Submitted by:

CORMAN CONSTRUCTION *in conjunction with* WR&A

ORIGINAL
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TECHNICAL PROPOSAL

Design-Build Fall Hill Avenue Widening and Mary Washington Boulevard Extension

Fredericksburg, Virginia

State Project No.: U000-111-233
Federal Project No.: STP-5A01(181)
Contract ID Number: C00088699DB59

VOLUME I

December 12, 2013

VDOT Virginia Department of Transportation

Submitted to: Virginia Department of Transportation
1401 E. Broad Street
Richmond, Virginia 23219

CORMAN CONSTRUCTION

12001 Guilford Road
Annapolis Junction, MD 20701

Tel: 410-792-9400 Balt
Tel: 301-953-0900 DC
Fax: 301-953-0384

December 12, 2013

Mr. Bill Arel, PE
Alternate Project Delivery Office
Virginia Dept. of Transportation
1401 East Broad Street
Annex Building, 8th Floor
Richmond, VA 23219

RE: Letter of Submittal: Design-Build Fall Hill Ave. Widening and Mary Washington Blvd. Extension, Fredericksburg, Virginia
State Project No.: U000-111-233 / Federal Project No.: STP-5A01(181)
Contract ID No: C00088699DB59

Dear Mr. Arel:
Corman Construction, Inc. (Corman) is pleased to submit 10 copies of the Technical Proposal and one CD-ROM containing the entire proposal in a single cohesive Adobe PDF file, along with the Proposal Schedule for the **Fall Hill Avenue Widening and Mary Washington Blvd. Extension** design-build project. Corman has thoroughly reviewed the RFP, including Addendums 1 and 2 and Questions and Answers.

4.1.1 Corman Construction, Inc., 12001Guilford Road, Annapolis Junction, MD 20701, is the legal entity who will execute the contract with VDOT.

4.1.2 Corman hereby intends, if selected, to enter into a contract with VDOT for the Project in accordance with the terms of this RFP.

4.1.3 Pursuant to Part 1, Section 8.2, Corman 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 Technical Proposal is actually submitted to VDOT (12/12/13).

4.1.4 Point of Contact: Jo Ellen Sines, DBIA - Vice President Project Development – Corman Construction, 12001 Guilford Road, Annapolis Junction, MD 20701. Telephone: 301-953-0900, Cell: 301-343-5484, Fax: 301-953-0384, Email: jsines@cormanconstruction.com.

4.1.5 Principal Officer: Arthur C. Cox, III – Vice President – Corman Construction, 12001 Guilford Road, Annapolis Junction, Maryland 20701. Telephone: 410-792-9400 x235, Cell: 240-882-3973.

4.1.6 Final Completion Date: 1/24/17

4.1.7 An executed Proposal Payment Agreement (Attachment 9.3.1) is attached in the Appendix.

4.1.8 Certification Regarding Debarment Forms (Attachments 11.8.6(a) and 11.8.7(b) are signed and included in the Appendix.

4.1.9 Corman's Technical Proposal is fully compliant with the Design Criteria Table, the Tapers and Storage Table, and all other requirements included in the RFP.

Corman also certifies that our proposed limits of construction to include all stormwater management facilities are located within the right-of-way limits as shown on the RFP Conceptual Plans with the exception of permanent and temporary easements and modifications identified in the Addendums. Our design concept does not require any additional Design Exceptions or Design Waivers to those identified in the RFP or Addendums.

Sincerely,

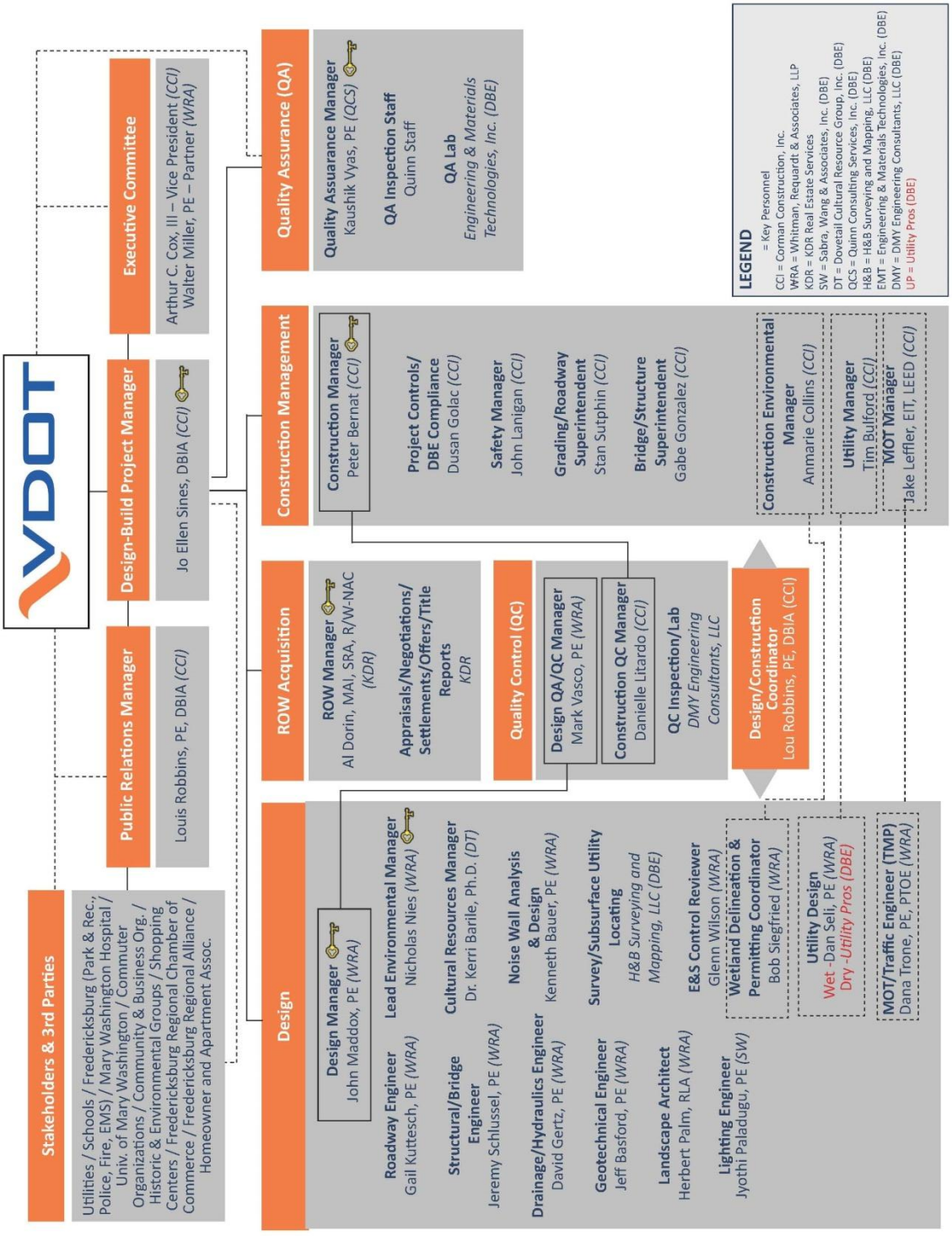
CORMAN CONSTRUCTION, INC.

Arthur C. Cox, III, Vice President

4.2 QUALIFICATIONS

4.2.1 The information and statements made in our SOQ remain true and accurate. The organization chart and narrative as provided in our SOQ is wholly incorporated into this technical proposal by reference. As previously approved by VDOT, the only change to our Organization chart below is the addition of Utility Pros for coordination of Dry Utilities (shown in red).

4.2.2 ORGANIZATION CHART



4.3 DESIGN CONCEPT

4.3.1 ROADWAY DESIGN CONCEPT: The Corman DB Team's design concept plan, included as Volume II complies with the roadway design criteria in the RFP's Design Criteria Table, Tapers and Storage Table, and Addendums. Proposed ROW limits are shown on the attached Conceptual Plan in Volume II. A detailed description on our ROW and utility approach is shown below in **Section 4.4.**

The project provides major improvements to the existing Fall Hill Avenue corridor and is a vital link between Fall Hill Avenue and Route 1 by extending Mary Washington Boulevard. Fall Hill Avenue is a two-lane roadway with no bike facility and limited pedestrian facilities, carries approximately 17,200 vehicles per day, and has a high number of bicyclists and pedestrians along the corridor. The roadway provides access to the Central Park shopping area from downtown Fredericksburg and the Route 1 corridor. Along the project alignment are Snowden Park, Rappahannock Canal, and several historic resources that required extensive coordination under the NEPA environmental process. These resources are impacted by the project and the Corman DB Team's concept design respects the City, VDOT and FHWA commitments to avoid or minimize impacts to these resources.

The proposed roadway provides a four-lane divided urban street with a 10' shared-use path on the north side and 5' sidewalks on the south. The Mary Washington Boulevard connection to Route 1 is projected to carry 27,500 vehicles a day and includes a major intersection with Route 1. Mary Washington Boulevard will provide a 5' to 7' sidewalk on the west side of the street and a 5' sidewalk on the east side between Hospital Drive and Sam Perry Boulevard; bicyclists and pedestrians will utilize the existing trail system paralleling the historic Rappahannock Canal just east of the new roadway.

A key project feature is the roundabout at the Fall Hill Avenue and Mary Washington Boulevard intersection. The roundabout design in the RFP plans was developed to provide smooth traffic flow while minimizing historic resource impacts and no major design modifications are proposed by the Corman DB Team. There are major conflicts with above and underground utilities along the entire project alignment.

The project also replaces the Fall Hill Avenue bridge over I-95. This bridge will be designed to span the planned future improvements along the I-95 corridor as defined in the RFP.

Design exceptions or waivers are not required, except as listed in the RFP/Addendums. Listed below are our significant enhancements to VDOT's RFP Concept Plans:

SIGNIFICANT ENHANCEMENTS WITHIN CORMAN DB TEAM'S CONCEPT DESIGN:

1.	**Bridge Design:** The bridge design provides several enhancements including: ▪ Eliminating the longitudinal joint across the bridge which will reduce construction and future maintenance costs. ▪ The redesigned abutments to utilize MSE wall abutments for improved constructability, reduced cost and construction duration. ▪ Revising the outside bridge railing along the shared-use path from a BR-27 rail to a 12" concrete parapet with pedestrian fencing, since a crash barrier is already provided between the travel lanes and the shared-use path. ▪ Revising the design to provide semi-integral abutments.
2.	**Horizontal Alignment:** The Fall Hill Avenue centerline was shifted to the south near the bridge over I-95 and the curve was eliminated from the bridge to improve constructability.
3.	**Typical Section:** The Fall Hill Avenue median was widened in two locations (Sta 154+00 to Sta 159+00 and from Sta 163+00 to Sta 174+00) to improve MOT and eliminate temporary pavement. The eastbound lanes can now be constructed in the first phase while traffic is maintained on the existing roadway. This widened median will provide additional green space within the median and requires no additional right-of-way.
4.	**Vertical Alignment:** The Corman DB Team design revises most of the Fall Hill Avenue and Mary Washington Boulevard vertical profiles for improved constructability, minimizes existing pavement reconstruction, reduces earthwork and achieves VDOT's revised design criteria to TC-5.11 ULS. ***These revisions reduced the construction limits within the conservation easement and historic resources along Fall Hill Avenue which further minimizes the impacts to these significant resources.***

5.	**Retaining Walls:** The Corman DB Team design includes an additional retaining wall on Mary Washington Boulevard, right of Sta 203+35 to **reduce wetland impacts by 2,500 SF and stream impacts by 65'** at the concrete box culvert crossing. We also designed the retaining wall along Fall Hill Avenue and Mary Washington Boulevard for the Forest Village parking lot at the roundabout and along Mary Washington Boulevard at the civil war trenches to minimize impacts to these resources. Our design takes advantage of using a soil nail retaining wall that can be constructed from the top down to minimize temporary construction easements in the parking lot and disturbance to the civil war trench complex. We also utilized retaining walls to minimize impacts to utilities at Sta 168+00.
6	**Minimizing Environmental Impacts:** The Corman DB Team design eliminated over 20% of the wetland and 30% of the stream impacts included in the RFP concept plan.
7	**Stormwater Management:** The Corman DB Team design eliminates the need for two stormwater management facilities along Mary Washington Boulevard.

Roadway Geometry: The Corman DB Team modified the proposed geometry of the preliminary design in the RFP to minimize utility impacts, improve MOT, balance earthwork and minimize impacts to environmental, historic and private property as described above. A major element develops resurfacing grades through segments of existing Fall Hill Avenue west of I-95 and Mary Washington Boulevard between Hospital Drive and Route 1 that meet the cross slope of proposed pavement. We plan to strengthen and overlay the existing pavement in these locations where feasible. These proposed design changes meet current VDOT and AASHTO criteria while reducing costs to the Department.

Roadside Design: Fall Hill Avenue and Mary Washington Boulevard will be designed as urban collectors (VDOT Standard GS-7) with a 40 MPH minimum design speed, while Route 1 will be designed as an urban principal arterial (VDOT Standard GS-5) with a 40 MPH minimum design speed. Other side streets along the project corridor will be designed as urban local roads (VDOT Standard GS-8) with minimum design speeds of 20 MPH.

Pavement Design: We assume pavement sections are as specified in the RFP. During scope validation, subsurface and non-destructive testing will verify the VDOT pre-bid assumptions and revised designs provided, if required.

Noise Walls: Three noise walls have been included in the design as described in the RFP and Addendum. The final barrier location and dimensions will be determined during the final design noise analysis. The proposed noise wall that parallels I-95 will be constructed to accommodate the future I-95 CD Lanes without future modifications to the noise barrier. The other two noise walls are along Fall Hill Avenue from Sta. 151+25 to 153+00 and Sta. 153+50 to 156+00.

Stormwater Management Design Concept: The Corman DB Team's stormwater management approach follows the Standards and Specifications and technical requirements in the RFP. The design uses SWM facilities and Best Management Practices (BMPs) to achieve water quantity and quality treatment as required within the project limits. Proposed facilities will be chosen based on VDOT and DEQ standard criteria. Conceptual stormwater management facilities are included in our ***Technical Proposal: Volume II*** and are summarized in this section.

The project area is divided into two drainage areas with the proposed bridge over I-95 acting as the divide. Flows are from approximately Sta. 132+00 and areas west drain north to Fall Quarry Run. Runoff is from approximately Sta. 132+00 and areas east drain to the Rappahannock Canal. Both outfalls drain to the Rappahannock River.

Improvements are along Fall Hill Avenue west of Sta. 132+00 drain to proposed SWMF No. 1 at approximately Sta. 118+50. Per the Performance-Based Water Quality Criteria, an enhanced dry extended detention basin is proposed to meet the stormwater quality and pollutant removal efficiency requirements within the site area. SWMF No. 1 will treat roughly 3.4 acres of impervious area from Fall Hill Avenue, portions of proposed Briscoe Lane, and the proposed sidewalk and shared-use path. It will intercept a drainage area of approximately 6.9 acres. In addition to providing extended release of the water quality volume, the facility will have shallow

pools or marshes for deposition of sediments. The design will provide a lengthened flow path to increase residence time in the facility and prevent short-circuiting. Sediment forebays will be provided at all points of concentrated discharge for further deposition. Facility landscaping will be per DEQ criteria to minimize erosion, re-suspension, and enhance filtering. The facility and outlet configuration will be designed to limit discharges per VESCH MS-19 standards. Areas east of Sta. 132+00 drain to the Rappahannock Canal. Per the RFP, the Canal, its overflow basins, and automated gate outlet structure were analyzed as a regional BMP since it serves as part of the City of Fredericksburg's MS4 compliance. It is anticipated that the Canal will provide water quality and quantity control for the proposed roadway improvements within its drainage area.

The area east of Sta. 132+00 can be broken into several sub-basins based on outfall locations. The stormwater management quality and quantity requirements for those locations draining directly to the Canal at approximately Sta.184+00, 203+00, and 210+00 are anticipated to be met by the Canal. Provision of SWM upstream is impractical due to DVP Transmission Lines over potential SWM locations. An additional sub-basin is comprised of the drainage area to SWMF No. 2 located at roughly Sta. 142+00, RT. While anticipated that water quality treatment is met by the Canal, stormwater quantity treatment will meet requirements for discharge point per VESCH MS-19. Based on the downstream adequate channel analysis, the pond has been reduced in size based on the discharge requirements.

LOW IMPACTS: The Corman DB Team design reduces ROW impacts by reducing the size of SWMF No. 2 and eliminating two SWM facilities along Mary Washington Boulevard.

Proposed SWMF No. 2 treats approximately 4.5 acres of impervious area within a drainage area of 7.4 acres comprised of portions of Fall Hill Avenue, Frederick Place, Roffman Road, and the proposed sidewalk and shared-use path improvements.

No Stormwater Management requirements are anticipated within the area upstream of Sta. 214+50 as the improvements are comprised of resurfacing existing pavement and proposed BMPs elsewhere will provide compensatory treatment.

The Corman DB Team recognizes the Stormwater Management Report, *"Rappahannock Canal as a Stormwater System,"* and the Preliminary Hydraulics Report is for informational purposes. Assumptions, calculations, and conclusions will be verified during design and submitted to VDOT for review, comment, and approval.

Drainage Systems Design: The Corman DB Team will design surface water conveyance per VDOTs drainage manual to discharge to stable outfalls from VDOT right-of-way. The Team will design closed storm drain systems per Chapter 9. Based on the roadway's classification as an urban collector, inlets will be spaced based on the controlling spread from a 4" per hour intensity storm to be less than half the driving lane, plus the gutter width. Storm drain pipes will be sized for capacity based on the 10-year storm event, and the 10-year hydraulic grade line will be checked for no surcharging of proposed structures. Hydrologic computations will be performed using the Rational Method. NRCS TR-55 methodology will be used for drainage areas greater than 200 acres.

Open channels (major and minor) will be designed per MS-19 for adequate receiving channels. Natural channels will convey the runoff from a 2-year storm under post-developed conditions without overtopping the banks or eroding. Manmade channels will convey the 10-year storm event without overtopping, and no erosion during a 2-year storm. Riprap stabilization or ditch lining will be designed per Drainage Manual, Chapter 7.

The Corman DB Team will inspect existing inlets, pipes, culverts, and BMPs and recommend cleaning or repairs as part of the contract. The design will include the required pipe and structure schedules, pipe profiles and any special drainage details.

Major Drainage Structures

Roadway Culvert Crossings: The project includes one proposed major culvert crossing at Sta. 203+50 (10' x 10' Concrete Box Culvert) along the Mary Washington Boulevard Extension. The Corman DB Team's drainage design concept for culverts achieves these goals:

1. Hydraulic capacity sized to meet the design discharge based on ultimate zoned land use of the existing drainage area boundaries to the culverts. Performance will be evaluated over a range of flows.
2. Limits stream environmental impacts.
3. Minimizes traffic impacts.
4. Economical design/construction.
5. Environmental friendly.
6. Meets current design standards.
7. Meets MS-19 standards at outfalls.

The Corman DB Team will design the crossing per Chapters 8 and 12 of the VDOT Drainage Manual and FHWA HDS-5. Culvert hydrology will be per Chapter 6 of the VDOT Drainage Manual. Culvert hydraulics will be analyzed using USACEs HEC-RAS software. Several options were analyzed for optimal hydraulic conditions while minimizing costs and impacts to stream and floodplain environments.

The proposed culverts' potential impacts to the stream channels will be analyzed. The Team will balance "process" and "form" based approaches for long-term stream stability and minimize environmental impacts. For relocated stream impacts, the Team will assess hydrologic regime, hydraulic controls, influent water quality, channel material, stream geometry, vegetative condition, aquatic habitat, and stream condition with respect to the watershed. Culvert design will minimize adverse impacts to existing water surface elevations and include analysis for shear stress and channel velocity to decrease erosion. Downstream channels will be evaluated per MS-19 standards. To manage fish passage, the box culvert will be countersink.

Our preliminary design for major culvert solutions are shown and annotated in the Concept Roadway Plans in ***Volume II***.

Erosion and Sediment Control: The Corman DB Team will design erosion and sediment controls per VDOT Drainage Manual, Chapter 10 and pertinent I&IMs.

The Erosion and Sediment Control Plan will be comprised of stabilized construction entrances at construction egress points. Temporary silt fence will be placed along the project perimeter and at proposed toes of slopes. Drainage inlets, existing and proposed, will be treated with an inlet protection device. Proposed SWM facilities will be used as sediment basins during construction, although additional sediment traps are anticipated. Erosion and Sediment Control Plans must go through an internal review for constructability and obtain VDOT approval.

Signing, Markings, Traffic Signals, and Lighting Design Concept

Signing and Markings: The signing and pavement marking design will adhere to *VDOT's 2011 Traffic Engineering Design Manual, Manual of Uniform Traffic Control Devices (MUTCD) 2009, FHWA Standard Highway Signs, VDOT's 2011 MUTCD Supplement, Virginia Standard Highway Signs 2011 Edition, Virginia Work Area Protection Manual, and AASHTO LTS-4-M Standard Specifications for Structural Supports for Highway Signs*.

An inventory will be taken of existing signs within the project limits. Impacted existing signs and adjacent roadway signs requiring relocation and/or revisions due to the project will be upgraded and/or replaced. GuidSIGN software will be used to design the sign panels. It is anticipated the existing bridge mounted signing on the existing Fall Hill Ave bridge over I-95 will be removed and relocated as part of a separate overall I-95 signing project prior to our construction. The signing plans will be at one inch = 50 feet scale and show proposed sign messages, sign designations, sizes, structure type, and location. Sign supports will be standard VDOT sign structures. A schedule of pavement markings, any delineation devices and signs (existing to be

removed/relocated and proposed), sign elevations with the sign supports and summary of quantities will be in the final plans.

Fall Hill Avenue and Mary Washington Boulevard roundabout signs will be prepared per the *MUTCD* and *NCHRP Report 672 Roundabouts–An Informational Guide.* Advanced roundabout guide signs, intersection lane control signs for roundabouts, advanced warning signs, regulatory signs, object markers, and advanced street name signs will be provided on the approaches.

Pavement marking materials will be per the RFP. Permanent edge, center, and skip lines will be Type B Class I thermoplastic, except for I-95, which will be Type B, Class VI. Permanent edge, center, and skip lines placed on concrete surfaces will be Type B, Class VI preformed tape. Contrast pavement markings will be used where there is insufficient contrast between hydraulic cement concrete pavement and white pavement markings. Raised pavement markers will be installed along new lane and skip lines per VDOT's Standard PM-8 and PM-9, except the bridge deck.

Signals: Since the three traffic signals within the project limits are maintained by the City of Fredericksburg, the Corman DB Team will coordinate with the City throughout design and construction. The Fall Hill Avenue at Wicklow Drive and Route 1 (Jefferson Davis Highway) at Mary Washington Boulevard signals will be replaced. For the Fall Hill Avenue at Gordon W. Shelton Boulevard, all equipment will be replaced as indicated on the RFP plans. The signal design will be per the RFP. Signal poles will be Type III or Type IV with mast arms. We will coordinate with Dominion Virginia Power for power drops to the new traffic signals. Existing broadband communication circuits will be maintained throughout construction at the Fall Hill Avenue at Gordon W. Shelton Boulevard and Route 1 at Mary Washington Boulevard intersections and relocated to the new controller cabinets. A new broadband communication circuit will be established between the traffic controller at the Fall Hill Avenue at Wicklow Drive intersection and the City of Fredericksburg Traffic Operations Center (TOC).

There will be temporary signalization and signal timings and vehicle detection will be maintained on approaches during construction. The Corman DB Team will assume responsibility for the traffic signal until final acceptance of the permanent signal by the City.

