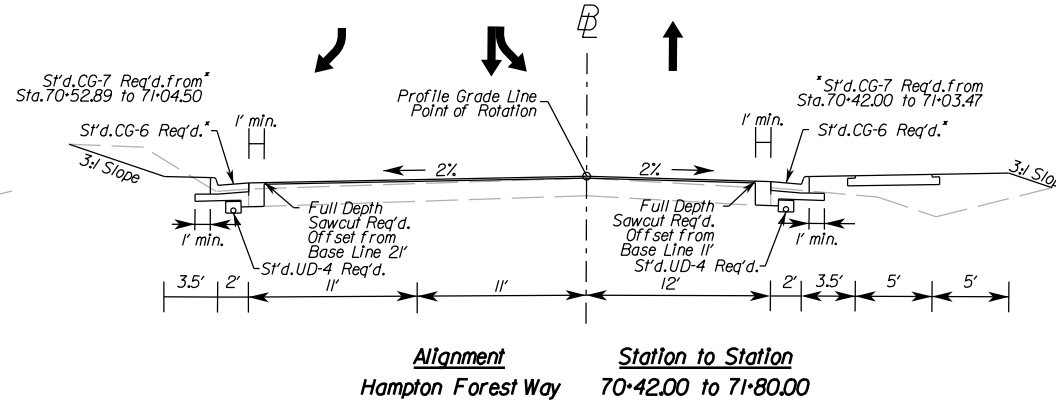
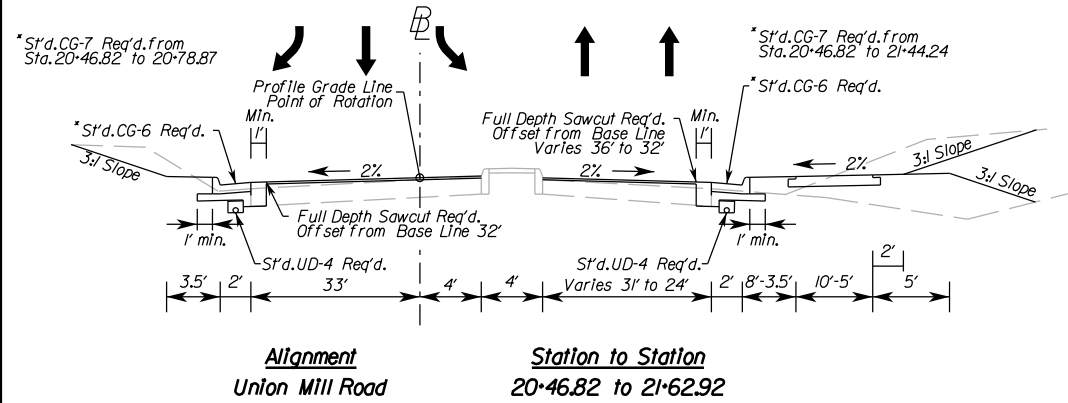
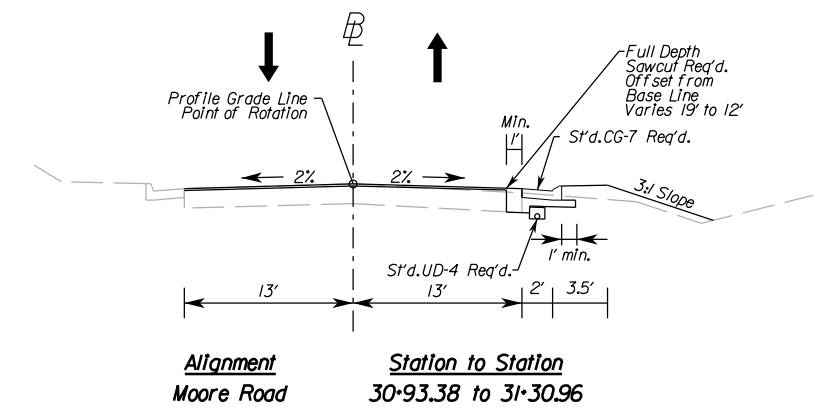
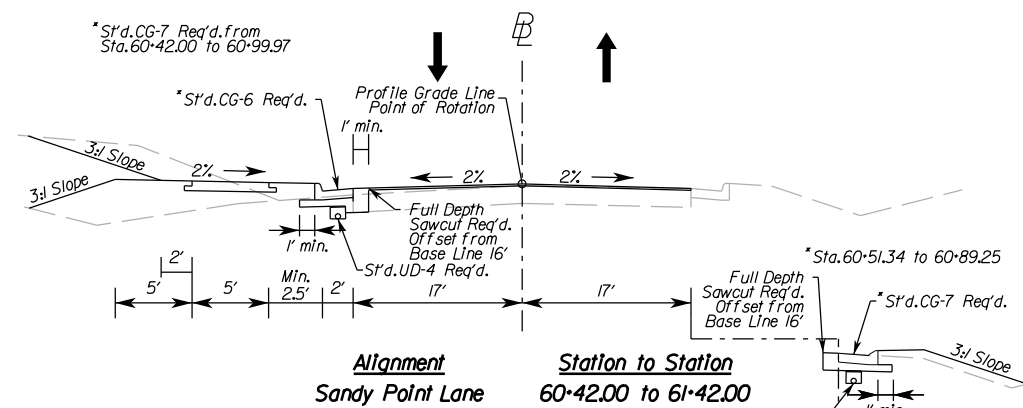
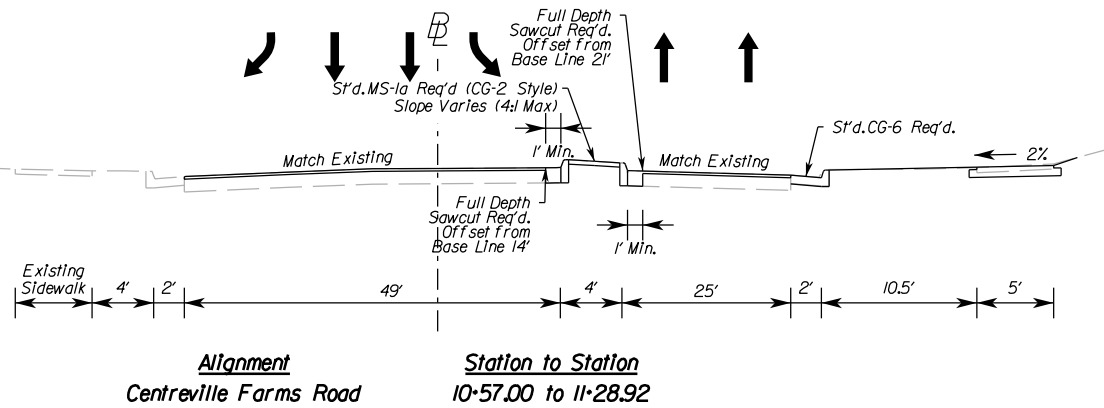
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PAVEMENT SECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH MINIMUM PAVEMENT SECTIONS PER RFP PART II, SECTION 2.6.I.

TYPICAL SECTIONS

Side Roads

REVISION	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-20I,C-50I	2A(4)



W1	W2	Inset
23'	16'	B
17'	17'	J


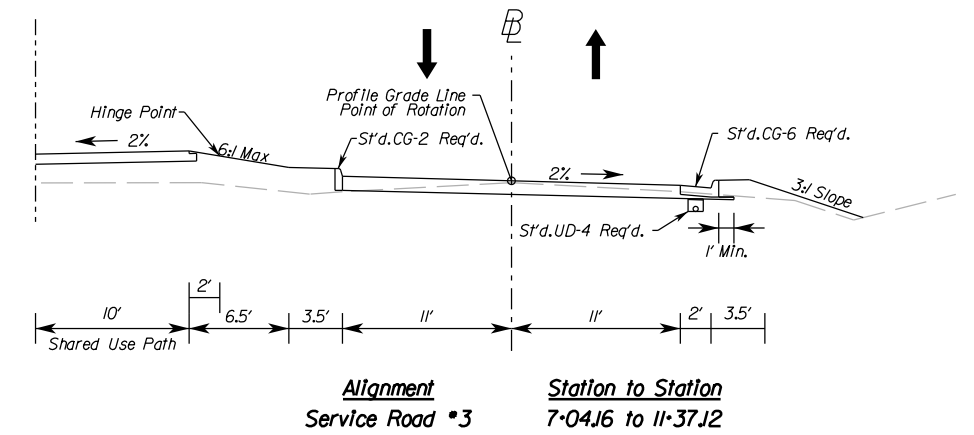
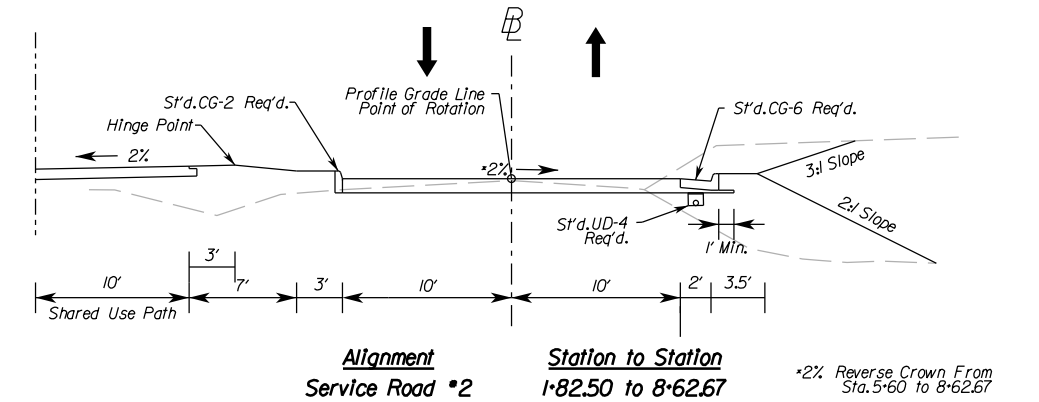
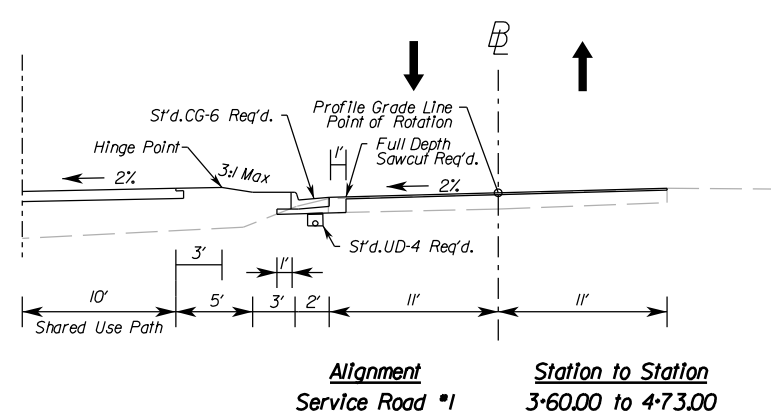
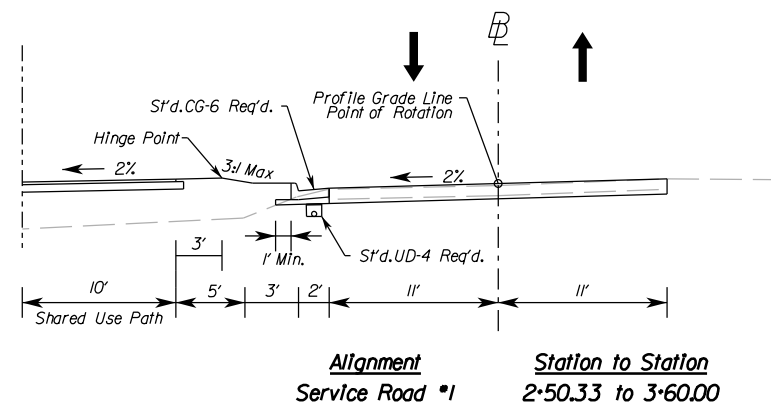
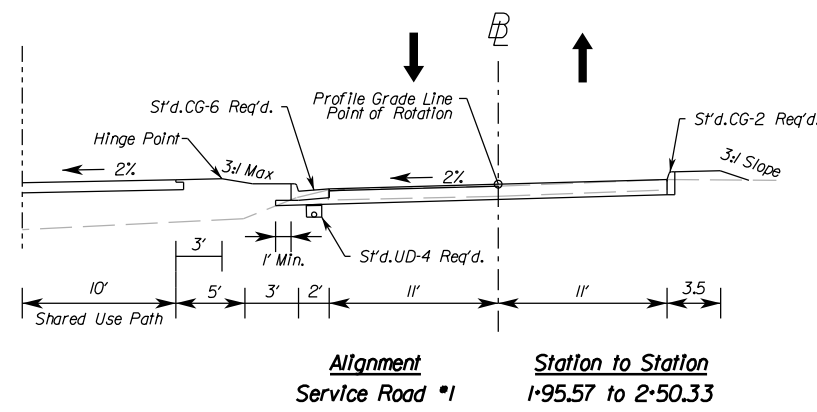
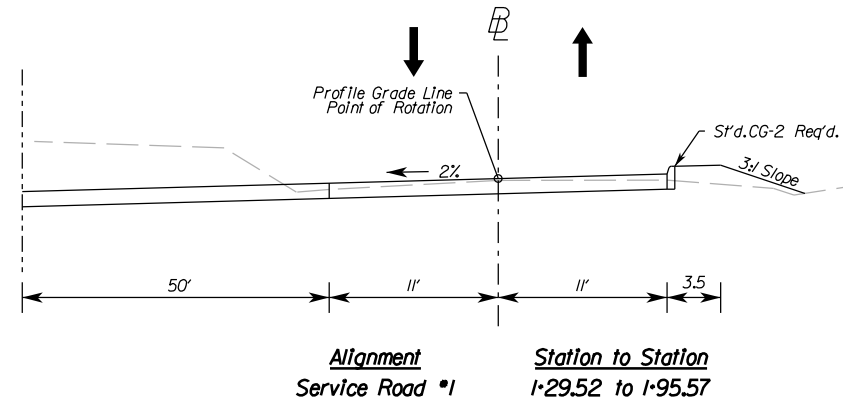
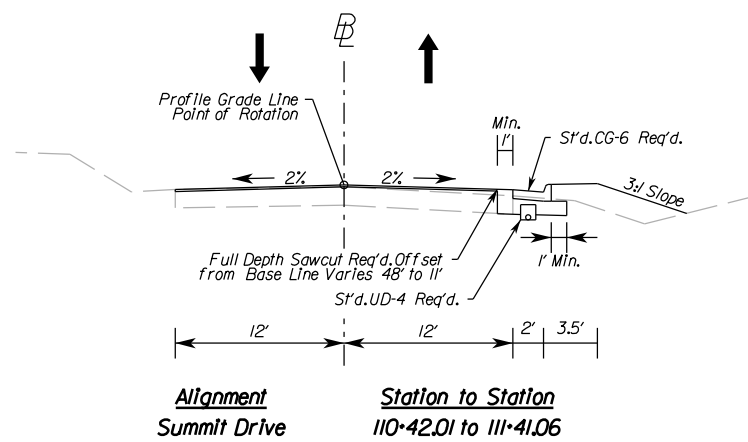
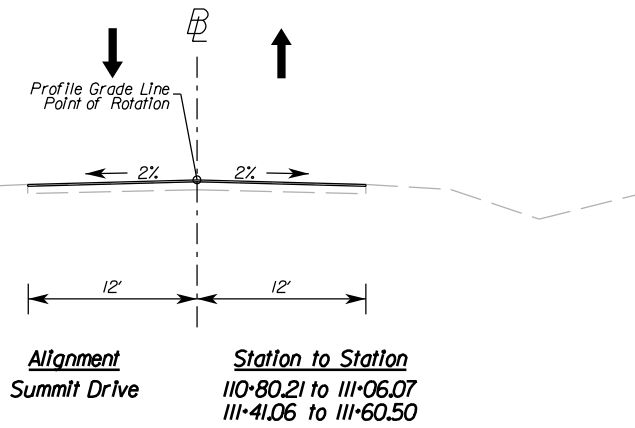
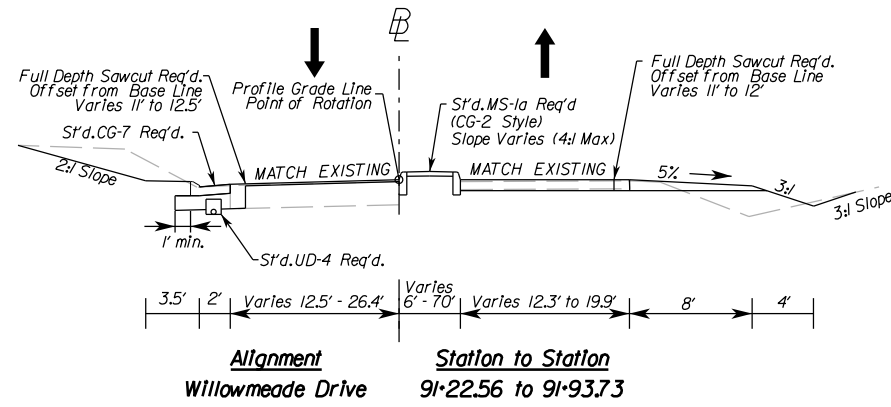
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PAVEMENT SECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH MINIMUM PAVEMENT SECTIONS PER RFP PART II, SECTION 2.6.I.

TYPICAL SECTIONS

Side Roads & Service Roads

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-20I,C-50I	2A(5)

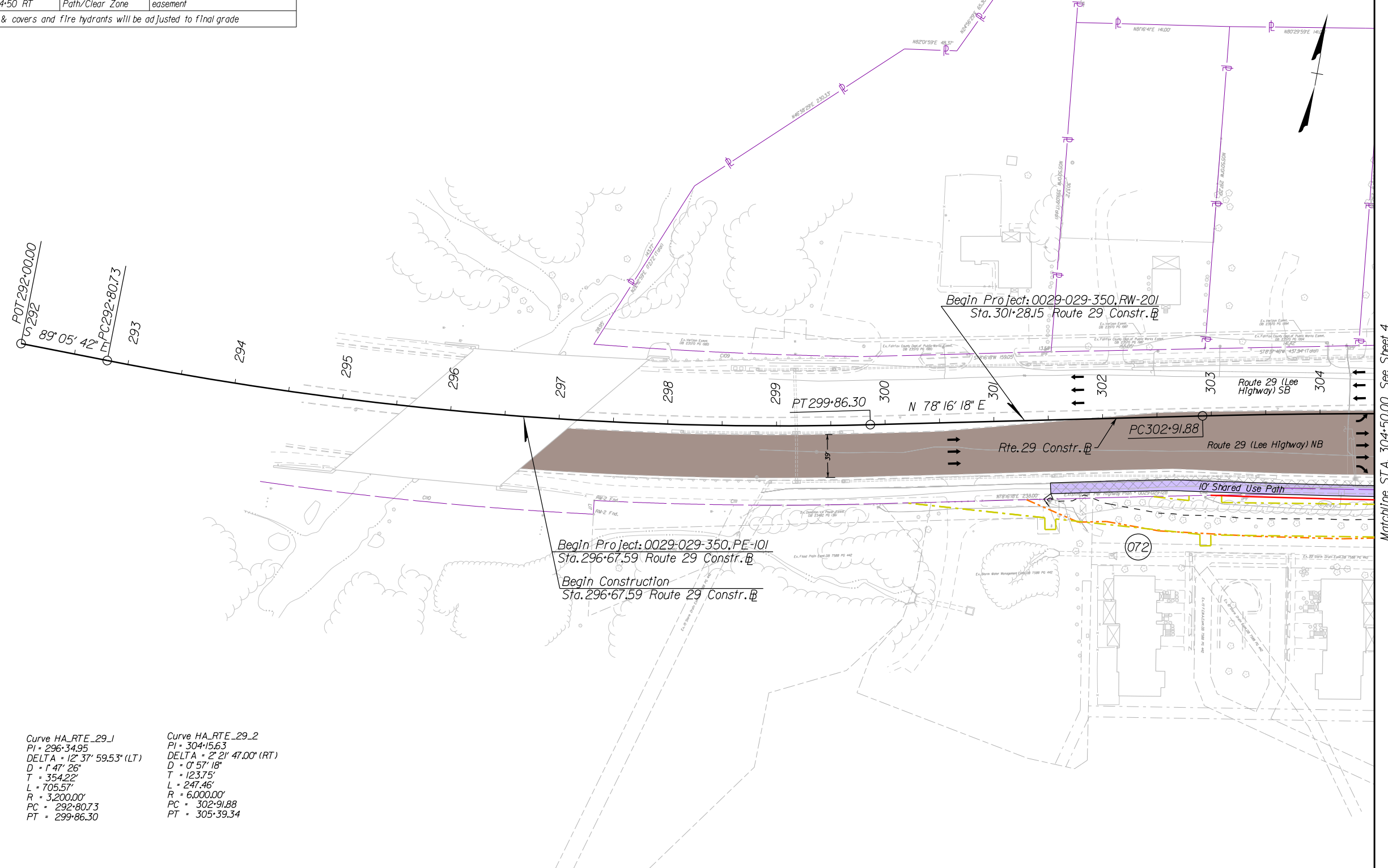



SCALE 0 5' 10'	PROJECT 0029-029-350	SHEET NO. 2A(5)
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REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-201,C-501	3



Utility Conflicts & Relocation Plan			
Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan
Dominion, Shentel & Cox	Overhead 299-90 to 304+50 RT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement
All valve boxes, frames & covers and fire hydrants will be adjusted to final grade			



Curve HA_RTE_29_1 PI • 296+34.95 DELTA • 12° 37' 59.53" (LT) D • 1' 47' 26" T • 354.22' L • 705.57' R • 3,200.00' PC • 292+80.73 PT • 299+86.30	Curve HA_RTE_29_2 PI • 304+15.63 DELTA • 2° 21' 47.00" (RT) D • 0' 57' 18" T • 123.75' L • 247.46' R • 6,000.00' PC • 302+91.88 PT • 305+39.34
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Matchline STA. 304+50.00 See Sheet 4

LEGEND

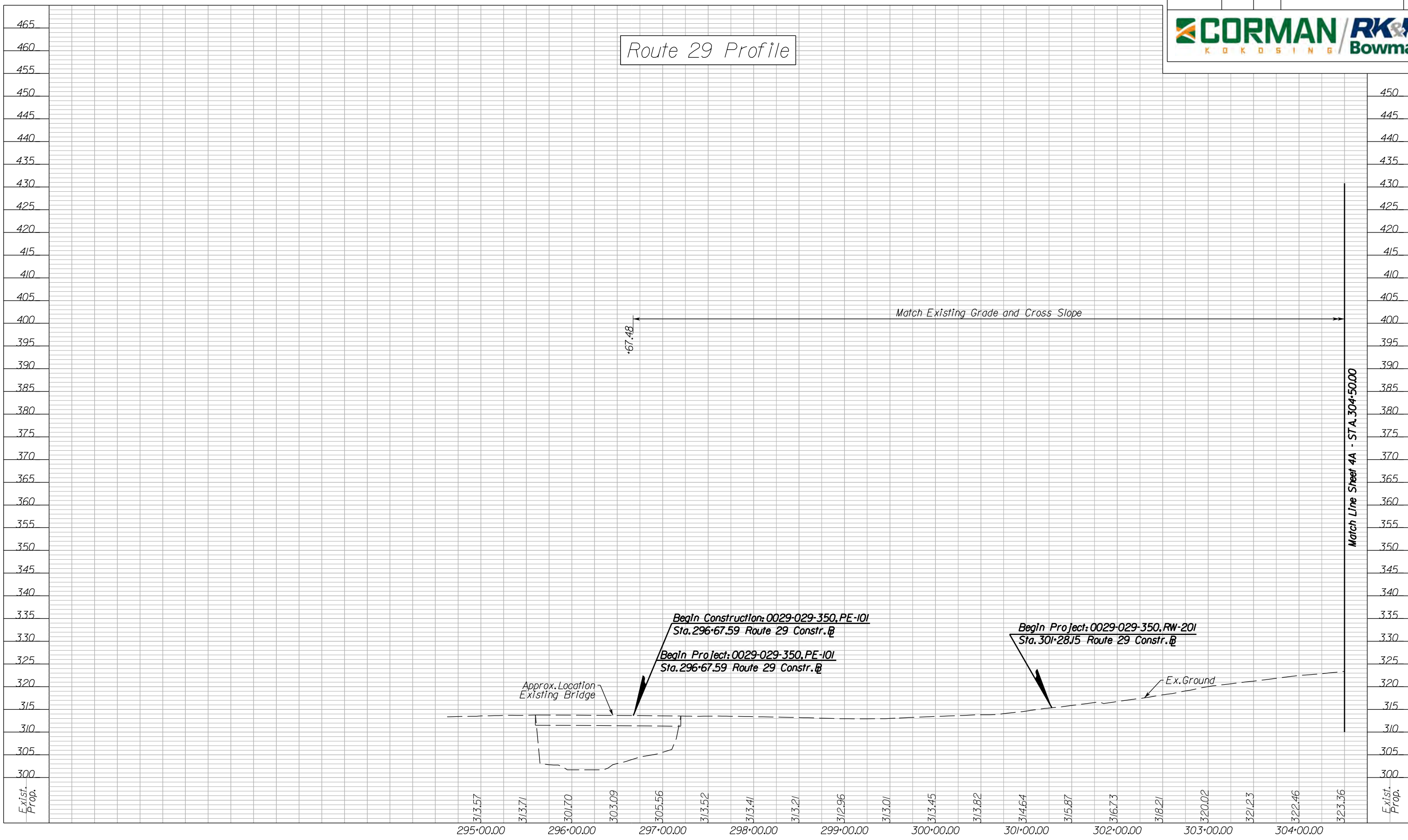
- Prop. Full Depth Asphalt Pavement
- Prop. Mill And Overlay
- Prop. Concrete Sdwk/Entr/Curb/Med
- Prop. Raised Grass Median
- Prop. Shared Use Path
- Prop. Private Drive/Swm Maintenance Rd.
- Prop. Pavement Demolition
- Right of Way Savings From RFP
- Proposed Right of Way
- Proposed Acquisition
- Proposed Temporary Easement
- Proposed Permanent Easement
- Proposed Verizon Easement
- Proposed Sanitary or Water Easement
- Proposed Dominion and VDOT Utility Easement
- P Denotes Existing Property Boundary
- R Denotes Existing Right of Way
- S Denotes Existing Streams & Wetlands
- Construction Limits In Cut
- Construction Limits In Fill

SCALE 0 50' 100'	PROJECT 0029-029-350	SHEET NO. 3
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REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-20I,C-50I	3A



Route 29 Profile



VERT. 0 10' 20'	PROJECT 0029-029-350	SHEET NO. 3A
HORIZ. 0 50' 100'		

Utility Conflicts & Relocation Plan			
Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan
Verizon (MCI)	Underground Fiber 312-00 to 318-50 LT	Grading/SUP/Drainage	Relocate UG Fiber to new utility easement
Comcast	Underground Fiber 312-00 to 318-50 LT	Grading/SUP/Drainage	Relocate UG Fiber to new utility easement
Verizon (MCI)	Underground Fibers 312-10 to 313-60 RT	Drainage	Relocate UG Fibers within Ex.RW
FCWA	24" Watermain 315-75 to 318-50 LT	Roadway Fill	Relocate 24" watermain within Ex.RW
FCWA	8" Watermain 310-70 Crossing	Drainage	Relocate 8" watermain conn. to Moore St within Ex.RW
Dominion, Shentel & Cox	Overhead 304-50 to 318-50 RT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement, replace crossings
Shentel	Overhead with Dom. 315-60 Crossing	Shared Use Path/Clear Zone	Relocate OH line to new utility easement, replace crossings
Fiberlight & A T & T	Underground Ducts 307-65 to 318-50 RT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement

All valve boxes, frames & covers and fire hydrants will be adjusted to final grade

UTILITY CONFLICT MITIGATED
Proposed noise barrier design was refined left of 308+15 to 309+85 and along Centreville Farm Road to avoid utility conflicts with the Verizon (MCI), Comcast, Verizon VA buried fiber optic ducts and cables. The Design will span over the crossings by adjusting the post spacings.

UTILITY CONFLICT MITIGATED
The proposed noise barrier design was refined to avoid utility conflict with the Verizon VA 24-way ductbank entering the Verizon exchange building. The Design will span over the duct bank, avoiding a conflict.

UTILITY CONFLICT MITIGATED
Storm Drainage inlet and pipe was designed to avoid utility conflicts with the Verizon 9-way ductbank.

DESIGN ENHANCEMENT 01
Redesigned Curb Ramp to retain Existing Signal Pole:
- Eliminates Utility Conflict with 24" Water
- Improves Pedestrian crossing angle on Union Mill Rd
- Increases vehicle clearance to signal pole compared with RFP Concept
UTILITY CONFLICT MITIGATED

DESIGN ENHANCEMENT 02
Eliminated Grading Impacts to Verizon Building with additional 25-ft Retaining Wall

Curve HA RTE 29_2
PI = 304+56.3
DELTA = 2° 21' 47.00" (RT)
D = 0' 57' 18"
T = 123.75'
L = 247.46'
R = 6,000.00'
PC = 302+91.88
PT = 305+39.34

Curve HA RTE 29_3
PI = 320+26.87
DELTA = 6° 48' 52.84" (RT)
D = 0' 57' 18"
T = 357.24'
L = 713.63'
R = 6,000.00'
PC = 316+69.64
PT = 323+83.27

- 4-1 P.O.C. Sta. 307+52.94 Route 29
P.O.T. Sta. 10+00.00 Centreville Road
Δ = 90° 40' 59" Lt.
- 4-2 P.O.C. Sta. 307+64.67 Route 29
P.O.T. Sta. 20+00.00 Union Mill Road
Δ = 105° 33' 04" Rt.
- 4-3 P.O.T. Sta. 310+90.39 Route 29
P.O.T. Sta. 30+00.00 Moore Road
Δ = 105° 16' 09" Rt.

LEGEND

- Prop. Full Depth Asphalt Pavement
- Prop. Shared Use Path
- Prop. Right of Way
- Prop. Verizon Easement
- Prop. Mill And Overlay
- Prop. Private Drive/Swm Maintenance Rd.
- Prop. Acquisition
- Prop. Sanitary or Water Easement
- Prop. Concrete Sdwk/Entr/Curb/Med
- Prop. Pavement Demolition
- Prop. Dominion and VDOT Utility Easement
- Prop. Raised Grass Median
- Right of Way Savings From RFP
- Prop. Permanent Easement
- Denotes Existing Property Boundary
- Denotes Existing Right of Way
- Denotes Existing Streams & Wetlands
- Construction Limits In Cut
- Construction Limits In Fill

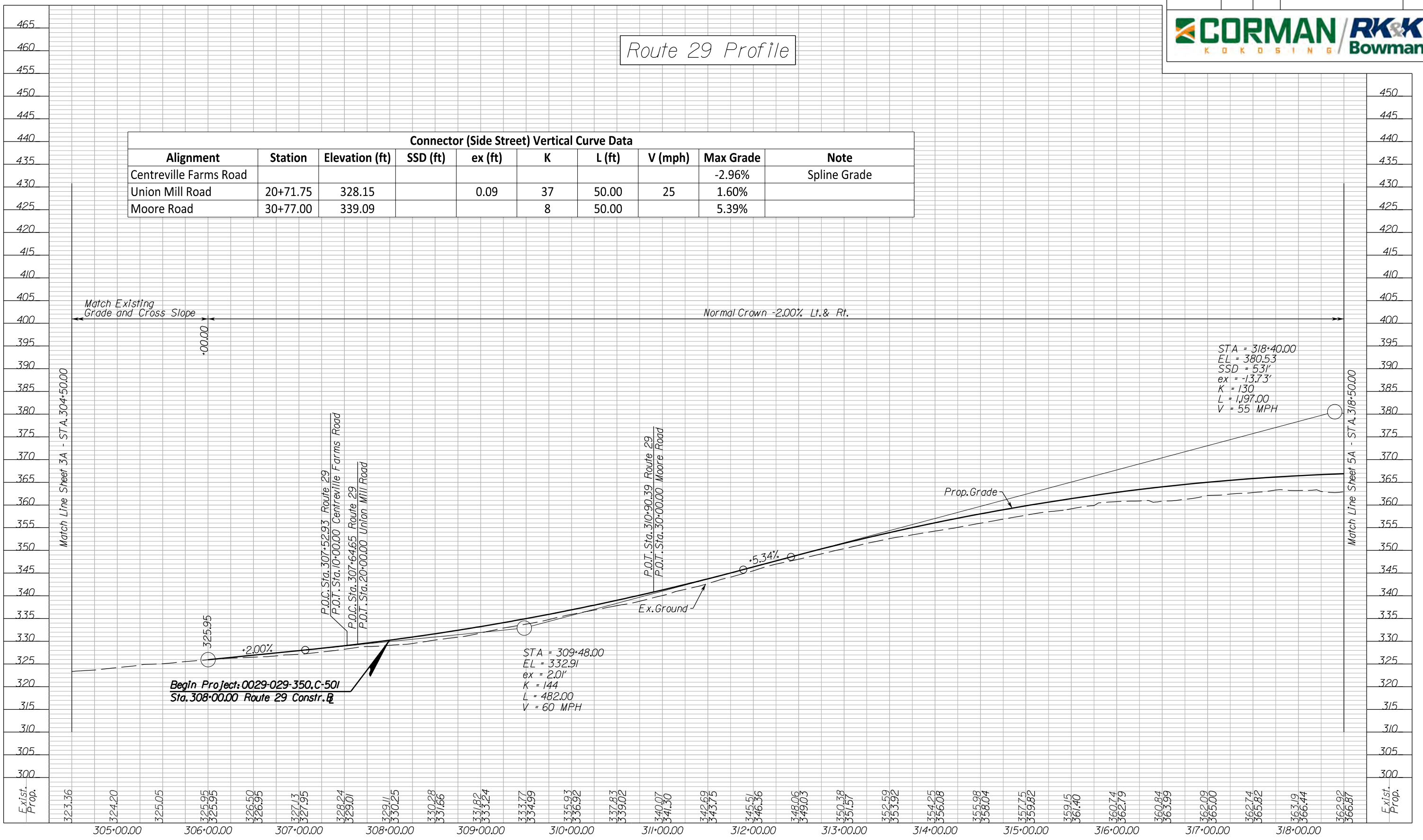
Matchline STA. 304+50.00 See Sheet 3

Matchline STA. 318+50.00 See Sheet 5

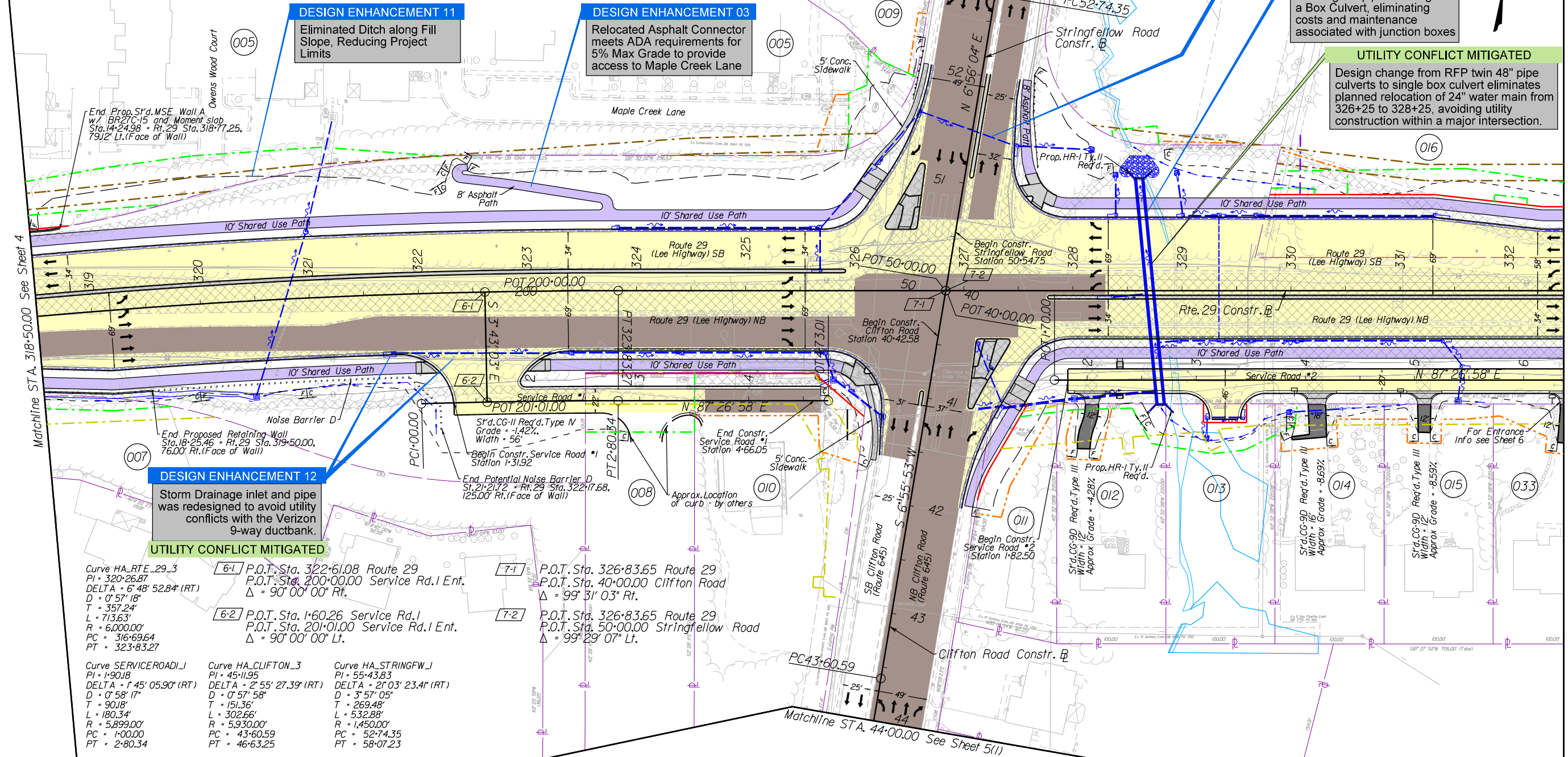


Route 29 Profile

Connector (Side Street) Vertical Curve Data									
Alignment	Station	Elevation (ft)	SSD (ft)	ex (ft)	K	L (ft)	V (mph)	Max Grade	Note
Centreville Farms Road								-2.96%	Spline Grade
Union Mill Road	20+71.75	328.15		0.09	37	50.00	25	1.60%	
Moore Road	30+77.00	339.09			8	50.00		5.39%	



Utility Conflicts & Relocation Plan							
Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan	Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan
Verizon (MCI)	Underground Fiber 318+50 to 332+50 LT	Grading/SUP/Drainage	Relocate UG Fiber to new utility easement	Summit IG	Underground 325+55 to 52+05 SF Rd LT	Rte 29 widening & SUP	Expose & Relocate UG ducts and 3 fibers to back of SUP
Comcast	Underground Fiber 318+50 to 327+50 LT	Grading/SUP/Drainage	Relocate UG Fiber to new utility easement	Summit IG	Underground 325+55 to 42+25 SF Rd RT	Shared Use Path/Drainage	Expose & Relocate UG ducts and 3 fibers to back of SUP
FCWA	24" Watermain 318+50 to 326+25 LT	Roadway Fill / Drainage	Relocate watermain within Ex.RW	Verizon VA	9-way Ductbank 320+45 RT	Curb & Gutter	Add a offset manhole to move cover from gutter
Fairfax DPWES	8" Sanitary Sewer 330+00 Crossing	Roadway Fill / Drainage	Relocate sanitary sewer within Ex.RW	Verizon VA	9-way Ductbank 326+00 to 329+50 RT	Drainage / Shared Use Path	Relocate ductbanks and fibers within Ex. RW. Eliminate MH in intersection
Dominion & Cox	Overhead 318+50 to 332+50 RT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement	Washington Gas	6" Plastic 328+00 to 331+50 RT	Drainage / Roadway Fill	Relocate gas main within Ex.RW
Fiberlight & A T & T	Underground Ducts 318+50 to 326+20 RT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement	Washington Gas	4" Plastic 328+40 to 329+90 RT	Drainage / Service Road	Relocate gas main within Ex.RW
Fiberlight & A T & T	Underground Ducts 327+20 to 332+50 RT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement	Zayo Comm.	Underground Ducts 326+05 to 329+50 RT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement
Summit IG	Underground 325+55 to 52+05 SF Rd LT	Rte 29 widening & SUP	Expose & Relocate UG ducts and 3 fibers to back of SUP				All valve boxes, frames & covers and fire hydrants will be adjusted to final grade



LEGEND

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Verizon Easement	Denotes Existing Property Boundary	Construction Limits In Cut
Prop. Mill And Overlay	Prop. Private Drive/Swm Maintenance Rd.	Proposed Acquisition	Proposed Sanitary or Water Easement	Denotes Existing Right of Way	Construction Limits In Fill
Prop. Concrete Sdwk/Entr/Curb/Med	Prop. Pavement Demolition	Proposed Temporary Easement	Proposed Dominion and VDOT Utility Easement	Denotes Existing Streams & Wetlands	
Prop. Raised Grass Median	Right of Way Savings From RFP	Proposed Permanent Easement			

SCALE: 0 50' 100'

PROJECT: 0029-029-350

SHEET NO.: 5

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-201,C-501	5(1)



Matchline STA. 44+00.00 See Sheet 5

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Verizon Easement	Denotes Existing Property Boundary	Construction Limits in Cut
Prop. Mill And Overlay	Prop. Private Drive/Swm Maintenance Rd.	Proposed Acquisition	Proposed Sanitary or Water Easement	Denotes Existing Right of Way	Construction Limits in Fill
Prop. Concrete Sdwk/Entr/Curb/Med	Prop. Pavement Demolition	Proposed Temporary Easement	Proposed Dominion and VDOT Utility Easement	Denotes Existing Streams & Wetlands	
Prop. Raised Grass Median	Right of Way Savings From RFP	Proposed Permanent Easement			

SCALE 0 50' 100'	PROJECT 0029-029-350	SHEET NO. 5(1)
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REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-201,C-501	5(2)



Curve HA_STRINGFW_1 PI = 55+43.83 DELTA = 21° 03' 23.4" (RT) D = 3' 57' 05" T = 269.48' L = 532.88' R = 1,450.00' PC = 52+74.35 PT = 58-07.23	Curve HA_STRINGFW_2 PI = 62+99.02 DELTA = 12° 17' 06.7" (LT) D = 4' 02' 06" T = 152.82' L = 304.47' R = 1,420.00' PC = 61+46.20 PT = 64+50.67
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LEGEND

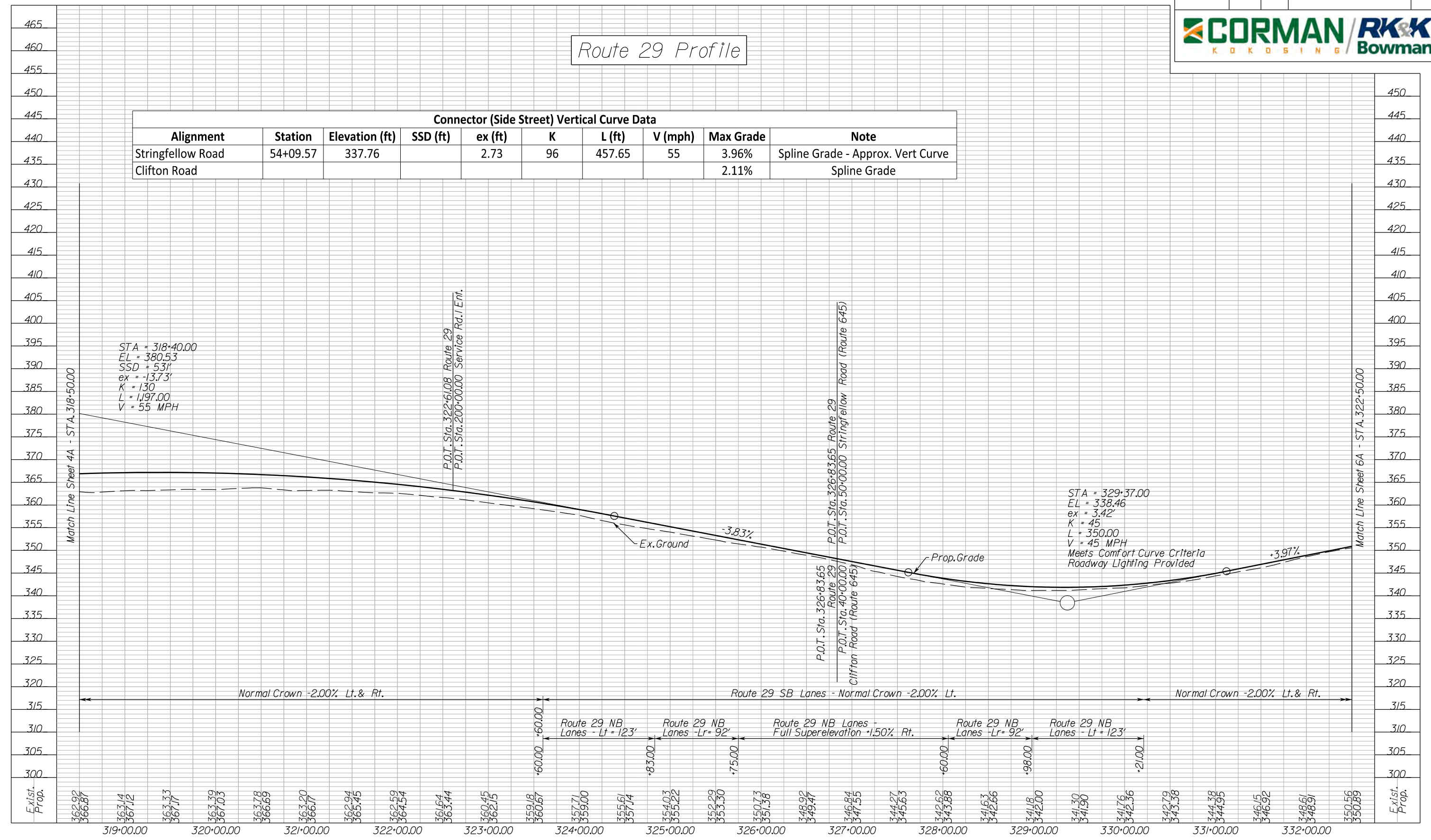
Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Verizon Easement	Denotes Existing Property Boundary	Construction Limits In Cut
Prop. Mill And Overlay	Prop. Private Drive/Swm Maintenance Rd.	Proposed Acquisition	Proposed Sanitary or Water Easement	Denotes Existing Right of Way	Construction Limits In Fill
Prop. Concrete Sdwk/Entr/Curb/Med	Prop. Pavement Demolition	Proposed Temporary Easement	Proposed Dominion and VDOT Utility Easement	Denotes Existing Streams & Wetlands	
Prop. Raised Grass Median	Right of Way Savings From RFP	Proposed Permanent Easement			

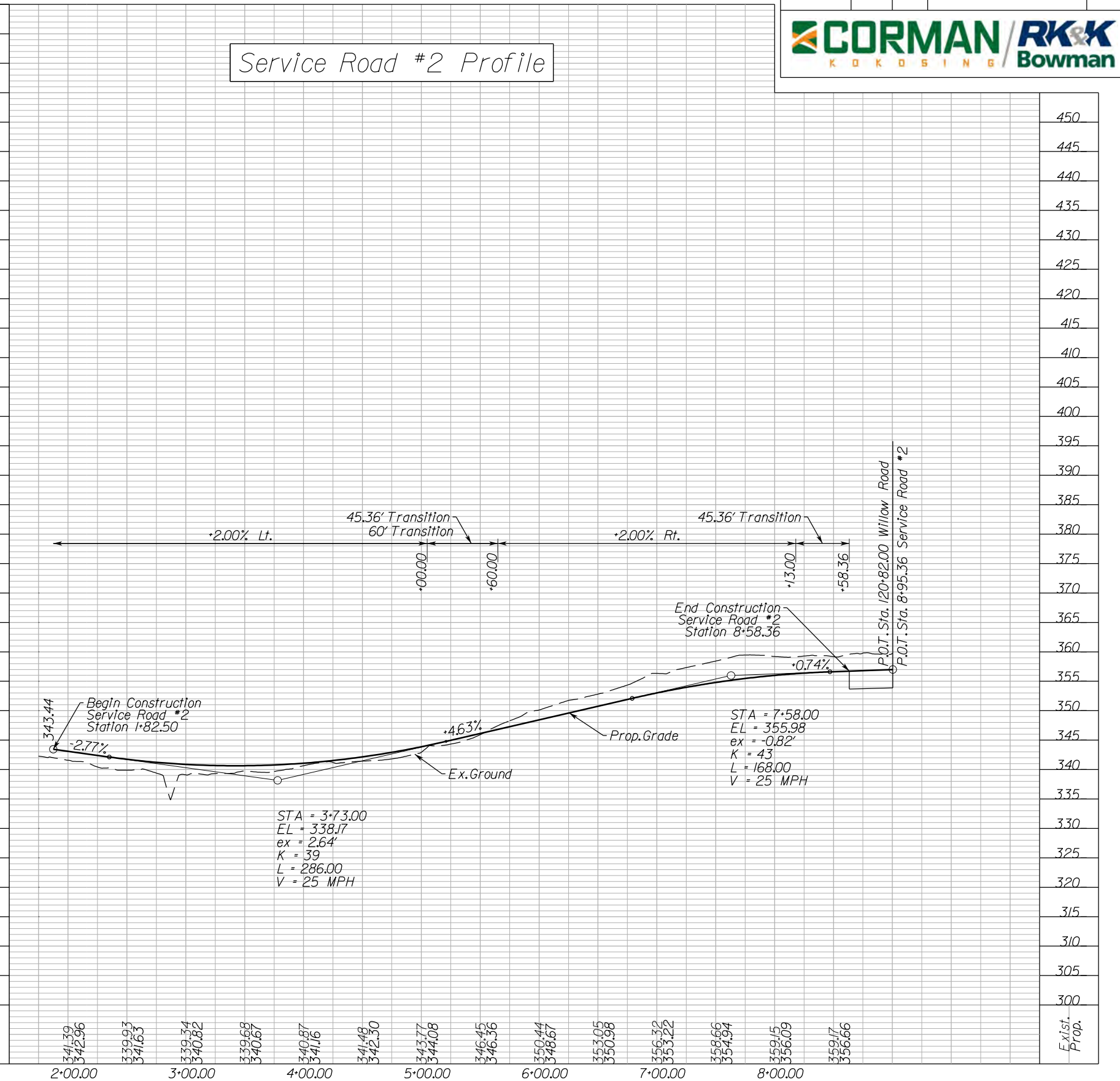
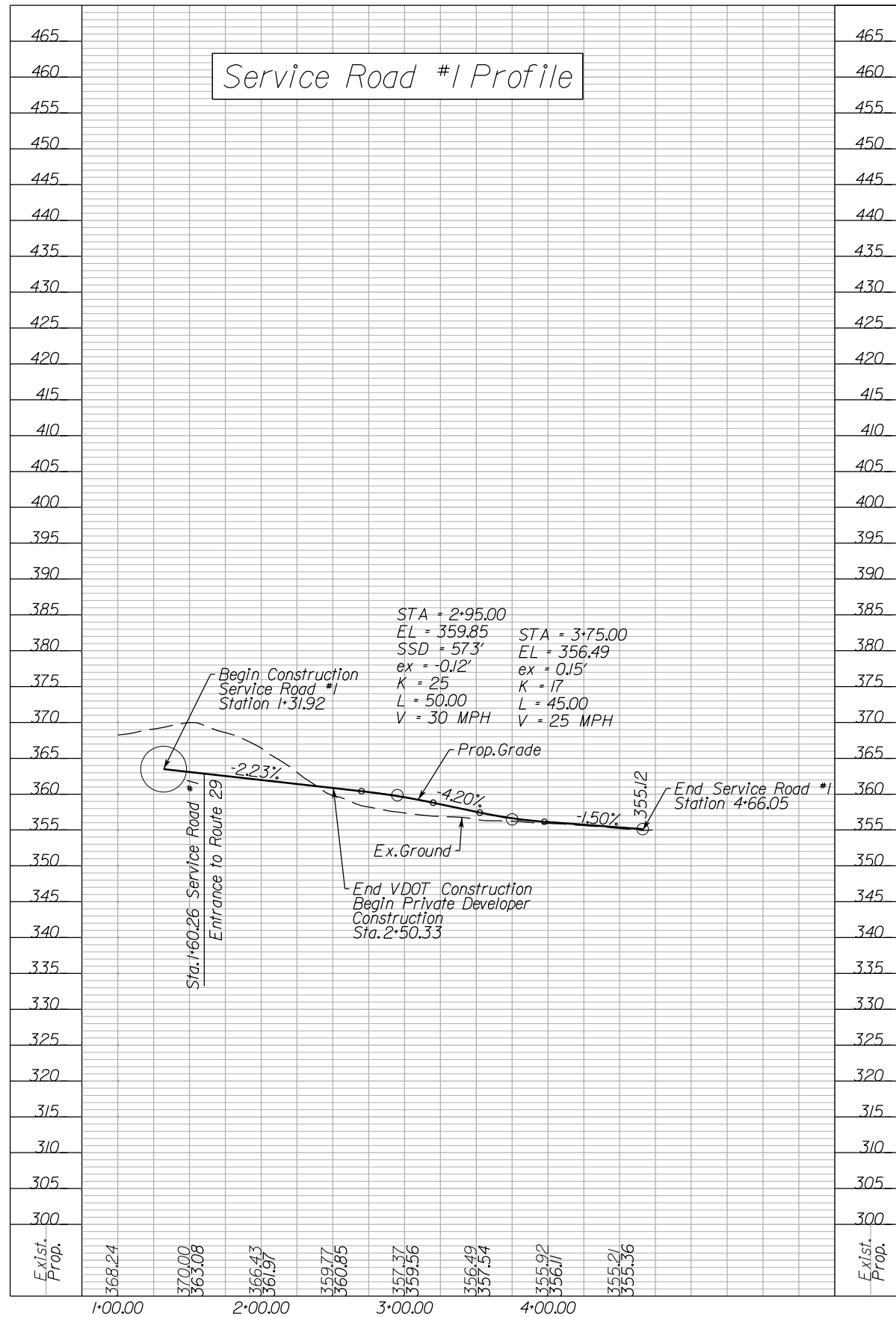
SCALE 0 50' 100'	PROJECT 0029-029-350	SHEET NO. 5(2)
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Route 29 Profile