Lighting: Lighting design will be provided at three signalized intersections per the RFP, VDOT's *2011 Traffic Engineering Design Manual, IESNA RP-8-00 – Roadway Lighting, AASHTO Roadway Lighting Design Guide 2005, AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 1994 & 2001 editions, VDOT Road Design Manual (similar to AASHTO), 2007 Road & Bridge Specifications & Revisions and 2008 Road and Bridge Standards.*

Design includes the following signalized intersections per the RFP:

- Fall Hill Avenue at Gordon W. Shelton Boulevard
- Fall Hill Avenue at Wicklow Drive
- Route 1 (Jefferson Davis Highway) at Mary Washington Boulevard

Signalized intersection lighting will be achieved by installing luminaires on luminaire arms on all signal poles at each intersection. Electrical wiring will be installed from the electrical service point through a conduit and junction box system independent from the traffic signals and not pass through the traffic signal controller cabinet. The minimum conduit size will be two inches, unless larger conduit is required to maintain a conduit fill capacity of 25% or less.

Existing franchised (leased) roadway lighting owned and maintained by Dominion Virginia Power will be relocated or replaced where impacted by construction. This will be coordinated with Dominion Virginia Power and the City of Fredericksburg. Any private lighting impacted by construction will be coordinated with the respective owner through the right-of-way process.

Landscaping Design Concept: Landscape plans will be designed by a licensed Landscape Architect to meet VDOT guidelines. The design team will use plant materials that tolerate a wide range of conditions for stormwater management features. They will be aesthetically pleasing and enhance the historic resources along the project corridor. Stormwater management features will be screened from residences with perimeter plantings. The design team will use native and adaptive plant species that are durable, long-lived, aesthetically-pleasing, and are low maintenance. They will be located to mitigate impacts to adjacent properties and not impede sight distance at intersections. The roundabout design will include hardscape in the form of a concrete apron and/or channelizing islands. Although not required by the RFP, for safety reasons, we will include low-growth plantings at the roundabout to screen oncoming headlights glare.

Snowden Park Facilities: This Park is impacted by this project and VDOT thru this contract has agreed to replace the basketball court facilities and one baseball field in kind as defined in Addendum No. 1. Improvements will also include a new 40-space parking lot. The final design will be reviewed by the City and inspected during construction to ensure it replaces the existing facilities in kind, as specified in the RFP.

Major Geotechnical Issues

Local Geology: The Corman DB Team reviewed the provided VDOT *Geotechnical Data Report* (GDR) and geotechnical/geological reference material. We understand the project site is across the fall line, the general division between residual soil and rock of the Piedmont physiographic region and deposits of the Coastal Plain. The upper, alluvial soil strata, is described as silt and clay of the Bacon Castle formation, sand and gravel of the Mooring Unit of Oaks and Coch, and clay and silt of the Potomac Formation. The Potomac Formation is known for slope failures associated with slicken sides, weathering, and water conditions. The residual soil profile is generally indistinguishable from the overlying Coastal Plain deposits, but is apparent in borings performed for the Fall Hill Avenue bridge replacement. Soil test borings along the planned bridge alignment encountered a thick layer of highly weathered rock material over bedrock. The weathered rock material was described as fine to coarse silty sand with various amounts of fine gravel. Rock cores performed in the bridge borings recovered mostly granite rock with some portions of quartzite and gneiss. These rock types are characteristic of the Ta River Metamorphic Suite.

Geotechnical Risks and Mitigation Measures: The Corman DB Team knows, and is prepared to address, the geotechnical issues highlighted and briefly discussed in the GDR, as well as other unknown geotechnical issues that may arise during design and construction. Geotechnical issues currently known to exist are as follows:

- Earthwork and grading, including minor stiff soil excavation
- Identifying and treating unsuitable materials
- Design and construction of cut and fill slopes
- Design and construction of permanent earth retention walls to avoid impact to civil war trenches and the existing parking lot for apartment buildings
- Design and construction of drainage pipes
- Design and construction of stormwater management facilities
- Design and construction of pavements

Several of these issues are further discussed below to illustrate our ability in identifying and mitigating risk.

Archeological Preservation: From reviewing RFP drawings and the *Geotechnical Engineering Data Report*, it is apparent that Cultural Resource Site 44SP0572 (Civil War Trenches), is along the hilltop east of the planned Mary Washington Boulevard extension. The Corman DB Team knows the importance of preserving the historic trenches. In this area, cuts and fills are required to level the existing undulating ground surface to the generally level proposed grade. Two areas are identified on the RFP plans where cut slopes may encroach on the historic site. To avoid unnecessary trench impacts, we are installing soil nail walls in lieu of traditional MSE or Gravity walls, to support the cut hill-slopes along the Mary Washington Boulevard alignment. These walls require less

excavation and will have a smaller disturbed area adjacent to the historic features. The soil nail walls are discussed in the following sections along with other earth retention structures anticipated during the project.

Retaining Walls: The Corman DB Team is proposing an additional MSE retaining wall from Sta. 203+00 to 205+50 to reduce wetland and stream impacts. Another MSE wall will be provided from Sta. 135+00 to 140+50 to protect the existing townhomes.

Two additional RW-2 walls are added to the design to reduce impacts to utilities and adjacent properties. The first wall is on Fall Hill Avenue between Sta. 167+75 and 168+50 and the second wall is on Mary Washington Boulevard between Sta. 217+50 and 219+75. The table on the following page summarizes the retaining walls:

STATION RANGE FROM - TO	WALL TYPE	MAX HEIGHT (FT)
FH 178+55 – MW 202+75	Soil Nail	23
MW 204+82 – 209+90	Soil Nail	19
MW 212+13 – 213+99	Soil Nail	15
FH 135+00 to 140+50	MSE	12
MW 203+00 to 204+50	MSE	14
FH 167+75 to 168+50	RW-2	5
MW 217+50 to 219+75	RW-2	5

Unsuitable Material: Review of the GDR unsuitable material summary and individual boring logs indicate that shallow removal or in place soil remediation is required for much of the planned roadway sub-grade. Materials present at and slightly below the ground surface include soft to firm sandy clay (CL), very loose to loose clayey sand (SC), or plastic clay (CH). These materials are considered unsuitable as sub-grade material. The following describes the majority of anticipated sub-grade conditioning.

STATION RANGE FROM - TO	DEPTH (FT)	REFERENCE BORINGS	DESCRIPTION
FH 113+00 – 116+00	2	12FH-04,05,06	Firm CH to loose SC
FH 118+00 – 120+00	2	12FH-09,10,11	Soft to firm CL fill
FH 123+00 – 125+00	2	12FH-13,14	Stiff CH
FH 140+00 – 144+00	2	12FH-20 thru 25	Soft to firm CL/CH to loose SC
FH 161+50 – 180+00	2 – 4	12FH-36 thru 43	Firm CH to loose SM
MW 203+00 – 204+00	2 – 6	12MW-05,06	Very soft CL to very loose SC
MW 209+50 – 217+00	2 - 3	12MW-13 thru 19	Soft CL to loose SC fill

The Corman DB Team anticipates that soil remediation using Quicklime (CaO) or hydrated lime ($Ca[OH]_2$) is an efficient and effective way to stabilize soil for most of the shallow (<2' deep) sub-grade soils. Lime stabilization is advantageous to standard cut/fill methods; it uses on site soil reducing the need for off-site soil stockpiles. When mixed with the clayey soils present on site, the lime modifies the existing soil structure, altering the clay into something that acts as silty sand.

Relatively deep (2-6 ft.) of unsuitable material was encountered along the planned Mary Washington Boulevard between approximate roadway Sta 203+00 and 204+00. In this area, 10 to 15 ft. of fill material is required to achieve planned roadway grades. The Corman DB Team anticipates undercutting or conditioning this area based upon the final detailed geotechnical investigations.

Cut Slope and Fill Slope Design and Construction: Fill slopes graded at 2.0(H):1.0(V) appear possible for much of the Fall Hill Avenue widening. Steep cuts will be retained with MSE walls or soil nail supported as

previously discussed. Due to the soil conditions encountered and tendency for slope instability, additional cut slopes will be assessed on a slope-by-slope basis. Slope stability analysis will be performed using standard limit equilibrium software packages. Analyses will be scaled to match the nature of the slopes to be evaluated.

GEOTECHNICAL RISK AND MITIGATION MODIFIED FOR THIS PROJECT

Risk	Mitigation
Excessive lateral movement cut slopes adjacent to historical civil war trenches.	✓ Review available design drawing and geotechnical information to develop soil strength criteria for slope stability analysis. ✓ Review geotechnical information to identify available soil nail pullout resistance. ✓ Analyze global and local stability. ✓ Outline proof and performance testing requirements verifying grout-to-soil bond strength and soil nail pullout resistance. ✓ Monitor slopes and wall face for movement.
Inadequate sub-grade material for pavement support	✓ Review current subsurface information associated with sub-grade characterization. ✓ Perform additional shallow sub-surface exploration and laboratory testing to better define areas of unsuitable sub-grade material. ✓ Geotechnical Engineer assesses sub-grade material using proof-rolling and other site measurements ✓ Select mitigation measures based on safety, performance, and cost.
Inadequate performance for 2H:1V cut and fill slopes along the project alignment depending on specifics of the slopes and the sub-surface conditions at the slope locations.	✓ Review each slope area for configuration and currently available sub-surface information. ✓ Perform additional sub-surface exploration and special field and laboratory testing to evaluate sub-surface conditions at each site. ✓ Perform stability analyses per accepted VDOT procedures to evaluate stability conditions for the slopes. ✓ Select mitigation measures based on site limitations, safety, performance, and costs.

4.3.2 STRUCTURAL DESIGN CONCEPT

The following is a description of the major bridge and retaining wall structures. The major drainages structures are addressed above in **4.3.1.**

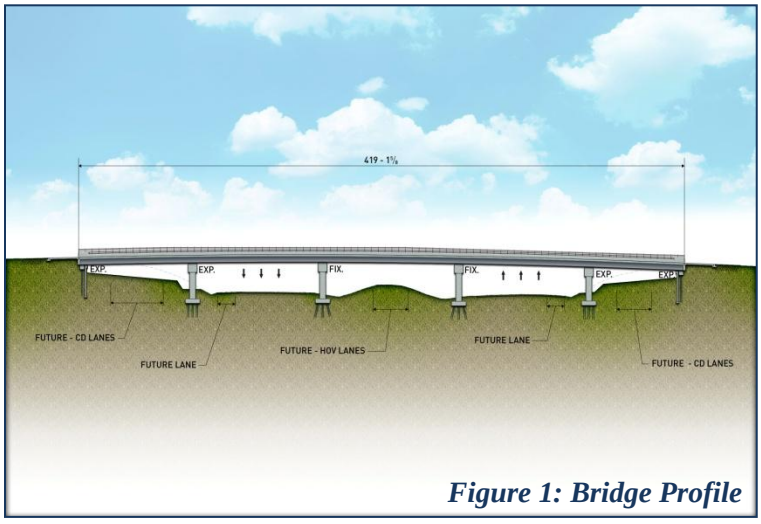


Figure 1: Bridge Profile

Fall Hill Avenue I-95 Overpass: The Corman DB Team has evaluated the RFP and supporting documents, and understands the requirements and challenges affecting designing the bridge over I-95. Challenges include: tall abutment walls in a cut, staged construction over an active interstate, detailing for minimal future maintenance and for current and future configurations of I-95. Inherent in the design approach is incorporating provisions of the 6th Edition of the *AASHTO LRFD Bridge Design Specifications, VDOT's Structure and Bridge Design Manuals and Standards, Structure and Bridge IIM's, VDOT's Road and Bridge Specifications*, and RFP requirements. The bridge will be designed to accommodate the future I-95 improvements without future modifications to the bridge, abutments, and associated walls.

Our proposed bridge structure resembles the RFP plans. It is five spans long with span lengths of 80'-2/8", 89'-3/8", 93'-2 5/8", 89'-3/8", and 67'-7 3/4" for a total of 419'-1 ¾" ***(See Figure #1).*** The superstructure is composed of pre-stressed, precast bulb tee beams made composite with a concrete deck, designed and constructed simply supported for dead load and made continuous for live load. The typical section is the same as the RFP plans, except the exterior railing at the shared-use path is not required to be the BR27 railing per VDOT S&B Vol. V, Part 2, File 06.04-12, and the longitudinal joint is removed and replaced with a construction joint at the staged construction interface. ***(See Figure #2)*** for proposed typical section.

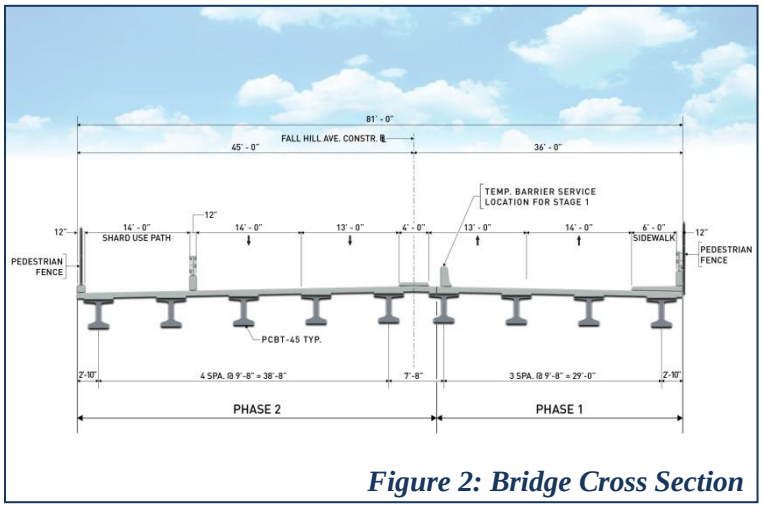


Figure 2: Bridge Cross Section

The Corman DB Team design also eliminates the curved bridge geometry by revising the horizontal alignment of Fall Hill Avenue approaching the west end of the proposed bridge. The bridge location was also shifted approximately 5 ft. to the south to improve constructability.

Our proposed abutments Team are MSE walls to resist earth induced horizontal pressures and a semi-intergral style abutment set on a strip concrete abutment and footing with staggered steel piles ranging between 40 and 50 ft deep. We note that as-built plans for the existing I-95 overpass indicate 10 H-piles installed per abutment with anticipated depths of 40 ft. each. The abutment seat has additional tie-back straps integrated into its construction to resist the bridge longitudinal forces, eliminating battered piles. The abutments will include extending MSE retaining walls along the future I-95 CD lanes to ensure the future extensions of these walls can be constructed in the future without no modification of the structural elements constructed by the Corman DB Team. There are proposed multi-column type piers set on a pile supported footing. It is proposed to use a single pier structure with no joint pursuant to the allowance in Vol. V, Part 2, File 15-01-1.

Pier support will be from driven steel piles installed into highly weathered rock. Driven steel piles will range 30 to 40 ft. deep below the existing ground surface.

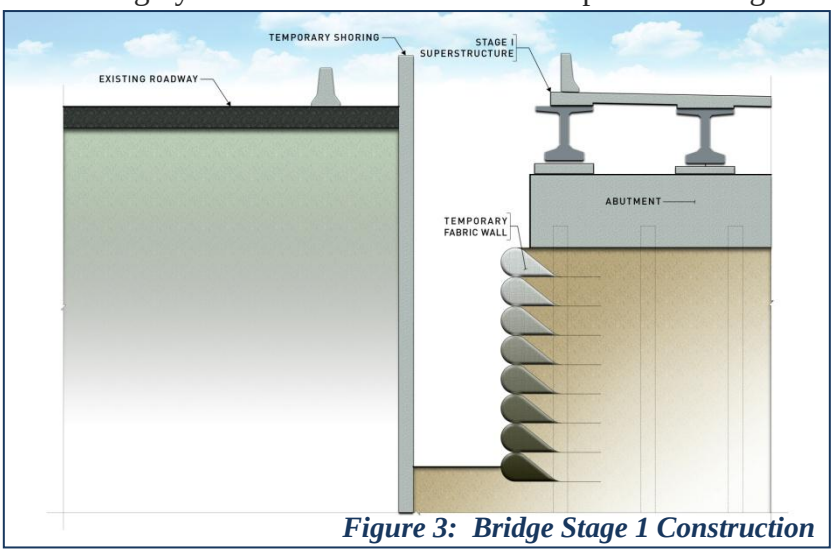


Figure 3: Bridge Stage 1 Construction

Based on the proposed bridge structure, the following are descriptions of the Corman DB Team's proposed solutions to the above bridge design challenges:

Abutment Walls: To construct a high MSE wall in a cut section, the footprint of the proposed MSE wall and backfill must first be excavated. It is proposed to install a temporary shoring wall along the existing Fall Hill Avenue within the MSE wall footprint. Once excavated, the MSE wall is constructed for the current stage. In Stage 1, the construction joint in the wall and fill is to be constructed using a designed fabric faced wall consisting of geo-textile based lifts wrapped at the face and folded back to form an stabilized wall face.

Staged Construction over an Active Interstate: The proposed Fall Hill Ave horizontal roadway alignment is shifted 5 ft. to the south of the RFP alignment. This allows additional room to construct the first stage of the bridge from the existing bridge and increases room to install the shoring walls needed at the abutment cuts. Additionally, it is proposed to eliminate the longitudinal joint shown in the RFP plans. VDOT S&B Vol. V, Part 2, File. 10.04-1 states that a joint is required for deck slabs cast in a single pour over 80 ft. wide. Since this bridge is constructed in two phases, it is proposed to use only a construction joint and cast two pours of significantly less width. The deck and superstructure will be designed to accommodate short- and long-term shrinkage and creep of the deck transversely, as well as longitudinally. Also, a beam is positioned at the

construction joint so that no additional overhangs are needed beside the exterior beam overhangs, reducing complicated formwork and deck support falsework over an active interstate.

Detailing for Future Minimal Maintenance: The proposed bridge structure will be jointless using semi-integral abutments as permitted by the approved Design Waiver in the RFP. In addition, the Corman DB Team proposes to eliminate the longitudinal deck joint shown in the RFP plans, and to reconfigure the multi-column piers for a more efficient and balanced design for these substructure units. Using a pile-supported foundation for the piers provides redundancy of foundational support, engages more of the subsurface, and provides a structure that meets the RFP for limiting overall and differential settlement. Similar to current VDOT practices, low permeability concrete and corrosion resistant reinforcing steels will be used per VDOT standards. The buried approach slab proposed in the RFP plans are incorporated in this bridge structure for easy long-term maintenance of the approach roadways.

Detailing for Current and Future Configurations of I-95: Since this bridge structure is arranged to provide for several future lane concepts, these uses are incorporated into the currently proposed design. The substructure elements are situated to provide for the current and future roadway improvements. A modification from the RFP plans is to incorporate current and future substructure crash protection into the proposed bridge structure. VDOT's pier protections standards, BPPS-1-2 are proposed in lieu of designing the piers for impact forces. Those pier protection barriers for the current I-95 configuration will be installed with this project. The pier and abutment protection barriers for future lane configurations will be accommodated geometrically and identified on the proposed bridge plans, but not installed at this time, realizing a cost savings to the Department as the exact geometry of the future lanes is not currently known.

The proposed bridge structure will receive aesthetic treatments specified in the RFP and Addendum which includes providing the dry stake form liner to the abutments, wing walls and parapet and be consistent with the noise and retaining walls.

By utilizing our inherent understanding of VDOT design practices, attention to long-term, low maintenance detailing, innovative construction techniques, and a drive to tackle design challenges head on, the Corman DB Team will deliver to VDOT a well designed and constructed, low maintenance structure, with a long service life.

Retaining Walls: The Corman DB Team design includes several types of retaining walls to reduce right-of-way and utility impacts. Walls are proposed to have architectural treatment consistent with the bridge as defined above. The retaining walls require a metal railing conforming to VDOT Standard HR-1 at the top of the wall unless located within the clear zone along a roadway fill section, which would require a concrete barrier. The RFP plans require a 10.5 ft. lateral offset from the face of curb to retaining walls located within a cut section. The type of retaining wall has been analyzed for each location and MSE walls will be provided in fill locations due to cost and construction duration. The retaining walls in cut sections will be the VDOT Standard RW wall if below 5 ft. high and the retaining walls at the Forest Village apartments and the civil war trenches will be soil nail walls. This will significantly reduce construction impacts at the civil war trenches by eliminating unnecessary excavation behind the retaining wall for temporary shoring.

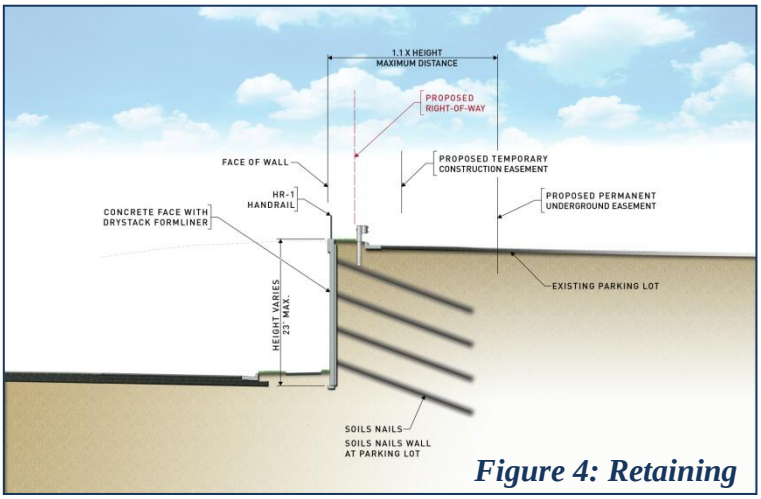


Figure 4: Retaining

Retaining Wall Construction: Soil nailing is a method of top down wall construction where long steel rods (soil nails) are grouted into the cut face. In most installations, a reinforced shotcrete working face connects the nails at the open cut surface. A finished veneer is typically attached to the shotcrete face for appearance and to protect the steel nail heads. The advantages of using a soil nail wall instead of a standard pile and lagging wall includes avoiding impacts of large pile drill or driving equipment (i.e., vibrations and large working area requirements) and reduces steel material. Soil-nail walls will be used for three large cut walls. The first wall is along Fall Hill Avenue between Sta. 178+75 and 202+50 to reduce parking lot impacts. The second and third walls are on Mary Washington Boulevard from Sta 204+75 to 206+75 and from 212+25 to 213+75 to avoid impact on the civil war trenches.

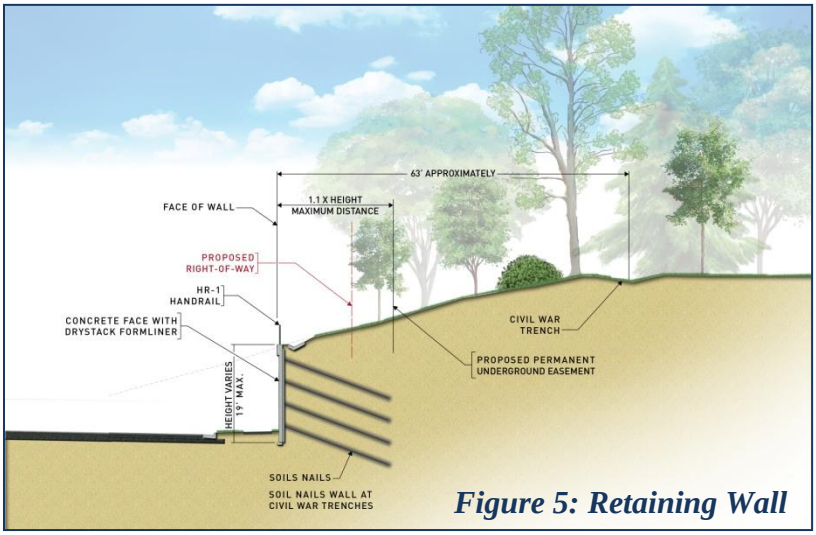


Figure 5: Retaining Wall

4.4 PROJECT APPROACH

4.4.1 RIGHT OF WAY ACQUISITION / ENVIRONMENTAL MANAGEMENT

RIGHT OF WAY ACQUISTION

ROW Approach: ROW acquisition is on the critical path for completing the work in several of the phased construction segments, especially where utility easements are required on Fall Hill Ave between the Bridge and Roundabout and from the property with a historic conservation easement overlaying it on the north side of the road just west of the roundabout, as well as from Dominion Power along Mary Washington Boulevard extension. ***Especially critical is the timely acquisition of the ROW easements required for the utility relocations. The Design Construction Coordinator, Lou Robbins, will pay special attention to this critical coordination utilizing joint ROW / Utility Task Force meetings bi-weekly to insure timely and accurate communication occurs***. Relief from the growing congestion is dependent upon completing these site improvements, making timely ROW acquisition imperative. The Corman DB Team has already emphasized to the Design Team the importance of monitoring the design for additional impacts to these critical properties, as well as all others that are identified to be acquired.