Connector (Side Street) Vertical Curve Data									
Alignment	Station	Elevation (ft)	SSD (ft)	ex (ft)	K	L (ft)	V (mph)	Max Grade	Note
Stringfellow Road	54+09.57	337.76		2.73	96	457.65	55	3.96%	Spline Grade - Approx. Vert Curve
Clifton Road								2.11%	Spline Grade





Utility Conflicts & Relocation Plan			
Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan
Verizon (MCI)	Underground Fiber 332+50 to 346+50 LT	Grading/SUP/ Drainage	Relocate UG Fiber to new utility easement
Colonial Pipeline	32", 36" & 6" Gas 340+80 to 341+20 LT	Roadway Fill	Utility to extend casing pipes
FCWA	24" & 12" Watermains 337+75 to 346+50 LT	Roadway Fill / Drainage	Relocate watermain within Ex.RW
Dominion & Cox	Overhead 332+50 to 342+00 RT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement
Dominion & Cox	Overhead 342+00 to 346+50 LT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement
Fiberlight & A T & T	Underground Ducts 332+50 to 335+85 RT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement
Fiberlight & A T & T	Underground Ducts 340+25 to 346+50 RT	Drainage /Shared Use Path	Relocate UG ducts and fiber to new utility easement
Verizon VA	9-way Ductbank 340+50 to 342+70 RT	Drainage	Relocate ductbanks and fibers within Ex.RW. Eliminate MH in Intersection
Washington Gas	6" Plastic 340+00 to 342+20 LT	Drainage / Roadway Fill	Relocate gas main within Ex.RW

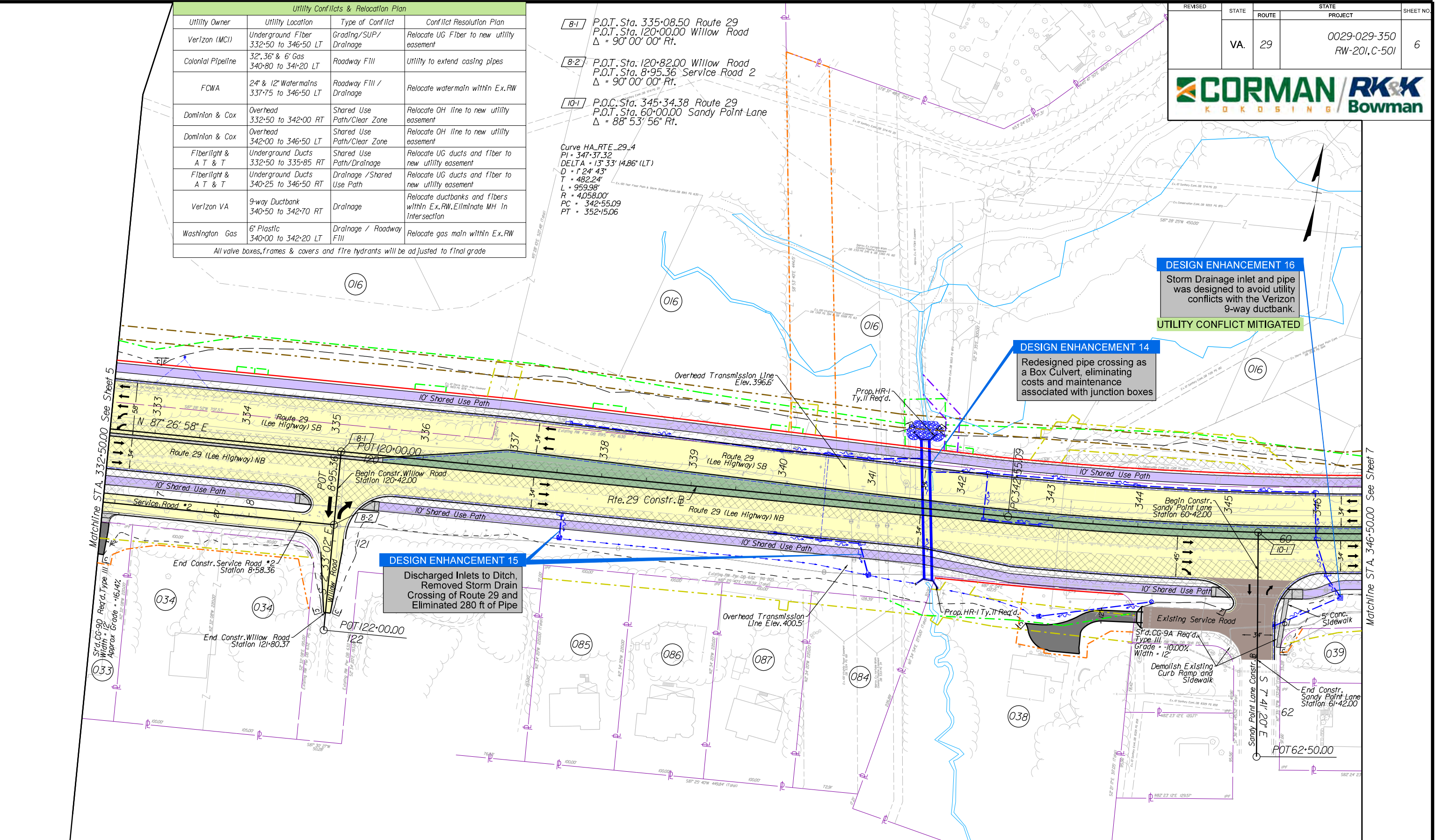
All valve boxes, frames & covers and fire hydrants will be adjusted to final grade

- 8-1 P.O.T. Sta. 335+08.50 Route 29
P.O.T. Sta. 120+00.00 Willow Road
 $\Delta = 90^{\circ} 00' 00''$ Rt.
- 8-2 P.O.T. Sta. 120+82.00 Willow Road
P.O.T. Sta. 8+95.36 Service Road 2
 $\Delta = 90^{\circ} 00' 00''$ Rt.
- 10-1 P.O.C. Sta. 345+34.38 Route 29
P.O.T. Sta. 60+00.00 Sandy Point Lane
 $\Delta = 88^{\circ} 53' 56''$ Rt.

Curve HA RTE 29.4
 PI = 347+37.32
 DELTA = $13^{\circ} 33' 14.86''$ (LT)
 D = $1^{\circ} 24' 43''$
 T = 482.24'
 L = 959.98'
 R = 4,058.00'
 PC = 342+55.09
 PT = 352+15.06

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-201,C-501	6

CORMAN / RK&K
KOKOSING Bowman



DESIGN ENHANCEMENT 15
 Discharged Inlets to Ditch,
 Removed Storm Drain
 Crossing of Route 29 and
 Eliminated 280 ft of Pipe

DESIGN ENHANCEMENT 14
 Redesigned pipe crossing as
 a Box Culvert, eliminating
 costs and maintenance
 associated with junction boxes

DESIGN ENHANCEMENT 16
 Storm Drainage inlet and pipe
 was designed to avoid utility
 conflicts with the Verizon
 9-way ductbank.
UTILITY CONFLICT MITIGATED

LEGEND

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Verizon Easement	Denotes Existing Property Boundary	Construction Limits in Cut
Prop. Mill And Overlay	Prop. Private Drive/Swm Maintenance Rd.	Proposed Acquisition	Proposed Sanitary or Water Easement	Denotes Existing Right of Way	Construction Limits in Fill
Prop. Concrete Sdwk/Entr/Curb/Med	Prop. Pavement Demolition	Proposed Temporary Easement	Proposed Dominion and VDOT Utility Easement	Denotes Existing Streams & Wetlands	
Prop. Raised Grass Median	Right of Way Savings From RFP	Proposed Permanent Easement			

SCALE: 0 50' 100'

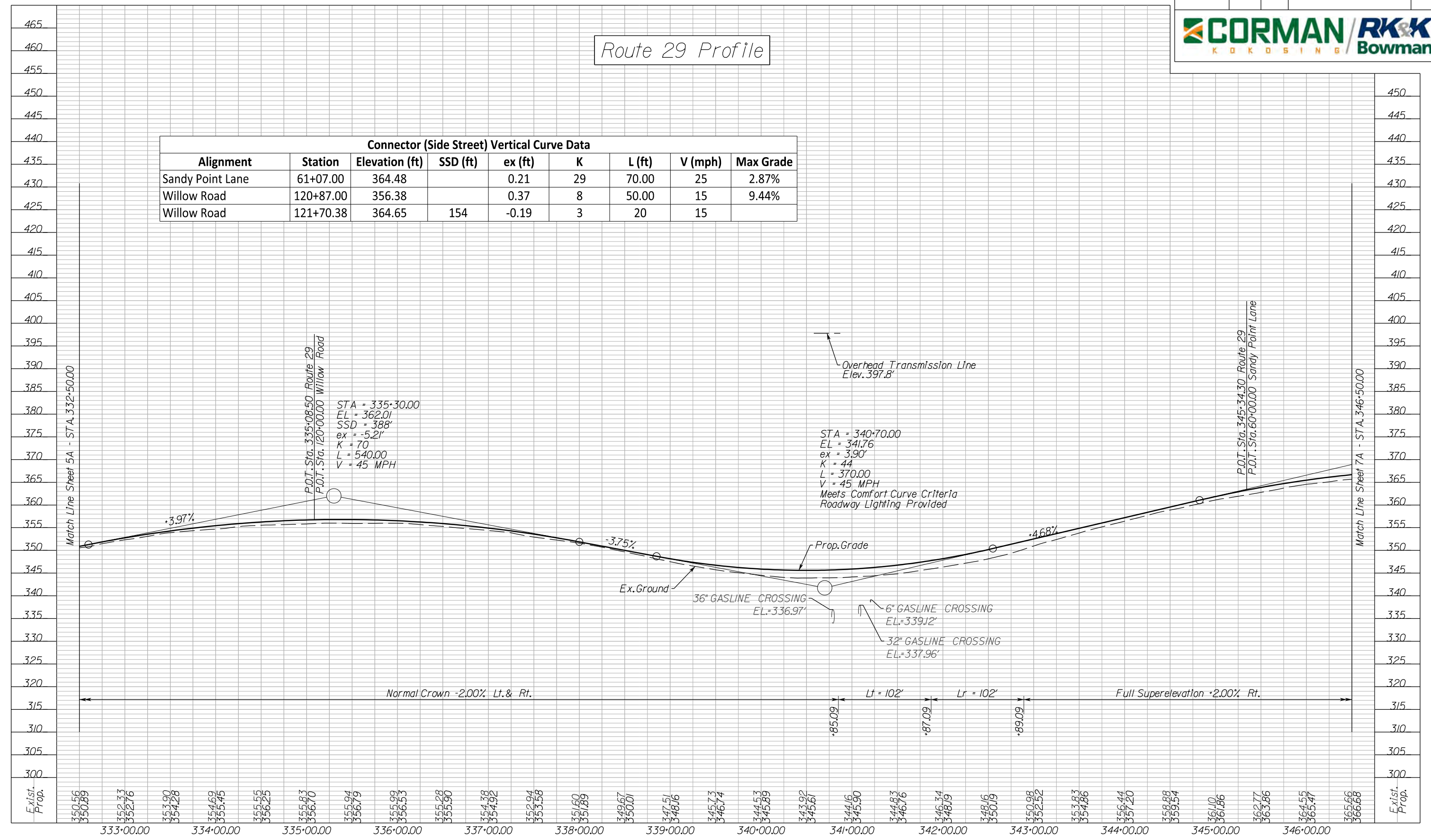
PROJECT: 0029-029-350

SHEET NO.: 6



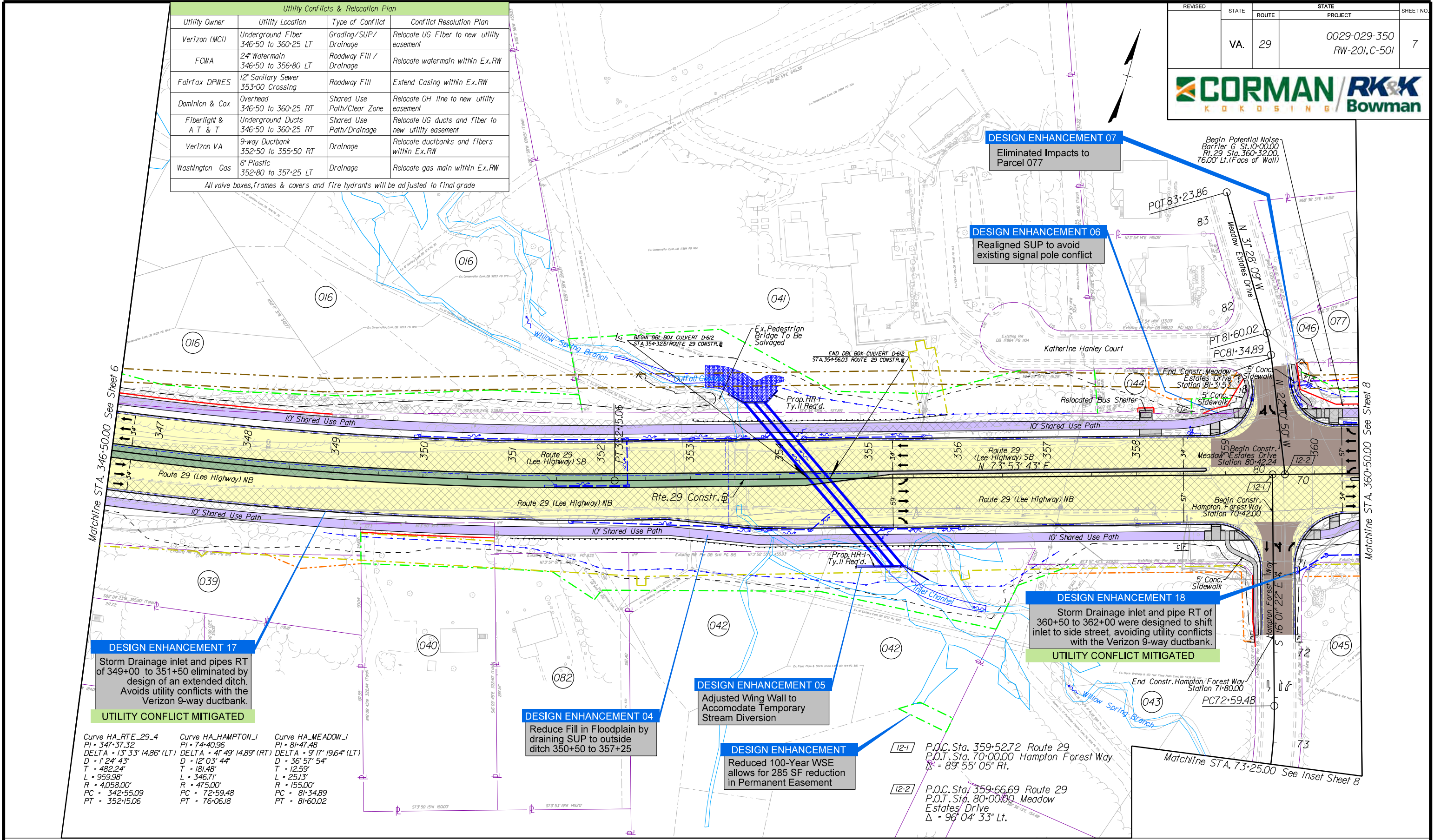
Route 29 Profile

Connector (Side Street) Vertical Curve Data								
Alignment	Station	Elevation (ft)	SSD (ft)	ex (ft)	K	L (ft)	V (mph)	Max Grade
Sandy Point Lane	61+07.00	364.48		0.21	29	70.00	25	2.87%
Willow Road	120+87.00	356.38		0.37	8	50.00	15	9.44%
Willow Road	121+70.38	364.65	154	-0.19	3	20	15	



Utility Conflicts & Relocation Plan			
Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan
Verizon (MCI)	Underground Fiber 346+50 to 360+25 LT	Grading/SUP/ Drainage	Relocate UG Fiber to new utility easement
FCWA	24" Watermain 346+50 to 356+80 LT	Roadway Fill / Drainage	Relocate watermain within Ex.RW
Fairfax DPWES	12" Sanitary Sewer 353+00 Crossing	Roadway Fill	Extend Casing within Ex.RW
Dominion & Cox	Overhead 346+50 to 360+25 RT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement
Fiberlight & A T & T	Underground Ducts 346+50 to 360+25 RT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement
Verizon VA	9-way Ductbank 352+50 to 355+50 RT	Drainage	Relocate ductbanks and fibers within Ex.RW
Washington Gas	6" Plastic 352+80 to 357+25 LT	Drainage	Relocate gas main within Ex.RW

All valve boxes, frames & covers and fire hydrants will be adjusted to final grade



DESIGN ENHANCEMENT 17
Storm Drainage inlet and pipes RT of 349+00 to 351+50 eliminated by design of an extended ditch. Avoids utility conflicts with the Verizon 9-way ductbank.
UTILITY CONFLICT MITIGATED

DESIGN ENHANCEMENT 04
Reduce Fill in Floodplain by draining SUP to outside ditch 350+50 to 357+25

DESIGN ENHANCEMENT 05
Adjusted Wing Wall to Accomodate Temporary Stream Diversion

DESIGN ENHANCEMENT
Reduced 100-Year WSE allows for 285 SF reduction in Permanent Easement

DESIGN ENHANCEMENT 07
Eliminated Impacts to Parcel 077

DESIGN ENHANCEMENT 06
Realigned SUP to avoid existing signal pole conflict

DESIGN ENHANCEMENT 18
Storm Drainage inlet and pipe RT of 360+50 to 362+00 were designed to shift inlet to side street, avoiding utility conflicts with the Verizon 9-way ductbank.
UTILITY CONFLICT MITIGATED

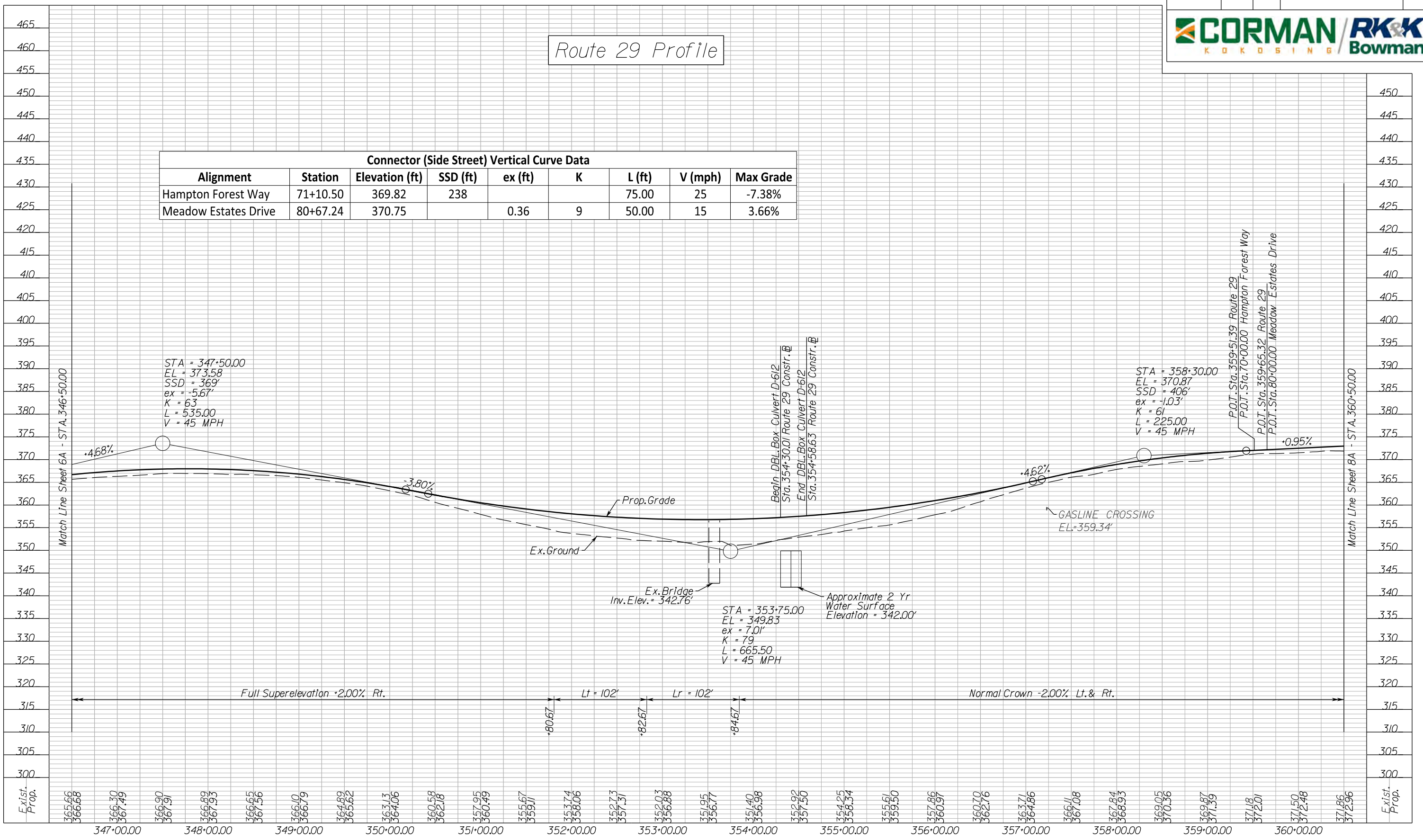
Curve HA_RTE_29_4 PI = 347+37.32 DELTA = 13° 33' 14.86" (LT) D = 1' 24' 43" T = 482.24' L = 959.98' R = 4058.00' PC = 342+55.09 PT = 352+15.06	Curve HA_HAMPTON_J PI = 74+40.96 DELTA = 41° 49' 14.89" (RT) D = 12' 03' 44" T = 181.48' L = 346.71' R = 475.00' PC = 72+59.48 PT = 76+06.18	Curve HA_MEADOW_J PI = 81+47.48 DELTA = 9° 17' 19.64" (LT) D = 36' 57' 54" T = 12.59' L = 25.13' R = 155.00' PC = 81+34.89 PT = 81+60.02
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LEGEND

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Verizon Easement	Denotes Existing Property Boundary	Construction Limits In Cut
Prop. Mill And Overlay	Prop. Private Drive/Swm Maintenance Rd.	Proposed Acquisition	Proposed Sanitary or Water Easement	Denotes Existing Right of Way	Construction Limits In Fill
Prop. Concrete Sdwk/Entr/Curb/Med	Prop. Pavement Demolition	Proposed Temporary Easement	Proposed Dominion and VDOT Utility Easement	Denotes Existing Streams & Wetlands	
Prop. Raised Grass Median	Right of Way Savings From RFP	Proposed Permanent Easement			

Route 29 Profile

Connector (Side Street) Vertical Curve Data								
Alignment	Station	Elevation (ft)	SSD (ft)	ex (ft)	K	L (ft)	V (mph)	Max Grade
Hampton Forest Way	71+10.50	369.82	238			75.00	25	-7.38%
Meadow Estates Drive	80+67.24	370.75		0.36	9	50.00	15	3.66%



Full Superelevation +2.00% Rt.

Lt = 102' Lr = 102'

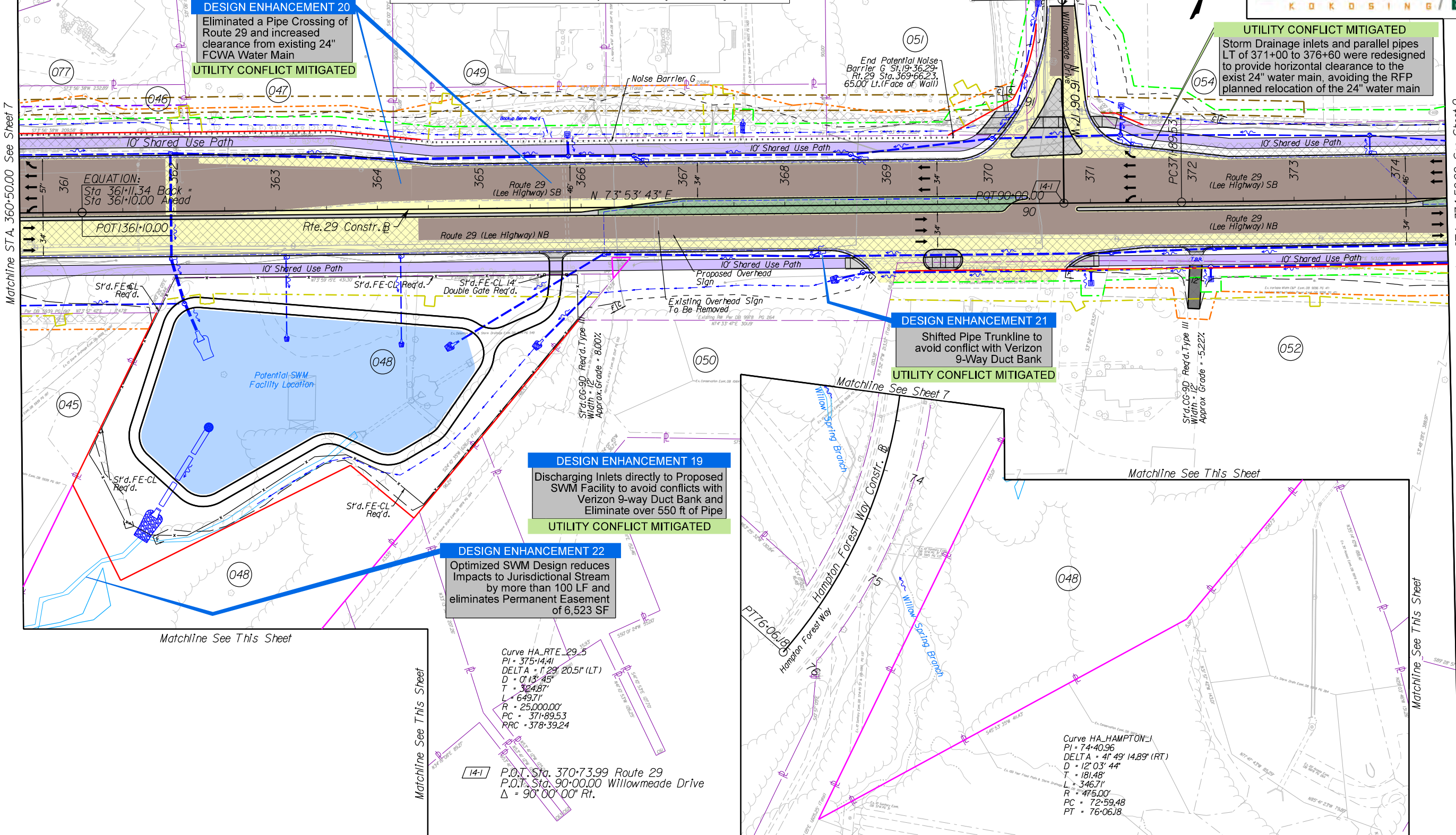
Normal Crown -2.00% Lt. & Rt.

Utility Conflicts & Relocation Plan							
Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan	Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan
Verizon (MCI)	Underground Fiber 360+25 to 373+15 LT	Grading/SUP/ Drainage	Relocate UG Fiber to new utility easement	Dominion & Cox	Overhead 360+25 to 374+50 RT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement
FCWA	24" Watermain 363+25 to 371+00 LT	Roadway FIII	Relocate watermain within Ex. RW	Fiberlight & A T & T	Underground Ducts 360+25 to 374+50 RT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement
Fairfax DPWES	Sanitary Sewer Lateral 360+15 to 361+70 LT	Roadway FIII	Extend Lateral to Building Connection within Ex. RW	Washington Gas	4" Plastic Willowmeade Dr	Drainage / Underdrains	Relocate gas main within Ex. RW

All valve boxes, frames & covers and fire hydrants will be adjusted to final grade

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-201,C-501	8

CORMAN / RK&K
KOKOSING / Bowman



DESIGN ENHANCEMENT 20

Eliminated a Pipe Crossing of Route 29 and increased clearance from existing 24" FCWA Water Main

UTILITY CONFLICT MITIGATED

DESIGN ENHANCEMENT 19

Discharging Inlets directly to Proposed SWM Facility to avoid conflicts with Verizon 9-way Duct Bank and Eliminate over 550 ft of Pipe

UTILITY CONFLICT MITIGATED

DESIGN ENHANCEMENT 21

Shifted Pipe Trunkline to avoid conflict with Verizon 9-Way Duct Bank

UTILITY CONFLICT MITIGATED

DESIGN ENHANCEMENT 22

Optimized SWM Design reduces Impacts to Jurisdictional Stream by more than 100 LF and eliminates Permanent Easement of 6,523 SF

EQUATION:
Sta 361+11.34 Back =
Sta 361+10.00 Ahead

Curve HA_RTE_29_5
PI = 375+4.41
DELTA = 1° 29' 20.5" (LT)
D = 0' 13' 45"
T = 32.487'
L = 649.71'
R = 25,000.00'
PC = 371+89.53
PCC = 378+39.24

P.O.T. Sta. 370+73.99 Route 29
P.O.T. Sta. 90+00.00 Willowmeade Drive
Δ = 90° 00' 00" Rt.

Curve HA_HAMPTON_1
PI = 74+40.96
DELTA = 41° 49' 14.89" (RT)
D = 12° 03' 44"
T = 181.48'
L = 346.71'
R = 475.00'
PC = 72+59.48
PT = 76+06.18

LEGEND

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Verizon Easement	Denotes Existing Property Boundary	Construction Limits in Cut
Prop. Mill And Overlay	Prop. Private Drive/Swm Maintenance Rd.	Proposed Acquisition	Proposed Sanitary or Water Easement	Denotes Existing Right of Way	Construction Limits in Fill
Prop. Concrete Sdwk/Entr/Curb/Med	Prop. Pavement Demolition	Proposed Temporary Easement	Proposed Dominion and VDOT Utility Easement	Denotes Existing Streams & Wetlands	
Prop. Raised Grass Median	Right of Way Savings From RFP	Proposed Permanent Easement			

SCALE: 0 50' 100'

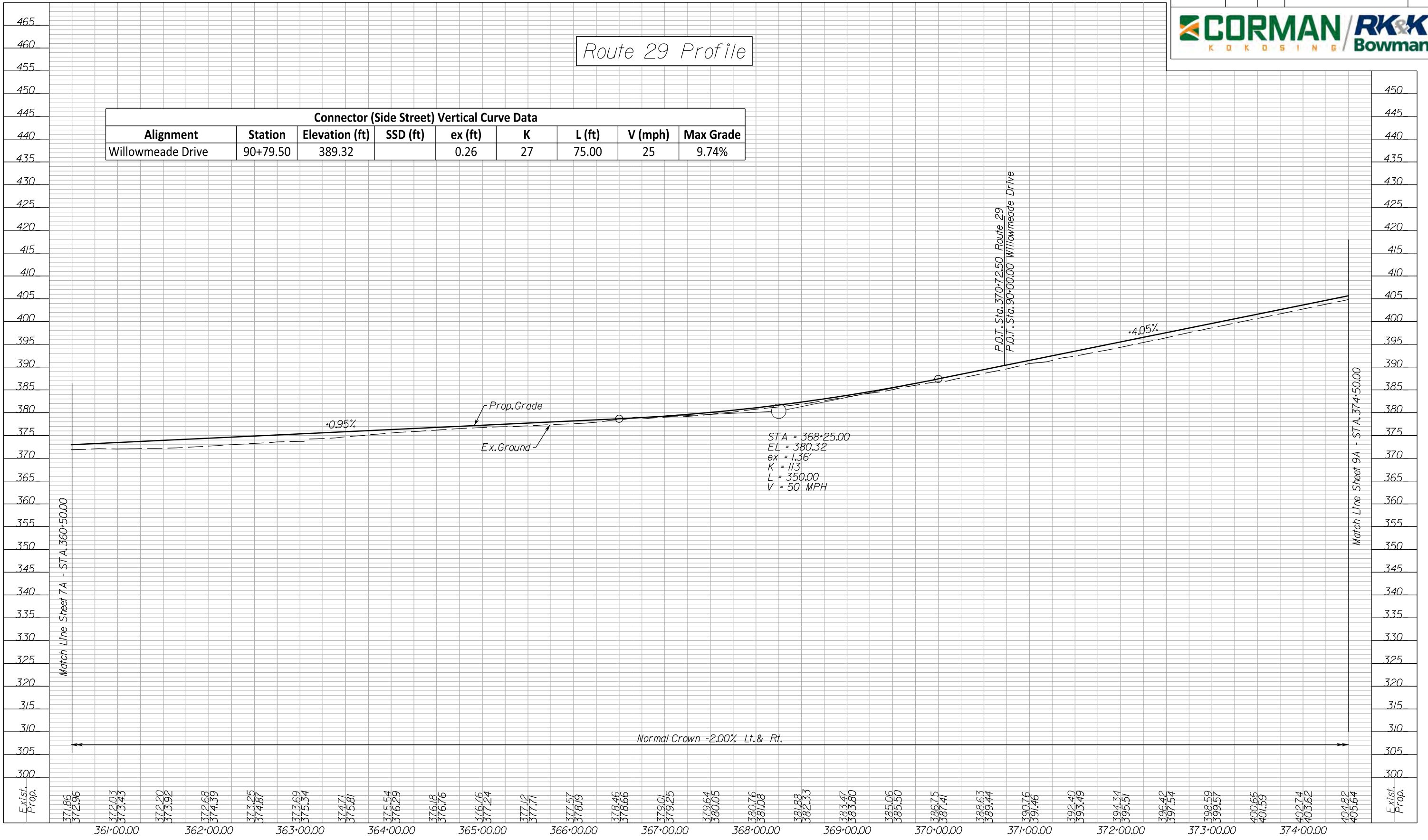
PROJECT: 0029-029-350

SHEET NO.: 8



Route 29 Profile

Connector (Side Street) Vertical Curve Data								
Alignment	Station	Elevation (ft)	SSD (ft)	ex (ft)	K	L (ft)	V (mph)	Max Grade
Willowmeade Drive	90+79.50	389.32		0.26	27	75.00	25	9.74%



- 15-1 P.O.T. Sta. 379+58.57 Route 29
P.O.T. Sta. 300+00.00 Service Rd. 3 Ent.
Δ = 90° 00' 00" Rt.
- 15-2 P.O.T. Sta. 6+16.32 Service Rd. 3
P.O.T. Sta. 300+97.00 Service Rd. 3 Ent.
Δ = 90° 00' 00" Lt.
- 16-1 P.O.C. Sta. 385+17.17 Route 29
P.O.T. Sta. 100+00.00 Buckleys Gate Drive
Δ = 90° 02' 30" Rt.
- 16-2 P.O.C. Sta. 385+20.45 Route 29
P.O.T. Sta. 110+00.00 Summit Drive
Δ = 88° 46' 58" Rt.

- 16-3 P.O.C. Sta. 110+94.02 Summit Drive
P.O.T. Sta. 11+78.11 Service Road *3
Δ = 88° 49' 27" Rt.

UTILITY CONFLICT MITIGATED
Storm Drainage inlets and parallel pipes LT of 371+00 to 376+60 were redesigned to provide horizontal clearance to the exist 24" water main, avoiding the RFP planned relocation of the 24" water main

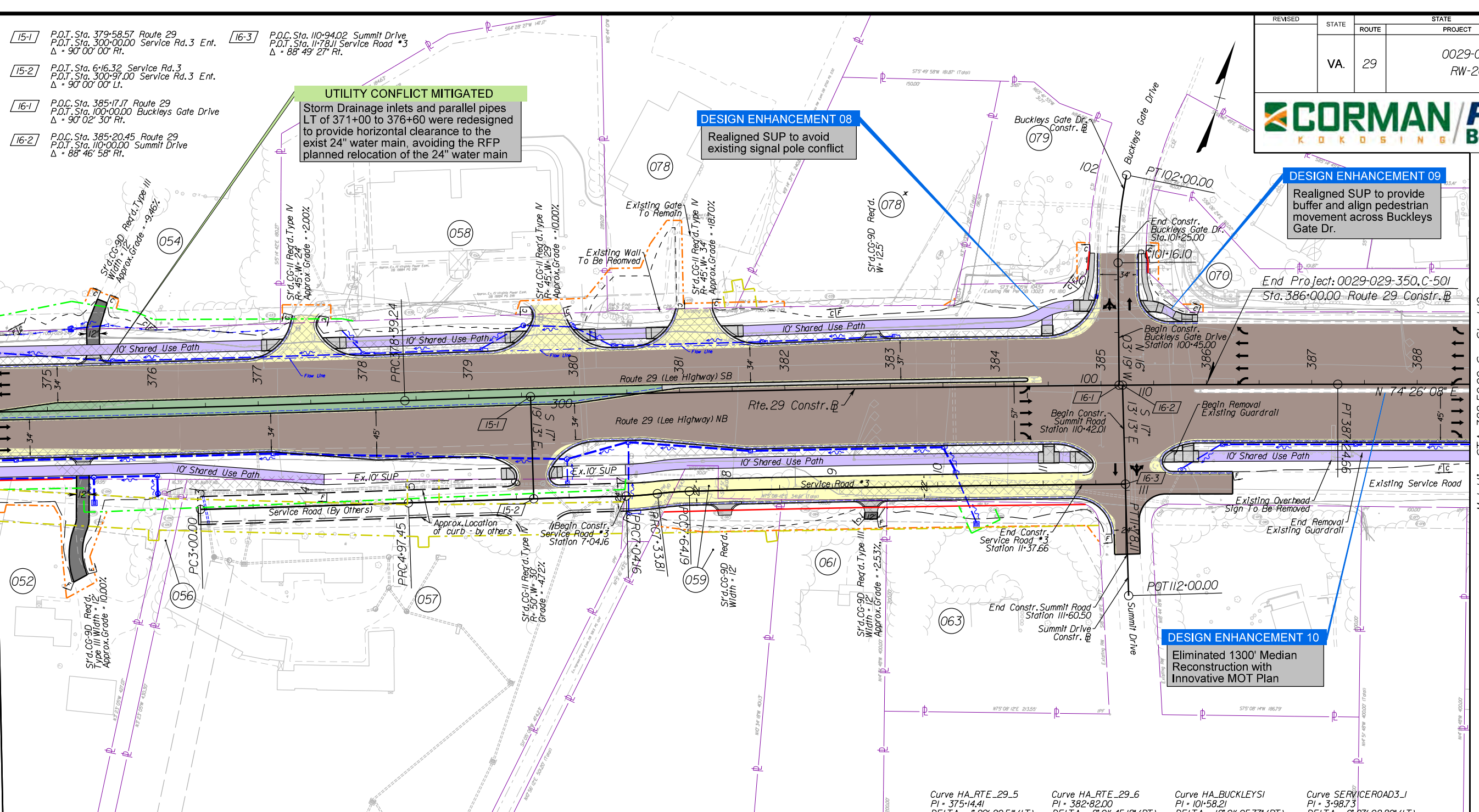
DESIGN ENHANCEMENT 08
Realigned SUP to avoid existing signal pole conflict

DESIGN ENHANCEMENT 09
Realigned SUP to provide buffer and align pedestrian movement across Buckleys Gate Dr.

DESIGN ENHANCEMENT 10
Eliminated 1300' Median Reconstruction with Innovative MOT Plan

Matchline STA. 374+50.00 See Sheet 8

Matchline STA. 388+50.00 See Sheet 10



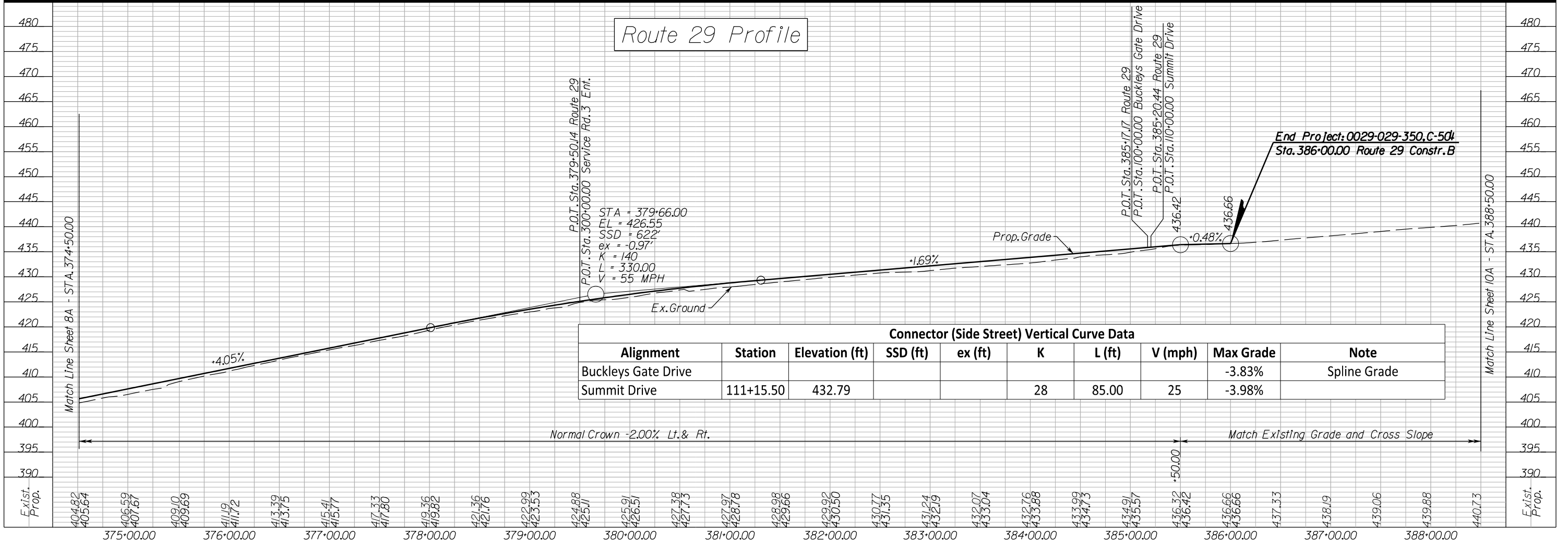
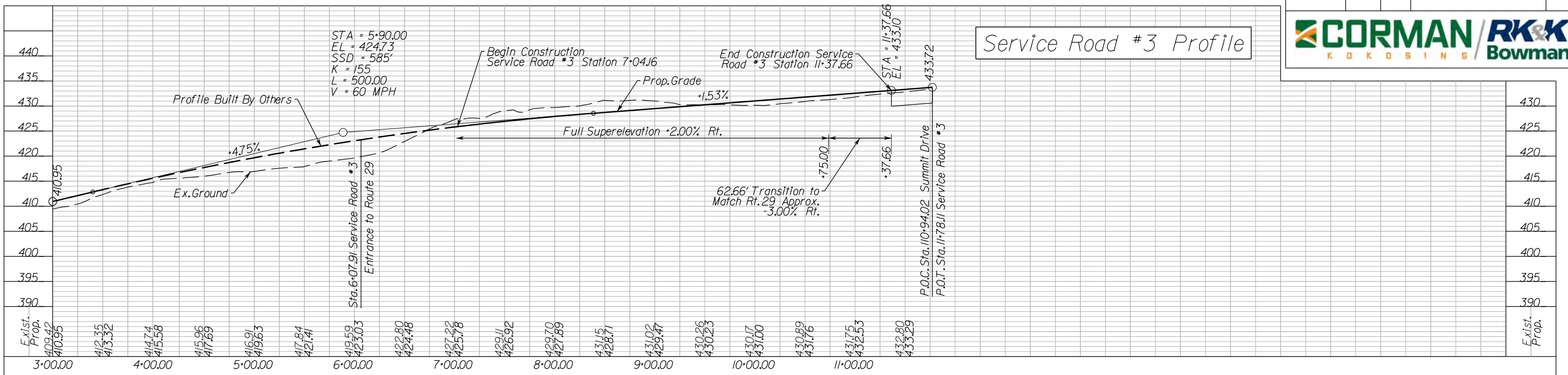
Utility Conflicts & Relocation Plan			
Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan
Dominion & Cox	Overhead 374+50 to 384+80 RT	Shared Use Path/Clear Zone	Relocate OH line to new utility easement
Fiberlight & A T & T	Underground Ducts 374+50 to 386+05 RT	Shared Use Path/Drainage	Relocate UG ducts and fiber to new utility easement
Washington Gas	8" Plastic 374+40 to 378+25 RT	Drainage	Relocate gas main within Ex.RW
Washington Gas	Service Lines 380+15 Crossing	Drainage	Relocate gas mains within Ex.RW
Washington Gas	8" Plastic 382+00 to 384+00 RT	Drainage / Service Rd.Cut	Relocate gas main within Ex.RW

All valve boxes, frames & covers and fire hydrants will be adjusted to final grade

Curve HA_RTE_29_5 PI = 375+14.41 DELTA = 1° 29' 20.51" (LT) D = 0' 13' 45" T = 324.87' L = 649.71' R = 25,000.00' PC = 371+89.53 PRC = 378+39.24	Curve HA_RTE_29_6 PI = 382+82.00 DELTA = 2° 01' 45.18" (RT) D = 0' 13' 45" T = 442.75' L = 885.41' R = 25,000.00' PC = 378+39.24 PT = 387+24.66	Curve HA_BUCKLEYS1 PI = 101+58.21 DELTA = 12° 01' 05.77" (RT) D = 14' 19' 26" T = 42.11' L = 83.90' R = 400.00' PC = 101+16.10 PT = 102+00.00	Curve SERV_CEROAD3_1 PI = 3+98.73 DELTA = 0° 27' 02.80" (LT) D = 0' 13' 42" T = 98.73' L = 197.45' R = 25,097.00' PC = 3+00.00 PRC = 4+97.45
Curve SERVICEROAD3_2 PI = 6+00.81 DELTA = 0° 28' 32.09" (RT) D = 0' 13' 48" T = 103.35' L = 206.71' R = 24,902.99' PC = 4+97.45 PRC = 7+04.16	Curve SERVICEROAD3_3 PI = 7+19.00 DELTA = 5° 39' 48.40" (LT) D = 19' 05' 55" T = 14.84' L = 29.65' R = 300.00' PC = 7+04.16 PRC = 7+33.81	Curve SERVICEROAD3_4 PI = 7+49.01 DELTA = 5° 48' 04.75" (RT) D = 19' 05' 55" T = 15.20' L = 30.38' R = 300.00' PC = 7+33.81 PCC = 7+64.19	Curve SERVICEROAD3_5 PI = 9+71.16 DELTA = 0° 57' 08.04" (RT) D = 0' 13' 48" T = 206.97' L = 413.93' R = 24,906.00' PC = 7+64.19 PT = 11+78.11

LEGEND

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Verizon Easement	Denotes Existing Property Boundary	Construction Limits in Cut
Prop. Mill And Overlay	Prop. Private Drive/Swm Maintenance Rd.	Proposed Acquisition	Proposed Sanitary or Water Easement	Denotes Existing Right of Way	Construction Limits in Fill
Prop. Concrete Sdwk/Entr/Curb/Med	Prop. Pavement Demolition	Proposed Temporary Easement	Proposed Dominion and VDOT Utility Easement	Denotes Existing Streams & Wetlands	
Prop. Raised Grass Median	Right of Way Savings From RFP	Proposed Permanent Easement			