SCHEDULE MANAGEMENT: ***Especially critical is the timely acquisition of the ROW easements required for the utility relocations. The Design Construction Coordinator, Lou Robbins, will pay special attention to this critical coordination utilizing joint ROW / Utility Task Force meetings bi-weekly to insure timely and accurate communication occurs.***

To ensure the ROW shown on our attached Concept plans (except as provided in the Addendum to Section 1.4 of Part 2 for increased flexibility, and known design issues or for temporary or permanent easements) is not exceeded, the Design Team, led by Design Manager John Maddox, will institute these procedures:

1. Prepare a CAD reference file with the identified limits of right-of-way and easement highlighted in a bold color.
2. During each iteration of design, display this reference file superimposed onto the design elements. The independent QC checker confirms/verifies that the current limits of identified ROW or easement are adequate for the updated design. If the design element extends beyond the ROW or easement boundary, the designer and QC checker revisits the design to determine if another refinement is required to stay within the original limit.
3. If not feasible, the team reports to the Design Manager that additional ROW or easement is required. John reviews with design and construction team senior technical leaders to explore other options. If additional ROW is unavoidable and the adjustment is *minor*, per Part 2, Section 1.4 of the RFP, John notifies the DBPM and provides:
    a. A drawing of the area in question, depicting the new ROW or easement limit
    b. A description of alternatives and options to mitigate the need
    c. A calculation of the additional ROW or easement area
    d. A written explanation of this as necessary
    e. Once the DBPM Jo Ellen Sines determines the *minor adjustment* is needed, she notifies VDOT of the change and forwards the documentation.

For transparency, consistency, and to be equitable in all acquisition transactions, our ROW Team, led by KDR, will follow applicable laws and regulations and have assigned experienced, capable appraisers and ROW agents. Appraisals will be completed by VDOT pre-qualified, Virginia licensed Certified General Appraisers and meet the licensing requirements per Section 406 of Title 54.1 of the Code of Virginia, as amended. Review appraisers will also be preapproved by VDOT.

The appraisal process and scope of work starts off with a letter of notification to the property owner offering the opportunity to be present during the inspection, an inspection of the property, an analysis of primary data relating to the property, search of records for comparable sales, inspection/verification of comparable data, consideration of secondary data regarding local and regional market conditions as related to an analysis of highest and best use, analysis of the market data collected, and a reconciliation into a final estimate of market value as of the effective date of the appraisal report. Estimating property values will conform to recognized practices in the appraisal profession, USPAP, Virginia Code, and VDOT requirements. They will be prepared as Self Contained Narrative Appraisal or as Abbreviated Appraisal reports based on the appraisal type required for the property in question. This includes conducting inspections at a time that gives the property owner the opportunity to attend. Photographs will show the area(s) to be acquired and any on-site improvements for which a payment is being made. Appraisals will be completed using VDOT's forms and information will be entered into the ROW Utility Management System (RUMS).

CONSISTENCY: Information is entered into RUMS and notes are entered/updated 24-48 hours after contacting each property owner. We also keep internal tracking sheets to be shared bi-weekly at the regular ROW task force meetings.

After Notice to Commence, ROW Approval is obtained from VDOT and the Corman DB Team moves forward with the acquisition. Coordination with property owners is in the form of negotiations per Federal and State laws, rules, regulations, policies, and procedures set forth by FHWA and VDOT. A bona fide offer will *always* be made in person, unless the owner resides out of state and cannot attend a meeting with the negotiator.

An offer will be in writing using VDOT's offer letter and forms in the Right of Way and Utilities Manual and include a copy of the appraisal, title report, plats, plans, and options. The ROW agent explains the project, its affect on their property, and walks with the owner explaining the approximate dimensions of the area being acquired. The offer is based on the approved appraisal and the ROW way agent will stay within VDOT's limits with written justification for going $2,500 over the appraised value, if necessary. The ROW agent will be certain to let all property owners know that any agreement reached is contingent upon VDOT approval. The ROW agent then updates RUMS, completes the RW24 Report, and submits the ROW acceptance or refusal packages for approval.

THOROUGHNESS: At the offer meeting with each property owner, we explain the process, how the offer was established, walk the property, and discuss the plans. Identifying issues upfront, keeping contact with owners, and utilizing our engineers, surveyors, environmental, and scientists to promptly address questions and concerns steamrolls us through issues and avoids project delays.

Our goal is to identify key utility relocations early on, following VDOT's current utility relocation process, and where possible, combine multiple utilities in a joint easement. The Corman DB Team will work with Dominion Power to obtain ROW along Mary Washington Boulevard Extension where they have large overhead power infrastructure. As discussed in our Proprietary Meeting, we developed several alternatives here and will continue the dialog to reduce any impact to their facilities. Using Utility Pros (based in Fredericksburg) for this task has already proven invaluable as many staff members are former Dominion or Verizon engineers who clearly understand the utilities policies and procedures. On our Design-Build Route 1 Widening project in Fort Belvoir, this advantage turned what could have been a schedule busting relationship into one that is cooperative and productive for the benefit of the project.

Attention will be paid to the historic sensitive areas, especially those that contain a Historic Conservation easement. Corman and KDR are experienced in obtaining through permanent easements historic properties for VDOT or the City of Fredericksburg using current VDOT policies and procedures: Corman from the National Historic Trust on our Route 1 widening project near Mt. Vernon and KDR on the same properties involved with this project for the new bridge over the Rappahannock Canal at the eastern terminus of Fall Hill Avenue, just east of the new roundabout.

Acquisition Challenges

Conservation Easements: Two parcels are encumbered with conservation easements owned by The Virginia Historic Landmarks Corporation (VHR). Obtaining a permanent easement as opposed to a fee acquisition simplifies the process to some degree; however, based on similar past acquisition transactions involving VHR on these same properties, the approval process for a recordable document could take up to a year, if not longer. Based on KDR's knowledge, the following methodology is recommended:

1. Contact the landowner and VHR as soon as NTP is given to explain the process and get concurrence that a first draft of the conveyance document will be initiated by VDOT prior to making the offer.
2. Contact VDOT staff counsel and request a first draft of the conveyance document. A prototype has been previously done for this same property by VHR and some time may be saved if a similar format is used.
3. Monitor the draft and confirm delivery to KDR and the landowner's attorney, if applicable, for review.
4. Monitor the review process until a final draft has been approved by all parties.
5. Confirm delivery of approved draft to the Attorney General's office, which will provide final approval before a recordable document is available.
6. During the above, complete a title research and appraisal.
7. Include the approved document in the offer packet and present it to the landowner.
8. The remaining part of the acquisition process will be affected in the conventional way.

Two parcels are encumbered with conservation easements owned by The Virginia Historic Landmarks Corporation. There would be significant delays due to a bureaucratic approval process if rights were being acquired in fee. However, the plans have been designed to eliminate executive board approval by changing the affected areas to permanent easement. Although approvals are still needed, they can be done at an administrative level. Newer conservation easement agreements have included language making acquisitions for infrastructure improvements, such as road widening, less cumbersome. The recorded document for the subject easements will need to be reviewed relative to the process that will be required.

Joint Use Easements: Using joint use easements for utilities not within existing privately owned easements will facilitate the acquisition of rights for relocated utility lines. It will reduce the number of easement agreements needed for dedicated easement corridors, but require permitting. Utility Pros has successfully addressed this issue on past projects for VDOT with Corman. From a ROW acquisition standpoint, this would just be another easement that needs to be included along with construction-related easements.

Existing Transmission Line Easement: A portion of the proposed road corridor between Fall Hill Avenue and Route 1 and paralleling Mary Washington Boulevard will be adjacent to an existing DVP transmission line easement. The plans indicate that some construction easements and fee acquisition will be needed from the transmission line corridor. DVP permission for these encroachments is required; therefore, affected parcels will be prioritized relative to the acquisition process to account for any additional time needed for approvals.

Final Construction Plan Approval: As with all road improvement design projects, the importance of having final plan approval, including all required easements for utility relocations prior to the initiation of the ROW acquisition process, is important. Minimizing inevitable revisions, which cause delays and must be accounted for in risk consideration, can significantly enhance delivery of rights for construction.

Ownership Verification: Several parcels involve institutional or corporate ownership entities that may require additional efforts to research title recordation activity. Some may include multiple mortgage lien holders and other title objections that burden the research process. Focus will be placed upon these parcels in the beginning of the acquisition process.

Valuation: Several parcels will require appraisals because of what VDOT may consider complex valuation issues (conservation easements, access issues, higher commercial unit values). However, many parcels that involve minor property right acquisitions may only require Basic Acquisition Reports (BARs). This can be

determined once the affected areas of the various acquisition types have been determined inclusive of utility easements.

Negotiations: The majority of the parcels involve corporate ownership entities that need more time to locate a representative with the authority to act on behalf of the entity. Corporate approval may be needed, which can cause delays. These ownerships typically involve better informed owners that can either be an advantage in obtaining voluntary conveyances or a disadvantage if alternative construction options are desired.

Closings: Most of the parcels involve commercial properties with corporate ownership that require multiple mortgagee releases. This can be time consuming and expensive with some lenders requiring higher than typical release fees. This may not delay clearance of ROW, but could delay completing the acquisition, which may affect final completion.

The following table shows our current understanding of the 44 parcels and 30 individual property owners that will be impacted by this project. The table also includes which phase on construction the taking affects and if a utility easement is required. Priority will be given to takings required for phase 1 construction, those affecting utility relocations or impacting properties with overlaying conservation easements. As previously stated The Design Construction Coordinator, Lou Robbins, will pay special attention to these critical properties utilizing the joint ROW / Utility Task Force meetings bi-weekly to insure timely and accurate communication occurs.

PARCEL	LAND OWNER	SHEET NO.	FEE TAKING ROW	PERMANENT EASEMENT	TEMPORARY EASEMENT	UTILITY EASEMENT	CONSTRUCTION PHASE
001	Willis Buttram, Jr.	1	X		X	X	2
002	Central Park Marketplace Holdings, LLC	1			X	X	1
003	Celebrate Virginia South, LLC	1	X	X	X	X	2
004	Celebrate Virginia South, LLC	1	X	X	X	X	2
005	Southwest PNC, LLC	1	X		X	X	2
006	Carl D. Silver Holding Company, LLC	1, 2	X		X	X	2
007	Nelson A. Graves, Jr. and Joyce D. Graves	1	X	X	X		1
008	Gloria B. Whittaker, Carol B. Coleman, and Bonnie B. Carter	2	X	X	X		1
009	RH Luxury, LLC	2	X		X		1
010	RH Luxury, LLC	2, 3	X		X		1
011	Celebrate Virginia South, LLC	2	X		X	X	2
012	Celebrate Virginia South, LLC	2	X		X	X	2
013	Celebrate 1080, LLC	2, 3	X		X	X	2
014	Weymouth, LLC	3			X		1
015	Fred I Limited Partnership	3			X		1
016	Bragg Hill Community Corporation	3, 4			X	X	2
017	Bragg Hill Community Corporation	4				X	2
018	City of Fredericksburg, Virginia	3, 4, 5	X	X	X		1
019	Riverview Limited Partnership	4, 5	X		X	X	2
020	G&G Partners	4, 13			X	X	2
021	Bragg Hill Community Corporation	13			X		2
022	Fall Hill Apartments, LP	5	X		X	X	2
023	Fall Hill Apartments, LP	5	X		X		2
024	Jenny-Lynn Franklin Guth	5	X		X		2
025	NHC Partnership 4, LP	5	X	X	X	X	1
026	Barry J. Kefauver & Maureen A. Kefauver	5, 7	X		X		2
027	B. Calvin Burns	5, 6, 7	X		X		2
028	HJDL Land Partnership, LLC	5			X	X	1
029	HJDL Land Partnership, LLC	5, 6	X		X	X	1
030	Fall Hill Professional Village Partnership	6	X		X	X	1
031	HJDL Land Partnership, LLC	6			X	X	1
032	HJDL Land Partnership, LLC	6				X	1
033	Forest Village MCF-SCG, LLP	6, 7	X	X	X	X	1
034	B. Calvin Burns	6	X		X		2
035	Lt. Col. (Retired) Butler Brayne Thornton Franklin	7	X		X	X	1
036	City of Fredericksburg, Virginia (VEPCO Canal)	7			X		1
037	City of Fredericksburg, Virginia (VEPCO Canal)	7, 8		X			
038	City of Fredericksburg, Virginia	7	X		X	X	1
039	Snowden Commercial, LLP	7, 8	X	X	X	X	1
040	City of Fredericksburg, Virginia	7, 8	X		X	X	1
041	Medicorp Properties, Inc.	8, 9	X		X		1
042	Medicorp Properties, Inc.	8, 9			X	X	2
044	Snowden Office Partnership	9	X		X	X	
045	Eva Djanogly Berger Properties, LLC	9	X	X	X	X	

ENVIRONMENTAL MANAGEMENT

The Corman DB Team is experienced in navigating the environmental process with VDOT and the regulatory and resource agencies involved, including the Federal Highway Administration (FHWA), U.S. Army Corps of Engineers (USACE), Virginia Dept. of Historic Resources (VDHR), Virginia Dept. of Environmental Quality (VDEQ), U.S. Fish and Wildlife Service (FWS) and Virginia Dept. of Game and Inland Fisheries (VDGIF). ***Our Team's approach to environmental risk management is 100% compliance following a detailed avoidance, minimization, and mitigation process.*** This is built upon a foundation of accurately identifying resources and a thorough understanding of the federal and state regulations. Our team has reviewed the *Environmental Assessment (EA)* and *Finding of No Significant Impacts (FONSI)*, the *Section 106 Memorandum of Agreement (MOA)*, Final Section 4(f) document, all supporting technical studies for this project, followed by a site review for a full understanding of the environmental commitments to design and construct this project by the environmental documents and current regulations. ***Nicholas Nies***, Lead Environmental Manager, will work closely with ***Kerri Barile, PH.D***, Cultural Resources Manager to provide preservation compliance of the sensitive historic resources within the project limits as outlined in the MOA and environmental documentation. Mr. Nies will also coordinate with the ***Wetland Delineation and Permitting Coordinator Bob Siegfried*** who will lead our permitting group to complete permits per the NEPA document and current regulations. Commitment compliance is the team's objective and Mr. Nies will communicate regularly with roadway and utility design engineers to insure compliance.

Environmental Commitments: The Corman DB Team has fulfilled environmental commitments and secured timely environmental permits on many other VDOT projects. We understand the documentation, evaluation, analysis, and coordination necessary to do the same for VDOT on this project. The table below summarizes key environmental commitments our approach:

ENVIRONMENTAL SUMMARY	
COMMITMENT COMPLIANCE	
Understanding	**Compliance Approach**
NEPA **EA FONSI & Section 4(f)** Team is responsible for fulfilling measures stipulated in EA FONSI & Section 4(f) documentation.	✓ As outlined in the FONSI and the Final 4(f) Evaluation, the project would require the use of Section 4(f) property and there is no feasible and prudent alternative to this use, and approval was based on the project including all possible planning to minimize harm resulting from the use of 4(f) resources. The Lead Environmental Manager will communicate regularly with the Design Manager, and perform regular plan reviews to ensure the design team incorporates these requirements into the final design and remains focused on identifying additional minimization throughout the design and construction process. ✓ Avoid impacts to Site 44SP0574 (Civil War Earthwork 4/Zig-zag 1) by constructing a retaining wall that would maintain the proposed road grades at least 35 ft. away from the nearest trench point.
NEPA REEVALUATION(s) & ENVIRONMENTAL CERTIFICATION: Provide VDOT the environmental technical studies and analysis to complete any additional NEPA documentation or Re-evaluations, including changes in project footprint or environmental conditions. VDOT will prepare Final re-evaluations prior to ROW acquisition and construction (EQ201, EQ200). VDOT will prepare Final Environmental Certification/Commitments Checklist (EQ103)	✓ Avoid project scope and footprint changes to eliminate or substantially reduce additional studies (including historic properties). ✓ Identify design changes accurately and timely to VDOT to complete supplemental NEPA documentation and avoid delays. ✓ Ensure the design carries out environmental commitments and provide documentation of completion to VDOT. ✓ Monitor environmental compliance, permitting and mitigation requirements for environmental issues on a Permit Tracking Database. Track reduced impacts.

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT: Take into account how the project affects the historic properties by carrying out Section 106 MOA Stipulations. With the exception of Stipulation II (City is responsible), the Team is responsible for fulfilling measures stipulated in MOA.	✓ Immediately upon Notice to Proceed (NTP): ✓ Develop a Communication Plan that highlights key points of contact required for review and comment timelines of each stipulation – include a matrix to document comments received and responses. This plan will include expedited review of post review discoveries and a process to treat any human remains discovered during construction. ✓ Reach out to the key historic property owners (Fall Hill Property) for early buy in. ✓ Meet with VDHR easement program within 20 days of NTP to develop the treatment plan to move two granite posts adjacent to Fall Hill Avenue and remove trees on the Fall Hill easement property. ✓ Develop a Data Recovery Plan consistent with the MOA stipulation IC for the Multi-Component Site at Snowden Park (44SP0642) within 30 days of NTP to be submitted to VDOT, FHWA, and SHPO for approval. ✓ Develop an Archaeological Monitoring Plan for work conducted near Earthwork 3. This includes communication protocols and in the event of unanticipated discoveries, outlines a procedure consistent with the MOA stipulations. ✓ Ensure the treatment of Historic Properties, defined in the MOA as the Fall Hill Property, Fall Hill Gates, and Multi-Component Site at Snowden Park follows the Secretary of the Interior's Standards for the Treatment of Historic Properties and as outlined in the MOA. This includes preservation, rehabilitation, restoration, or re-construction. ✓ The Fall Hill Property is held in a perpetual historic preservation and open-space easement by the Virginia Board of Historic Resources; a construction easement is necessary for the project. To secure a construction easement, communicate and coordinate project information with VDHR Easement program through established program processes. ✓ Develop a Tree Removal Plan that conforms to the Fall Hill historic property's easement. Submit to consulting parties and VDHR Easement program for review, comment, and approval. ✓ The City will develop an Interpretive Plan to highlight the Battle of Fredericksburg I and II. This informs the public about the features effected by the project (Earthwork 3 and Old Fall Hill Roadbed). Submit plan to VDOT, FHWA, the State Historic Preservation Officer (SHPO), and other concurring parties for review and comment. ✓ Assist and coordinate with the City to develop and coordinate an Interpretive Plan.
NOISE ABATEMENT: Preliminary Noise Analysis identified noise impacted receptors. As such, preliminary noise abatement identified barriers 1, 3, and 4 to be feasible and reasonable. Provide Final Design Noise Analysis & Abatement in compliance with the Virginia State Noise Abatement Policy, the Highway Traffic Noise Impact Analysis Guidance Manual, and the Special Provision for Sound Barrier Walls, and the Soil Design Parameters for Sound Barrier Walls, Retaining Walls and Non-Critical Slopes.	✓ Conduct Final Design Noise Analysis to determine noise abatement measure. ✓ A preliminary noise evaluation was performed and a detailed review will be completed during final design. Noise barriers deemed feasible and reasonable during the preliminary noise analysis may not be found feasible and reasonable during the final design noise analysis. Conversely, noise barriers not feasible and reasonable may meet the established criteria and be recommended for construction. ✓ Finalize noise abatement designs and include noise barrier wall designs once the road design is approved. ✓ Upon noise barrier approval by VDOT's Chief Engineer and concurrence from FHWA, solicit public input from affected property owners and renters (receptors benefited by the proposed barrier wall). ✓ Incorporate sound walls approved through public input into the final road design construction plans.

	✓ Construct sound walls concurrently with or prior to road construction.
RARE, THREATENED, AND ENDANGERD SPECIES (RTE): EA indicated that database searches did not identify the occurrence of RTEs within the project limits. However, three occurrences of RTEs were identified within a two-mile radius of the project. The Team is responsible for requesting the latest RTE information and conducting studies and analysis required for any additional species. RTE coordination and documentation will be provided to VDOT *prior to the project being released for construction*.	✓ Coordinate RTE during permit acquisition to avoid delays in identifying any potential new species. ✓ Provide VDOT with documentation.
WETLAND AND WATER QUALITY: The Team is independently responsible for securing environmental permits. The Team will delineate wetlands and other waters of the US, conduct stream assessments, document avoidance and minimization, develop permit impact plates, request permits, secure required mitigation, and provide documentation and notifications to VDOT as per the RFP.	✓ Primary goal is to avoid and minimize resource impacts. ✓ Accept preliminary jurisdictional determination as outlined in March 7, 2012 Norfolk District Corps of Engineers letter. ✓ Secure Joint Permit for approximately ± 0.26 acre of wetlands ***(a 20% reduction from the RFP Concept plans)*** and ± 160 LF of stream impacts ***(a 30% reduction from the RFP Concept Plans)*** anticipated to result from this project through the application process. ✓ Mitigate unavoidable impacts as part of the permitting process in accordance with 33 CFR Part 332 and in consultation with the COE and VDEQ.
HAZARDOUS MATERIALS: Asbestos has been identified in an abandoned sanitary sewer line on the bridge and the bridge was identified as Type B – with potential lead paint on the existing girders. Responsible for managing solid waste, hazardous waste, and hazardous materials per applicable federal, state and local environmental regulations.	✓ Remove Asbestos Containing Materials identified on bridge sanitary pipe using OSHA's compliant work practices. ✓ Comply with VDOT's Road and Bridge Specifications (Section 413.02, 411.08, and 411.09) as it pertains to the testing and disposal of paint waste.

The following are anticipated environmental evaluations and permits, approving agency, and their approximate review period:

ANTICIPATED ENVIRONMENTAL PERMITS

EVALUATION/ PERMIT/ APPROVAL	REGULATED RESOURCE/ APPROVAL AGENCY	APPROX. REVIEW PERIOD	COMMENTS
Preliminary Jurisdictional Determination	Wetlands, other Waters of the US, State Waters / DEQ / USACE	NA – See Comment	JD approved in 2012, Assumes Survey files of approved JD will be provided to DB Team.
Rare, Threatened, and Endangered Species	Federally Listed Species / DCR, USFWS	Concurrent with Joint Permit Application 60 days	Additional RTE coordination is a standard component of the water quality permit acquisition process.
VWP General Permit WP3 "Linear Transportation Projects"	Wetlands, other Waters of the US, State Waters / DEQ	60 days	

Per the RFP, the Corman DB Team is responsible for environmental clearances, permits and approvals to accomplish the work. The Corman DB Team, in conjunction with VDOT, will take the lead in all permit-related agency coordination. We will collaborate with the regulatory agencies for a permitting approach, achieve consensus on avoidance and minimization, and secure permits using limits of disturbance that are feasible from a construction standpoint and cost effective. Internally, our Permit Group consists of our permitting specialist, designers, and construction specialists to ensure final limits of disturbance reflect maximum avoidance and minimization, while accommodating critical design features and allowing reasonable room for construction, including erosion and sediment control. Avoidance and minimization discussions are already underway and will continue following NTP. For unavoidable stream or wetland impacts, an appropriate level of mitigation will be determined. The project will require compensation for unavoidable impacts to wetlands and possibly streams and credits will be purchased from a commercial mitigation bank will be necessary.

4.4.2 UTILITY COORDINATION APPROACH Our Utility Team has longstanding relationships and frequently works with the utility companies anticipated on this project, including Verizon Virginia, Inc., Verizon South, Comcast, Cox Communications, Dominion Virginia Power and Dominion Virginia Power Transmission. In fact many of our dry utility team are past employees of these organizations and understand the policies, procedures and personal. Past experience includes several Corman / VDOT projects, including Design-Build Route 1 Widening and I-64 Widening in Short Pump, Virginia. This prior knowledge has proven invaluable on our past and current projects to obtain existing records, suggest alternate design our layout and expedite the process Our utility coordination approach is a well defined and effective four-stage process based upon previous experiences with VDOT and affected utilities on this project.

Substantial progress was made during the pre-award phase in identifying potential utility conflicts and determining if they can be avoided, mitigated through design changes, or must be relocated. Contacts were made with utilities / providers that currently have facilities within the work area. Meetings generated discussions about their utilities, specific features, utility maps, as-built drawings, and relocation criteria, where applicable.

Utility Coordination, Relocation, and Mitigation

Stage 1 – Initial Coordination During Proposal Phase

- Developed a Utility Matrix listing the known and potential utilities and utility providers within the project limits of disturbance *(noting that there may be more than one provider for a particular utility in some cases);*
- Obtained utility facilities maps drawings of the facilities in the area of interest;
- Identified utility point of contact(s);
- Held Informational Meeting with critical utilities having facilities within the project limits;
- Obtained additional information such as, as-built drawings with profiles, elevation data, materials, procedures for managing relocations from design through construction and acceptance.
- Identified current work being performed by the utilities within or near the project boundaries to identify potential conflicts with proposed road designs.

Stage 2 – After Notice to Proceed: Concept Development / Design Phase

- Convert the Utility Matrix into a Utility Project Management Plan to prioritize, define, schedule, and manage the design and construction of each task;
- Immediately initiate Miss Utility services, utility designation services, and test pits (vacuum / excavate) supported by the Corman DB Team's survey location documentation capability, to pinpoint the exact location and material for each utility. Precise utility location data is maintained in a Master Utility Database and then transferred to the roadway and structural design plans;
- As roadway and structural design plans are developed, coordinate with the Utility Design Team. It is expected that in some locations, multiple utility relocations may be in proximity to each other. The

Corman DB Team will manage scheduling, materials, traffic control, outages, and all other relocation elements to minimize public disruption in the work area;

- These designs are refined with the hard data from the utility database, defines conflicts and identifies potential conflicts;
- Within 45 days of Notice to Proceed, our Utility Team meets with VDOT's Regional Utilities Office to review what is required with each utility relocation submittal. Preparation includes reviewing relative concerns to be addressed;
- Within 120 days of Notice to Proceed, a Preliminary Utility Status Report is submitted identifying utilities within the project limits, conflicts and proposed resolutions, time impacts, cost responsibilities, and supporting documentation on preliminary UT-9's for each utility;
- Conduct a UFI per phase to discuss the project with all utility owners for that phase. There will be a UT-9 form for each utility owner to resolve any questions about relocations, including cost responsibilities;
- Submit utility relocation plans, certified by the Corman DB Team, to VDOT for approval prior to starting any relocation.

Stage 3 – Accomplish Relocations / Conflict Resolutions

The Corman DB Team will provide the necessary dry utility easement corridor as designed and approved by the utility companies to facilitate a pathway for the relocated utilities. Upon completion of the dry utility easement corridor, the utilities will be released to complete their relocations. Utility companies will then be expected to expedite their relocations into this provided corridor**.** Relocation timelines, schedules, and expectations for completion will be determined prior to commencement of this stage of the project and communicated to the entire project taskforce. All scheduled outages and service affecting events will also be determined and scheduled throughout the relocation process. Temporary road closures during the relocation phase will be managed and controlled by the Corman DB Team in conjunction with the utilities and their contractors. The Corman DB Team will coordinate the resolution of any relocation conflicts during the relocation process and provide as-built documentation.

Stage 4 – Final Completion: The Corman DB Team certifies to VDOT that conflicts were resolved, relocations accomplished, and as-builts completed and submitted per VDOT and utility owner requirements. The Corman DB Team will coordinate with the utility companies to provide CE-7 (remain in place permits) as required by VDOT.

Mitigation: The best plan of attack on unexpected utility delays is precision planning, documentation, constant communication and scheduling to mitigate potential construction schedule impacts. This means assigning a Corman DB Team lead person responsible for the entire utility process. The Corman DB Team Lead will also be responsible to jump start physically identifying and precisely locating all surface and subsurface utilities along the project limits after Notice to Proceed is given.

As illustrated on our Organization chart, Dan Seli will lead the wet utility efforts coordinating with Dale Kniffin for dry utilities and our Construction Utility Manager Tim Bulford. Dan, Dale and Tim will band together to mitigate utility impacts during design and construction and the team will use our Four-Stage Process to get the job done.

During this pre-award phase, the Corman DB Team has proactively met the utilities identified and made contact with ALL known utilities in the corridor, integrating data into our Conceptual Plans and schedule.

The next step is coordinating with the utility companies to resolve issues, eliminate uncertainty of possible conflicts, and develop relocation plans and schedules for confirmed conflicts. Relocation schedules are integrated into the Project Master Planning Program and CPM Schedule. Additional mitigation tactics include overtime and overlapping relocation work of several utility companies, as well as working on several phases of the project simultaneously to maintain the completion schedule.

Discovering an unknown utility within the project limits can cause a major impact on schedule and cost. Our Utility Team will be on the hunt for unknown utilities through initial field walks searching for telltale signs, such as unmarked valves or pull boxes, cleared tree lines or long narrow strips of replaced asphalt. If anything surfaces, additional research and exploration will be conducted prior to the plan submittal. Additionally, "No Conflict" letters will be obtained from additional utility providers who may possibly have facilities within the limits of construction to attempt to avoid unknown utility delays.

Our Construction Sequencing in Section 4.5.1 identifies possibilities for concurrent work and offers the advantage that unexpected utility conflicts discovered in one area will not affect progress in other priority areas.

The Corman DB Team will apply due diligence during the initial stages of construction when it is most probable that facilities will be impacted. If or when additional impacts are noted, we will cease operations until an impact assessment is completed and take immediate action to integrate any additional relocation into the Master Scheduling Plan, using slack time and/or other accelerations to mitigate adverse schedule impacts.

As previously discussed in the ROW section above, the project's timely completion relies on rapid agreement of utility relocation schemes, acquisitions of the utility easements, and the actual utility relocations. The timely acquisition of the ROW easements for the utility relocations are most critical for timely project completion. Knowing this, Design Construction Coordinator Lou Robbins will focus on this through bi-weekly joint ROW / Utility Task Force meetings to get the job done. The following table displays the extent of the dry utility relocations, most of which require new easements:

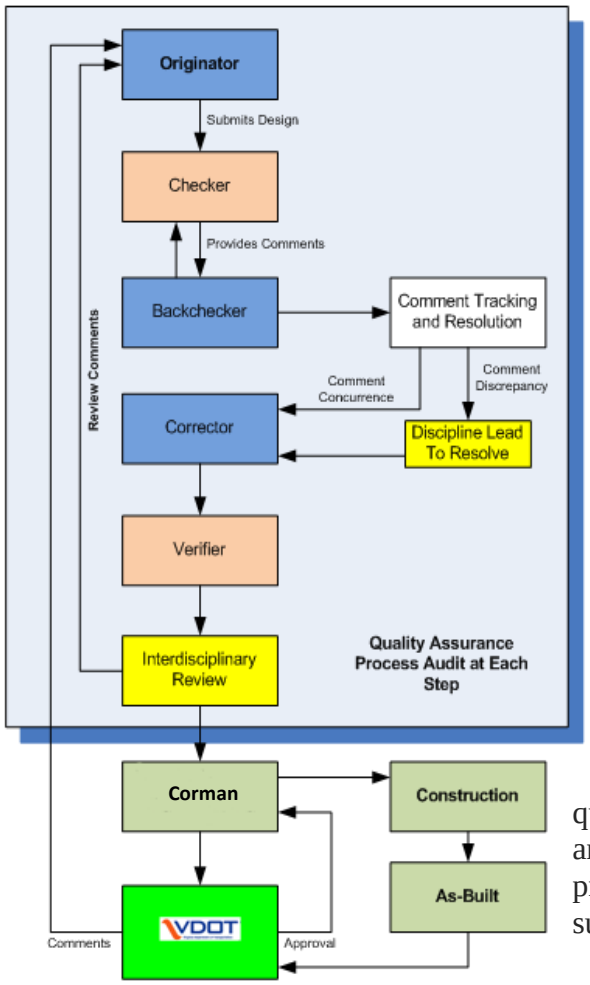
DVP Distribution	3,800 LF Aerial + 20 poles On Fall Hill Ave & Route 1 2,300 LF Underground
DVP Transmission	1 Transmission Mono Pole 6 Transmission wood poles 2 Steel Static Transmission Poles
Verizon	32,000 LF Underground
MWH Fiber	1,000 LF Underground
Cox	17,000 LF Aerial
Comcast	8,000 LF Underground
Gas	900 LF Underground

4.4.3 QUALITY ASSURANCE/QUALITY CONTROL: The Corman DB Team's QA/QC approach creates a partnership between the project's designers, contractor's field staff, QC inspectors/testers, and QA staff. Forming this partnering environment with a proactive QC testing *and* inspection program and a adequate QA is key to a robust QA/QC Plan. It is in every stakeholder's interest that the QC is proactive and effective to: 1) reduce contractor or designer rework; 2) limit required QA efforts to perform the QC for the team; 3) limit VDOT's need to assign valuable resources; and, 4) assure VDOT of a well-maintained, safe construction site with design criteria and construction and materials meeting specifications. *Our DBPM will instruct the QC staff early on that their job supersedes keeping records and testing materials, includes the traditional duties of a VDOT inspector, and being assertive if anything is non-compliant.* Knowing if any work items are not performed properly early sparks immediate correction while the cost and schedule impacts are minimized.

DEDICATION: Our DBPM will instruct the QC staff early on that their job supersedes keeping records and testing materials, includes the traditional duties of a VDOT inspector, and being assertive if anything is non-compliant.

Our QA/QC program will be per *VDOT's Minimum Requirements for Quality Assurance and Quality Control on Design Build and Public-Private Transportation Act Projects, January 2012.* A Corman DB Team QA/QC program unique element is establishing a review and coordination effort to incorporate requirements and commitments in the Section 106 Memorandum of Agreement (MOA) and Final 4(f) Evaluation into the design and construction. Our Lead Environmental Manager reviews each design submittal, provides documentation that it meets MOA requirements, and visits the site during construction to verify the intent of the design is adhered to during construction.

Design QA/QC Workflow Diagram



During our initial Partnering meeting, VDOT, utilities, local jurisdictions, and other stakeholders are invited to discuss and resolve *"rocks in the road"* to achieve quality goals. Including quality in the agenda has proven successful on our past projects.

Design QA/QC: To kick-off QA/QC, prior to design, the Design Manager, lead discipline engineers and Design Quality Manager establishes and provides criteria and checklists for each design element to assigned staff engineers. They perform an audit to ensure correct standards are followed, checklists are used, and the work is documented. Regular "*All Hands*" meetings, which stress the importance of quality in the design, keep the required quality culture in check. It is also a forum for Lead Construction and Design firm principals to offer lessons learned on past DB projects and perspectives on the role quality plays in project success.

PARTNERSHIP: We encourage "over the shoulder reviews" by VDOT during the design process and "doing it right the first time," thereby minimizing comments and reviews from VDOT and other reviewing agencies.

Key to project success is an integrated QA/QC process that includes the QC staff, designers, contractors, and the design team's quality control checkers. During the design process, plans are reviewed, not only by the design QC staff, but by the construction and QC staff for constructability and ease and efficiency of resulting means and methods. This especially holds true for the impact the design will have on MOT. Items, such as material delivery / storage, workforce accessibility, and crane and other equipment placement will be reviewed to minimize traffic impacts. Review checklists will be prepared during the constructability reviews and comment sheets will be rechecked for the action taken prior to the plans being issued for construction**.** ***Attention will be given to adequacy of temporary drainage and sight distance impacts of temporary Traffic Controls during construction.***

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

- Design features that are safe and meet VDOT regulations and Design Manuals;
- Conform to the standards and reference documents in RFP, Part 2, Section 2.1.1;
- Design elements that meet requirements, are constructible, durable, economical, inspectable, and minimize maintenance;

- Meet design schedule, budget, and construction staging requirements;
- Minimize design costs;
- Provide an organized and indexed set of design calculations, including design criteria and assumptions;
- Minimize VDOT reviews.

A flow chart for the design QA/QC process described is shown above ***Checking Design Deliverables:*** It is essential that design deliverables show complete and clear fabrication and construction requirements / details. The Design QA & QC lead will develop a QA/QC Plan and implement it. Processes / procedures will be strictly enforced and thoroughly documented to minimize VDOT reviews.

Design Preparation: Design deliverables will be prepared under the Lead Discipline (structural, roadway, drainage, geotechnical, etc) Engineers. Weekly meetings will be held throughout design, led by the Design Manager, and include the Lead Discipline Engineer, QC staff, Construction Manager and representatives from key construction team members, such as the fabricator and erector. VDOT is welcomed to participate at their discretion. These meetings reduce design and VDOT review time by facilitating coordination of design and construction requirements.

Checking design deliverables come in the form of drawings and calculations. Review starts within the discipline before the deliverable is reviewed by the Design QA & QC Lead, Design Manager, and others. Reviewing each deliverable follows the steps below. At the end of each step, the checkprint stamp is signed. A stamp on each sheet is required for the drawings and on the calculation cover sheet.

Originator: Responsible for preparing the deliverable to be checked. The originator is accountable for accuracy and adequacy of the deliverable and is prepared per requirements in the applicable design codes. It is not intended that the originator rely on the checking process to complete the deliverable.

Checker: Independent of the originator and checks the deliverable. Reviews every aspect, including input required for design programs that are a part of the calculation set. The checker 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.

Back-checker: Reviews the checked deliverable, confirms the items marked for revision are justifiable, and that the corrections noted are correct. The back-checker is also the originator. If the back-checker disagrees with a correction from the checker, they must coordinate to resolve prior to the next step. If both continue to disagree, the Lead Engineer resolves the difference.

Corrector: Addresses and revises the changes marked on the checkprint on the original deliverable. The corrector is either the originator or a CAD drafter. A CAD drafter can be the corrector for drawings.

Verifier: Reviews a corrected deliverable against the checkprint and verifies corrections marked have been properly addressed. The verifier is also the checker.

Interdisciplinary Review: Once the design deliverable is checked, the Design Manager organizes the discipline leads (structures, roadway, 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.

Quality Assurance: The Design QA & QC Lead is responsible for auditing that the quality control checking process is being followed by the design team. In addition, when required, a design peer review will be performed by a senior technical team member.

Contractor Review: As a final review, prior to submitting to VDOT, Corman again reviews for constructability and conformance to anticipated means and methods.

Submit to VDOT: The Lead Discipline Engineer signs a form that all QA/QC efforts are compliant and transmits it to the Design Manager. The Design Manager and Contractor then sign off on it. The deliverables are now ready to be signed and sealed by the Lead Engineer as a Virginia Professional Engineer and our Project Manager submits the documents to VDOT for information and approval. VDOT reviews the design and submits comments to the Corman DB Team. If there are comments, the Team addresses them into the final design and resubmits for VDOT approval. The approved plans are then used to construct the project.

Design changes during construction will be reviewed using the same process as the original design. Changes, such as field design changes and nonconformance evaluations, will be maintained in a database to track revisions and update the as-built documents.

Records: The Lead Engineer verifies quality control procedures were performed for the individual discipline. The Design QA & QC Lead and the Design Manager are responsible for Quality Assurance. Copies of each submittal, including revisions, will be kept throughout the project. Final design records of the required forms and checkprints are maintained by the Design Manager in the project files.

One Unique Design QA/QC Element: The Corman DB Team determined that a critical and unique element from the design perspective is the bridge over I-95. This involves close coordination with the structural, geotechnical, traffic, roadway design and construction staff to successfully deliver an economical, constructible, and long-term low maintenance structure. Coordinating design inputs and elements is the goal of a robust Design QA/QC program. Due to the complex nature of the bridge geometry and staged construction over an active interstate, the Design QA Manager will assign senior engineering staff with extensive VDOT design experience within each discipline to guide specific QA/QC roles. For this project, **Gary Shelor, PE** will be the Design QA for the bridge and structures design. Gary is a former Fredericksburg District Structure and Bridge Engineer, who joined WR&A with the main objective of serving as the bridge and structures staff QA Manager. Gary has provided numerous project reviews and solidified our QA/QC policies for a vital and systematic review process.

For this project, Mr. Shelor will review the design alternatives to verify they are in compliance with the RFP, AASHTO LRFD Bridge Design Specifications and VDOT modifications, S&B IIM's and Structure and Bridge Manual – Volume V Series. He will provide over-the-shoulder reviews of the design process and plan development early on and at critical points of design and plan development. To ensure that all the bridge elements are reviewed, a design checklist will be developed based on the proposed sheet list for the bridge.

This also identifies the VDOT Structure and Bridge checklists appropriate for the project and are required to be filled out and attached to the design checklist. The Design QA Manager receives the updated design checklist at established intervals verifying that the proper QC process is being followed.

For this project, the bridge abutment elements present a unique QA/QC task. The proposed design includes the following:

1. A temporary shoring wall just south of the roadway approaches to the existing bridge.
2. An MSE wall abutment with a temporary fabric faced wall adjacent to the temporary shoring.
3. An abutment and approaches that accommodates the phased construction.
4. Complete the MSE wall abutment and remaining portion of the proposed bridge.

INNOVATION: The Corman DB Team's design includes shifting the centerline of the proposed bridge approximately 5 feet to the south to provide the necessary offsets for each construction phase.

The phased construction of the abutment is critical for motorist and pedestrian safety on Fall Hill Avenue, differential settlement at the abutments, and temporary traffic barriers between phases of construction. To accomplish this in the design, it will take multiple points of plan

coordination between the roadway, geotechnical, traffic, structural design groups and construction staff. Mr. Shelor is well versed in the design and construction of the proposed bridge, which will catch and resolve any conflicts or discrepancies amongst the disciplines early.

Design calculations are reviewed at regular intervals by senior staff to ensure that the current plans are supported by the most recent calculations. Before major submissions of design calculations, the calculation set is reviewed internally by senior engineers not previously associated with the project to provide a coordination check of the plans with the supporting calculations, and to determine if the calculations are presented properly. This independent check maintains an office standard procedure and has been shown as a valuable tool to quickly detect any irregularities in the proposed documents.

The role of the Design QC in evaluating design includes reviewing computations, technical accuracy, conformance to contract documents, form, content and coordination with other disciplines, including roadway, traffic, geotechnical and construction. The Design QA process evaluates whether the designers assessed the design parameters appropriately, applied the correct analyses, and that the designs are performed by qualified personnel. Design QA will also ensure that the proposed solution meets contract and client requirements and that the work required by the contract is completed by applying skill and experience. The Design QA/QC Plan will specifically include design checklists at all major milestone submissions and is updated monthly at a minimum during project development. Additionally, constructability reviews by the Construction QC Manager will evaluate features, such as installing shoring walls or setting the large bridge beams while minimizing traffic impacts.

Construction QA/QC: No matter how accurate the design is, its implementation during construction determines success. Effective and aggressive Quality Control, positively supported by management, will drive the project toward success from the contractor's profit perspective, as well as VDOT and the community's perspectives. Achieving this goal takes pre-planning and effective communication. Prior to starting construction, while design is still in progress, the DBPM, CM, QC Manager and QAM will hold a lessons learned planning forum. ***Based upon their collective judgment, they will identify the 20% of work tasks that will cause 80% of the quality challenges.*** Specific inspection and testing plans (ITPs) will be developed for those critical items and distributed to the Foremen, QC Inspectors, and QA staff to use as a guide in performing and inspecting the work. Based upon past history and shared experiences, additional witness and hold points above those required by VDOT will be identified and then enforced in the field by the DBPM, CM and QC Manager and their staff. Documents releasing work at each witness / hold point are identified on the ITPs and documented for review by the QAM or VDOT, as appropriate. Our goal is to perform work *"right the first time"* and if issues are identified, determine the root cause and then correct the underlying cause.

To summarize, one of the goals of the project-specific QA/QC Plan is to minimize the effort VDOT must expend performing QA or QC. For an item, such as maintenance of traffic, this can be accomplished through structured QA/QC procedures that include comprehensive preparatory meetings, routine inspections, using prepared checklists, thorough QA/QC documentation, and following a communications plan with procedures for stakeholder notifications, incident management, and emergency response.

Our current Staffing Plan assigns an onsite QC Manager supplemented by experienced QC inspector(s) to meet operation needs. For example, during paving, VDOT specifications require a minimum of two qualified inspectors per paving operation. For this project, we envision three or four QC full time inspectors onsite for the majority of the project. All will be VDOT-certified for the work they are inspecting. If paving, MOT set ups or beam erections are at night and concurrent daytime work is also required, the number of inspectors would be adjusted to meet actual field needs. Arrangements with a testing laboratory and back-up lab will be made, should issues arise in performing the required field and laboratory testing. Each will hold certifications to perform material testing on VDOT projects. Other QC issues encountered on past design-build projects with

Contractor-led QC follow. ***We will address these past Lessons Learned on this project as follows to limit additional VDOT involvement.***

WE WILL NOT PERMIT:

- Inadequate/unqualified inspection staff and poor QC staff management;
- A lack of upper management support for QC or QA staff actions;
- The QC staff to concentrate on material testing vs. inspection of the actual work;
- Ineffective MOT (vehicle, pedestrian, bicycle) with allowable lane closure restrictions and involvement of the designers slip;
- A *less-than-stellar* Contractor Safety Program;
- Improper coordination between the field and office staff (including designers);
- Inadequate coordination with the QA staff in scheduling oversight;
- Poor maintenance / protection of completed work (e.g. underdrains);
- Lack of follow-up inspections and punch lists, and;
- Incomplete or late QA/QC ***documentation.***

Project Document Control and Maintenance: The QA and QC teams will follow VDOT's Design Build QA/QC Guide, VDOT's Construction Manual and Materials Manual, among others for document control. The QAM monitors the QC team in preparing and submitting records daily, including daily work, inspection and material test reports. A master set of QA documents (hard and electronic) with submittal, RFI, and photo logs, is maintained by the QAM at the field office with preparatory meeting minutes, completed QA and QC inspection checklists / test reports, Materials Notebook entries and corresponding materials tests reports, invoices, and TL weigh sheets. A customized tracking log will monitor information.

One Unique Construction QA/QC Element: The Corman DB Team evaluated the critical construction risks identifying the 20% of the tasks that represent 80% of the risk. The analysis identified construction of the bridge, retaining walls, utility relocation and MOT most likely to cause the majority of the risk.