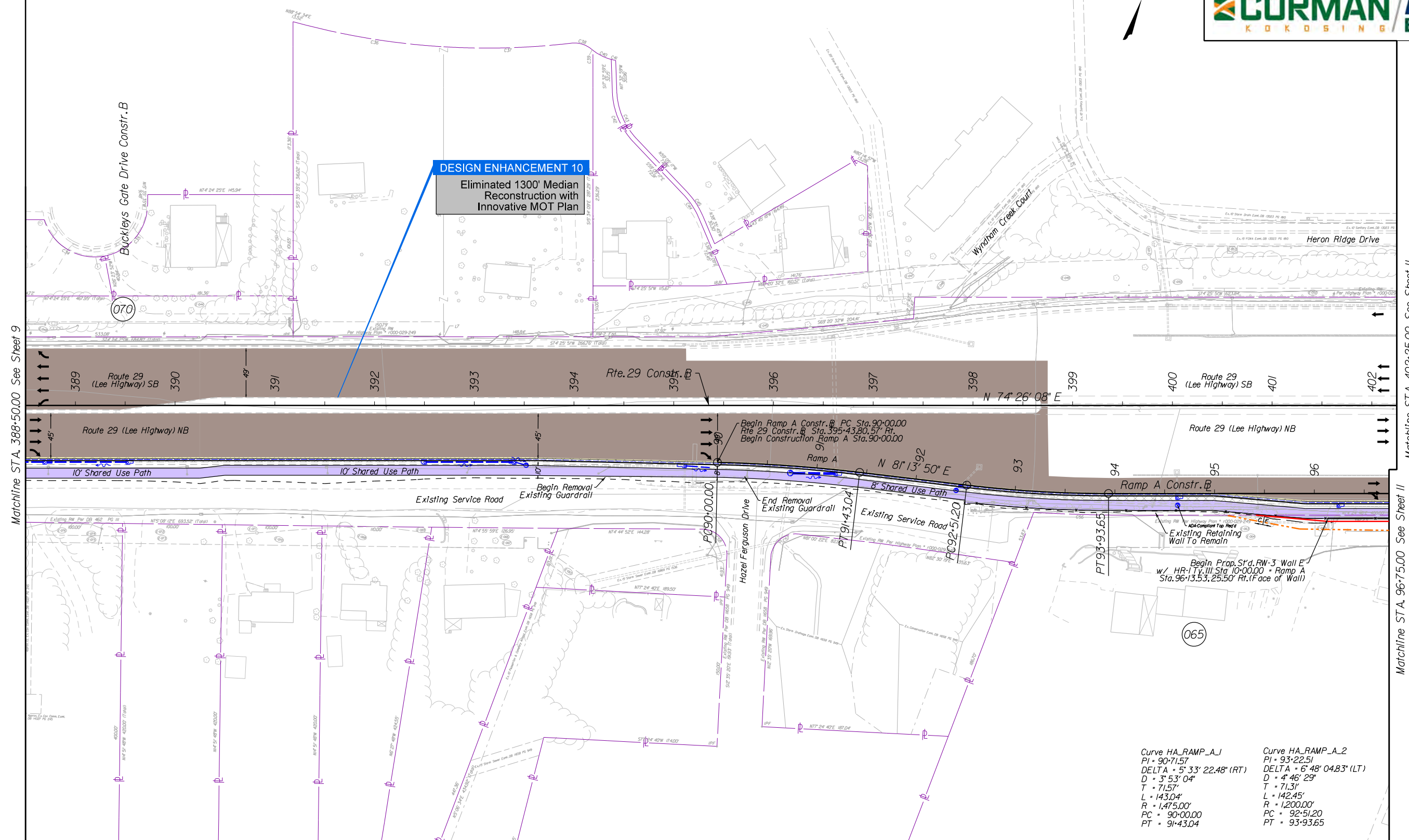


Connector (Side Street) Vertical Curve Data									
Alignment	Station	Elevation (ft)	SSD (ft)	ex (ft)	K	L (ft)	V (mph)	Max Grade	Note
Buckleys Gate Drive								-3.83%	Spline Grade
Summit Drive	111+15.50	432.79			28	85.00	25	-3.98%	

Utility Conflicts & Relocation Plan			
Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan
Washington Gas	8" Plastic 401-30 to 402-25 RT	Retaining Wall	Relocate gas main within Ex.RW
All valve boxes, frames & covers and fire hydrants will be adjusted to final grade			

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-201,C-501	10

CORMAN / RK&K
KOKOSING / Bowman



Curve HA_RAMP_A_1 PI = 90+71.57 DELTA = 5° 33' 22.48" (RT) D = 3' 53' 04" T = 71.57' L = 143.04' R = 1,475.00' PC = 90+00.00 PT = 91+43.04	Curve HA_RAMP_A_2 PI = 93+22.51 DELTA = 6° 48' 04.83" (LT) D = 4' 46' 29" T = 71.31' L = 142.45' R = 1,200.00' PC = 92+51.20 PT = 93+93.65
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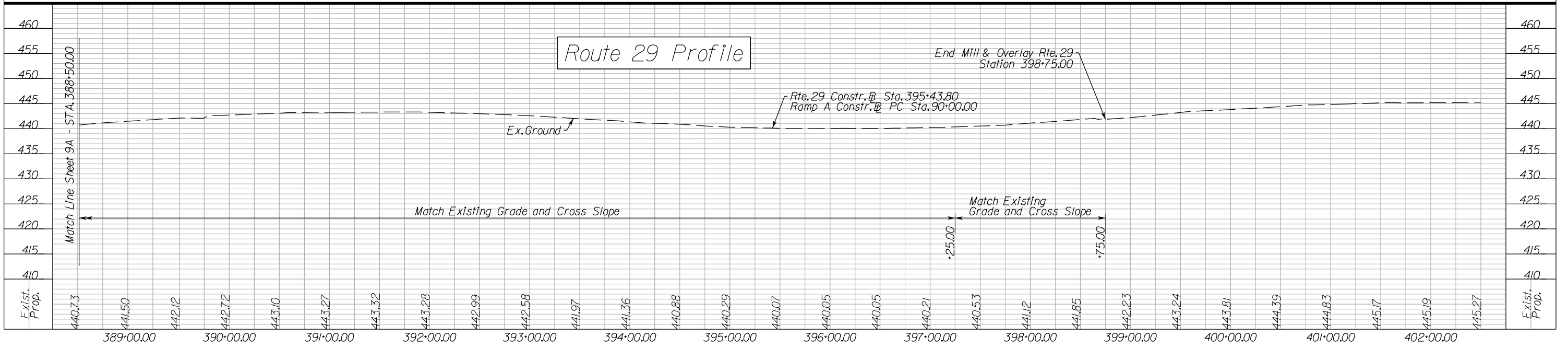
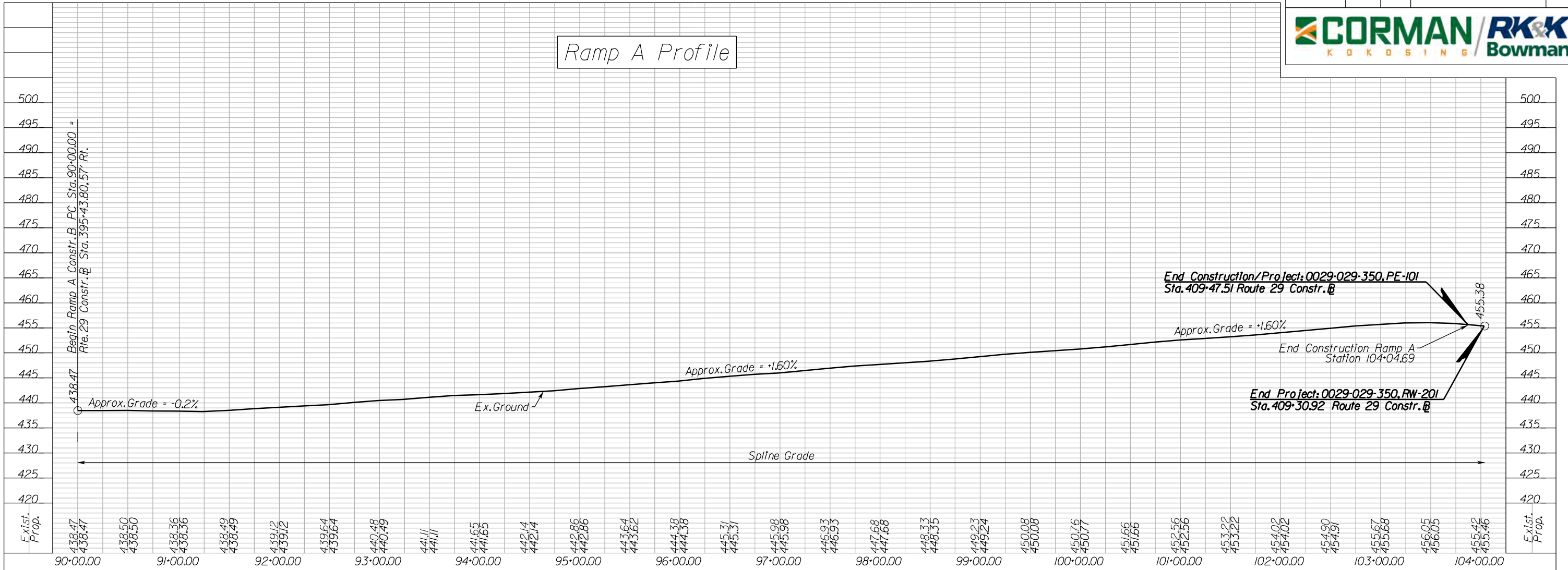
LEGEND

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Verizon Easement	Denotes Existing Property Boundary	Construction Limits in Cut
Prop. Mill and Overlay	Prop. Private Drive/Swm Maintenance Rd.	Proposed Acquisition	Proposed Sanitary or Water Easement	Denotes Existing Right of Way	Construction Limits in Fill
Prop. Concrete Sdwk/Entr/Curb/Med	Prop. Pavement Demolition	Proposed Temporary Easement	Proposed Dominion and VDOT Utility Easement	Denotes Existing Streams & Wetlands	
Prop. Raised Grass Median	Right of Way Savings From RFP	Proposed Permanent Easement			

SCALE 0 50' 100'

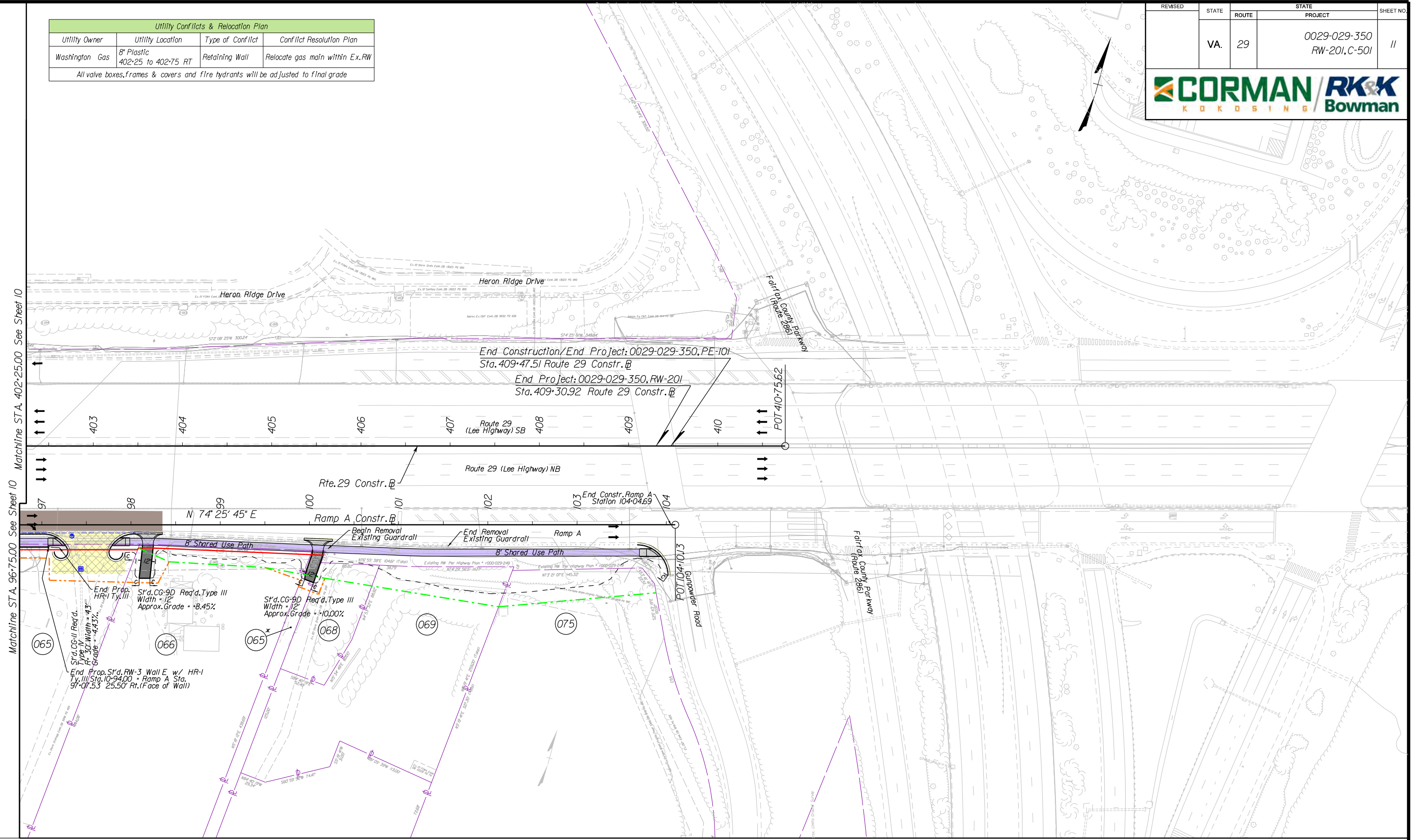
PROJECT 0029-029-350

SHEET NO. 10



Utility Conflicts & Relocation Plan			
Utility Owner	Utility Location	Type of Conflict	Conflict Resolution Plan
Washington Gas	8" Plastic 402+25 to 402+75 RT	Retaining Wall	Relocate gas main within Ex.RW

All valve boxes, frames & covers and fire hydrants will be adjusted to final grade



LEGEND

Prop. Full Depth Asphalt Pavement	Prop. Shared Use Path	Proposed Right of Way	Proposed Verizon Easement	Denotes Existing Property Boundary	Construction Limits in Cut
Prop. Mill And Overlay	Prop. Private Drive/Swm Maintenance Rd.	Proposed Acquisition	Proposed Sanitary or Water Easement	Denotes Existing Right of Way	Construction Limits in Fill
Prop. Concrete Sdwk/Entr/Curb/Med	Prop. Pavement Demolition	Proposed Temporary Easement	Proposed Dominion and VDOT Utility Easement	Denotes Existing Streams & Wetlands	
Prop. Raised Grass Median	Right of Way Savings From RFP	Proposed Permanent Easement			



SECTION 4.6.1

Proposal Schedule

Activity ID	Activity Name	Original Duration	Start	Finish	2022-2028																				
					2022			2023				2024				2025				2026				2027	2028
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
VDOT Route 29 Widening Phase II					31-Aug-26, VDOT Route 29 Widening Phase II																				
Contract Milestones					31-Aug-26, Contract Milestones																				
CM10	Notice of Award Issued by VDOT	0	21-Apr-22*		Notice of Award Issued by VDOT																				
CM20	Notice To Proceed Issued by VDOT	0	17-Jun-22*		Notice To Proceed Issued by VDOT																				
CM30	Proposed Project Completion	0		31-Jul-26	Proposed Project Completion																				
CM40	RFP Project Final Completion (8/31/2026)	0		31-Aug-26	RFP Project Final Completion (8/31/2026)																				
Traffic Switches					07-Apr-26, Traffic Switches																				
TS200	Phase 2 Traffic Switch:	4	01-Dec-23	06-Dec-23	Phase 2 Traffic Switch:																				
TS300	Phase 3 Traffic Switch:	4	29-Apr-25	02-May-25	Phase 3 Traffic Switch:																				
TS400	Phase 4 Traffic Switch:	4	01-Apr-26	07-Apr-26	Phase 4 Traffic Switch:																				
Engineering & Design					14-Sep-24, Engineering & Design																				
Scope Validation					14-Oct-22, Scope Validation																				
SVP100	Scope Validation Period	120	17-Jun-22	14-Oct-22	Scope Validation Period																				
Environmental					01-May-23, Environmental																				
ENVDES180	Virginia Stormwater Management Permit	175	21-Apr-22	21-Dec-22	Virginia Stormwater Management Permit																				
ENVDES100	Final Document Evaluation for Right-of-Way Authorization	30	16-Jun-22	27-Jul-22	Final Document Evaluation for Right-of-Way Authorization																				
ENVDES110	Final Permit Determination to VDOT based on Project Design	60	16-Jun-22	07-Sep-22	Final Permit Determination to VDOT based on Project Design																				
ENVDES120	Section 4(f) Final Concurrence on De Minimis Determination by FCPA	90	16-Jun-22	19-Oct-22	Section 4(f) Final Concurrence on De Minimis Determination by FCPA																				
ENVDES130	Threatened and Endangered Species Clearances	60	16-Jun-22	07-Sep-22	Threatened and Endangered Species Clearances																				
ENVDES150	Water Quality Permit Acquisition - Geotech Investigation in stream - Cor	20	07-Jul-22	03-Aug-22	Water Quality Permit Acquisition - Geotech Investigation in stream - Corps NWP 6																				
ENVDES140	Final Environmental Certification/Commitments Checklist	60	08-Sep-22	30-Nov-22	Final Environmental Certification/Commitments Checklist																				
ENVDES160	Water Quality Permit Application Prep. for Impacts due to Project Design	28	01-Dec-22	09-Jan-23	Water Quality Permit Application Prep. for Impacts due to Project Design																				
ENVDES170	Water Quality Permit Acquisition (Corps NWP 23)	80	10-Jan-23	01-May-23	Water Quality Permit Acquisition (Corps NWP 23)																				
Geotechnical Design					24-Jan-23, Geotechnical Design																				
GEODES100	Geotechnical Workplan Development	10	05-May-22	18-May-22	Geotechnical Workplan Development																				
GEODES110	VDOT/Fairfax Review of Geotechnical Plan	0	17-Jun-22	17-Jun-22	VDOT/Fairfax Review of Geotechnical Plan																				
GEODES120	Notice to Proceed with Fieldwork	0	17-Jun-22		Notice to Proceed with Fieldwork																				
GEODES130	Initial Boring Layout/Utility Clearance	5	17-Jun-22	23-Jun-22	Initial Boring Layout/Utility Clearance																				
GEODES140	Geotechnical Subsurface Exploration	40	24-Jun-22	18-Aug-22	Geotechnical Subsurface Exploration																				
GEODES150	Geotechnical Laboratory Testing	30	19-Aug-22	29-Sep-22	Geotechnical Laboratory Testing																				
GEODES160	Geotechnical Scope Validation Memorandum	8	30-Sep-22	11-Oct-22	Geotechnical Scope Validation Memorandum																				
GEODES170	Geotechnical Report for Roadways	15	12-Oct-22	01-Nov-22	Geotechnical Report for Roadways																				
GEODES180	Geotechnical Report for Retaining Walls	15	26-Oct-22	15-Nov-22	Geotechnical Report for Retaining Walls																				
GEODES210	VDOT/FFX County Review of Geotechnical Report for Roadways	21	01-Nov-22	22-Nov-22	VDOT/FFX County Review of Geotechnical Report for Roadways																				
GEODES190	Geotechnical Report for SWM and Minor Drainage Structures	16	08-Nov-22	29-Nov-22	Geotechnical Report for SWM and Minor Drainage Structures																				
GEODES220	VDOT/FFX County Review of Geotechnical Report for Retaining Walls	21	15-Nov-22	06-Dec-22	VDOT/FFX County Review of Geotechnical Report for Retaining Walls																				
GEODES200	Geotechnical Data Report for Noise Barriers	16	22-Nov-22	13-Dec-22	Geotechnical Data Report for Noise Barriers																				
GEODES250	Final Geotechnical Report for Roadways	15	23-Nov-22	13-Dec-22	Final Geotechnical Report for Roadways																				
GEODES230	VDOT/FFX County Review: Geotech Report for SWM & /Minor Drainag	21	29-Nov-22	20-Dec-22	VDOT/FFX County Review: Geotech Report for SWM & /Minor Drainage Struct																				
GEODES260	Final Geotechnical Report for Retaining Walls	15	07-Dec-22	27-Dec-22	Final Geotechnical Report for Retaining Walls																				
GEODES240	VDOT/FFX County Review of Geotechnical Data Report for Noise Barri	21	13-Dec-22	03-Jan-23	VDOT/FFX County Review of Geotechnical Data Report for Noise Barriers																				
GEODES270	Final Geotechnical Report for SWM and Minor Drainage Structures	15	21-Dec-22	10-Jan-23	Final Geotechnical Report for SWM and Minor Drainage Structures																				
GEODES280	Final Geotechnical Report for Noise Barriers	15	04-Jan-23	24-Jan-23	Final Geotechnical Report for Noise Barriers																				
Survey					15-Sep-22, Survey																				
SURV100	Survey Property Owner Letters	35	17-Jun-22	21-Jul-22	Survey Property Owner Letters																				
SURV130	Survey Boring Holes	60	24-Jun-22	15-Sep-22	Survey Boring Holes																				
SURV120	Survey Wetlands and Streams	0	22-Jul-22	22-Jul-22	Survey Wetlands and Streams																				
SURV110	Obtain Supplemental Survey	15	22-Jul-22	11-Aug-22	Obtain Supplemental Survey																				
Utility Design & Dry Utility Construction					14-Sep-24, Utility Design & Dry Utility Construction																				