After internal discussions, we predict MOT to be the major risk factor on this 20% list having the most impact to VDOT if not performed properly. Not providing effective MOT can cause tie-ups and congestion to motorists resulting in unfavorable traffic reports and delays. ***Corman learned firsthand on the successful Design Build Hampstead Road project how to handle traffic control when incorporating new roundabouts into existing conditions on heavily-traveled commuter highways and on side roads through local neighborhoods.*** On this project, we will apply this and other advantages to effectively manage high volumes of suburban commuter traffic through tight, congested construction zones with heavy pedestrian traffic.

CORMAN ADVANTAGE:
Corman learned firsthand on the successful Design-Build Hampstead Road project how to handle traffic control when incorporating new roundabouts into existing conditions on heavily-traveled commuter highways and on side roads through local neighborhoods.

Our Team solved similar commuter / local issues on previous DB projects when we installed temporary pedestrian facilities to separate the two modes of transportation. Failing to clearly address and provide a well-defined traffic control plan results in driver indecision, reduced speeds and capacity on the mainline, congestion, delays, and potential for an increase in accidents.

Our QA/QC Team must verify that contractor and subcontractor personnel closely follow the approved Traffic Management Plan. Traffic controls are checked that they are set up per the applicable contractual versions of the *Manual of Uniform Traffic Devices (MUTCD)* and the *Virginia Work Area Protection Manual (VWAPM).* Confusing and poorly executed traffic control leads to congestion and delays through the project area, which impacts driver safety and construction. It is important that access through the construction limits, as well as access to and from Mary Washington Hospital, are not adversely impacted. We must also be aware of the non-typical non rush hour periods to and from the hospital and Central Park and the associated seasonal peaks. As

part of the approved project-specific QA/QC Plan, a Preparatory Inspection Meeting will be held for Maintenance of Traffic. This meeting is classified as a hold point in the schedule and representatives of the design-build contractor, subcontractor(s), quality control and quality assurance managers and inspectors are required to attend. In addition, Department representatives and other stakeholders, such as EMS, police, hospital, and other affected public services, will be invited and encouraged to participate, as these meetings are intended to facilitate a dialogue between all stakeholders.

Our QA/QC approach to the unique construction element of MOT on Fall Hill Avenue and Mary Washington Boulevard would start during the development of the project-wide TMP in the early stages of design. Our Construction MOT Team will review the initial MOT Plan based upon their expertise on past projects, such as, Telegraph Road interchange on the Virginia portion of the Capital Beltway, I-70 Design Build in Frederick, Maryland or the Zion Crossroads project in Virginia where we modified our TMP several times during design to account for changing traffic situations throughout the construction phasing. Through meetings with the owner, police, and local representatives, we developed TMP plans for the different construction stages for MOT flows through the active construction site.

During construction, the QA/QC Inspection Team will be certified as Intermediate Work Zone Safety Supervisors to carefully monitor adherence to the Traffic Management Plan (TMP) by assigning a lead QC Inspector to work with the Team's designated Certified Work Zone Traffic Coordinator. The Quality Assurance Inspector, working in concert with the QAM, will monitor the Contractor and QC inspection staff for adherence to the TMP. Monitored/inspected TMP elements include:

- Project Phasing;
- Temporary Traffic Control Plans;
- Motorist, Pedestrian and Bicyclist Considerations;
- Daily Lane and Shoulder Closure Standards / Set Ups;
- Coordination with adjacent construction projects or special events;
- Coordination with other stakeholders, including EMS responders, police, local schools, and transit agencies;
- Equipment and Materials Storage;
- Temporary Signing, Marking, and Signals, including TCB and temporary pavement striping;
- Public Communications; and
- Incident Management.

QC Inspectors will regularly drive the work zone to confirm that the Temporary Traffic Control (TTC) devices are per plan and operating properly. These inspections will take place after any temporary MOT devices are set up for daily activities and at the end of each work day to confirm the work zone is safe and no unnecessary signage remains in place. Inspectors will also check that devices are clean and have the proper retro-reflectivity. There will be additional inspections when traffic patterns change or in the case of severe weather that can potentially impact devices and/or markings.

4.5 CONSTRUCTION OF THE PROJECT

4.5.1 CONSTRUCTION SEQUENCING: During the bid preparatory phase, our Team of designers, project managers, superintendents, and estimators independently reviewed the RFP plans and specifications, then presented ideas on how to best approach construction. Our plan limits construction phases, temporary lane closures, and traffic disruptions, while accounting for emergency access, and provides safe travel lanes and work zones. The first step will be to establish a usable utility easement corridor along the west bound portion of Fall Hill Avenue between Gordon Shelton Blvd and the I-95 bridge. Once the easement corridor is established and on grade, all the aerial and underground utilities will be relocated to the newly established easement corridor. Once the utilities have been relocated into this corridor, the work will begin on the eastbound portion of the bridge over I-95 and all work south of Fall Hill Avenue leaving traffic in place on existing Fall Hill Ave. The second phase of construction concentrates on the westbound lanes of Fall Hill Avenue and then completes the median work and final pavement. Due diligence was placed on optimizing earthwork and paving during the limited construction schedule, avoiding delays due to winter weather. The following is our detailed Construction Sequencing Plan:

PHASE 1

1. Construct SWM drainage outfalls, clearing, and preliminary grading during utility relocation prior to starting EB roadway construction.
2. Remove existing raised median Sta. 105+00 to Sta. 110+00 and replace with temporary pavement. Place temporary pavement along WB lanes at Sta. 154+00 to Sta.159+00 and from Sta. 163+00 to Sta. 174+00.
3. Relocate utilities as the Easements become available.
4. Construct Frederick Place. Tie-in to existing Frederick Place with short-term lane closures.
5. Construct EB Bridge over I-95. Piers will be constructed behind shoulder closures.
6. Widen EB lanes from Sta. 105+50 to bridge while maintaining traffic on existing pavement.
7. Construct EB lanes from bridge to Frederick Place and construct EB lanes from Wicklow Drive to roundabout while maintaining traffic on existing roadway.
8. Construct noise wall to the west of Crestview Way, if required.
9. Construct EB and WB lanes from Frederick Place to Wicklow Drive.
10. Construct Mary Washington Boulevard lanes from Hospital Drive to Sam Perry Boulevard.
11. Place temporary pavement transition at Noble Way to Bragg Hill Drive, shift traffic to new structure and begin demolition of existing bridge.

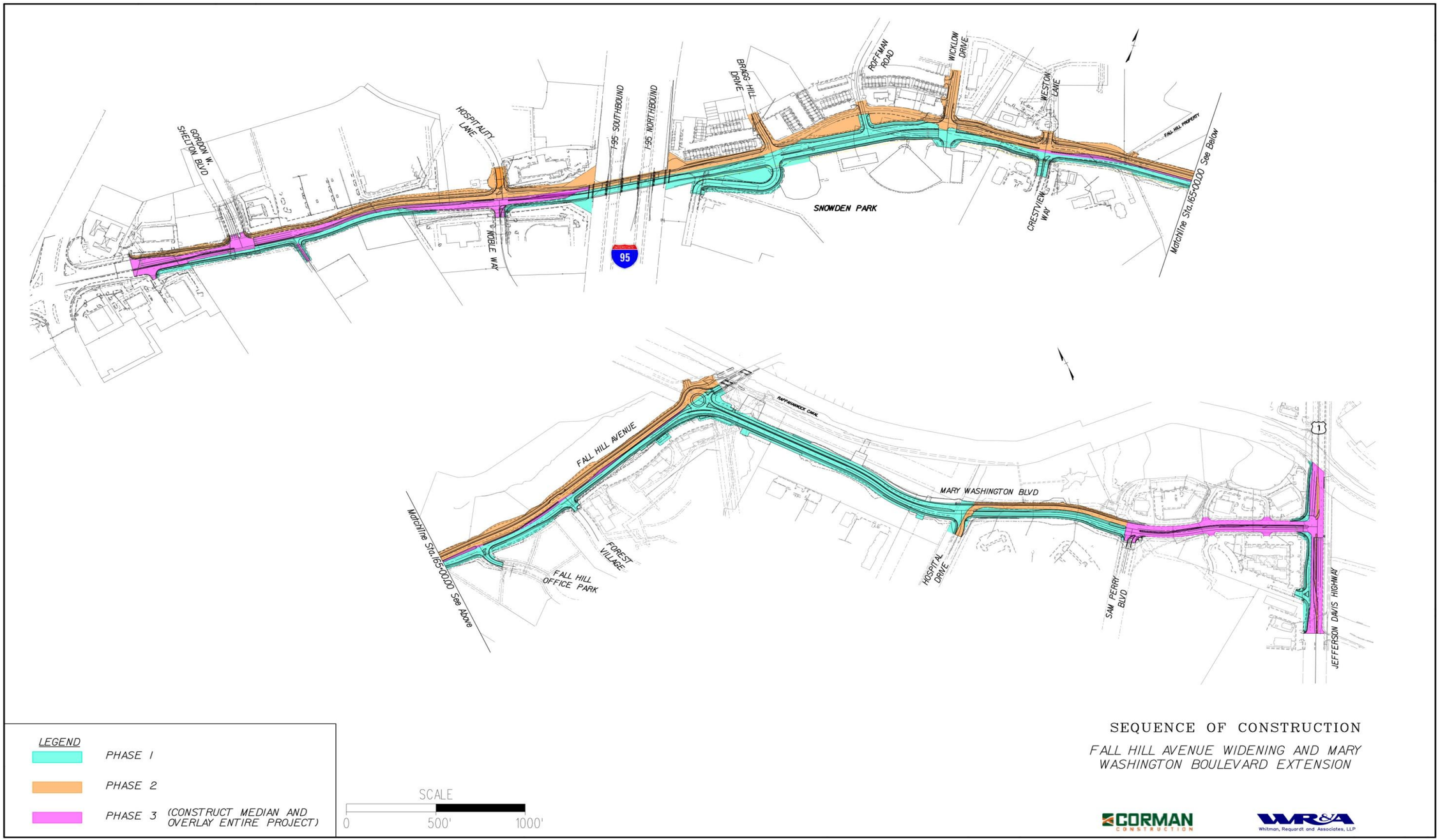
PHASE 2

1. Maintain traffic on existing pavement and the new EB bridge and new pavement placed in Phase 1.
2. Construct WB lanes on bridge over I-95. Piers will be constructed behind shoulder closures (May begin during Phase 1).
3. Construct noise wall along I-95 and to the east of Wicklow Drive, as required.
4. Widen WB lanes from Sta. 105+00 to bridge. Relocate utilities as coordinated with roadway construction.
5. Construct WB lanes from bridge to Bragg Hill Drive. Construct WB lanes from Wicklow Drive to Round Hill Drive. Construct WB lanes from Hospital Drive to Sam Perry Boulevard.
6. Widen SB lanes on Route 1.
7. Complete EB and WB lanes on Mary Washington from roundabout to Hospital Drive near Dominion Monopole after utilities relocated.
8. Begin overlays of areas completed in Phases 1 and 2 where available.

PHASE 3

1. Complete median work on Fall Hill Avenue, Mary Washington Blvd. and Route 1.
2. Complete overlays and final Pavement surface.
3. Complete final roadway striping

For the ease of the reviewer, we elected to show the sequence of construction, including the phased descriptions graphically as shown on the next page.


GORDON W. SHELTON BLVD
HOSPITALITY LANE
I-95 SOUTHBOUND
I-95 NORTHBOUND
BRIGGS HILL DRIVE
ROFFMAN ROAD
WICKLOW DRIVE
WESTON LANE
FALL HILL PROPERTY
SNOWDEN PARK
CRESTVIEW WAY
MATCHLINE STA. 165+00.00 SEE BELOW
NOBLE WAY
95
RAPPAHANNOCK CANAL
FALL HILL AVENUE
MATCHLINE STA. 165+00.00 SEE ABOVE
FOREST VILLAGE
FALL HILL OFFICE PARK
MARY WASHINGTON BLVD
HOSPITAL DRIVE
SAM PERRY BLVD
JEFFERSON DAVIS HIGHWAY
1
LEGEND
PHASE 1
PHASE 2
PHASE 3 (CONSTRUCT MEDIAN AND OVERLAY ENTIRE PROJECT)
SCALE
0
500'
1000'
SEQUENCE OF CONSTRUCTION
FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION
CORMAN CONSTRUCTION
WR&A
Whitman, Requardt and Associates, LLP

Scheduling and Coordination: As with any Design-Build project, it is vital to understand and communicate the schedule clearly and effectively to the entire Team, including stakeholders. The Corman DB Team is proficient in updating and reviewing schedules to develop strategies, stay ahead of the curve, and even beat the CPM schedule. Led by our Construction Manager, Daily Coordination Meetings, Weekly Schedule Meetings, 30-day 60-day and 90-day look-ahead Schedule Meetings, and Schedule Review Meetings will be conducted with field supervision and QA/QC staff present. The three-week look-ahead schedules will include detailed QC inspection and testing needs. Subcontractors will be involved in the weekly scheduling meetings. These regimented forums plan the following work day, week, and month and ensures critical schedule items are followed. It also gives us ample time, if needed, to fine tune or add resources to keep the job progressing.

Construction is scheduled to take place with multiple crews at multiple locations simultaneously to effectively complete the work and minimize disruption to the public. With this sequencing of construction and additional crews, the Corman DB Team proposes to meet the Final Completion date of January 24, 2017 Assumptions made to perform the work in conformance with this schedule include:

- All utilities will attach to the same pole line across I-95
- All utilities will attach to the pole line on Fall Hill Ave west of I-95
- The utilities do not have easements from Weston Lane to the canal on the north side of Fall Hill Ave
- Columbia Gas will relocate at their cost on city property and within the city R/W
- Verizon manholes can remain in place at STA 152+50 and STA 168
- The current design on the canal bridge project does not create more relocation issues that we already know about per our plans
- Eastbound bridge shifted to the south provide a separation between the new and existing bridge during Phase 1 construction
- Mary Washington Hospital FO cable will be relocated by others prior to the start of construction
- Submission and approval of early design packages for the Fall Hill Avenue Bridge over I-95 and major retaining walls

4.5.2 TRANSPORTATION MANAGEMENT PLAN

The project requires a Transportation Management Plan (TMP) Type B and will follow the Project Management Process (PMP) Category IV. Our Team will work with VDOT to develop the TMP, including three major components: Temporary Traffic Control (TTC) Plans, Public Communications (PC) Plan, and Transportation Operations (TO) Plan. An important part of the TMP is an extensive public information program to inform the public of changes in traffic patterns and major impact activities (i.e., construction over I-95, bridge steel removal, delivery, and placement). This will take close coordination with VDOT and other key stakeholders as summarized at the end of this section. During the design development, the Corman DB Team will establish an MOT Task Force that meets weekly to address traffic conditions and our construction sequence. An added value to our Team, *Lou Robbins, P.E., DBIA*, will hold the dual roles of DB Integrator and Public Relations Manager. This assures a 360-degree TMP perspective and brings together design and construction to communicate to motorists and residents regarding constructability and design requirements.

Maintenance of Traffic: Per the RFP, the MOT and TCP will minimize adverse impacts to drivers. Two 11 ft. lanes will be maintained in each direction at all times on both Fall Hill Avenue and Mary Washington Boulevard. Traffic drums will close lanes for some construction phases during non-peak hours however two way traffic will be maintained in accordance with the RFP. Temporary barriers, when utilized, will be offset the minimum distance specified on the RFP (2’ on I-95 and 1’ on all other roadways) from active travel lanes. Temporary pavement markings will meet VDOT standards. Lane restrictions in the RFP will be strictly followed. Existing pedestrian facilities will be maintained at all times with the proposed sidewalk being

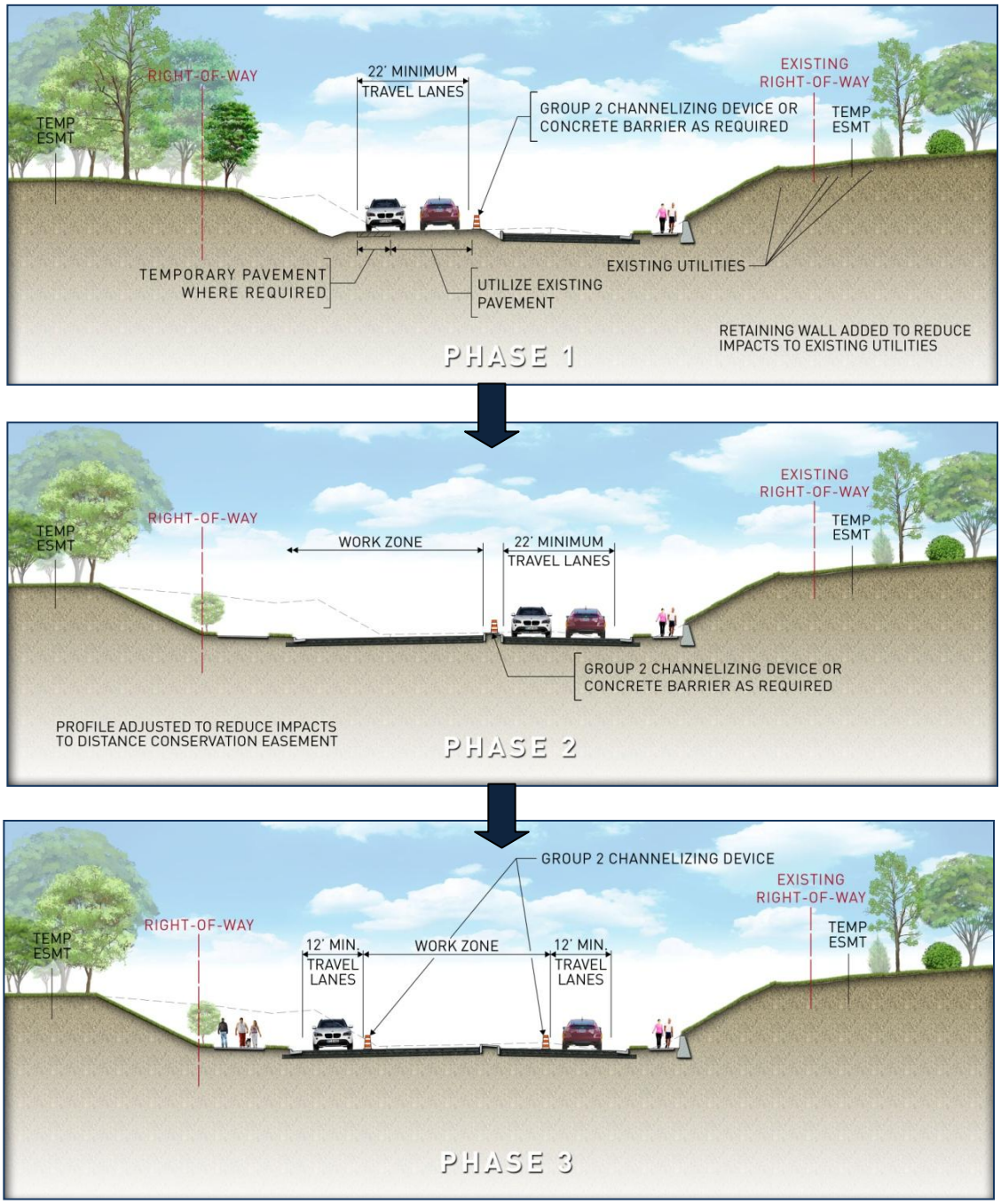
constructed in Phase 1. Existing travel lanes and left turn lanes will be maintained, except during short-term lane closures.

Existing travel lanes and widths on I-95 will be maintained at all times, except when placing the bridge girders and removing the existing bridge. Corman will coordinate any I-95 lane closures with VDOT and stakeholders.

It is anticipated that a slow roll temporary traffic control closure may be necessary and will comply with the Traffic Engineering Division Memorandum No. TE-352.

Our Team refined the preliminary design profiles to minimize the need for temporary pavement and lane closures, especially in the intersections. This minimizes MOT impacts to motorists.

With this in mind, we developed a sequence of construction as shown in Section 4.5.1. The MOT typical section for each of these phases is as follows:



Traffic Management Plan: As part of the TMP, Work Zone Impact Assessment will be developed to optimize traffic operations during construction and minimize motorist disruption and delays. Traffic analysis for MOT conditions will be performed in advance of the work and modified as conditions warrant. As necessary, we will perform an operational analysis for the different MOT conditions.

- Temporary Signals
- Signal Timing Changes
- Short-Term Lane Closures
- Incident Management

MOT plan and work zone details and sequence will be in accordance with the *Virginia Work Area Protection Manual* and MUTCD.

Work Zone Speed: The Corman DB Team's plan includes 40 mph work zone on Fall Hill Avenue, Mary Washington Boulevard, and Route 1, and maintains existing speed limits for I-95 and all other roadways.

Flagging: Flagging is anticipated during the placement of MOT devices, selected utility relocations, intersection construction, paving, and temporary lane closures.

Detours: None are anticipated at this time.

Time-of-Day Restrictions: Work hours will follow the restrictions in the RFP, Section 2.11.2.

Incident Management: The Corman DB Team will coordinate with VDOT to develop protocols to implement Incident Management, not only within the project limits, but also within regional influence of the area. We will develop an Emergency Contact List and plans to address different incident scenarios. This includes strategically placed VMS to assist motorists, alternative routes and procedures for emergency lane closures or hazard protection. This prepares our Project Team to react quickly to any incident affecting motorists traveling through the project.

Transportation Management Plan Deliverables: Our phased construction plans, including Transportation Management Plans (TMPs) and Maintenance of Traffic (MOT) drawings, will be prepared in an integrated, multi-disciplinary manner, with significant construction team involvement. The TMP/MOT design team will receive critical input from construction professionals on access needs, haul routes, staging areas, and construction durations. They will also address pedestrian access and safety. Our construction phasing plan has also taken into consideration earthwork balance, pre-consolidation of embankments, and intra-site access.

Our MOT Plans will provide for and address construction components, including drainage facilities (temporary and permanent), utilities, sound walls, retaining walls, bridges, stormwater management, and erosion and sediment control.

Transportation Management Plan Stakeholders: The Corman DB Team understands the importance of keeping stakeholders informed on the progress and potential impacts. There are three key components to our outreach program:

1. Including stakeholders when preparing TMP and Traffic Control plans for input on important stakeholder issues, such as access to properties and hospital emergency response considerations.
2. Forming an MOT Task Force, which will include select stakeholders and VDOT, to share maintenance of traffic issues, such as upcoming traffic switches, bridge girder installation, and other items that have an impact on traffic flow and access.
3. A close working relationship between VDOT and the Corman DB Team for a continuous and cooperative dissemination of information to stakeholders.

Major stakeholders, along with their role, and the key anticipated risks or impacts to them, are shown on the table below:

STAKEHOLDER	ROLE	IMPACTS DURING CONSTRUCTION
VDOT	Owner	Work zone safety; coordination with adjacent projects; traffic backups or inadequate public outreach, and impacts to adjacent historic or environmental resources.
FHWA	Funding and Project Oversight	Work zone safety; coordination with adjacent projects; traffic backups or inadequate public outreach, and impacts to adjacent historic or environmental resources.
City of Fredericksburg	Local Jurisdiction	Coordination with adjacent projects; traffic backups or inadequate public outreach, dust and noise, impacts to adjacent recreational facilities, adjacent historic or environmental resources.
FRED (Regional Transit)	Local Transit Agency	Changes in traffic patterns.
City Fire, Rescue & EMS	Emergency Responders	Emergency response routes impacted by construction or temporary lane closures.
Mary Washington Hospital	Emergency Responders	Emergency response routes impacted by construction or temporary lane closures.
State and Local Police	Emergency Responders, assist in MOT and TMP implementation	Emergency response routes impacted by construction or temporary lane Closures, work hours and assistance required during lane closures and /or rolling slowdowns.
City School District and Private Schools	Student Transport	Bus routes impacted by construction.
Traveling Public (Commuter & Local)	User of the Facility – Route Impacted	Bus routes (FRED) impacted by construction or temporary lane closures; travel time through work zone impacted by reduced speeds and/or back-ups.
Local HOA Associations	Represent Local Communities	Routes impacted by temporary lane closures; travel time through work zone impacted by reduced speeds and/or back-ups; dust and noise.
Other Contractors Working in the Area	Adjacent Contractors	Coordination of scheduling construction on other area projects.
Utility Companies	Maintain / Operate Utilities Within or Across Corridor	Accessibility to facilities and relocations through work zones; impacts on response time to outages.
Business Organizations	Represent Local Business	Accessibility to facilities through work zones and travel time through work zone impacted by reduced speeds and/or back-ups.

4.6 DISADVANTAGED BUSINESS ENTERPRISES

The Corman DB Team is committed to achieving a 15% DBE participation goal for the entire value of the contract. The following summary of our DBE Subcontractor Participation Plan narrates how we will achieve this goal during design and construction:

Strategies to Meet/Exceed the Goal: Our DB Team encompasses highly regarded DBE/WBE members, including Quinn Consulting, Sabra, Wang & Associates, H&B Surveying, DMY, EM&T, and DoveTail Cultural Resources. Although they were selected based on their premium work and abilities, they will also assist the Corman DB Team in achieving the 15% DBE participation goal through their designated project roles.

Corman DB Team members always maintain a substantial database of DBE firms qualified to work on our projects. Outreach is continuous as a way to connect with additional qualified DBE firms. Corman DB Team members routinely meet and exceed the DBE requirements on projects. ***So much so, that the Maryland Washington Minority Contractors Associations awarded Corman Construction as "Prime Contractor of the Year for Minority Business" in 2011.***

The Corman DB Team will modify Corman's standard Local DBE Subcontracting Plan to meet the requirements and challenges of the 15% participation goal for this project. The following checklist specifies ways we solicit DBE firms during pre-construction:

- Publish Proposal Notifications/Bid Notices in local / minority newspapers 30 and 10 days prior to bid;
- Post Bid Notices 30 days and every subsequent Tuesday prior to bid on the Maryland / Washington Minority Contractors Association (MWMCA) website. This reaches 10,000 companies, many based in Virginia;
- Post plans and specifications on our FTP site for subcontractors to view;
- Based on available scopes of work, identify potential DBE firms from our company DBE Firm Database;
- The Corman DB Team's Estimating Assistants will reach out to identify DBE firms, respond to inquiries, and furnish requested information;
- Maintain a spreadsheet with DBE subcontractor/supplier contact information and correspondence;
- Validate qualifications of certified DBE subcontractors/suppliers applicable to specific requirements.

During Price Proposal development, we prepare comprehensive lists for DBE participation. In addition to our standardized DBE solicitations, our estimating staff reaches out to DBE subcontractors / suppliers and educates them on jobsite opportunities. Face-to-face meetings are often held with DBE firms where we explain the project, accommodate their concerns and needs, and provide opportunities within their scope of work.

COMMITMENT: The Corman DB Team commits to achieving a 15% DBE participation goal for the entire value of the contract.

We also track our DBE participation. This creates an awareness to maintain and/or increase our efforts to successfully meet the goals. As the bid date approaches, design and construction DBE participation goals are evaluated and finalized to meet them.

During design and construction, the project team monitors DBE participation for compliance with the required goal.

Note: There are no Pages 38-40. Design Graphics in Volume II start at Page 41 and end at 65.

4.7 PROPOSAL SCHEDULE

4.7.1 PROPOSAL SCHEDULE

The Corman DB Team has thoroughly evaluated the RFP documents, performed site visits of Fall Hill Avenue and Mary Washington Boulevard, attended pre-proposal meetings, participated in proprietary meeting discussions, and had working sessions among our construction and design teams. Through this progression, we developed a simplified solution to deliver the project through our Sequencing Plan. This narrative explains how we will deliver a positive experience to VDOT and the involved stakeholders. The project completion date is as shown in the RFP, which is January 24, 2017.

The proposal schedule can be found in Volume I following this section.

Project Milestones

Notice of Intent to Award Date	February 7, 2014
CTB Approval/Notice to Award	March 19, 2014
Notice to Proceed	April 18, 2014
Substantial Completion of Design	April 3, 2015
Mobilization	February 23, 2015
Final Completion of Project:	January 24, 2017

Work Breakdown Structure

The schedule integrates design and construction into a Work Breakdown Structure (WBS) as shown below:

Level 1: **Schedule Milestones** – Overall schedule review of progress.

Level 2: **Scope Validation Period** – Includes verification of utilities, geotechnical investigations and conceptual pavement designs, and spot checking the survey and base maps.

Level 3: **Environmental Permitting**

Level 4: **Design** – Includes preliminary, detailed, and final design cycles with time allocated for engineering services, plan development, QA/QC reviews, VDOT, and other regulatory agency plan reviews and approvals and ROW plans. This section includes a second level of WBS structure to group design by construction work areas.

Level 5: **Right of Way Acquisition** - Includes title research, appraisals, offers and negotiations.

Level 6: **Utility Relocations** – Includes activities for the UFI meetings, finalizing UT-9 Forms, preparation of the preliminary engineering estimates, utility relocation design by the our team and utility owners, identify utility easements, approval of P & E estimates, utility design approvals, and utility relocations.

Level 7: **Construction** – Includes all components of roadway construction, as well as maintenance of traffic, temporary pavement for MOT, erosion & sediment controls, stormwater management, noise wall construction, bridge demolition and construction, signals, ditches/drainage, lighting, and roadside improvements. QA/QC witness and hold points are incorporated in this section. The section has WBS second and third levels which segment the construction by work areas. Public Relations are included in the general section of this phase.

WORK BREAKDOWN STRUCTURE

LEVEL `	LEVELS 2 & 3
Phase 01	**Schedule Milestones**
Phase 02	**Scope Validation Period**
Phase 03	**Environmental Permitting**
Phase 04	**Design** 4.1 Roadway/Bridge 30% 4.2 Roadway/Bridge 60% 4.3 Roadway/Bridge Final 4.4 Ready for Construction Design 4.5 ROW Plans 4.6 Design Support During Construction/As-Built Drawings
Phase 05	**Right-of-Way Acquisition**
Phase 06	**Utility Relocations** 6.1 Dominion Virginia Power 6.2 City of Fredericksburg Water & Sewer 6.3 Columbia Gas of Virginia 6.4 Cox Communications 6.5 Comcast 6.6 Verizon
Phase 07	**Construction** 7.1 Public Involvement 7.2 Pre-Construction Submittals 7.3 Bridge 7.3.1 EB Bridge Construction 7.3.2 WB Bridge Construction 7.4 Phase 1 7.4.1 Roadway 7.5 Phase 2 7.5.1 Roadway 7.6 Phase 3 7.6.1 Roadway 7.7 Closeout

Calendars

Three project calendars were used in the schedule and include:

1. **"5 Day Workweek w/ Basic Holidays"** – Based on five working days per week and is used for construction activities and includes holiday restrictions and anticipated weather days.

2. **"Winter Paving 2014 2015 2016 2017"** – Based on a non-work period from December 22 through February 28 for weather dependent activities, such as asphalt paving.

3. **"Calendar Days"** – Based on seven days per week and is used for review periods.

Design Phase

The design phase includes preparation, QA/QC reviews, and submissions of Intermediate, Final, and Ready for Construction design stages of the bridge and roadway design process. Included are 21-day review activities for VDOT review periods. Included to support the plan preparation is survey coordination and mapping, geo-technical investigations, and utility designations. Activities are included for geotechnical investigations, reports and a 45-day period for VDOT's review of the geotechnical report prior to submitting the final roadway package.

The design phase will begin immediately upon Notice of Intent to Award to begin work advancing the concept plans to the intermediate stage. It is expected to have Ready for Construction plans in April 3, 2015. Design effort is on the critical path.

Environmental Permitting

Activities have been incorporated for the full project-wide concept SWM/ES Plan, Complete Wetland Delineation, Confirm Jurisdictional Determinations, Threatened and Endangered Species, Virginia Water Protection (VWP) Permit, Individual Wetland Permit and the VSMP Permit.

This portion of the schedule should not impact the project's critical path.

Right-of-way Acquisition

There are 44 parcels that include fee taking, permanent, temporary, and utility easements. A separate design package will be prepared for the ROW plans in additional to the roadway 30% plans. The ROW process will advance during preparation of the 60% plans so that appraisals can be provided to VDOT for approval as soon as the 60% plans have been approved. ROW acquisition is on the critical path.

Utility Relocations

The utility relocations are sequenced to match the required work operations. A UFI meeting will be held as early as practical to advance this process. Due to the extent of the utility relocations, in each phase there will be some concurrent construction and utility relocation work within the same proximity. Utility relocations are also on the critical path.

Construction

Construction is scheduled to begin immediately once the Bridge / Roadway plans are approved, beginning with setting out advance warning signs. Construction is anticipated to be in two major phases and one minor stage, which is Phase 3.

Phase 1 is the extension work of Mary Washington Boulevard, the entire EB street widening throughout the project, and Phase 1 new bridge construction. This phase will allow the major part of the work to be completed with minimal impact to the original traffic patterns. The plan is to complete the new EB bridge construction prior to completing the rest of Phase 1. This provides a smooth transition to Phase 2, which switches the traffic pattern off of the original bridge and onto the new EB bridge. In addition, by starting ROW acquisition and preparatory clearing and grading on EB Fall Hill early, utility relocations can advance which avoids a negative impact to the schedule.

Phase 2 completes the Phase 2 bridge work, WB street widening with the majority of work occurring on Fall Hill Avenue. Traffic patterns will be moved to the new EB roadway and work commenced. The area at the hospital and on Jefferson Davis Highway will be complex and cumbersome, but is not expected to be on the critical path. Also included is completing the roundabout and Roffman Road area work. This phase marks the completion of the utility relocations on Mary Washington Boulevard in the area of the existing Dominion monopole. Furthermore, this phase will include the abatement and demolition of the original Fall Hill Avenue Bridge. Due to time-of-year paving restriction, overlays may begin in this phase. Bridge demolition can be completed as the new EB bridge will now be in service from the Phase 1 portion.

Phase 3 includes construction of the medians, finish work, and milling and overlay of pavement areas.

4.7.2 PROPOSAL SCHEDULE NARRATIVE

Plan to Execute the Work

We plan to complete the design prior to commencing construction, perform the construction in three (3) phases and complete the project on or before the Final Completion Date of 1/24/17.

For this project, we make the following assumptions:

- **Bridge:** The existing bridge will be replaced with a five-span bridge and offset to the south 5' from the RFP plans location.
- **ROW Requirements:** 44 total parcels impacted; some with extensive utility easements required. Two parcels are overlaid with conservation easements. ROW taking limits are expanded from RFP concept plans in several locations as provided in Addendum 2.
- **Storm Drainage:** To shorten the new culvert on Mary Washington Boulevard, our team is proposing small sections of MSE walls to retain the roadway embankment.
- **Retaining Walls:** Soil nail walls are being utilized at several locations to minimize impacts to adjacent properties.
- **Design Reviews:** Bridge plans and utility relocations will be advanced ahead of Roadway Plans.
- **Final Project Completion:** Work will be completed by January 24, 2017.

Schedule Overview

Notice of Intent to Award:	February 7, 2014
Design Activities:	February 2014 – April 2015
Construction:	February 2015 – January 2017
Final Completion:	January 24, 2017

Construction

We divided the project into logical segments of work for efficient and effective MOT. We then combined and sequenced the work to maximize resources, reduce schedule duration, and progress the work while maintaining constant traffic flow through the work zones.

A sequence of construction graphic is shown on Page 32.

Construction will be in three phases as follows:

PHASE 1

1. Construct SWM drainage outfalls, clearing, and preliminary grading during utility relocations prior to starting EB roadway construction.
2. Remove existing raised median Sta. 105+00 to Sta. 110+00 and replace with temporary pavement. Place temporary pavement along WB lanes at Sta. 154+00 to Sta.159+00 and from Sta. 163+00 to Sta. 174+00.
3. Relocate utilities as the Easements become available.
4. Construct Frederick Place. Tie-in to existing Frederick Place with short-term lane closures.
5. Construct EB Bridge over I-95. Piers will be constructed behind shoulder closures.
6. Widen EB lanes from Sta. 105+50 to bridge while maintaining traffic on existing pavement.
7. Construct EB lanes from bridge to Frederick Place and construct EB lanes from Wicklow Drive to roundabout while maintaining traffic on existing roadway.
8. Construct noise wall to the west of Crestview Way, if required.
9. Construct EB and WB lanes from Frederick Place to Wicklow Drive.
10. Construct Mary Washington Boulevard lanes from Hospital Drive to Sam Perry Boulevard.
11. Place temporary pavement transition at Noble Way to Bragg Hill Drive, shift traffic to new structure and begin demolition of existing bridge.

PHASE 2

1. Maintain traffic on existing pavement and the new EB bridge and new pavement placed in Phase 1.
2. Construct WB lanes on bridge over I-95. Piers will be constructed behind shoulder closures (May begin during Phase 1).
3. Construct noise wall along I-95 and to the east of Wicklow Drive, as required.
4. Widen WB lanes from Sta. 105+00 to bridge. Relocate utilities as coordinated with roadway construction.
5. Construct WB lanes from bridge to Bragg Hill Drive. Construct WB lanes from Wicklow Drive to Round Hill Drive. Construct WB lanes from Hospital Drive to Sam Perry Boulevard.
6. Widen SB lanes on Route 1.
7. Complete EB and WB lanes on Mary Washington from roundabout to Hospital Drive near Dominion Monopole after utilities relocated.
8. Begin overlays of areas completed in Phases 1 and 2 where available.

PHASE 3

1. Complete median work on Fall Hill Avenue, Mary Washington Boulevard and Route 1.
2. Complete overlays and final Pavement surface.
3. Complete final roadway striping

Construction is scheduled to take place with multiple crews with much of the work constructed simultaneously. Weekly scheduling and supervisory meetings with the Construction Manager, Project Engineer, Construction QC Manager, QAM, superintendents, foreman, and engineers will be held to establish the three-week schedules. These schedules include detailed QC inspection and testing needs. Subcontractors will be involved in weekly scheduling meetings.

Design

As our team studied the project schedule, it was apparent that there is a time advantage to advance the bridge and utility designs. This is made possible by design work beginning upon Notice of Intent to Award. During

the Scope Validation Period, we will verify utilities and conceptual pavement designs, start geotechnical investigations, and spot check the survey and base maps. We assumed 30%, 60% and RFC submissions and allotted a 21-day review cycle for major plan submissions in the CPM schedule. The maintenance of traffic, as well as the required SWM Report, and E&S permitting plans will advance concurrently with the roadway design. ROW plans may be prepared based upon 30% roadway plans, if utility easements are set at that time. Over-the-shoulder reviews will be conducted throughout design to keep VDOT informed of decisions made as the design is being developed.

Critical Path

The Critical Path of the Project is shown in the Appendix. The critical path for the project flows through the preparation of the 30% and 60% roadway plan submissions. At approval of the 60% design, the UFI meeting will be held, UT9 Forms distributed and design of the utility relocations will start. If possible, utility easements will be set on the 30% roadway plans, as we did on our Design-Build Route 1 widening project. During the utility design, the remainder of the roadway design will be completed. Relocation of the utilities will start as soon as possible. Phase 1 of the roadway work will start approximately 4 weeks after the utility relocations have started. Upon completion of Phase 1, Phase 2 will commence, immediately followed by Phase 3 and completion of the project.

Managing the Schedule and the Project

Open and honest communication leads to effective coordination. The construction schedule is the primary means for the Corman DB Team to communicate the construction plan to the team and stakeholders. It includes planned means and methods, sequencing, resourcing and timing. The schedule provides the framework for planning and scheduling the day-to-day work. Established durations for activities become the basis for setting production goals. The schedule also serves as the yardstick to monitor and measure progress and is a tool for identifying the impact of unexpected events or conditions and for revising the construction plan to mitigate delay impacts.

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

- Weekly design/construction scheduling and coordination meetings during the design phase
- Weekly construction scheduling meeting during the construction phase
- Utility relocation tracking sheets during the design and construction phases
- ROW progress tracking spreadsheets (if needed) during the design and construction phases
- Review and approval tracking spreadsheets of design element submittals
- Shop drawings status tracking sheets
- Material submittals and delivery schedules
- Non-conformance logs by QC and QA for design and construction
- RFI logs
- Monthly internal project review meetings by the Corman DB Team's Executive Review Committee
- Monthly progress/partnering meetings with the major stakeholders, including VDOT, the Corman DB Team's designers, major subcontractors/vendors and local businesses. Affected utilities will also be invited for the current stage of work.

At the internal weekly meetings, issues/concerns will be identified utilizing the above tracking aids and action items identified and assigned to the responsible party who can resolve it. Three-week, 30 day and 60 day "look-ahead schedules" will be prepared and discussed to analyze schedule and quality impacts. Similar information

will be discussed and action items assigned at the Monthly Progress/Partnering meetings with key stakeholders. Other stakeholders may be invited as required for anticipated issues during upcoming schedule activities.

The Executive Review Committee will meet monthly, typically one week prior to the Monthly Progress/Partnering meeting, to review actual progress and identify resources (manpower, equipment and materials) for upcoming scheduled items. Should issues be identified, resolutions and recovery strategies can be agreed upon prior to the monthly meeting so the Corman DB Team can inform stakeholders of potential issues and solutions.

Tracking sheets, submittal logs, and meeting action item lists, along with all other tracking and correspondence, will be contained in Viewpoint (a project management database system) which allows integration with the schedule.

Managing the Design and Construction Schedule

Meeting design milestones is the key to successful design-build projects. The Corman DB Team will use performance evaluation tools, mainly the earned value method, to track the progress of our design consultants and other team members. This provides the design status to the management team as the job progresses. Constructability reviews are crucial and will be performed by all parties to avoid schedule delays of field design changes. At the regularly scheduled project control meeting, the individual discipline manager (whether it be design or field) will report on his group's progress and how it fits into the overall CPM schedule.

Keeping the CPM as the "big picture" and using the three-week look ahead for the details has proven successful. The Construction Manager (CM), along with the Design Manager, will review, maintain, and update the schedules as the work progresses. Three-week schedules (TWS) will be updated weekly at a scheduling/planning meeting. The overall CPM schedule will be updated weekly and used as the long-range planning tool. The "approved schedule" will be updated by the CM and project engineer, provided to VDOT monthly prior to the monthly progress/partnering meetings, and include a comprehensive and detailed narrative, performance evaluation charts, photos, etc.

The Corman DB Team has proven management systems (shown below) that keep the project on track:

- **Weekly** scheduling and supervisory meetings with the Construction Manager, Design Manager, Construction QC Manager, QAM, superintendents, foreman, and engineers to establish the two-week schedules,which include detailed QC testing needs.
- **Weekly** site meetings during construction include the design team, public relations, and utility coordination until design work is complete and as needed for the remainder of construction.
- **Bi-weekly** onsite progress meetings include all relevant parties to review schedule progress, design issues, QA/QC matters, unresolved construction issues, safety performance, administration issues, and general project management matters.
- **Monthly Progress/Partnering Meetings** are held by the DBPM, as well as all other project meetings. The DBPM will develop and review the schedule and work closely with the Public Relations Manager to implement the public outreach plan. When construction starts, the DBPM coordinates construction through the CM and holds monthly progress meetings to review progress, conflicts, safety, and quality. The Corman DB Team will keep minutes of meetings and distribute to stakeholders within 48 hours.
- **During Construction,** design engineers will remain available to discuss and meet about field changes that may occur during construction.

This project will be administered using our Viewpoint Project Management System, which manages the project lifecycle, including design plans, contract management, RFI control, change orders, submittal/transmittal

control, meetings, QA/QC documents, issue logs and lists, and more. It will help ensure that the project is administered timely to prevent schedule delays. Viewpoint offers secure remote access by all appropriate stakeholders via the web. It is designed to give Corman, designers, VDOT, subcontractors, utilities, and vendors access to the project data they need, when they need it, 24/7.

Schedule Recovery

The experience the Corman DB Team gained in working on similar projects will be critical to the timeliness of resolving design and construction hurdles as they occur. The Corman DB Team has successfully managed design on other jobs that enables critical activities, such as utility relocations and environmental permitting, to be prioritized and monitored with the overall design and construction progress accordingly. This team prides itself in solving construction and design issues rapidly without sacrificing quality. This team will aggressively manage the entire project, allowing VDOT to minimize its management and inspection resources required. Should any item on the CPM Schedule show unacceptable progress – *for any reason* – a schedule recovery strategy will be developed and implemented immediately with VDOT's concurrence.

Subcontractor Scheduling

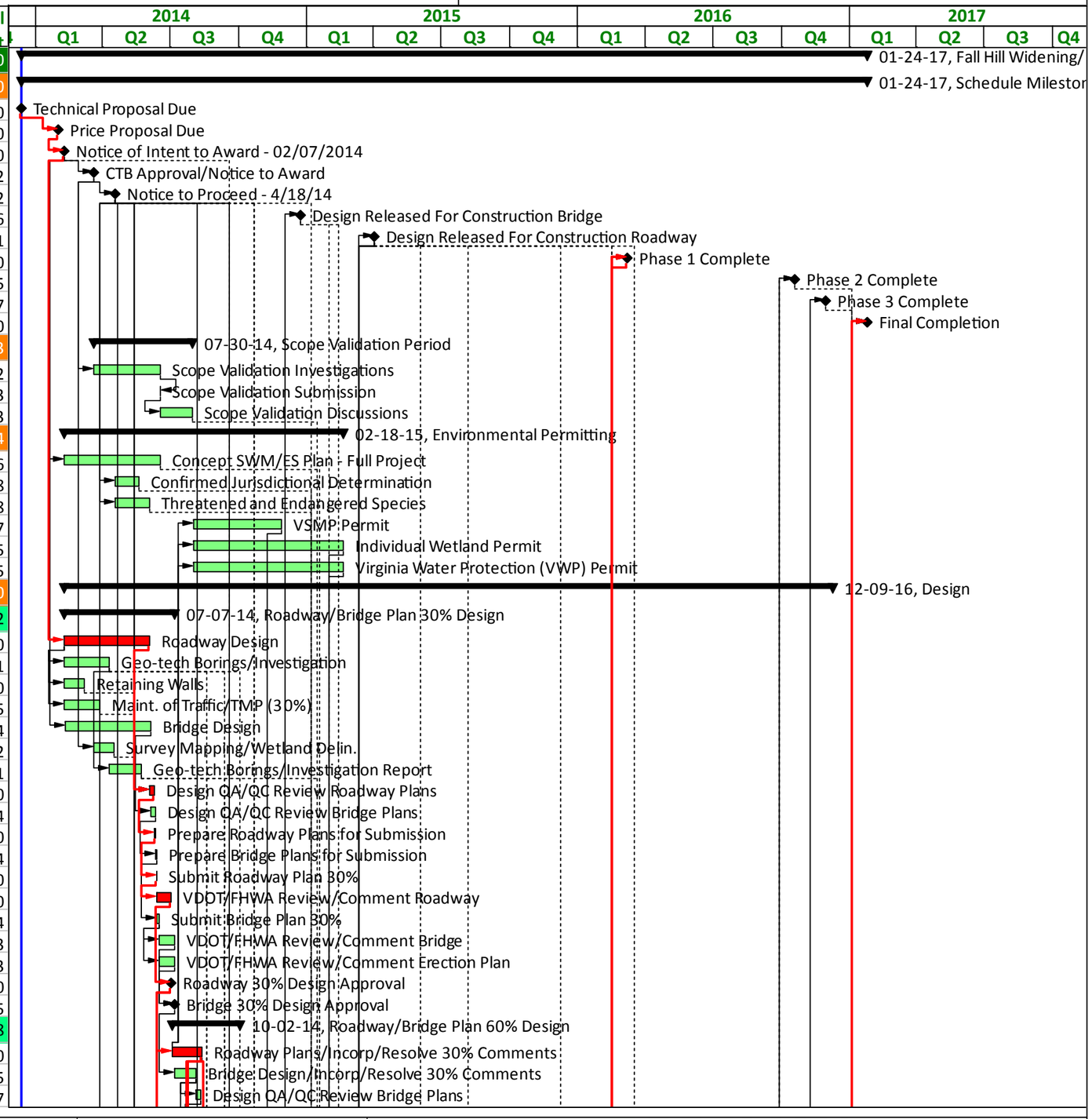
Subcontractors will be selected based on quality performance per schedule requirements. They will be involved in schedule meetings to understand project expectations well in advance.