Activity ID	Activity Name	Original Duration	Start	Finish	2022 2023 2024 2025 2026 2027 2028																											
					2022			2023				2024				2025				2026				2027				2028				
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
General Utility Design		164	17-Jun-22	27-Nov-22	27-Nov-22, General Utility Design																											
UTDESG100	Meeting with VDOT Regional Utilities Manager	45	17-Jun-22	31-Jul-22	Meeting with VDOT Regional Utilities Manager																											
UTDESG110	Prepare and Submit Utility Status Report	120	17-Jun-22	14-Oct-22	Prepare and Submit Utility Status Report																											
UTDESG120	Validate UT Facilities and Additional SUE Designation	30	17-Jun-22	16-Jul-22	Validate UT Facilities and Additional SUE Designation																											
UTDESG130	Secure Additional Utility Test Holes	45	17-Jun-22	31-Jul-22	Secure Additional Utility Test Holes																											
UTDESG150	Prepare/Conduct Utility Field Inspection Meeting	30	01-Aug-22	30-Aug-22	Prepare/Conduct Utility Field Inspection Meeting																											
UTDESG140	Prepare Cost Responsibility UT-9s	21	10-Aug-22	30-Aug-22	Prepare Cost Responsibility UT-9s																											
UTDESG160	Secure Any Additional Utility Easement Requests	14	31-Aug-22	13-Sep-22	Secure Any Additional Utility Easement Requests																											
UTDESG170	Coordination During Utility Prep of P&E	75	14-Sep-22	27-Nov-22	Coordination During Utility Prep of P&E																											
Dominion Energy (Includes Cox & Shentel)		518	28-Nov-22	28-Apr-24	28-Apr-24, Dominion Energy (Includes Cox & Shentel)																											
DOMEN10	Dominion OH Relocation, Sta 300+00 to 335+00 RT: Prepare P&E	7	28-Nov-22	04-Dec-22	Dominion OH Relocation, Sta 300+00 to 335+00 RT: Prepare P&E																											
DOMEN20	Dominion OH Relocation, Sta 335+00 RT to Sta 344+00 RT/LT: Prepa	7	28-Nov-22	04-Dec-22	Dominion OH Relocation, Sta 335+00 RT to Sta 344+00 RT/LT: Prepare P&E																											
DOMEN30	Dominion OH Relocation, 344+00 RT/LT to 385+00 LT (Summit Dr): P	7	28-Nov-22	04-Dec-22	Dominion OH Relocation, 344+00 RT/LT to 385+00 LT (Summit Dr): Prepare P&E																											
DOMEN40	VDOT Utility Authorization: Dominion OH Relocation, Sta 300+00 to 33	21	05-Dec-22	25-Dec-22	VDOT Utility Authorization: Dominion OH Relocation, Sta 300+00 to 335+00 RT																											
DOMEN50	VDOT Utility Authorization: Dominion OH Relo, Sta 335+00 RT to Sta 3	21	05-Dec-22	25-Dec-22	VDOT Utility Authorization: Dominion OH Relo, Sta 335+00 RT to Sta 344+00 RT/LT																											
DOMEN60	VDOT Utility Authorization: Dominion OH Relocation 344+00 RT/LT to 3	21	05-Dec-22	25-Dec-22	VDOT Utility Authorization: Dominion OH Relocation 344+00 RT/LT to 385+00 LT																											
DOMEN70	Dominion OH Relocation, Sta 300+00 to 335+00 RT: Material Acquisiti	30	26-Dec-22	24-Jan-23	Dominion OH Relocation, Sta 300+00 to 335+00 RT: Material Acquisition																											
DOMEN80	Dominion OH Relocation, Sta 335+00 RT Sta 344+00 RT/LT: Material	30	26-Dec-22	24-Jan-23	Dominion OH Relocation, Sta 335+00 RT Sta 344+00 RT/LT: Material Acquisition																											
DOMEN90	Dominion OH Relocation, 344+00 RT/LT to 385+00 LT: Material Acquis	30	26-Dec-22	24-Jan-23	Dominion OH Relocation, 344+00 RT/LT to 385+00 LT: Material Acquisition																											
DOMEN100	Dominion OH Relocation, Sta 300+00 to 335+00 RT: Construction	170	25-Jan-23	13-Jul-23	Dominion OH Relocation, Sta 300+00 to 335+00 RT: Construction																											
DOMEN110	Dominion OH Relocation, Sta 335+00 RT to Sta 344+00 RT/LT: Const	120	14-Jul-23	10-Nov-23	Dominion OH Relocation, Sta 335+00 RT to Sta 344+00 RT/LT: Construction																											
DOMEN120	Dominion OH Relocation, 344+00 RT/LT to 385+00 LT (Summit Dr): C	170	11-Nov-23	28-Apr-24	Dominion OH Relocation, 344+00 RT/LT to 385+00 LT (Summit Dr): Construction																											
Fiberlight (AT&T)		508	28-Nov-22	18-Apr-24	18-Apr-24, Fiberlight (AT&T)																											
FIBERLT10	Fiberlight UG Relocation, Sta 300+00 to 335+00 RT: Prepare PS&E fo	7	28-Nov-22	04-Dec-22	Fiberlight UG Relocation, Sta 300+00 to 335+00 RT: Prepare PS&E for Approval																											
FIBERLT20	Fiberlight UG Relocation, Sta 335+00 to Sta 346+00 RT: Prepare PS&	7	28-Nov-22	04-Dec-22	Fiberlight UG Relocation, Sta 335+00 to Sta 346+00 RT: Prepare PS&E for Approval																											
FIBERLT30	Fiberlight UG Relocation, Sta 346+00 RT to Summit Dr: Prepare PS&E	7	28-Nov-22	04-Dec-22	Fiberlight UG Relocation, Sta 346+00 RT to Summit Dr: Prepare PS&E for Approval																											
FIBERLT40	VDOT Utility Authorization: Fiberlight UG Relocation, Sta 300+00 to 33	21	05-Dec-22	25-Dec-22	VDOT Utility Authorization: Fiberlight UG Relocation, Sta 300+00 to 335+00 RT																											
FIBERLT50	VDOT Utility Authorization: Fiberlight UG Relocation, Clifton Rd to Sta :	21	05-Dec-22	25-Dec-22	VDOT Utility Authorization: Fiberlight UG Relocation, Clifton Rd to Sta 346+00 RT																											
FIBERLT60	VDOT Utility Authorization: Fiberlight UG Relocation, Sta 346+00 RT to	21	05-Dec-22	25-Dec-22	VDOT Utility Authorization: Fiberlight UG Relocation, Sta 346+00 RT to Summit Dr																											
FIBERLT70	Fiberlight UG Relocation, Sta 300+00 to 335+00 RT: Material Acquisitic	30	26-Dec-22	24-Jan-23	Fiberlight UG Relocation, Sta 300+00 to 335+00 RT: Material Acquisition																											
FIBERLT80	Fiberlight UG Relocation, Sta 335+00 to Sta 346+00 RT: Material Acqui	30	26-Dec-22	24-Jan-23	Fiberlight UG Relocation, Sta 335+00 to Sta 346+00 RT: Material Acquisition																											
FIBERLT90	Fiberlight UG Relocation, Sta 346+00 RT to Summit Dr: Material Acqui	30	26-Dec-22	24-Jan-23	Fiberlight UG Relocation, Sta 346+00 RT to Summit Dr: Material Acquisition																											
FIBERLT100	Fiberlight UG Relocation, Sta 300+00 to 335+00 RT: Construction	150	25-Jan-23	23-Jun-23	Fiberlight UG Relocation, Sta 300+00 to 335+00 RT: Construction																											
FIBERLT110	Fiberlight UG Relocation, Sta 335+00 to Sta 346+00 RT: Construction	150	24-Jun-23	20-Nov-23	Fiberlight UG Relocation, Sta 335+00 to Sta 346+00 RT: Construction																											
FIBERLT120	Fiberlight UG Relocation, Sta 346+00 RT to Summit Dr: Construction	150	21-Nov-23	18-Apr-24	Fiberlight UG Relocation, Sta 346+00 RT to Summit Dr: Construction																											
Verizon Virginia (Includes Zayo)		393	28-Nov-22	25-Dec-23	25-Dec-23, Verizon Virginia (Includes Zayo)																											
VZNA10	Verizon VA UG Relocation, Sta 326+00 to 329+50 RT: Prepare P&E	7	28-Nov-22	04-Dec-22	Verizon VA UG Relocation, Sta 326+00 to 329+50 RT: Prepare P&E																											
VZNA30	Verizon VA UG Relocation, Sta 340+50 Sta 342+70 RT: Prepare P&E	7	28-Nov-22	04-Dec-22	Verizon VA UG Relocation, Sta 340+50 Sta 342+70 RT: Prepare P&E																											
VZNA20	Verizon VA UG Relocation, Sta 352+50 RT to 355+50 RT: Prepare P&E	7	28-Nov-22	04-Dec-22	Verizon VA UG Relocation, Sta 352+50 RT to 355+50 RT: Prepare P&E																											
VZNA40	VDOT Utility Authorization: Verizon VA UG Relocation, Sta 326+00 to 3	21	05-Dec-22	25-Dec-22	VDOT Utility Authorization: Verizon VA UG Relocation, Sta 326+00 to 329+50 RT																											
VZNA60	VDOT Utility Authorization: Verizon VA UG Relocation, Sta 340+50 Sta	21	05-Dec-22	25-Dec-22	VDOT Utility Authorization: Verizon VA UG Relocation, Sta 340+50 Sta 342+70 RT																											
VZNA50	VDOT Utility Authorization: Verizon VA UG Relocation, Sta 352+50 RT	21	05-Dec-22	25-Dec-22	VDOT Utility Authorization: Verizon VA UG Relocation, Sta 352+50 RT to 355+50 RT																											
VZNA70	Verizon VA UG Relocation, Sta Sta 326+00 to 329+50 RT: Material Ac	30	26-Dec-22	24-Jan-23	Verizon VA UG Relocation, Sta Sta 326+00 to 329+50 RT: Material Acquisition																											
VZNA90	Verizon VA UG Relocation, Sta 340+50 Sta 342+70 RT: Material Acqui	30	26-Dec-22	24-Jan-23	Verizon VA UG Relocation, Sta 340+50 Sta 342+70 RT: Material Acquisition																											
VZNA80	Verizon VA UG Relocation, Sta 352+50 RT to 355+50 RT: Material Acc	30	26-Dec-22	24-Jan-23	Verizon VA UG Relocation, Sta 352+50 RT to 355+50 RT: Material Acquisition																											
VZNA100	Verizon VA UG Relocation, Sta 326+00 to 329+50 RT: Construction	155	25-Jan-23	28-Jun-23	Verizon VA UG Relocation, Sta 326+00 to 329+50 RT: Construction																											
VZNA110	Verizon VA UG Relocation, Sta Sta 352+50 RT to 355+50 RT: Constru	90	29-Jun-23	26-Sep-23	Verizon VA UG Relocation, Sta Sta 352+50 RT to 355+50 RT: Construction																											
VZNA120	Verizon VA UG Relocation, Sta 340+50 Sta 342+70 RT: Construction	90	27-Sep-23	25-Dec-23	Verizon VA UG Relocation, Sta 340+50 Sta 342+70 RT: Construction																											
Summit		118	28-Nov-22	25-Mar-23	25-Mar-23, Summit																											
SUMMT10	Summit UG Relocation, Sta 325+50 LT & RT: Prepare PS&E for Appro	7	28-Nov-22	04-Dec-22	Summit UG Relocation, Sta 325+50 LT & RT: Prepare PS&E for Approval																											

VDOT Route 29 Widening Phase II		Corman Kokosing Construction Co. - Technical Proposal Schedule													08-Mar-22 10:34													
Activity ID	Activity Name	Original Duration	Start	Finish	2022			2023				2024				2025				2026				2027				2028
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
SUMMT20	VDOT Utility Authorization: Summit UG Relocation, Sta 325+50 LT & R	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: Summit UG Relocation, Sta 325+50 LT & RT </div> </div>																				
SUMMT30	Summit UG Relocation, Sta 325+50 LT & RT: Material Acquisition	30	26-Dec-22	24-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Summit UG Relocation, Sta 325+50 LT & RT: Material Acquisition </div> </div>																				
SUMMT40	Summit UG Relocation, Sta 325+50 LT & RT: Construction	60	25-Jan-23	25-Mar-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Summit UG Relocation, Sta 325+50 LT & RT: Construction </div> </div>																				
Verizon Business/MCI (Includes Comcast)		376	28-Nov-22	08-Dec-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ▶ 08-Dec-23, Verizon Business/MCI (Includes Comcast) </div> </div>																				
MCI20	MCI UG Relocation, Sta 306+00 to Stringfellow Rd LT: Prepare P&E	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ MCI UG Relocation, Sta 306+00 to Stringfellow Rd LT: Prepare P&E </div> </div>																				
MCI110	MCI UG Relocation, Stringfellow Rd to Sta 357+20 LT: Prepare P&E	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ MCI UG Relocation, Stringfellow Rd to Sta 357+20 LT: Prepare P&E </div> </div>																				
MCI30	MCI UG Relocation, Sta 357+20 to 373+15 LT: Prepare PS&E for Appr	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ MCI UG Relocation, Sta 357+20 to 373+15 LT: Prepare PS&E for Approval </div> </div>																				
MCI50	VDOT Utility Authorization: MCI UG, Sta 306+00 to Stringfellow Rd LT	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: MCI UG, Sta 306+00 to Stringfellow Rd LT </div> </div>																				
MCI40	VDOT Utility Authorization: MCI UG, Stringfellow Rd to Sta 357+20 LT	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: MCI UG, Stringfellow Rd to Sta 357+20 LT </div> </div>																				
MCI60	VDOT Utility Authorization: Sta 357+20 to 373+15 LT	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: Sta 357+20 to 373+15 LT </div> </div>																				
MCI80	MCI UG Relocation, Sta 306+00 to Stringfellow Rd LT: Material Acquisi	30	26-Dec-22	24-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ MCI UG Relocation, Sta 306+00 to Stringfellow Rd LT: Material Acquisition </div> </div>																				
MCI70	MCI UG Relocation, Stringfellow Rd to Sta 357+20 LT: Material Acquisi	30	26-Dec-22	24-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ MCI UG Relocation, Stringfellow Rd to Sta 357+20 LT: Material Acquisition </div> </div>																				
MCI90	MCI UG Relocation, Sta 357+20 to 373+15 LT: Material Acquisition	30	26-Dec-22	24-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ MCI UG Relocation, Sta 357+20 to 373+15 LT: Material Acquisition </div> </div>																				
MCI100	MCI UG Relocation, Stringfellow Rd to Sta 357+20 LT: Construction	120	25-Jan-23	24-May-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ MCI UG Relocation, Stringfellow Rd to Sta 357+20 LT: Construction </div> </div>																				
MCI110	MCI UG Relocation, Sta 306+00 to Stringfellow Rd LT: Construction	135	28-Mar-23	10-Aug-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ MCI UG Relocation, Sta 306+00 to Stringfellow Rd LT: Construction </div> </div>																				
MCI120	MCI UG Relocation, Sta 357+20 to 373+15 LT: Construction	120	10-Aug-23	08-Dec-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ MCI UG Relocation, Sta 357+20 to 373+15 LT: Construction </div> </div>																				
Colonial Pipeline		58	28-Nov-22	24-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ▶ 24-Jan-23, Colonial Pipeline </div> </div>																				
COL10	Colonial Pipeline Casing & Jacket, Sta 341+00 Left: Prepare PS&E for	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Colonial Pipeline Casing & Jacket, Sta 341+00 Left: Prepare PS&E for Approval </div> </div>																				
COL20	VDOT Utility Authorization: Colonial Pipeline Casing & Jacket, Sta 341-	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: Colonial Pipeline Casing & Jacket, Sta 341- </div> </div>																				
COL30	Colonial Pipeline Casing & Jacket, Sta 341+00 Left: Material Acquisitio	30	26-Dec-22	24-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Colonial Pipeline Casing & Jacket, Sta 341+00 Left: Material Acquisition </div> </div>																				
Washington Gas		657	28-Nov-22	14-Sep-24				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ▶ 14-Sep-24, Washington Gas </div> </div>																				
WG10	Washington Gas Relocation, Stringfellow to Meadow Estates: Prepare	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Washington Gas Relocation, Stringfellow to Meadow Estates: Prepare P&E </div> </div>																				
WG20	Washington Gas Relocation, Willowmeade to Sta 402+75: Prepare P&	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Washington Gas Relocation, Willowmeade to Sta 402+75: Prepare P&E </div> </div>																				
WG30	VDOT Utility Authorization: Washington Gas Reloc, Stringfellow to Mea	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: Washington Gas Reloc, Stringfellow to Meadow Estates </div> </div>																				
WG40	VDOT Utility Authorization: Willowmeade to Sta 402+75	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: Willowmeade to Sta 402+75 </div> </div>																				
WG50	Washington Gas Relocation, Stringfellow to Meadow Estates: Material	30	26-Dec-22	24-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Washington Gas Relocation, Stringfellow to Meadow Estates: Material Acquisition </div> </div>																				
WG60	Washington Gas Relocation, Willowmeade to Sta 402+75: Material Ac	30	26-Dec-22	24-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Washington Gas Relocation, Willowmeade to Sta 402+75: Material Acquisition </div> </div>																				
WG70	Washington Gas Relocation, Willowmeade to 402+75 RT: Constructio	60	25-Jan-23	25-Mar-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Washington Gas Relocation, Willowmeade to 402+75 RT: Construction (5 locations) </div> </div>																				
WG80	Washington Gas Relocation, Sta 340+00 to 342+20 LT: Construction	45	30-Jun-23	14-Aug-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Washington Gas Relocation, Sta 340+00 to 342+20 LT: Construction </div> </div>																				
WG90	Washington Gas Relocation, Sta 328+00 to 331+50 LT & RT: Construc	45	11-Jul-23	25-Aug-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Washington Gas Relocation, Sta 328+00 to 331+50 LT & RT: Construction </div> </div>																				
WG100	Washington Gas Relocation, Sta 352+80 to 357+25 RT: Construction	45	31-Jul-24	14-Sep-24				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Washington Gas Relocation, Sta 352+80 to 357+25 RT: Construction </div> </div>																				
Fairfax County Water Authority (FCWA)		28	28-Nov-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ▶ 25-Dec-22, Fairfax County Water Authority (FCWA) </div> </div>																				
FFXWTER10	FCWA Water Relocaton, Moore Rd Intersection: Submit Plans for Appr	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ FCWA Water Relocaton, Moore Rd Intersection: Submit Plans for Approval </div> </div>																				
FFXWTER20	FCWA Water Relocaton, Sta 315+50 to 326+40 LT: Submit Plans for A	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ FCWA Water Relocaton, Sta 315+50 to 326+40 LT: Submit Plans for Approval </div> </div>																				
FFXWTER30	FCWA Water Relocaton, Sta 337+75 to 356+75 LT: Submit Plans for A	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ FCWA Water Relocaton, Sta 337+75 to 356+75 LT: Submit Plans for Approval </div> </div>																				
FFXWTER40	FCWA Water Relocaton, Sta 363+75 to 376+50 LT: Submit Plans for A	7	28-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ FCWA Water Relocaton, Sta 363+75 to 376+50 LT: Submit Plans for Approval </div> </div>																				
FFXWTER50	VDOT Utility Authorization: FCWA Water Relocaton, Moore Rd Interse	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: FCWA Water Relocaton, Moore Rd Intersection </div> </div>																				
FFXWTER60	VDOT Utility Authorization: FCWA Water Relocaton, Sta 315+50 to 326	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: FCWA Water Relocaton, Sta 315+50 to 326 </div> </div>																				
FFXWTER70	VDOT Utility Authorization: FCWA Water Relocaton, Sta Sta 337+75 to	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: FCWA Water Relocaton, Sta Sta 337+75 to </div> </div>																				
FFXWTER80	VDOT Utility Authorization: FCWA Water Relocaton, Sta 363+75 to 376	21	05-Dec-22	25-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: FCWA Water Relocaton, Sta 363+75 to 376 </div> </div>																				
Fairfax County Sewer		26	27-Nov-22	09-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ▶ 09-Jan-23, Fairfax County Sewer </div> </div>																				
FFXSWR10	Faifax Sewer Relocation, Sta 330+00 Crossing: Submit Plans for Appr	7	27-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Faifax Sewer Relocation, Sta 330+00 Crossing: Submit Plans for Approval </div> </div>																				
FFXSWR20	Faifax Sewer Relocation, Sta 343+15 LT: Submit Plans for Approval	7	27-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Faifax Sewer Relocation, Sta 343+15 LT: Submit Plans for Approval </div> </div>																				
FFXSWR30	Faifax Sewer Relocation, Sta 353+00 RT: Submit Plans for Approval	7	27-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Faifax Sewer Relocation, Sta 353+00 RT: Submit Plans for Approval </div> </div>																				
FFXSWR40	Faifax Sewer Relocation, Sta 360+15 to 361+75 LT: Submit Plans for A	7	27-Nov-22	04-Dec-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ Faifax Sewer Relocation, Sta 360+15 to 361+75 LT: Submit Plans for Approval </div> </div>																				
FFXSWR50	VDOT Utility Authorization: Fairfax Sewer	21	05-Dec-22	09-Jan-23				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ VDOT Utility Authorization: Fairfax Sewer </div> </div>																				
Plantation Pipeline		0																										
Right of Way Design Package		85	21-Apr-22	17-Aug-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ▶ 17-Aug-22, Right of Way Design Package </div> </div>																				
ROWDES100	ROW Design Plans	40	21-Apr-22	15-Jun-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ ROW Design Plans </div> </div>																				
ROWDES110	ROW Package QA/QC	15	16-Jun-22	06-Jul-22				<div style="display: flex; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;"></div> <div style="font-size: 8px; margin-left: 5px;"> ■ ROW Package QA/QC </div> </div>																				

Activity ID	Activity Name	Original Duration	Start	Finish	2022 2023 2024 2025 2026 2027 2028																											
					2022			2023				2024				2025				2026				2027				2028				
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
ROWDES120	ROW Design VDOT/Fairfax County Review	21	06-Jul-22	27-Jul-22	█ ROW Design VDOT/Fairfax County Review																											
ROWDES130	Address ROW Design Review Comments and Resubmit	10	28-Jul-22	10-Aug-22	█ Address ROW Design Review Comments and Resubmit																											
ROWDES140	VDOT ROW Plan Package Approval and NTCRWA	7	10-Aug-22	17-Aug-22	█ VDOT ROW Plan Package Approval and NTCRWA																											
Retaining Wall Design Package		129	16-Nov-22	13-Jun-23	▼ 13-Jun-23, Retaining Wall Design Package █ Retaining Wall Design Plan █ Retaining Walls QA/QC █ Retaining Walls VDOT/Fairfax County Review █ Retaining Walls AFC Plans █ Retaining Walls AFC QA/QC █ Retaining Walls AFC VDOT/Fairfax County Review																											
RWDES100	Retaining Wall Design Plan	60	16-Nov-22	07-Feb-23																												
RWDES110	Retaining Walls QA/QC	10	08-Feb-23	21-Feb-23																												
RWDES120	Retaining Walls VDOT/Fairfax County Review	21	21-Feb-23	14-Mar-23																												
RWDES130	Retaining Walls AFC Plans	40	15-Mar-23	09-May-23																												
RWDES140	Retaining Walls AFC QA/QC	10	10-May-23	23-May-23																												
RWDES150	Retaining Walls AFC VDOT/Fairfax County Review	21	23-May-23	13-Jun-23																												
Roadway Design Package		176	22-Jul-22	21-Apr-23	▼ 21-Apr-23, Roadway Design Package █ Prepare H&HA █ 100% Roadway/Drainage Design Plans █ H&HA QA/QC █ H&HA VDOT/Fairfax County Review █ 100% Roadway/Drainage Design Plans QA/QC █ 100% Roadway/Drainage Design Plan VDOT/Fairfax County Review █ AFC Roadway/Drainage Design Plans █ AFC Roadway/Drainage Design QA/QC █ AFC Roadway/Drainage Design VDOT/Fairfax County Review																											
ROADDES160	Prepare H&HA	60	22-Jul-22	13-Oct-22																												
ROADDES100	100% Roadway/Drainage Design Plans	75	26-Aug-22	08-Dec-22																												
ROADDES170	H&HA QA/QC	10	14-Oct-22	27-Oct-22																												
ROADDES180	H&HA VDOT/Fairfax County Review	21	27-Oct-22	17-Nov-22																												
ROADDES110	100% Roadway/Drainage Design Plans QA/QC	15	09-Dec-22	29-Dec-22																												
ROADDES120	100% Roadway/Drainage Design Plan VDOT/Fairfax County Review	21	30-Dec-22	20-Jan-23																												
ROADDES130	AFC Roadway/Drainage Design Plans	40	23-Jan-23	17-Mar-23																												
ROADDES140	AFC Roadway/Drainage Design QA/QC	10	20-Mar-23	31-Mar-23																												
ROADDES150	AFC Roadway/Drainage Design VDOT/Fairfax County Review	21	31-Mar-23	21-Apr-23																												
Noise Barrier Design Package		112	09-Dec-22	08-Jun-23	▼ 08-Jun-23, Noise Barrier Design Package █ Noise Barrier Design Plan █ Noise Barrier Design Plans QA/QC █ Noise Barrier VDOT/Fairfax County Review █ Noise Barrier AFC Plans █ Noise Barrier AFC QA/QC █ Noise Barrier AFC VDOT/Fairfax County Review																											
NBDES100	Noise Barrier Design Plan	40	09-Dec-22	02-Feb-23																												
NBDES110	Noise Barrier Design Plans QA/QC	10	03-Feb-23	16-Feb-23																												
NBDES120	Noise Barrier VDOT/Fairfax County Review	21	16-Feb-23	09-Mar-23																												
NBDES130	Noise Barrier AFC Plans	40	10-Mar-23	04-May-23																												
NBDES140	Noise Barrier AFC QA/QC	10	05-May-23	18-May-23																												
NBDES150	Noise Barrier AFC VDOT/Fairfax County Review	21	18-May-23	08-Jun-23																												
Right of Way Acquisitions / Easements		393	15-Jun-22	13-Jul-23	▼ 13-Jul-23, Right of Way Acquisitions / Easements ▼ 01-Jan-23, VDOT Coordinated Acquisitions █ VDOT Acquisition of Parcels: 016, 041, 050, & 058 █ VDOT Acquisition of Parcels: 072, 002 thru 010 █ VDOT Acquisition of Parcels: 011 thru 016, 033, 034, 084 thru 087																											
VDOT Coordinated Acquisitions		1	01-Jan-23	01-Jan-23																												
VROWA100	VDOT Acquisition of Parcels: 016, 041, 050, & 058	1	01-Jan-23	01-Jan-23																												
VROWA200	VDOT Acquisition of Parcels: 072, 002 thru 010	1	01-Jan-23	01-Jan-23																												
VROWA300	VDOT Acquisition of Parcels: 011 thru 016, 033, 034, 084 thru 087	1	01-Jan-23	01-Jan-23																												
Package A: Parcels 001, 005, & 044 (3 HOA's)		286	15-Jun-22	28-Mar-23	▼ 28-Mar-23, Package A: Parcels 001, 005, & 044 (3 HOA's) █ Prepare Prelim Title Report █ Prepare Valuation █ VDOT approval of Just Comp & Offer Ltr █ Negotiate Parcel Acquisition █ VDOT approval of Settlement █ VDOT agree to Condemnation NOI █ VDOT provides signed COT and Check ◆ Parcel Clear for Construction																											
ROWAPA100	Prepare Prelim Title Report	14	15-Jun-22	29-Jun-22																												
ROWAPA110	Prepare Valuation	40	15-Jun-22	25-Jul-22																												
ROWAPA120	VDOT approval of Just Comp & Offer Ltr	14	17-Aug-22	31-Aug-22																												
ROWAPA130	Negotiate Parcel Acquisition	120	31-Aug-22	29-Dec-22																												
ROWAPA140	VDOT approval of Settlement	14	29-Dec-22	12-Jan-23																												
ROWAPA150	VDOT agree to Condemnation NOI	40	12-Jan-23	21-Feb-23																												
ROWAPA160	VDOT provides signed COT and Check	35	21-Feb-23	28-Mar-23																												
ROWAPA170	Parcel Clear for Construction	0		28-Mar-23																												
Package B North Parcels: 046, 077, 047, 049, 051, 074, 054, 078, 079, 070		326	05-Jul-22	27-May-23	▼ 27-May-23, Package B North Parcels: 046, 077, 047, 049, 051, 074, 054, 078, 079, 070 █ Prepare Prelim Title Report █ Prepare Valuation █ VDOT approval of Just Comp & Offer Ltr █ Negotiate Parcel Acquisition █ VDOT approval of Settlement █ VDOT agree to Condemnation NOI █ VDOT provides signed COT and Check ◆ Parcel Clear for Construction																											
ROWAPB100	Prepare Prelim Title Report	14	05-Jul-22	19-Jul-22																												
ROWAPB110	Prepare Valuation	40	05-Jul-22	14-Aug-22																												
ROWAPB120	VDOT approval of Just Comp & Offer Ltr	14	17-Aug-22	31-Aug-22																												
ROWAPB130	Negotiate Parcel Acquisition	180	31-Aug-22	27-Feb-23																												
ROWAPB140	VDOT approval of Settlement	14	27-Feb-23	13-Mar-23																												
ROWAPB150	VDOT agree to Condemnation NOI	40	13-Mar-23	22-Apr-23																												
ROWAPB160	VDOT provides signed COT and Check	35	22-Apr-23	27-May-23																												
ROWAPB170	Parcel Clear for Construction	0		27-May-23																												

Activity ID	Activity Name	Original Duration	Start	Finish	2022 2023 2024 2025 2026 2027 2028																											
					2022				2023				2024				2025				2026				2027				2028			
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Package C South Parcels: 038-040, 042, 043, 082, 045, 048, 052, 056, 059, 061, 063,					13-Jul-23, Package C South Parcels: 038-040, 042, 043, 082, 045, 048, 052, 056, 059, 061, 063, 065, 066, & 075																											
ROWAPC 100	Prepare Prelim Title Report	14	25-Jul-22	08-Aug-22	Prepare Prelim Title Report																											
ROWAPC 110	Prepare Valuation	40	25-Jul-22	03-Sep-22	Prepare Valuation																											
ROWAPC 120	VDOT approval of Just Comp & Offer Ltr	14	03-Sep-22	17-Sep-22	VDOT approval of Just Comp & Offer Ltr																											
ROWAPC 130	Negotiate Parcel Acquisition	210	17-Sep-22	15-Apr-23	Negotiate Parcel Acquisition																											
ROWAPC 140	VDOT approval of Settlement	14	15-Apr-23	29-Apr-23	VDOT approval of Settlement																											
ROWAPC 150	VDOT agree to Condemnation NOI	40	29-Apr-23	08-Jun-23	VDOT agree to Condemnation NOI																											
ROWAPC 160	VDOT provides signed COT and Check	35	08-Jun-23	13-Jul-23	VDOT provides signed COT and Check																											
ROWAPC 170	Parcel Clear for Construction	0		13-Jul-23	Parcel Clear for Construction																											
Administrative					19-Jan-26, Administrative																											
Preliminaries					19-Jan-26, Preliminaries																											
Public Involvement & Relations					19-Jan-26, Public Involvement & Relations																											
PR100	Communications Plan Preparation	30	17-Jun-22	17-Jul-22	Communications Plan Preparation																											
PR110	First Responder / Stakeholder Coordination	45	17-Jun-22	01-Aug-22	First Responder / Stakeholder Coordination																											
PR120	Communications: Submit Plan for Review	0		17-Jul-22*	Communications: Submit Plan for Review																											
PR130	Communications Plan: VDOT Review & Approval	21	17-Jul-22	07-Aug-22	Communications Plan: VDOT Review & Approval																											
PR140	Incident Management Plan: Prepare & Submit	60	01-Aug-22	30-Sep-22	Incident Management Plan: Prepare & Submit																											
PR150	Incident Management Plan: VDOT Review & Approval	21	30-Sep-22	21-Oct-22	Incident Management Plan: VDOT Review & Approval																											
PR160	Preconstruction "Pardon Our Dust" Community Meeting	1	21-Oct-22	21-Oct-22	Preconstruction "Pardon Our Dust" Community Meeting																											
PR170	Phase 2 "Pardon Our Dust" Community Meeting	1	20-Sep-23	21-Sep-23	Phase 2 "Pardon Our Dust" Community Meeting																											
PR180	Phase 3 "Pardon Our Dust" Community Meeting	1	16-Jan-24	16-Jan-24	Phase 3 "Pardon Our Dust" Community Meeting																											
PR190	Phase 4 "Pardon Our Dust" Community Meeting	1	19-Jan-26	19-Jan-26	Phase 4 "Pardon Our Dust" Community Meeting																											
Quality Assurance / Quality Control					15-Jun-23, Quality Assurance / Quality Control																											
QAQC100	QA / QC Plan: Prepare & Submit	60	17-Jun-22	16-Aug-22	QA / QC Plan: Prepare & Submit																											
QAQC110	QA / QC Plan: VDOT Review & Approval	21	16-Aug-22	06-Sep-22	QA / QC Plan: VDOT Review & Approval																											
QAQC120	QA/QC Preparatory Meeting: Storm Drain Installation	1	06-Sep-22	06-Sep-22	QA/QC Preparatory Meeting: Storm Drain Installation																											
QAQC180	HOLD POINT - H&HAA approval	0		17-Nov-22	HOLD POINT - H&HAA approval																											
QAQC190	HOLD POINT - VPDES Permit	0		21-Dec-22	HOLD POINT - VPDES Permit																											
QAQC130	QA/QC Preparatory Meeting: Water Main	1	27-Dec-22	27-Dec-22	QA/QC Preparatory Meeting: Water Main																											
QAQC160	QA/QC Preparatory Meeting: Earthworks	1	24-Apr-23	24-Apr-23	QA/QC Preparatory Meeting: Earthworks																											
QAQC170	QA/QC Preparatory Meeting: Asphalt Paving	1	24-Apr-23	24-Apr-23	QA/QC Preparatory Meeting: Asphalt Paving																											
QAQC140	QA/QC Preparatory Meeting: Noise Barrier	1	09-Jun-23	09-Jun-23	QA/QC Preparatory Meeting: Noise Barrier																											
QAQC150	QA/QC Preparatory Meeting: MSE Wall	1	15-Jun-23	15-Jun-23	QA/QC Preparatory Meeting: MSE Wall																											
Procurement					07-Mar-24, Procurement																											
Subittals					03-Aug-23, Subittals																											
Prepare & Submit					13-Jul-23, Prepare & Submit																											
SUB100	Water Main Materials Submittal	30	26-Dec-22	24-Jan-23	Water Main Materials Submittal																											
SUB130	Precast Culvert & Storm Drain Materials Submittal	30	22-Apr-23	21-May-23	Precast Culvert & Storm Drain Materials Submittal																											
SUB140	Temporary Traffic Signal Materials Submittal	30	22-Apr-23	21-May-23	Temporary Traffic Signal Materials Submittal																											
SUB170	Sign Structures Fabrication & Materials Submittal	30	22-Apr-23	21-May-23	Sign Structures Fabrication & Materials Submittal																											
SUB150	Permanent Traffic Signal Materials Submittal	30	22-Apr-23	21-May-23	Permanent Traffic Signal Materials Submittal																											
SUB160	Street Light Materials Submittal	30	22-Apr-23	21-May-23	Street Light Materials Submittal																											
SUB110	Noise Barrier Materials Submittal	30	09-Jun-23	08-Jul-23	Noise Barrier Materials Submittal																											
SUB120	Retaining Wall Materials Submittal	30	13-Jun-23	13-Jul-23	Retaining Wall Materials Submittal																											
Review & Approve					03-Aug-23, Review & Approve																											
RVAPP100	Water Main Materials Submittal: Review & Approve	21	25-Jan-23	14-Feb-23	Water Main Materials Submittal: Review & Approve																											
RVAPP130	Precast Culvert & Storm Drain Materials Submittal: Review & Approve	21	22-May-23	11-Jun-23	Precast Culvert & Storm Drain Materials Submittal: Review & Approve																											
RVAPP140	Temporary Traffic Signal Materials Submittal: Review & Approve	21	22-May-23	11-Jun-23	Temporary Traffic Signal Materials Submittal: Review & Approve																											
RVAPP170	Sign Structures Fabrication & Materials Submittal: Review & Approve	21	22-May-23	11-Jun-23	Sign Structures Fabrication & Materials Submittal: Review & Approve																											
RVAPP150	Permanent Traffic Signal Materials Submittal: Review & Approve	21	22-May-23	11-Jun-23	Permanent Traffic Signal Materials Submittal: Review & Approve																											

Activity ID	Activity Name	Original Duration	Start	Finish	2022 2023 2024 2025 2026 2027 2028																											
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
RVAPP160	Street Light Materials Submittal: Review & Approve	21	22-May-23	11-Jun-23																												
RVAPP110	Noise Barrier Materials Submittals: Review & Approve	21	09-Jul-23	29-Jul-23																												
RVAPP120	Retaining Wall Materials Submittal: Review & Approve	21	13-Jul-23	03-Aug-23																												
Fabricate & Deliver		387	15-Feb-23	07-Mar-24																												
MATPR100	Water Main Materials Procurement & Delivery	150	15-Feb-23	14-Jul-23																												
MATPR120	Precast Culvert & Storm Drain Materials Procurement & Delivery	120	12-Jun-23	09-Oct-23																												
MATPR130	Temporary Traffic Signal Materials Submittal: Procurement & Delivery	45	12-Jun-23	26-Jul-23																												
MATPR150	Sign Structures Materials Procurement & Delivery	240	12-Jun-23	06-Feb-24																												
MATPR160	Permanent Traffic Signal Materials Procurement & Delivery	270	12-Jun-23	07-Mar-24																												
MATPR170	Street Light Materials Procurement & Delivery	240	12-Jun-23	06-Feb-24																												
MATPR110	Noise Barrier Materials Procurement & Delivery	150	30-Jul-23	26-Dec-23																												
MATPR140	Retaining Wall Materials Submittal Procurement & Delivery	150	03-Aug-23	31-Dec-23																												
Construction		834	27-Dec-22	31-Aug-26																												
Area A: South End of Project to Clifton / Stringfellow		579	24-Apr-23	10-Nov-25																												
Phase 1 Southbound - Area A: South End to Clifton/Stringfellow		227	24-Apr-23	22-Apr-24																												
A1SB200	Set Temp Traffic Barrier - Sta 308+00 to 326+50 LT	2	24-Apr-23	25-Apr-23																												
A1SB210	Clear & Grub - Sta 308+00 to 326+50 LT	7	27-Apr-23	05-May-23																												
A1SB220	FCWA Water Reloc, Moore Rd Intersection: 121 LF of 8"	5	17-Jul-23	21-Jul-23																												
A1SB130	Temporary Crossover - Sta 310+50 to 315+00: Demo Median / Excav/	5	24-Jul-23	28-Jul-23																												
A1SB190	MSE Wall A - Sta 314+55 to 317+00 LT: Excavate & Replace Unsuited	12	11-Aug-23	29-Aug-23																												
A1SB110	FCWA 12" WM, Sta 315+80 LT (Arrowhead Park-under MSE Wall A): 5	2	30-Aug-23	31-Aug-23																												
A1SB180	MSE Wall A - Sta 314+55 to 318+77 LT: Level Pad/Set Panels/Backfill (j	25	01-Sep-23	10-Oct-23																												
A1SB100	Storm Drain - Sta 320+50 LT /Across: E/L/BF (155 LF & 1 Structure)	4	01-Sep-23	07-Sep-23																												
A1SB170	Embankment for Temp Widening - Sta 314+50 to 326+50 LT	22	12-Oct-23	14-Nov-23																												
A1SB160	Graded Aggregate Base for Temp Widening - Sta 315+50 to 326+50 LT	6	15-Nov-23	22-Nov-23																												
A1SB140	Temp Trail - 308+00 to 323+50 LT: Grade & Place Asphalt	6	15-Nov-23	22-Nov-23																												
A1SB150	Asphalt Paving for Temp Widening - Sta 315+50 to 326+50 LT	4	27-Nov-23	30-Nov-23																												
A1SB120	Area A Phase 1 SB Complete & Available for Switch to Phase 2 Traffic f	0		30-Nov-23																												
Phase 1 &/or 2 Southbound - Area A: Noise Barrier C(1) & C(2)		74	27-Dec-23	22-Apr-24																												
A1-2SB150	Noise Barrier C(1) - Station 308+25 to 309+75 LT: Rough Grade & Set	20	27-Dec-23	29-Jan-24																												
A1-2SB140	Noise Barrier C(2) - Station 309+55 to 315+15 LT: Rough Grade & Set	35	29-Jan-24	21-Mar-24																												
A1-2SB120	Storm Drain - Sta 308+10 to 312+70 LT: E/L/BF (340 LF & 6 Structures	14	22-Mar-24	12-Apr-24																												
A1-2SB110	FCWA Water Reloc, Hydrant & Lead at Sta 310+00 LT (23 LF of 6")	3	12-Apr-24	15-Apr-24																												
A1-2SB130	Curb & Gutter-Sta 308+00 (Centreville Farm) to 313+00 LT: F/P (+/-53E	4	16-Apr-24	22-Apr-24																												
A1-2SB100	Noise Barrier C(1) and C(2) Area Complete	0		22-Apr-24																												
Phase 2 Northbound - Area A: South End to Clifton		218	29-Dec-23	13-Dec-24																												
A2NB280	FCWA Water Reloc, Moore Rd Intersection: Pressure Test & Disinfect 1	7	29-Dec-23	05-Jan-24																												
A2NB260	Begin Phase 2 Northbound Construction (after Phase 1 / 2 Traffic Switc	0	29-Dec-23																													
A2NB270	FCWA Water Reloc, Moore Rd Intersection: Tie-In / Place in Service	1	05-Jan-24	05-Jan-24																												
A2NB250	Clear & Grub - Sta 308+00 to 321+50 RT	8	23-Apr-24	03-May-24																												
A2NB240	Noise Barr/Ret Wall D - Sta 311+25 to 319+50 RT: Rough Grade & Se	60	06-May-24	09-Aug-24																												
A2NB200	Storm Drain - Sta 320+50 RT /Across: E/L/BF (115 LF & 1 Structure)	3	06-May-24	09-May-24																												
A2NB120	Permanent Traffic Signals: Centreville Farm / Union Mill Intersection	20	06-May-24	06-Jun-24																												
A2NB100	Street Lighting - Area A Phase 2 NB	10	06-Jun-24	21-Jun-24																												
A2NB290	Perm. Traffic Signal: Centreville Farm / Union Mill "Bum-In" (Comm & D	60	06-Jun-24	05-Aug-24																												
A2NB230	Retaining Wall - Sta 311+00 to 311+25 RT: Excav / Form / Rebar / Pou	8	09-Aug-24	22-Aug-24																												
A2NB220	Storm Drain - Sta 307+50 to 313+50 RT: E/L/BF (739 LF & 10 Structur	15	09-Aug-24	04-Sep-24																												
A2NB210	Storm Drain - Sta 316+25 Across: E/L/BF (78 LF & 3 Structures)	4	04-Sep-24	10-Sep-24																												
A2NB190	Excavation & Embankment for Northbound - Sta 327+50 to 321+50 RT	27	10-Sep-24	21-Oct-24																												
A2NB170	Graded Aggregate Base - Sta 308+00 to 326+00	10	21-Oct-24	05-Nov-24																												

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

Activity ID	Activity Name	Original Duration	Start	Finish	2022-2028																											
					2022				2023				2024				2025				2026				2027				2028			
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
A2NB180	Curb & Gutter - Sta 308+00 to 321+75 RT: Excav/Form & Pour (+/-1,52	8	05-Nov-24	18-Nov-24																												
A2NB160	Asphalt Paving incl Temp Median - Sta 308+00 to 328+75 RT	9	18-Nov-24	03-Dec-24																												
A2NB110	Signing - Area A Phase 2 NB	10	18-Nov-24	05-Dec-24																												
A2NB150	Shared Use Path - Sta 308+00 to 321+75 RT: Place GAB & Asphalt	7	03-Dec-24	13-Dec-24																												
A2NB130	Temporary Pavement Markings - Sta 308+00 to 326+25 RT	2	03-Dec-24	05-Dec-24																												
A2NB140	Area A Phase 2 NB Complete & Available for Switch to Phase 3 Traffic I	0		13-Dec-24																												
Phase 3 Southbound - Area A: South End to Stringfellow		120	05-May-25	10-Nov-25																												
A3SB210	Begin Phase 3 Southbound Construction (after Phase 2 / 3 Traffic Switc	0	05-May-25																													
A3SB200	MSE Wall A - Sta 314+55 to 318+77 LT: Compl of Panels/Backfill (rema	10	05-May-25	19-May-25																												
A3SB100	Street Lighting - Area A Phase 3 SB	10	05-May-25	19-May-25																												
A3SB220	Shared Use Path - Sta 308+00 to 313+00 LT: Place GAB & Asphalt	3	20-May-25	23-May-25																												
A3SB190	MSE Wall A Moment Slab - Sta 314+55 to 318+77 LT: Form /Rebar / P	14	20-May-25	12-Jun-25																												
A3SB170	Excavation & Embankment Southbound - Sta 313+00 to 326+50 LT	14	20-May-25	09-Jun-25																												
A3SB180	Storm Drain - Sta 327+40 (Across Stringfellow) to 323+80 LT: E/L/BF (4	15	10-Jun-25	02-Jul-25																												
A3SB250	FCWA Water Reloc, Sta 315+50 to 326+40 LT: 1,141 LF of 24" & 25 LI	26	26-Jun-25	05-Aug-25																												
A3SB240	FCWA Water Reloc, Sta 315+50 to 326+40 LT: Pressure Test & Disinfe	7	05-Aug-25	12-Aug-25																												
A3SB150	Graded Aggregate Base (+/-2,900 tons) - Sta 316+00 to 326+50 LT	7	06-Aug-25	15-Aug-25																												
A3SB160	Curb & Gutter - Sta 313+00 to 326+40 LT: Excav/Form & Pour (+/-1,47	8	18-Aug-25	27-Aug-25																												
A3SB110	Signing - Area A Phase 3 SB	10	28-Aug-25	12-Sep-25																												
A3SB230	FCWA Water Reloc, Sta 315+50 to 326+40 LT: Tie-In / Place in Service	1	15-Oct-25	15-Oct-25																												
A3SB140	Asphalt Paving - Sta 313+00 to 326+40 LT	7	16-Oct-25	27-Oct-25																												
A3SB130	Shared Use Path - Sta 313+00 to 326+40 LT: Place GAB & Asphalt	10	28-Oct-25	10-Nov-25																												
A3SB120	Area A Phase 3 SB Complete & Available for Switch to Phase 4 Traffic f	0		10-Nov-25																												
Area B: Clifton / Stringfellow to Hampton Forest Way / Meadow Estates Drive		720	26-Jan-23	01-Apr-26																												
Phase 1 Southbound - Area B: Stringfellow to Meadow Estates Drive		208	26-Jan-23	26-Dec-23																												
B1SB230	Colonial Pipeline: Extend Casing (3 each) on North Side (by others)	90	26-Jan-23	16-Jun-23																												
B1SB140	Set Temp Traffic Barrier - Sta 327+50 to 359+25 LT	4	24-Apr-23	28-Apr-23																												
B1SB240	Clear & Grub - Sta 327+15 to 359+50 LT	10	01-May-23	15-May-23																												
B1SB280	Sanitary Sewer, Sta 330+00 LT: +/-100 LF (of 218 LF) of 8" incl 16" Cas	7	16-May-23	26-May-23																												
B1SB260	Temp. Culvert Extension at Willow Spring Br: Dual 60" dia. Temp Pipe S	5	16-May-23	24-May-23																												
B1SB200	Interim Temp Trail Along SB Shoulder - Sta 355+50 to 358+30 LT: Plac	2	16-May-23	17-May-23																												
B1SB220	Temp Culvert Extension at Exist. Culvert Crossing - 328+75 (for Phase	2	24-May-23	26-May-23																												
B1SB180	Temp Trail - Sta 355+50 to 358+30 LT: Excav Slope incl Temp Cut	4	25-May-23	31-May-23																												
B1SB270	Sanitary Sewer, Sta 343+15 Across SB: 46 LF of 8" & MH D	2	26-May-23	31-May-23																												
B1SB210	Temp Culvert Extension at Exist. Culvert Crossing - 341+60 (for Phase	2	26-May-23	31-May-23																												
B1SB190	Temp Trail - Sta 355+50 to 359+25 LT: Grade & Place Asphalt (+/- 150	2	01-Jun-23	02-Jun-23																												
B1SB250	Temp Trail - Sta 327+15 to 355+50 LT: Grade & Place Asphalt (+/400 t	8	05-Jun-23	15-Jun-23																												
B1SB170	Excavation & Embankment for Temp Widening - Sta 327+50 to 355+5C	80	19-Jun-23	16-Oct-23																												
B1SB160	Graded Aggregate Base for Temp Widening - Sta 327+50 to 359+25 LT	14	17-Oct-23	07-Nov-23																												
B1SB110	Temporary Traffic Signal: Stringfellow / Clifton Intersection	10	17-Oct-23	01-Nov-23																												
B1SB100	Temporary Traffic Signal: Meadow Estates / Hampton Forest Intersecti	10	01-Nov-23	16-Nov-23																												
B1SB150	Asphalt Paving for Temp Widening - Sta 327+50 to 359+25 LT	9	07-Nov-23	21-Nov-23																												
B1SB120	Temp Traffic Barr & Pavement Markings for Phase 2 Traffic - Sta 327+5(6	21-Nov-23	04-Dec-23																												
B1SB130	Area B Phase 1 SB Complete & Available for Switch to Phase 2 Traffic I	0		26-Dec-23																												
Phase 1 Northbound - Area B/C: Service Road No.'s 1 and 2 at Clifton		152	24-Apr-23	26-Dec-23																												
Service Road No. 1: At Clifton		68	24-Apr-23	08-Aug-23																												
SR1160	Set Temp Traffic Drums Along NB Shoulder - Sta 321+50 to Clifton Rd	1	24-Apr-23	24-Apr-23																												
SR1150	Storm Drain - Sta 326+25 to 321+60 RT: E/L/BF (490 LF & 6 Structure	15	29-Jun-23	24-Jul-23																												
SR1130	Place Graded Aggregate Base for Service Road #1/Parking Lot (+/-525	2	25-Jul-23	26-Jul-23																												
SR1140	Curb & Gutter - Serv Road #1 & 29NB Sta 321+75 to 326+25: Exc/For	4	27-Jul-23	01-Aug-23																												

Activity ID	Activity Name	Original Duration	Start	Finish	2022 2023 2024 2025 2026 2027 2028																											
					2022				2023				2024				2025				2026				2027				2028			
					Q2	Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
SR1120	Asphalt Paving - Service Road #1/Parking Lot	2	02-Aug-23	03-Aug-23																												
SR1110	Shared Use Path - Sta 321+75 to 326+25 RT: Place GAB & Asphalt	3	04-Aug-23	08-Aug-23																												
SR1100	Service Road No. 1 Phase 1 NB Complete & Avail for Switch to Phase	0		08-Aug-23																												
Service Road No. 2: At Clifton		85	10-Aug-23	26-Dec-23																												
SR2170	Set Temp Traffic Drums Along NB Shoulder - Sta 327+50 to 335+50 RT	1	10-Aug-23	10-Aug-23																												
SR2110	Clear & Grub - Sta 327+50 to 335+50 RT	2	11-Aug-23	14-Aug-23																												
SR2160	Temp Culvert Extension at Exist. Culvert Crossing - 329+00 RT Across	2	15-Aug-23	16-Aug-23																												
SR2200	Precast Box Culvert - Sta 328+75 Across Serv Rd #2 only: SOE/Excav/	4	10-Oct-23	16-Oct-23																												
SR2210	Precast Box Culvert - Sta 328+75 RT: Set Precast Head & Wingwalls	3	17-Oct-23	20-Oct-23																												
SR2190	Storm Drain - Sta 328+75 to 327+25 RT: E/L/BF (147 LF & 2 Structure	5	20-Oct-23	30-Oct-23																												
SR2140	Storm Drain - Across 2 ea. Driveways & Serv Rd #2: E/L/BF (125 LF &	8	30-Oct-23	10-Nov-23																												
SR2180	Excavation & Embankment for Service Road #2 & 5 Driveways	15	10-Nov-23	05-Dec-23																												
SR2220	FCWA Water Reloc, Sta 335+50 RT at Willow Rd: 19 LF of 8" (vertical	5	10-Nov-23	15-Nov-23																												
SR2150	Graded Aggregate Base for Service Road #2 & Driveways	4	05-Dec-23	11-Dec-23																												
SR2130	Curb & Gutter - Service Road #2 Sta 1+82 to 8+80: Excav/Form & Pou	7	11-Dec-23	20-Dec-23																												
SR2120	Asphalt Paving - Service Road #2 & Driveways	2	20-Dec-23	22-Dec-23																												
SR2100	Service Road No. 2 Phase 1 NB Complete & Avail for Switch to Phase	0		26-Dec-23																												
Phase 2 Northbound - Area B: Clifton to Hampton Forest		300	29-Dec-23	28-Apr-25																												
B2NB320	Begin Phase 2 Northbound Construction (after Phase 1 / 2 Traffic Switc	0	29-Dec-23																													
B2NB360	Clear & Grub - Sta 335+50 to 359+50 RT	10	29-Dec-23	15-Jan-24																												
B2NB370	FCDPW Sewer: Sta 353+00 Across NB: 35 LF of 24" Steel Casing	3	16-Jan-24	19-Jan-24																												
B2NB330	Willow Spring Branch Temp Stream Realignment (upstream end)	5	16-Jan-24	23-Jan-24																												
B2NB380	San. Sewer, Sta 330+00 Across: +/-118 LF (of 218 LF), 8" incl 16" Casir	5	19-Jan-24	29-Jan-24																												
B2NB350	Temp. Culvert Extension at Willow Spring Br: Dual 60" dia. Temp Pipe f	8	23-Jan-24	05-Feb-24																												
B2NB340	San Sewer, Sta 330+00 Across: Temp Bypass Pump/Finish MH Inverts	1	29-Jan-24	30-Jan-24																												
B2NB310	Willow Spring Br Precast Double Box Culvert: Support of Excavation (p	10	05-Feb-24	20-Feb-24																												
B2NB300	Willow Spring Br Precast Double Box Culvert Across Ph 2: Excav/Set P	24	29-Apr-24	05-Jun-24																												
B2NB290	Willow Spring Br Precast Double Box Culvert: Form / Rebar / Pour Win	16	05-Jun-24	01-Jul-24																												
B2NB270	Precast Box Culvert - Sta 341+60 Across Ph 2 Area only: SOE/Excav/S	10	05-Jun-24	20-Jun-24																												
B2NB260	Precast Box Culvert - Sta 341+60 RT: Set Precast Head & Wingwalls	3	20-Jun-24	25-Jun-24																												
B2NB280	Precast Box Culvert - Sta 328+75 Across Ph 2 Area only: SOE/Excav/S	8	25-Jun-24	11-Jul-24																												
B2NB230	Storm Drain - Sta 337+60 to 344+25 RT: E/L/BF (295 LF & 8 Structure	15	25-Jun-24	22-Jul-24																												
B2NB250	Excavation & Embankment for Northbound - Sta 327+50 to 359+25 RT	88	01-Jul-24	11-Nov-24																												
B2NB130	Demo. Exist. Willow Spring Br Culvert in Ph 2 Limits & Backfill Around D	9	01-Jul-24	17-Jul-24																												
B2NB220	Storm Drain - Sta 345+50 to 346+00 RT & Across: E/L/BF (155 LF & 3	5	22-Jul-24	30-Jul-24																												
B2NB240	Storm Drain - Sta 328+75 to 331+50 RT: E/L/BF (300 LF & 6 Structure	13	30-Jul-24	19-Aug-24																												
B2NB210	Storm Drain - Sta 356+00 to 351+50 RT: E/L/BF (500 LF & 8 Structure	16	11-Nov-24	09-Dec-24																												
B2NB100	Precast Box Culvert Safety Inspection (ahead of placement of traffic)	1	11-Nov-24	12-Nov-24																												
B2NB200	Graded Aggregate Base incl for Temp Median - Sta 328+75 to 359+25	26	09-Dec-24	23-Jan-25																												
B2NB170	Graded Aggr Base for 2 ea Temp Widening - Sta 328+00 to 334+60 & 350	3	24-Jan-25	28-Jan-25																												
B2NB190	Curb & Gutter (excl @ 2 temp wide)-Sta 334+60 to 350+00 RT: F/P (+/	8	03-Mar-25	13-Mar-25																												
B2NB110	Street Lighting - Area B Phase 2 NB	20	03-Mar-25	02-Apr-25																												
B2NB180	Asphalt Paving incl for Temp Median & Temp Widening - Sta 328+75 t	26	14-Mar-25	24-Apr-25																												
B2NB120	Signing - Area B Phase 2 NB	6	14-Mar-25	24-Mar-25																												
B2NB160	Shared Use Path - Sta 335+40 to 350+00 RT: Place GAB & Asphalt	8	02-Apr-25	15-Apr-25																												
B2NB140	Temporary Traffic Barrier & Pavement Markings - Sta 328+75 to 359+25	6	18-Apr-25	28-Apr-25																												
B2NB150	Area B Phase 2 NB Complete & Available for Switch to Phase 3 Traffic	0		28-Apr-25																												
Phase 3 Southbound - Area B: Stringfellow to Meadow Estates Drive		206	05-May-25	01-Apr-26																												
B3SB430	FCWA Water Reloc, Sta 335+50 LT: 41 LF of 6" (hydrant & lead)	2	05-May-25	06-May-25																												
B3SB280	Begin Phase 3 Southbound Construction (after Phase 2 / 3 Traffic Switc	0	05-May-25																													