Resource Availability

In the event additional resources are needed to mitigate delays, Corman has a large pool of resources to draw from, including crews, equipment, subcontractors, suppliers, and professional expertise. The Construction Manager will have a direct relationship with Corman's Operations Manager and Executive Team, who will intervene immediately on the project's behalf to supply supplemental manpower and equipment to maintain schedules. Kevin Kern, Corman Southern Operations Manager, will be involved in oversight operations of the project. He has served in this capacity for over 20 years and has earned the respect of local agencies, including VDOT, for successfully finishing jobs on or ahead of schedule. Mr. Kern's specialty is mitigating delays with alternate methods and adding shifts or providing additional resources as demands change.

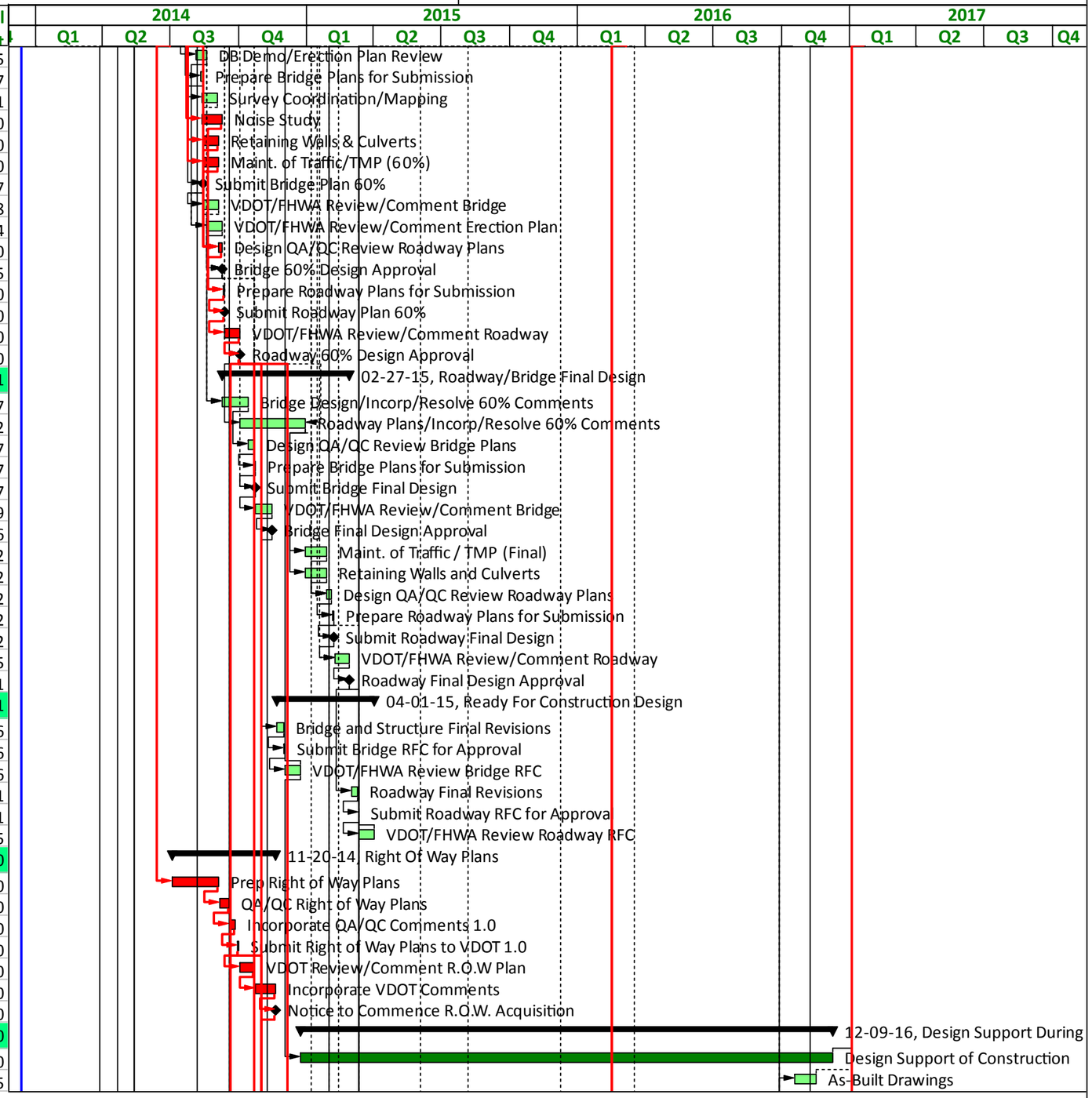
Our team is committed to providing VDOT a completed project by January 24, 2017.

Activity ID	Activity Name	Rem	Start	Finish	Total Float
Fall Hill Widening/Mary Washington Blvd.		791	12-12-13	01-24-17	0
Schedule Milestones		791	12-12-13	01-24-17	0
M100	Technical Proposal Due	0	12-12-13		0
M110	Price Proposal Due	0	01-31-14		0
M120	Notice of Intent to Award - 02/07/2014	0	02-07-14		0
M130	CTB Approval/Notice to Award	0	03-19-14		32
M140	Notice to Proceed - 4/18/14	0	04-18-14		92
M150	Design Released For Construction Bridge	0		12-23-14	46
M160	Design Released For Construction Roadway	0		04-01-15	101
CE1110	Phase 1 Complete	0		03-07-16	0
CD340	Phase 2 Complete	0		10-19-16	35
CD360	Phase 3 Complete	0		11-30-16	37
M180	Final Completion	0		01-24-17*	0
Scope Validation Period		92	03-19-14	07-30-14	233
SV100	Scope Validation Investigations	90	03-19-14	06-17-14	332
SV110	Scope Validation Submission	0	06-17-14	06-17-14	233
SV120	Scope Validation Discussions	30	06-17-14	07-30-14	233
Environmental Permitting		262	02-07-14	02-18-15	94
EP100	Concept SWM/ES Plan - Full Project	90	02-07-14	06-17-14	266
EP140	Confirmed Jurisdictional Determination	20	04-18-14	05-19-14	278
EP150	Threatened and Endangered Species	30	04-18-14	06-03-14	268
EP160	VSMP Permit	84	08-01-14	11-28-14	47
EP110	Individual Wetland Permit	140	08-01-14	02-18-15	5
EP120	Virginia Water Protection (VWP) Permit	140	08-01-14	02-18-15	5
Design		721	02-07-14	12-09-16	30
Roadway/Bridge Plan 30% Design		103	02-07-14	07-07-14	62
DRW330	Roadway Design	80	02-07-14	06-03-14	0
DRW340	Geo-tech Borings/Investigation	44	02-07-14	04-10-14	91
DRW370	Retaining Walls	20	02-07-14	03-07-14	60
DRW380	Maint. of Traffic/TMP (30%)	35	02-07-14	03-28-14	45
DRW320	Bridge Design	80	02-10-14	06-04-14	44
DRW460	Survey Mapping/Wetland Delin.	20	03-19-14	04-16-14	32
DRW110	Geo-tech Borings/Investigation Report	30	04-10-14	05-23-14	91
DRW470	Design QA/QC Review Roadway Plans	5	06-03-14	06-09-14	0
DRW420	Design QA/QC Review Bridge Plans	5	06-04-14	06-11-14	44
DRW480	Prepare Roadway Plans for Submission	2	06-10-14	06-11-14	0
DRW440	Prepare Bridge Plans for Submission	2	06-11-14	06-13-14	44
DRW570	Submit Roadway Plan 30%	1	06-12-14	06-12-14	0
DRW500	VDOT/FHWA Review/Comment Roadway	20	06-13-14	07-02-14	0
DRW490	Submit Bridge Plan 30%	1	06-13-14	06-16-14	44
DRW510	VDOT/FHWA Review/Comment Bridge	21	06-16-14	07-07-14	63
DRW520	VDOT/FHWA Review/Comment Erection Plan	21	06-16-14	07-07-14	63
DRW540	Roadway 30% Design Approval	0		07-02-14	0
DRW530	Bridge 30% Design Approval	0		07-07-14	45
Roadway/Bridge Plan 60% Design		64	07-03-14	10-02-14	28
DRW100	Roadway Plans/Incorp/Resolve 30% Comments	28	07-03-14	08-12-14	0
DRW120	Bridge Design/Incorp/Resolve 30% Comments	20	07-07-14	08-04-14	45
DRW220	Design QA/QC Review Bridge Plans	5	08-04-14	08-11-14	47



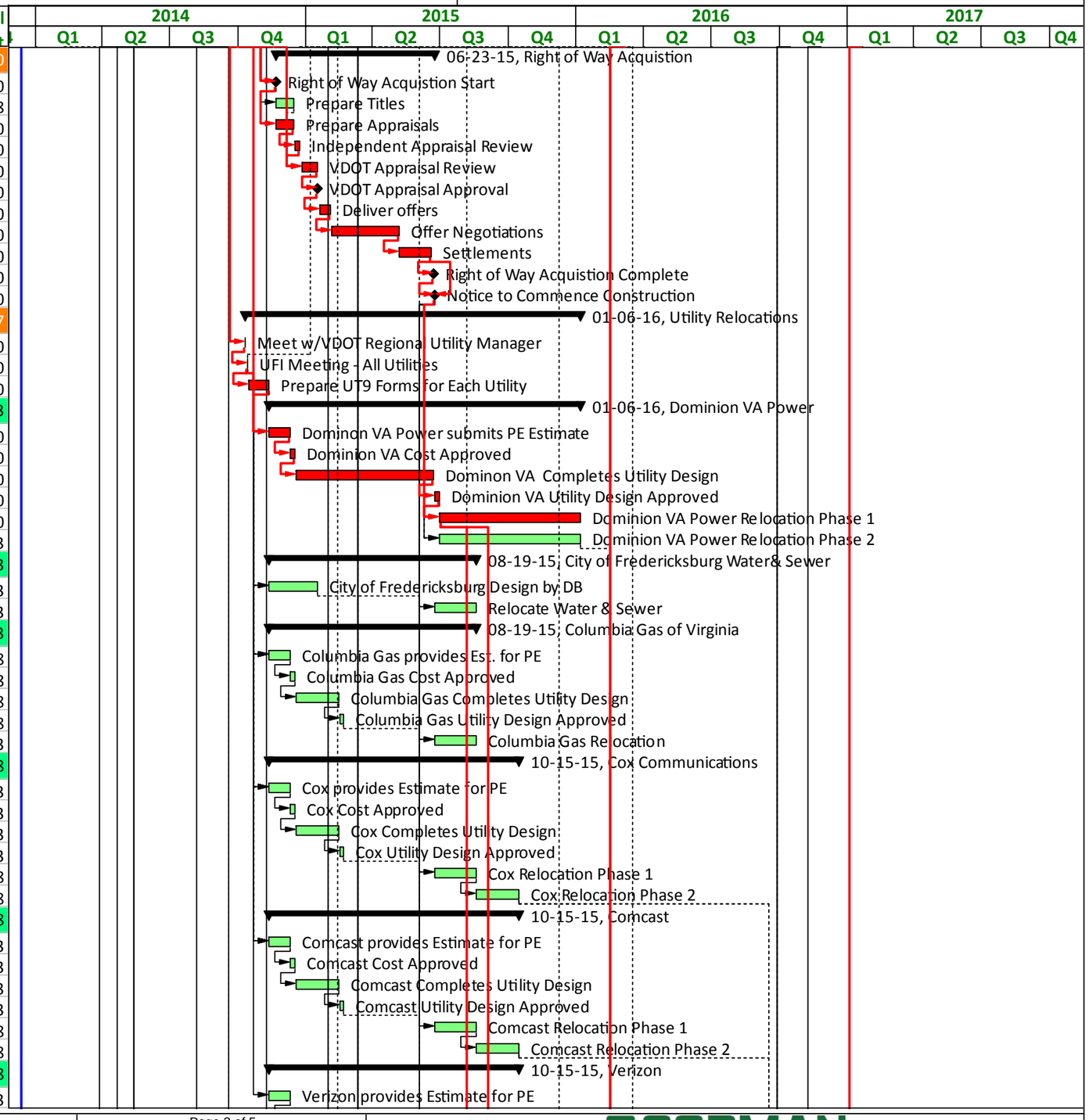
Remaining Level of Effort | Actual Work | Milestone
Critical Remaining Work | Remaining Work | Summary

Activity ID	Activity Name	Rem	Start	Finish	Total Float
DRW230	DB Demo/Erection Plan Review	10	08-04-14	08-18-14	45
DRW260	Prepare Bridge Plans for Submission	3	08-11-14	08-14-14	47
DRW130	Survey Coordination/Mapping	15	08-13-14	09-02-14	1
DRW140	Noise Study	20	08-13-14	09-09-14	0
DRW160	Retaining Walls & Culverts	15	08-14-14	09-03-14	0
DRW170	Maint. of Traffic/TMP (60%)	15	08-14-14	09-03-14	0
DRW300	Submit Bridge Plan 60%	0		08-14-14	47
DRW270	VDOT/FHWA Review/Comment Bridge	21	08-14-14	09-04-14	68
DRW290	VDOT/FHWA Review/Comment Erection Plan	21	08-18-14	09-08-14	64
DRW210	Design QA/QC Review Roadway Plans	4	09-04-14	09-09-14	0
DRW310	Bridge 60% Design Approval	0		09-08-14	45
DRW240	Prepare Roadway Plans for Submission	2	09-10-14	09-11-14	0
DRW550	Submit Roadway Plan 60%	0		09-11-14	0
DRW250	VDOT/FHWA Review/Comment Roadway	21	09-12-14	10-02-14	0
DRW560	Roadway 60% Design Approval	0		10-02-14	0
Roadway/Bridge Final Design		121	09-08-14	02-27-15	101
DF2050	Bridge Design/Incorp/Resolve 60% Comments	25	09-08-14	10-14-14	47
DF2000	Roadway Plans/Incorp/Resolve 60% Comments	60	10-03-14	12-29-14	102
DF2100	Design QA/QC Review Bridge Plans	5	10-14-14	10-21-14	47
DF2110	Prepare Bridge Plans for Submission	3	10-21-14	10-24-14	47
DF2140	Submit Bridge Final Design	0		10-24-14	47
DF2130	VDOT/FHWA Review/Comment Bridge	21	10-24-14	11-14-14	69
DF2150	Bridge Final Design Approval	0		11-14-14	46
DF2070	Maint. of Traffic / TMP (Final)	20	12-30-14	01-27-15	102
DF2060	Retaining Walls and Culverts	20	12-30-14	01-27-15	102
DF2080	Design QA/QC Review Roadway Plans	5	01-28-15	02-03-15	102
DF2090	Prepare Roadway Plans for Submission	2	02-04-15	02-05-15	102
DF2170	Submit Roadway Final Design	0		02-05-15	102
DF2120	VDOT/FHWA Review/Comment Roadway	21	02-07-15	02-27-15	145
DF2160	Roadway Final Design Approval	0		02-27-15	101
Ready For Construction Design		91	11-21-14	04-01-15	101
RFC3011	Bridge and Structure Final Revisions	5	11-21-14	12-01-14	46
RFC3020	Submit Bridge RFC for Approval	1	12-01-14	12-02-14	46
RFC3030	VDOT/FHWA Review Bridge RFC	21	12-02-14	12-23-14	66
RFC3010	Roadway Final Revisions	7	03-02-15	03-10-15	101
RFC3040	Submit Roadway RFC for Approval	1	03-11-15	03-11-15	101
RFC3050	VDOT/FHWA Review Roadway RFC	21	03-12-15	04-01-15	145
Right Of Way Plans		99	07-03-14	11-20-14	0
ROW100	Prep Right of Way Plans	45	07-03-14	09-04-14	0
ROW110	QA/QC Right of Way Plans	10	09-05-14	09-18-14	0
ROW190	Incorporate QA/QC Comments 1.0	5	09-19-14	09-26-14	0
ROW120	Submit Right of Way Plans to VDOT 1.0	3	09-29-14	10-01-14	0
ROW130	VDOT Review/Comment R.O.W Plan	21	10-02-14	10-22-14	0
ROW140	Incorporate VDOT Comments	20	10-23-14	11-19-14	0
ROW180	Notice to Commence R.O.W. Acquisition	0		11-20-14	0
Design Support During Construction/As Built Drawings		499	12-23-14	12-09-16	30
DAB100	Design Support of Construction	499	12-23-14	12-09-16	0
DAB110	As-Built Drawings	20	10-19-16	11-16-16	45



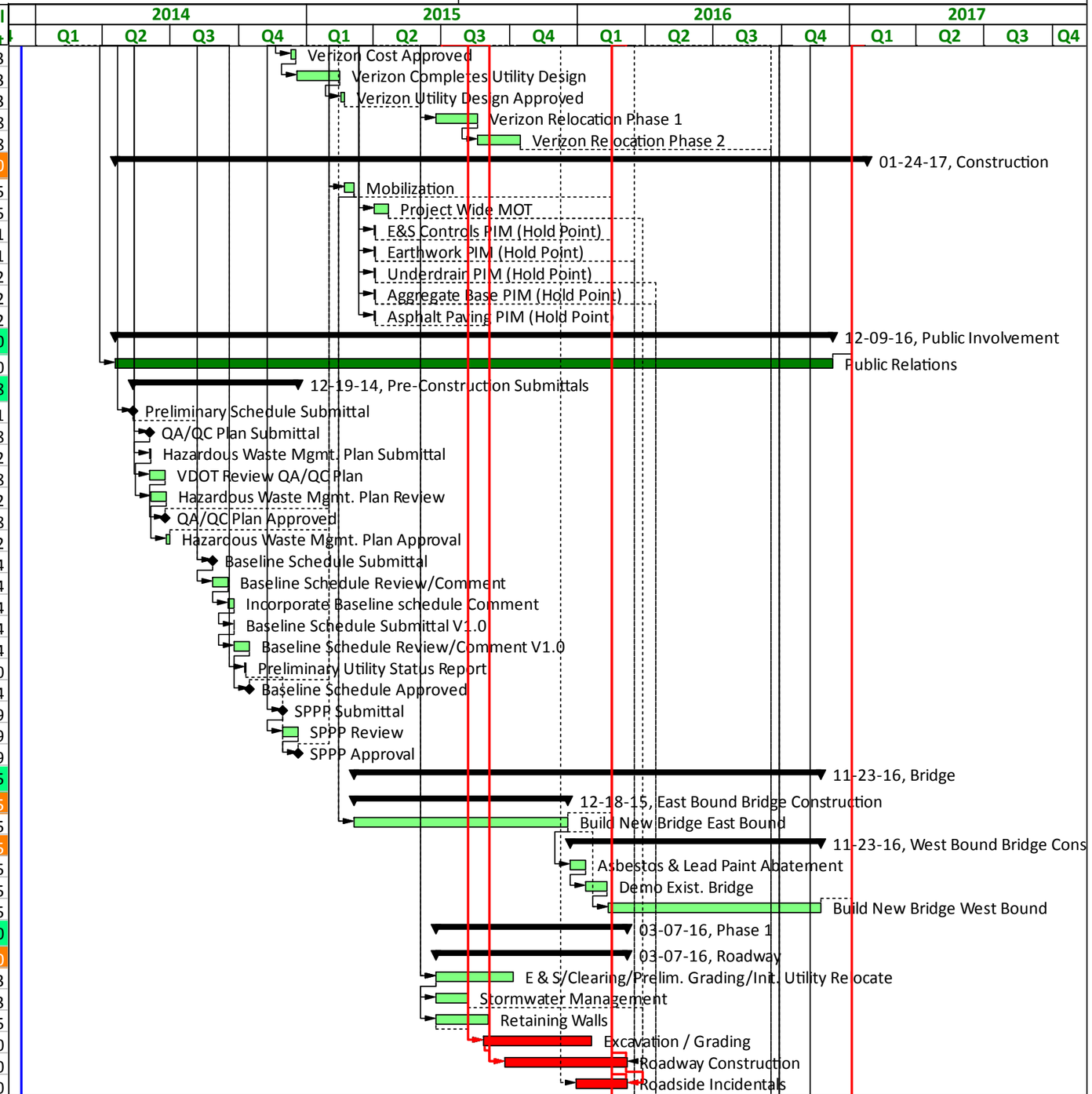
Remaining Level of Effort | Actual Work | Milestone
Critical Remaining Work | Remaining Work | Summary

Activity ID	Activity Name	Rem	Start	Finish	Total Float
Right of Way Acquistion		149	11-21-14	06-23-15	0
ROW215	Right of Way Acquistion Start	0	11-21-14		0
ROW210	Prepare Titles	15	11-21-14	12-15-14	8
ROW220	Prepare Appraisals	15	11-21-14	12-15-14	0
ROW230	Independent Appraisal Review	5	12-16-14	12-23-14	0
ROW240	VDOT Appraisal Review	21	12-26-14	01-16-15	0
ROW250	VDOT Appraisal Approval	0		01-16-15	0
ROW260	Deliver offers	10	01-20-15	02-03-15	0
ROW270	Offer Negotiations	65	02-04-15	05-06-15	0
ROW280	Settlements	30	05-07-15	06-19-15	0
ROW300	Right of Way Acquistion Complete	0		06-22-15	0
ROW310	Notice to Commence Construction	0		06-23-15	0
Utility Relocations		314	10-10-14	01-06-16	267
U105	Meet w/VDOT Regional Utility Manager	1	10-10-14	10-10-14	0
U110	UFI Meeting - All Utilities	1	10-14-14	10-14-14	0
U130	Prepare UT9 Forms for Each Utility	20	10-15-14	11-11-14	0
Dominion VA Power		291	11-12-14	01-06-16	43
UR1010	Dominon VA Power submits PE Estimate	20	11-12-14	12-10-14	0
UR1020	Dominion VA Cost Approved	5	12-11-14	12-17-14	0
UR1030	Dominon VA Completes Utility Design	130	12-18-14	06-22-15	0
UR1040	Dominion VA Utility Design Approved	5	06-23-15	06-29-15	0
UR1050	Dominion VA Power Relocation Phase 1	130	06-30-15	01-06-16	0
UR1350	Dominion VA Power Relocation Phase 2	130	06-30-15	01-06-16	43
City of Fredericksburg Water& Sewer		196	11-12-14	08-19-15	363
UR1090	City of Fredericksburg Design by DB	45	11-12-14	01-16-15	473
UR1100	Relocate Water & Sewer	40	06-23-15	08-19-15	363
Columbia Gas of Virginia		196	11-12-14	08-19-15	363
UR1120	Columbia Gas provides Est. for PE	20	11-12-14	12-10-14	448
UR1130	Columbia Gas Cost Approved	5	12-11-14	12-17-14	448
UR1140	Columbia Gas Completes Utility Design	40	12-18-14	02-13-15	448
UR1150	Columbia Gas Utility Design Approved	5	02-16-15	02-20-15	448
UR1160	Columbia Gas Relocation	40	06-23-15	08-19-15	363
Cox Communications		236	11-12-14	10-15-15	98
UR1180	Cox provides Estimate for PE	20	11-12-14	12-10-14	183
UR1190	Cox Cost Approved	5	12-11-14	12-17-14	183
UR1200	Cox Completes Utility Design	40	12-18-14	02-13-15	183
UR1210	Cox Utility Design Approved	5	02-16-15	02-20-15	183
UR1220	Cox Relocation Phase 1	40	06-23-15	08-19-15	98
UR1360	Cox Relocation Phase 2	40	08-19-15	10-15-15	98
Comcast		236	11-12-14	10-15-15	98
UR1240	Comcast provides Estimate for PE	20	11-12-14	12-10-14	183
UR1250	Comcast Cost Approved	5	12-11-14	12-17-14	183
UR1260	Comcast Completes Utility Design	40	12-18-14	02-13-15	183
UR1270	Comcast Utility Design Approved	5	02-16-15	02-20-15	183
UR1280	Comcast Relocation Phase 1	40	06-23-15	08-19-15	98
UR1370	Comcast Relocation Phase 2	40	08-19-15	10-15-15	98
Verizon		236	11-12-14	10-15-15	98
UR1300	Verizon provides Estimate for PE	20	11-12-14	12-10-14	183