Activity ID	Activity Name	Original Duration	Start	Finish	2022-2028																								
					2022				2023				2024				2025				2026				2027				2028
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	
B3SB270	Willow Spring Branch Box Culvert Across Ph 3: SOE/Excav/Set Box/Ba	24	06-May-25	13-Jun-25																							Willow Spring Branch Box Culvert Across Ph 3: SOE/Excav/Set Box/Backfill		
B3SB420	FCWA Water Reloc, Sta 335+50 LT: Pressure Test & Disinfect	7	06-May-25	13-May-25																							FCWA Water Reloc, Sta 335+50 LT: Pressure Test & Disinfect		
B3SB380	Box Culvert - Sta 341+50 Across Ph 3 SB Area only: SOE/Excav/Set B	15	13-Jun-25	10-Jul-25																							Box Culvert - Sta 341+50 Across Ph 3 SB Area only: SOE/Excav/Set Box/Backfill		
B3SB220	Willow Spring BrPrecast Double Box Culvert: Form/Rebar/Pour Seg @	9	13-Jun-25	27-Jun-25																							Willow Spring BrPrecast Double Box Culvert: Form/Rebar/Pour Seg @ Water Main		
B3SB260	Willow Spring Branch Double Box Culvert: Form/Rebar/Pour Head & V	12	27-Jun-25	18-Jul-25																							Willow Spring Branch Double Box Culvert: Form/Rebar/Pour Head & Wingwalls		
B3SB350	Storm Drain - Sta 341+50 to 337+50 LT: E/L/BF (395 LF & 4 Structures	12	10-Jul-25	28-Jul-25																							Storm Drain - Sta 341+50 to 337+50 LT: E/L/BF (395 LF & 4 Structures)		
B3SB240	Box Culvert - Sta 341+50 LT: Set Precast Head & Wingwalls / Place Ot	4	10-Jul-25	16-Jul-25																							Box Culvert - Sta 341+50 LT: Set Precast Head & Wingwalls / Place Outfall/RR		
B3SB370	Box Culvert - Sta 328+75 Across Ph 3 SB Area only: SOE/Excav/Set B	10	16-Jul-25	30-Jul-25																							Box Culvert - Sta 328+75 Across Ph 3 SB Area only: SOE/Excav/Set Box/Backfill		
B3SB250	Willow Spring Branch - Realign Outfall Channel & Place Rip Rap	3	18-Jul-25	23-Jul-25																							Willow Spring Branch - Realign Outfall Channel & Place Rip Rap		
B3SB210	Willow Spring Branch - Realign Inlet Channel & Place Flow into New Cu	4	23-Jul-25	29-Jul-25																							Willow Spring Branch - Realign Inlet Channel & Place Flow into New Culvert		
B3SB340	Storm Drain - Sta 341+50 to 346+00 LT: E/L/BF (602 LF & 6 Structures	19	28-Jul-25	25-Aug-25																							Storm Drain - Sta 341+50 to 346+00 LT: E/L/BF (602 LF & 6 Structures)		
B3SB200	Demolish Existing Willow Spring Branch Culvert in Phase 3 Work Limits	6	29-Jul-25	06-Aug-25																							Demolish Existing Willow Spring Branch Culvert in Phase 3 Work Limits & Backfill		
B3SB230	Precast Box Culvert - Sta 328+75 LT: Set Precast Head & Wingwalls	4	30-Jul-25	05-Aug-25																							Precast Box Culvert - Sta 328+75 LT: Set Precast Head & Wingwalls		
B3SB360	Storm Drain - Sta 327+15 to 331+35 LT: E/L/BF (377 LF & 9 Structures	19	05-Aug-25	04-Sep-25																							Storm Drain - Sta 327+15 to 331+35 LT: E/L/BF (377 LF & 9 Structures at 3 loca		
B3SB310	Excavation & Embankment - Sta 327+50 to 359+25 LT	60	05-Aug-25	04-Nov-25																							Excavation & Embankment - Sta:327+50 to 359+25 LT		
B3SB330	Storm Drain - Sta 354+00 to 349+90 LT: E/L/BF (535 LF & 7 Structures	18	06-Aug-25	04-Sep-25																							Storm Drain - Sta 354+00 to 349+90 LT: E/L/BF (535 LF & 7 Structures)		
B3SB320	Storm Drain - Sta 354+25 to 355+60 LT: E/L/BF (145 LF & 2 Structures	5	04-Sep-25	12-Sep-25																							Storm Drain - Sta 354+25 to 355+60 LT: E/L/BF (145 LF & 2 Structures)		
B3SB300	FCWA Water Reloc, Sta 337+75 to 356+75 LT: 1,525 LF of 24" & 210 I	36	19-Sep-25	14-Nov-25																							FCWA Water Reloc, Sta 337+75 to 356+75 LT: 1,525 LF of 24" & 210 LF		
B3SB410	FCWA Water Reloc, Sta 335+50 LT: Tie-In / Place in Service	1	15-Oct-25	15-Oct-25																							FCWA Water Reloc, Sta 335+50 LT: Tie-In / Place in Service		
B3SB190	Graded Aggregate Base - Sta 327+50 to 359+25 LT	17	04-Nov-25	03-Dec-25																							Graded Aggregate Base - Sta 327+50 to 359+25 LT		
B3SB140	Permanent Traffic Signals: Stringfellow / Clifton Intersection	20	04-Nov-25	08-Dec-25																							Permanent Traffic Signals: Stringfellow / Clifton Intersection		
B3SB100	Precast Box Culvert Safety Inspection (ahead of placement of traffic)	1	04-Nov-25	05-Nov-25																							Precast Box Culvert Safety Inspection (ahead of placement of traffic)		
B3SB400	FCWA Water Reloc, Sta 337+75 to 356+75 LT: Pressure Test & Disinfe	7	14-Nov-25	21-Nov-25																							FCWA Water Reloc, Sta 337+75 to 356+75 LT: Pressure Test & Disinfect		
B3SB390	FCWA Water Reloc, Sta 337+75 to 356+75 LT: Tie-In / Place in Service	1	21-Nov-25	22-Nov-25																							FCWA Water Reloc, Sta 337+75 to 356+75 LT: Tie-In / Place in Service		
B3SB290	Curb & Gutter - Sta 327+50 to 359+25 LT: Excav/Form & Pour (+/-3,33	16	03-Dec-25	02-Mar-26																							Curb & Gutter - Sta 327+50 to 359+25 LT: Excav/Form & Pour (+/-3,33		
B3SB110	Street Lighting - Area B Phase 3 SB	20	03-Dec-25	07-Jan-26																							Street Lighting - Area B Phase 3 SB		
B3SB130	Permanent Traffic Signals: Meadow Estate / Hampton Forest Intersecti	20	08-Dec-25	12-Jan-26																							Permanent Traffic Signals: Meadow Estate / Hampton Forest Intersecti		
B3SB440	Perm. Traffic Signal: Stringfellow / Clifton "Burn-In" (Comm & Demo Tes	60	08-Dec-25	06-Feb-26																							Perm. Traffic Signal: Stringfellow / Clifton "Burn-In" (Comm & Demo Tes		
B3SB450	Perm. Traffic Signal: Meadow Estate / Hampton Forest (Comm & Demc	60	12-Jan-26	13-Mar-26																							Perm. Traffic Signal: Meadow Estate / Hampton Forest (Comm & Demc		
B3SB180	Shared Use Path - Sta 327+50 to 359+25 LT: Place GAB & Asphalt	17	02-Mar-26	27-Mar-26																							Shared Use Path - Sta 327+50 to 359+25 LT: Place GAB & Asphalt		
B3SB170	Asphalt Paving - Sta 327+50 to 359+25 LT	16	02-Mar-26	26-Mar-26																							Asphalt Paving - Sta 327+50 to 359+25 LT		
B3SB120	Signing - Area B Phase 3 SB	6	02-Mar-26	10-Mar-26																							Signing - Area B Phase 3 SB		
B3SB160	Temporary & Pavement Markings - Sta 327+50 to 359+25 LT	4	26-Mar-26	01-Apr-26																							Temporary & Pavement Markings - Sta 327+50 to 359+25 LT		
B3SB150	Area B Phase 3 SB Complete & Available for Switch to Phase 4 Traffic I	0		01-Apr-26																							Area B Phase 3 SB Complete & Available for Switch to Phase 4 Traffic I		
Area C: Hampton Forest Way / Meadow Estates Dr to North End of Project		656	27-Dec-22	14-Nov-25	14-Nov-25, Area C: Hampton Forest Way / Meadow Estates Dr to North																								
Phase 1 Southbound - Area C: Meadow Estates to North End		195	27-Dec-22	01-Nov-23	01-Nov-23, Phase 1 Southbound - Area C: Meadow Estates to North End																								
Meadow Estates Dr to Willowmeade Drive		195	27-Dec-22	01-Nov-23	01-Nov-23, Meadow Estates Dr to Willowmeade Drive																								
C1SB150	Set Temp Traffic Barrier - Sta 360+00 to 370+50 LT	2	27-Dec-22	28-Dec-22																							Set Temp Traffic Barrier - Sta 360+00 to 370+50 LT		
C1SB140	Clear & Grub - Sta 360+00 to 370+50 LT	4	30-May-23	02-Jun-23																							Clear & Grub - Sta 360+00 to 370+50 LT		
C1SB160	Sanitary Sewer, Sta 360+25 to 361+75 LT: 151 LF of 4" / 8"	3	05-Jun-23	07-Jun-23																							Sanitary Sewer, Sta 360+25 to 361+75 LT: 151 LF of 4" / 8"		
C1SB190	FCWA Water Reloc, Sta 363+25 to 371+00 LT: +/-769 LF of 24" & 22 L	17	17-Jul-23	08-Aug-23																							FCWA Water Reloc, Sta 363+25 to 371+00 LT: +/-769 LF of 24" & 22 LF of 12"		
C1SB180	FCWA Water Reloc, Sta 363+25 to 371+00 LT: Pressure Test & Disinfe	7	08-Aug-23	15-Aug-23																							FCWA Water Reloc, Sta 363+25 to 371+00 LT: Pressure Test & Disinfect		
C1SB170	FCWA Water Reloc, Sta 363+25 to 371+00 LT: Tie-In / Place in Service	1	15-Oct-23	15-Oct-23																							FCWA Water Reloc, Sta 363+25 to 371+00 LT: Tie-In / Place in Service		
C1SB110	Place Graded Aggregate Base for Temp Widening - Sta 359+75 to 366	4	16-Oct-23	20-Oct-23																							Place Graded Aggregate Base for Temp Widening - Sta 359+75 to 366+00 LT		
C1SB100	Asphalt Paving for Temp Widening - Sta 359+75 to 366+00 LT	2	20-Oct-23	24-Oct-23																							Asphalt Paving for Temp Widening - Sta 359+75 to 366+00 LT		
C1SB130	Temp Traffic Crossover for Ph 2, Sta 363+00 to 368+00 Median: Excav	5	24-Oct-23	01-Nov-23																							Temp Traffic Crossover for Ph 2, Sta 363+00 to 368+00 Median: Excav/GAB/Temp Asph		
C1SB120	Area C (Meadow Est to Willowmeade) Ph 1 SB Compl for Switch to Ph	0		01-Nov-23																							Area C (Meadow Est to Willowmeade) Ph 1 SB Compl for Switch to Ph 2 Traff Pattern		
Phase 2 Northbound - Area C: Hampton Forest Way to North End (available anytime ir		278	07-Dec-23	03-Mar-25	03-Mar-25, Phase 2 Northbound - Area C: Hampton Forest Way to North End (available anytime																								
C2NB230	Begin Area C Northbound Construction (after Phase 1 / 2 Traffic Switch	0	07-Dec-23		Begin Area C Northbound Construction (after Phase 1 / 2 Traffic Switch)																								
C2NB270	FCWA Service Line, Sta 377+25 RT: 67 LF of 1"	3	08-Dec-23	12-Dec-23																							FCWA Service Line, Sta 377+25 RT: 67 LF of 1"		

VDOT Route 29 Widening Phase II			Corman Kokosing Construction Co. - Technical Proposal Schedule													08-Mar-22 10:34											
Activity ID	Activity Name	Original Duration	Start	Finish	2022			2023				2024				2025				2026				2027			2028
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
C2NB260	Excavate Stormwater Management Pond, Sta 362+00 to 365+00 RT	26	08-Dec-23	20-Mar-24																							Excavate Stormwater Management Pond, Sta 362+00 to 365+00 RT
C2NB250	Excavation & Embankment for Northbound - Sta 359+50 to 385+00 RT	44	08-Dec-23	17-Apr-24																							Excavation & Embankment for Northbound - Sta 359+50 to 385+00 RT
C2NB290	FCWA Fire Hydrants, Sta 381+50 & 383+50 RT: 20 LF of 6" incl. 2 Hyd	5	14-Dec-23	20-Dec-23																							FCWA Fire Hydrants, Sta 381+50 & 383+50 RT: 20 LF of 6" incl. 2 Hydrants
C2NB280	FCWA Fire Hydrants, Sta 396+00 & 400+00 RT: 32 LF of 6" incl. 2 Hyd	5	21-Dec-23	29-Dec-23																							FCWA Fire Hydrants, Sta 396+00 & 400+00 RT: 32 LF of 6" incl. 2 Hydrants
C2NB240	Storm Drain - Sta 364+00 to 359+75 RT: E/L/BF (535 LF & 9 Struct @ :	22	21-Mar-24	26-Apr-24																							Storm Drain - Sta 364+00 to 359+75 RT: E/L/BF (535 LF & 9 Struct @ 3 locind SWM Pond)
C2NB210	Storm Drain - Sta 365+50 to 376+00 RT Outside SUP: E/L/BF (895 LF	29	19-Apr-24	05-Jun-24																							Storm Drain - Sta 365+50 to 376+00 RT Outside SUP: E/L/BF (895 LF & 12 Structures)
C2NB120	Permanent Traffic Signals: Buckley's Gate / Summit Intersection	20	19-Apr-24	21-May-24																							Permahent Traffic Signals: Buckley's Gate / Summit Intersection
C2NB220	Storm Drain - Sta 365+00 to 384+00 RT Roadway: E/L/BF (2,075 LF &	49	21-May-24	08-Aug-24																							Storm Drain - Sta 365+00 to 384+00 RT Roadway: E/L/BF (2,075 LF & 16 Structures)
C2NB300	Storm Drain - Sta 385+75 to 402+50 RT: E/L/BF (665 LF & 12 Structur	28	08-Aug-24	23-Sep-24																							Storm Drain - Sta 385+75 to 402+50 RT: E/L/BF (665 LF & 12 Structures at 5 locations)
C2NB190	Graded Aggregate Base (+/-3,000 tons) - Sta 359+50 to NB Project Lirr	10	06-Sep-24	23-Sep-24																							Graded Aggregate Base (+/-3,000 tons) - Sta 359+50 to NB Project Limits RT
C2NB170	Graded Aggregate Base (+/-400 tons) - Service Road #3	2	19-Sep-24	23-Sep-24																							Graded Aggregate Base (+/-400 tons) - Service Road #3
C2NB310	Retaining Wall E - Sta 401+50 to 402+50 Excavate / Form / Pour	10	23-Sep-24	08-Oct-24																							Retaining Wall E - Sta 401+50 to 402+50 Excavate / Form / Pour
C2NB200	Curb & Gutter - Sta 359+75 to 409+25 (along Ramp A) RT: F/P (+/-4,5	22	08-Oct-24	11-Nov-24																							Curb & Gutter - Sta 359+75 to 409+25 (along Ramp A) RT: F/P (+/-4,500 LF)
C2NB180	Asphalt Paving - Sta 359+50 to NB Project Limits Along Proposed Curb	12	11-Nov-24	02-Dec-24																							Asphalt Paving - Sta 359+50 to NB Project Limits Along Proposed Curb/Gutter RT
C2NB160	Curb & Gutter - Service Road #3: Excav/Form & Pour (+/-960 LF)	5	11-Nov-24	19-Nov-24																							Curb & Gutter - Service Road #3: Excav/Form & Pour (+/-960 LF)
C2NB110	Signing - Area C Phase 2 NB	18	11-Nov-24	12-Dec-24																							Signing - Area C Phase 2 NB
C2NB100	Street Lighting - Area C Phase 2 NB	30	11-Nov-24	03-Jan-25																							Street Lighting - Area C Phase 2 NB
C2NB140	Shared Use Path - Sta 359+75 to 409+00 RT: Place GAB & Asphalt	25	19-Nov-24	03-Mar-25																							Shared Use Path - Sta 359+75 to 409+00 RT: Place GAB & Asphalt
C2NB150	Asphalt Paving -Service Road #3	2	19-Nov-24	25-Nov-24																							Asphalt Paving -Service Road #3
C2NB130	Area C Phase 2 NB Complete & Available for Switch to Phase 3 Traffic	0		03-Mar-25																							Area C Phase 2 NB Complete & Available for Switch to Phase 3 Traffic Pattern
Phase 3 Southbound - Area C: Meadow Estates to North End		557	05-Jun-23	14-Nov-25																				14-Nov-25, Phase 3 Southbound - Area C: Meadow Estates to North End			
C3SB140	Begin Phase 3 Southbound Construction (after Phase 2 / 3 Traffic Switc	0	05-May-25																					Begin Phase 3 Southbound Construction (after Phase 2 / 3 Traffic Switch);			
C3SB180	Noise Barrier G - Station 360+32 to 369+66: Rough Grade & Set Post:	55	06-May-25	01-Aug-25																				Noise Barrier G - Station 360+32 to 369+66: Rough Grade & Set Posts / Panels			
C3SB120	Excavation & Embankment for Southbound - Sta 359+75 to 370+50 LT	10	01-Aug-25	18-Aug-25																				Excavation & Embankment for Southbound - Sta 359+75 to 370+50 LT			
C3SB170	Storm Drain - Sta 359+75 to 370+50 LT: E/L/BF (1,250 LF & 15 Struct	40	18-Aug-25	20-Oct-25																				Storm Drain - Sta 359+75 to 370+50 LT: E/L/BF (1,250 LF & 15 Structures)			
C3SB160	Curb & Gutter - Sta 359+75 to 370+50 LT: Excav/Form & Pour (+/-1,23	6	21-Oct-25	29-Oct-25																				Curb & Gutter - Sta 359+75 to 370+50 LT: Excav/Form & Pour (+/-1,235 LF			
C3SB130	Asphalt Paving - Sta 359+75 to 371+50 LF: along prop. curb & at Will	3	30-Oct-25	03-Nov-25																				Asphalt Paving -Sta 359+75 to 371+50 LF: along prop. curb & at Willowm			
C3SB150	Shared Use Path - Sta 357+75 to 370+50 LT: Place GAB & Asphalt	7	04-Nov-25	13-Nov-25																				Shared Use Path - Sta 357+75 to 370+50 LT: Place GAB & Asphalt			
C3SB100	Temporary Pavement Markings - Sta 357+75 to 370+50 LT	1	14-Nov-25	14-Nov-25																				Temporary Pavement Markings - Sta 357+75 to 370+50 LT			
C3SB110	Area C Phase 3 SB Complete & Available for Area Median Constructio	0		14-Nov-25																				Area C Phase 3 SB Complete & Available for Area Median Construction			
Southbound - Willowmeade Dr to North End (available to be performed anytime in P		160	05-Jun-23	15-Feb-24																				15-Feb-24, Southbound - Willowmeade Dr to North End (available to be performed anytime in Phases 1 thru 3)			
C1/3-130	Clear & Grub - Sta 371+50 to 386+00 LT	4	05-Jun-23	08-Jun-23																				Clear & Grub - Sta 371+50 to 386+00 LT			
C1/3-190	Excavation & Embankment for Southbound - Sta 371+50 to 386+50 LT	5	09-Jun-23	16-Jun-23																				Excavation & Embankment for Southbound - Sta 371+50 to 386+50 LT			
C1/3-165	Permanent Traffic Signals: Buckley's Gate / Summit Intersection	20	09-Jun-23	13-Jul-23																				Permanent Traffic Signals: Buckley's Gate / Summit Intersection			
C1/3-140	Storm Drain - Sta 370+50 to 383+10 LT: E/L/BF (1,445 LF & 15 Struct	43	19-Jun-23	24-Aug-23																				Storm Drain - Sta 370+50 to 383+10 LT: E/L/BF (1,445 LF & 15 Structures)			
C1/3-220	Perm. Traffic Signal: Buckley's Gate / Summit (Comm & Demo Testing)	60	13-Jul-23	11-Sep-23																				Perm. Traffic Signal: Buckley's Gate / Summit (Comm & Demo Testing)			
C1/3-100	FCWA Water Reloc, Sta 377+00 to 377+25 LT: 58 LF of 6"	3	17-Jul-23	19-Jul-23																				FCWA Water Reloc, Sta 377+00 to 377+25 LT: 58 LF of 6"			
C1/3-110	FCWA Water Reloc, Sta 377+00 to 377+25 LT: Pressure Test & Disinfe	7	19-Jul-23	26-Jul-23																				FCWA Water Reloc, Sta 377+00 to 377+25 LT: Pressure Test & Disinfect			
C1/3-120	FCWA Water Reloc, Sta 377+00 to 377+25 LT: Tie-In / Place in Service	1	15-Oct-23	15-Oct-23																				FCWA Water Reloc, Sta 377+00 to 377+25 LT: Tie-In / Place in Service			
C1/3-150	Curb & Gutter - Sta 371+50 to 386+00 LT: Excav/Form & Pour (+/-1,88	10	16-Oct-23	30-Oct-23																				Curb & Gutter - Sta 371+50 to 386+00 LT: Excav/Form & Pour (+/-1,885 LF)			
C1/3-170	Place Graded Aggr Base - Sta 371+50 to 386+00: at Willowmeade & 3	2	31-Oct-23	01-Nov-23																				Place Graded Aggr Base - Sta 371+50 to 386+00: at Willowmeade & 3 ea driveways			
C1/3-160	Asphalt Pvmnt - Sta 371+50 to 386+00 LF: along prop. curb/gutter & a	3	02-Nov-23	06-Nov-23																				Asphalt Pvmnt -Sta 371+50 to 386+00 LF: along prop. curb/gutter & at 3 ea driveways			
C1/3-180	Shared Use Path - Sta 371+00 to 386+50 LT: Place GAB & Asphalt	8	07-Nov-23	17-Nov-23																				Shared Use Path - Sta 371+00 to 386+50 LT: Place GAB & Asphalt			
C1/3-210	Signing - Area C Phase 3 SB	6	07-Feb-24	15-Feb-24																				Signing - Area C Phase 3 SB			
C1/3-200	Area C (Willowmeade to North) Phases 1 to 3 SB Compl & Avail for for	0		15-Feb-24																				Area C (Willowmeade to North) Phases 1 to 3 SB Compl & Avail for for Median Constr			
Project Wide Median Construction & Topsoil / Seeding beyond SUP & Curb: Phas		159	17-Nov-25	31-Jul-26																				31-Jul-26, Project Wide Median Construction & Top			
Phase 4 Median - Area A: South End to Clifton / Stringfellow		67	07-Apr-26	24-Jul-26																				24-Jul-26, Phase 4 Median - Area A: South End to			
A4MED140	Demo Temp Median Asphalt for Curb MS-2 Curb - 308+25 to 326+90	6	07-Apr-26	17-Apr-26																				Demo Temp Median Asphalt for Curb MS-2 Curb - 308+25 to			
A4MED130	MS-1 Median Strip: Form/Pour - Sta 308+25 to 325+90 (+/-1,780 LF)	8	17-Apr-26	30-Apr-26																				MS-1 Median Strip: Form/Pour - Sta 308+25 to 325+90 (+			
A4MED120	Final Asphalt Surface 1.5" of 9.5 mm - 296+50 to 326+90 LT/RT	10	30-Apr-26	14-May-26																				Final Asphalt Surface 1.5" of 9.5 mm - 296+50 to 326+90			