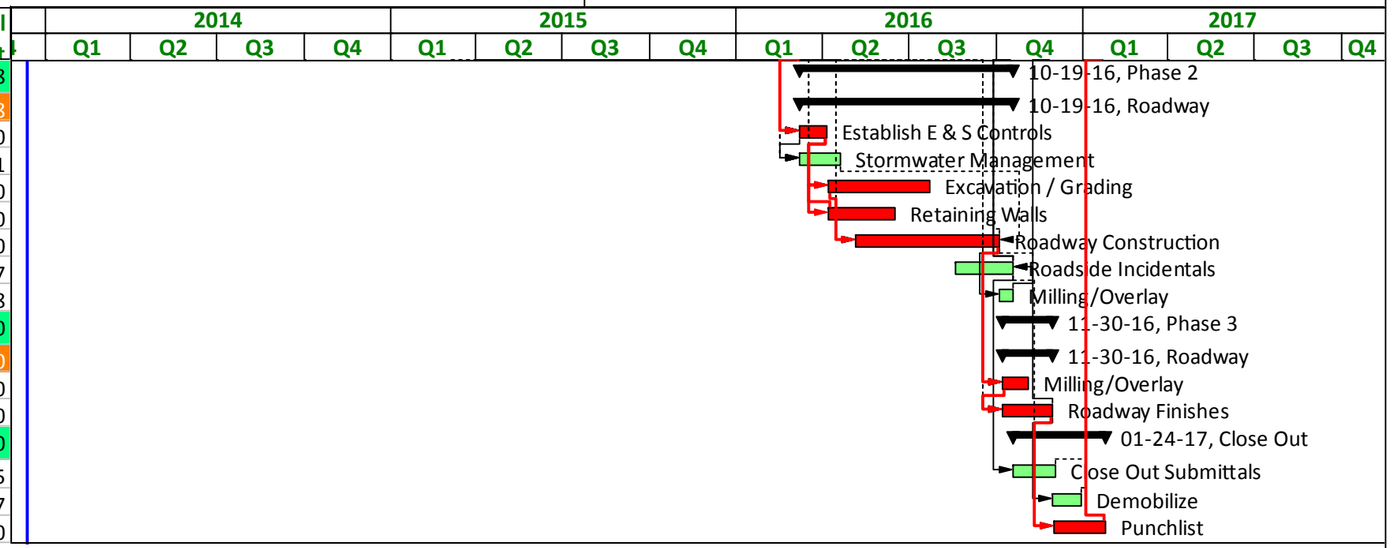
Remaining Level of Effort | Actual Work | Milestone
Critical Remaining Work | Remaining Work | Summary

Activity ID	Activity Name	Rem	Start	Finish	Total Float
UR1310	Verizon Cost Approved	5	12-11-14	12-17-14	183
UR1320	Verizon Completes Utility Design	40	12-18-14	02-13-15	183
UR1330	Verizon Utility Design Approved	5	02-16-15	02-20-15	183
UR1340	Verizon Relocation Phase 1	40	06-23-15	08-19-15	98
UR1380	Verizon Relocation Phase 2	40	08-19-15	10-15-15	98
Construction		702	04-18-14	01-24-17	0
C100	Mobilization	10	02-20-15	03-05-15	5
C110	Project Wide MOT	12	04-02-15	04-20-15	205
HP120	E&S Controls PIM (Hold Point)	1	04-02-15	04-02-15	101
HP140	Earthwork PIM (Hold Point)	1	04-02-15	04-02-15	101
HP150	Underdrain PIM (Hold Point)	1	04-02-15	04-02-15	122
HP160	Aggregate Base PIM (Hold Point)	1	04-02-15	04-02-15	122
HP170	Asphalt Paving PIM (Hold Point)	1	04-02-15	04-02-15	122
Public Involvement		671	04-18-14	12-09-16	0
C102	Public Relations	671	04-18-14	12-09-16	0
Pre-Construction Submittals		155	05-12-14	12-19-14	48
PCS1280	Preliminary Schedule Submittal	0		05-12-14	241
PCS1170	QA/QC Plan Submittal	0		06-03-14	248
PCS1180	Hazardous Waste Mgmt. Plan Submittal	1	06-03-14	06-04-14	242
PCS1210	VDOT Review QA/QC Plan	21	06-03-14	06-24-14	248
PCS1230	Hazardous Waste Mgmt. Plan Review	21	06-04-14	06-25-14	242
PCS1220	QA/QC Plan Approved	0		06-24-14	248
PCS1240	Hazardous Waste Mgmt. Plan Approval	5	06-25-14	06-30-14	242
PCS1270	Baseline Schedule Submittal	0		08-27-14	134
PCS1290	Baseline Schedule Review/Comment	21	08-27-14	09-17-14	134
PCS1300	Incorporate Baseline schedule Comment	7	09-17-14	09-24-14	134
PCS1310	Baseline Schedule Submittal V1.0	1	09-24-14	09-25-14	134
PCS1320	Baseline Schedule Review/Comment V1.0	21	09-25-14	10-16-14	134
U108	Preliminary Utility Status Report	1	10-09-14	10-10-14	140
PCS1330	Baseline Schedule Approved	0		10-16-14	134
PCS1000	SPPP Submittal	0		11-29-14	69
PCS1010	SPPP Review	21	11-29-14	12-19-14	69
PCS1020	SPPP Approval	0		12-19-14	69
Bridge		410	03-06-15	11-23-16	5
East Bound Bridge Construction		190	03-06-15	12-18-15	5
CCB110	Build New Bridge East Bound	190	03-06-15	12-18-15	5
West Bound Bridge Construction		220	12-21-15	11-23-16	5
CCB120	Asbestos & Lead Paint Abatement	10	12-21-15	01-11-16	5
CCB100	Demo Exist. Bridge	20	01-12-16	02-09-16	5
CCB140	Build New Bridge West Bound	190	02-10-16	11-23-16	5
Phase 1		178	06-23-15	03-07-16	0
Roadway		178	06-23-15	03-07-16	0
CC480	E & S/Clearing/Prelim. Grading/Init. Utility Reloc	70	06-23-15	10-06-15	43
CC560	Stormwater Management	30	06-23-15	08-06-15	133
CC580	Retaining Walls	50	06-23-15	09-02-15	45
CC500	Excavation / Grading	90	08-26-15	01-19-16	0
CC510	Roadway Construction	100	09-25-15	03-07-16	0
CC530	Roadside Incidentals	40	12-30-15	03-07-16	0



Remaining Level of Effort | Actual Work | Milestone
Critical Remaining Work | Remaining Work | Summary

Corman Construction - Proposal Schedule			Fall Hill Widening/Mary Washington Blvd.			Data Date 12-12-13, Printed 12-11-13 09:27
Activity ID	Activity Name	Rem	Start	Finish	Total Float	
Phase 2		159	03-07-16	10-19-16	28	
Roadway		159	03-07-16	10-19-16	28	
CD260	Establish E & S Controls	20	03-07-16	04-05-16	0	
CD350	Stormwater Management	30	03-07-16	04-20-16	111	
CD280	Excavation / Grading	70	04-06-16	07-22-16	0	
CD270	Retaining Walls	50	04-06-16	06-16-16	0	
CD290	Roadway Construction	100	05-06-16	10-05-16	0	
CD310	Roadside Incidentals	40	08-19-16	10-19-16	27	
CD300	Milling/Overlay	10	10-05-16	10-19-16	28	
Phase 3		37	10-07-16	11-30-16	0	
Roadway		37	10-07-16	11-30-16	0	
CA690	Milling/Overlay	20	10-07-16	11-03-16	0	
CA660	Roadway Finishes	35	10-07-16	11-30-16	0	
Close Out		66	10-19-16	01-24-17	0	
CO1030	Close Out Submittals	30	10-19-16	12-02-16	35	
CO1000	Demobilize	20	11-30-16	12-29-16	17	
CO1010	Punchlist	37	12-01-16	01-24-17	0	



Remaining Level of Effort | Actual Work | Milestone
Critical Remaining Work | Remaining Work | Summary

ATTACHMENT 4.0.1.1

Fall Hill Avenue Widening and Mary Washington Boulevard Extension

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	66-68
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	69
Letter of Submittal	NA	Sections 4.1		
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	1
Offeror's official representative information	NA	Section 4.1.1	yes	1
Authorized representative's original signature	NA	Section 4.1.1	yes	1
Declaration of intent	NA	Section 4.1.2	yes	1
120 day declaration	NA	Section 4.1.3	yes	1
Point of Contact information	NA	Section 4.1.4	yes	1
Principal Officer information	NA	Section 4.1.5	yes	1
Final Completion Date	NA	Section 4.1.6	yes	1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.7	no	70-73
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.8	no	74-83
Offeror's Qualifications	NA	Section 4.2		

ATTACHMENT 4.0.1.1

Fall Hill Avenue Widening and Mary Washington Boulevard Extension

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 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	2
Organizational chart with any updates since the SOQ submittal clearly identified to include Lead QA Inspector	NA	Section 4.2.2	yes	2
Revised narrative when organizational chart includes updates since the SOQ submittal to include Lead QA Inspector	NA	Section 4.2.2	yes	2
Design Concept	NA	Section 4.3		
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	3-10/41-65
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	10-13/41-65
Project Approach	NA	Section 4.4		
Right of Way Acquisition / Environmental Management	NA	Section 4.4.1	yes	14-21
Utilities	NA	Section 4.4.2	yes	21-23
Quality Assurance / Quality Control (QA/QC)	NA	Section 4.4.3	yes	23-29
Construction of Project	NA	Section 4.5		
Sequence of Construction	NA	Section 4.5.2	yes	30-33
Transportation Management Plan	NA	Section 4.5.3	yes	33-36

ATTACHMENT 4.0.1.1

Fall Hill Avenue Widening and Mary Washington Boulevard Extension

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Disadvantaged Business Enterprises (DBE)	NA	Section 4.6		
Written statement of percent DBE participation	NA	Section 4.6	yes	37
DBE subcontracting narrative	NA	Section 4.6	yes	37
Proposal Schedule	NA	Section 4.7		
Proposal Schedule	NA	Section 4.7	no	S-1 thru S-4 S-9 thru S-13
Proposal Schedule Narrative	NA	Section 4.7	no	S-4 thru S-8
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.7	no	CD-ROM

ATTACHMENT 3.6

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFP NO. C00088699DB59

PROJECT NO.: U000-111-233

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: August 19, 2013 (Date)
2. Cover letter of Addendum #1: November 7, 2013 (Date)
3. Cover letter of Addendum #2: November 15, 2013 (Date)

SIGNATURE

12.12.13
DATE

Arthur C. Cox, III
PRINTED NAME AND TITLE

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this "Agreement") is made and entered into as of this 12th day of Dec., 2013 by and between the Virginia Department of Transportation ("VDOT"), and Corman Construction ("Offeror").

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs"), to the Virginia Department of Transportation ("VDOT), pursuant to VDOT's April 8, 2013 Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the Fall Hill Avenue Widening and Mary Washington Boulevard Extension, Project No. U000-111-233 ("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 forty thousand and 00/100 Dollars ($40,000.00) ("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 Construction, Inc.

By: _____

Name: Arthur C. Cox, III

Title: Vice President

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: U000-111-233

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	12.12.13 Date	Vice President Title

Corman Construction, Inc.
Name of Firm

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

Project No.: U000-111-233

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.

John P Mullen 11/5/13

Signature Date

Senior Vice President

Title

Whitman, Requardt & Associates, LLP

Name of Firm

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

Project No.: U000-111-233

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	November 4,2013 Date	President Title

KDR Real Estate Services, Inc.
Name of Firm

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

Project No.: U000-111-233

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.

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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 11/5/2013 Date

President
Title

Sabra, Wang & Associates, Inc.
Name of Firm

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

Project No.: U000-111-233

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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]	10/31/2013	President
Signature	Date	Title

Dovetail Cultural Resource Group I., Inc.
Name of Firm

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

Project No.: U000-111-233

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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	November 4, 2013	President
	Date	Title

Quinn Consulting Services, Inc.

Name of Firm

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

Project No.: U000-111-233

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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.

	October 31, 2013	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.: U000-111-233

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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	October 31, 2013	Principal Engineer
	Date	Title

Engineering & Materials Technologies, Inc. (E.M. Tech)
Name of Firm

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

Project No.: U000-111-233

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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	11/11/2013 Date	President and CEO Title

DMY Engineering Consultants, LLC
Name of Firm

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

Project No.: U000-111-233

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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.

Tanya A. Howe 12/2/13 President
Signature Date Title

Utility Professional Services, Inc
Name of Firm

Submitted by:
CORMAN CONSTRUCTION
in conjunction with
WR&A

ORIGINAL
Copy 1 of 10 Copies

TECHNICAL PROPOSAL

Design-Build Fall Hill Avenue Widening and Mary Washington Boulevard Extension
Fredericksburg, Virginia

State Project No.: U000-111-233
Federal Project No.: STP-5A01(181)
Contract ID Number: C00088699DB59

VOLUME II

December 12, 2013

VDOT
Virginia Department of Transportation

Submitted to: Virginia Department of Transportation
1401 E. Broad Street
Richmond, Virginia 23219

CONCEPTUAL PLANS

SHEET INDEX OF SHEETS

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF TRANSPORTATION

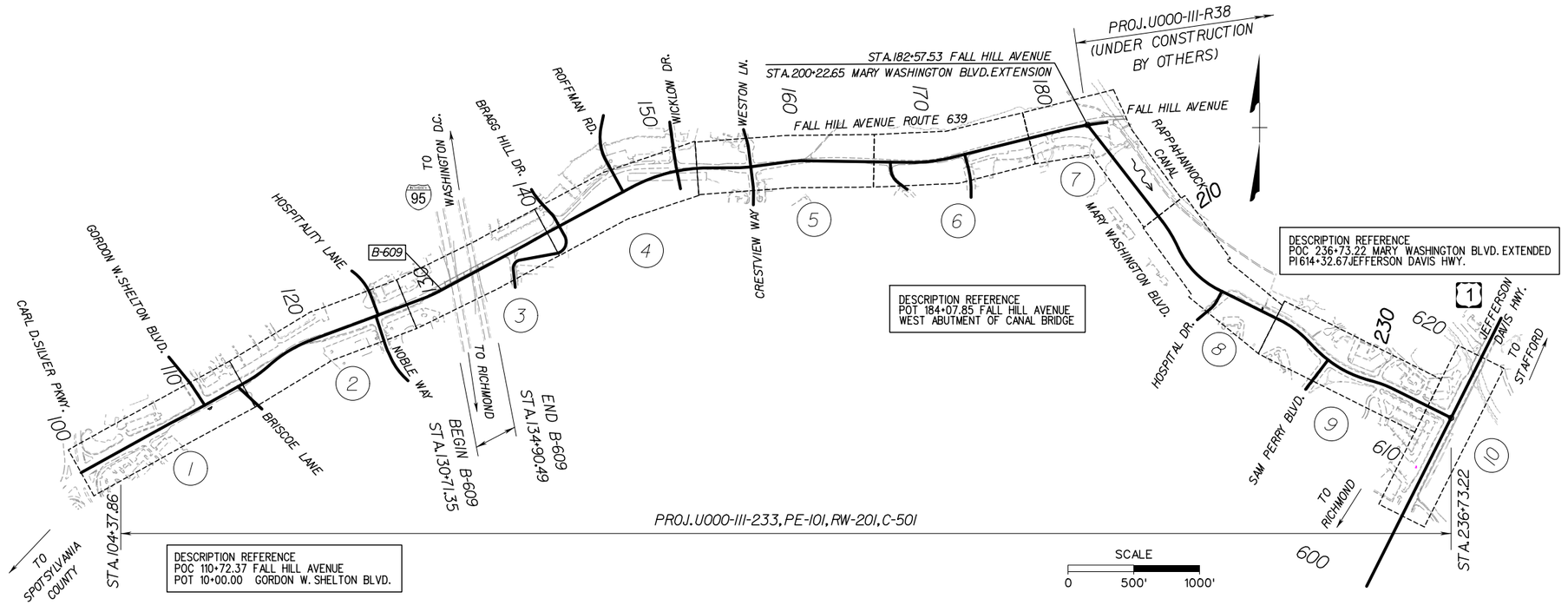
PLAN AND PROFILE OF PROPOSED STATE HIGHWAY

CITY OF FREDERICKSBURG

FROM: 0.12 MILES W. OF GORDON W. SHELTON BLVD.
TO: 0.03 MILES W. OF RAPPAHANNOCK CANAL BRIDGE
DESIGN-BUILD

FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA			
	FALL HILL AVE.	MARY WASHINGTON BLVD.	JEFFERSON DAVIS HIGHWAY (US ROUTE 1)
CLASSIFICATION	URBAN COLLECTOR - ROLLING - DIVIDED	URBAN COLLECTOR - ROLLING - DIVIDED	URBAN COLLECTOR - ROLLING - DIVIDED
	Fr: 0.08 miles E. of Carl D. Silver Pkwy.	Fr: Fall Hill Avenue	Fr: 0.27 miles S. of Mary Washington Blvd.
	To: 0.02 miles W. of Rappahannock Can	To: Jefferson Davis Hghy (Route 1)	To: 0.16 miles N. of Mary Washington Blvd.
GEOMETRIC STD.	GS-7	GS-7	GS-5
ADT (2013)	17,200	13,300	30,800
ADT (2035)	32,000	27,500	49,300
DHV	3370	3300	4040
D (%) (Design Hour)	60%	60%	61%
T (%) (Design Hour)	2%	2%	2%
V (MPH)	40 MPH MIN *	40 MPH MIN *	40 MPH MIN *

* SEE PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CURVE DESIGN SPEED



Population CITY OF FREDERICKSBURG 24,286 (2010 Census)

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	EQUALITIES	LENGTH INCLUDING BRIDGE(S)		LENGTH EXCLUDING BRIDGE(S)		BRIDGE PLAN NO.	TYPE PROJECT	DESCRIPTION
					FEET	FEET	MILES	FEET	MILES			
U000-111-233	PE-101	STP-5A01(181)	PENG	88699		11,551	2.19	11,137.74	2.11		PRE./ENG	From: 0.12 miles W. of Gordon W. Shelton Blvd. To: 0.03 miles W. of Rappahannock Canal Bridge
	RW-201		ROWA	88699							R/W	
	C-501		1000	88699							RECONSTR.	
	B-609		XXXX	88699		413.26	0.08				BRIDGE	Bridge carrying Fall Hill Ave. over Insterstate 95

TECHNICAL PROPOSAL CONCEPT PLANS

TITLE SHEET

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 1 OF 25

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP

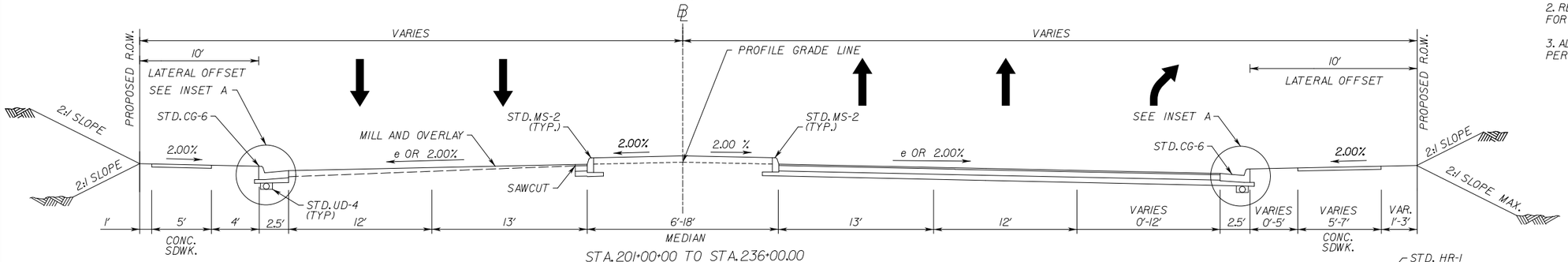
4:02:29 PM locluser

12/9/2013 N:\DB45007\CADD\sheet1-cover.dgn

TYPICAL SECTIONS

NOT TO SCALE

MARY WASHINGTON BLVD. (GS-7)



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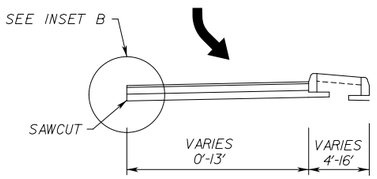
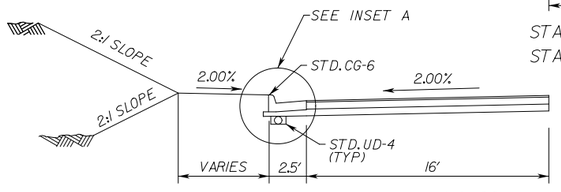


STA. 216+94.92 TO STA. 221+25.00
STA. 226+79.56 TO STA. 229+25.00



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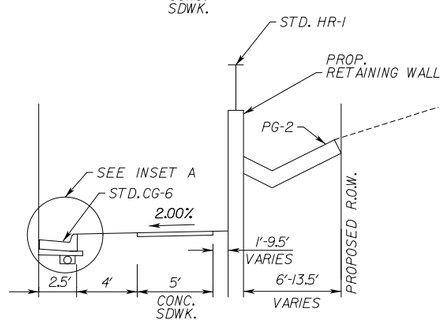


STA. 200+78.66 TO STA. 202+50.00
STA. 203+18.77 TO STA. 204+67.06
STA. 204+85.00 TO STA. 206+75.00
STA. 212+50.00 TO STA. 213+75.00
STA. 217+70.00 TO STA. 219+75.00

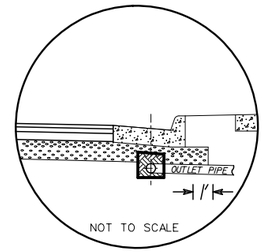
NOTES:

1. FOR LIMITS OF MILL AND OVERLAY AND FULL DEPTH PAVEMENT, REFER TO THE PLAN SHEETS.

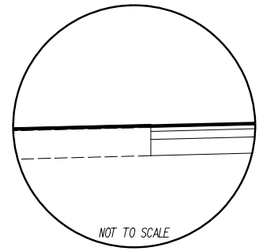
2. REFER TO GEOTECHNICAL ENGINEERING DATA REPORT FOR PAVEMENT DESIGN.

3. ALL SIDEWALK CURB RAMPS WILL BE CONSTRUCTED PER ADA STANDARDS.

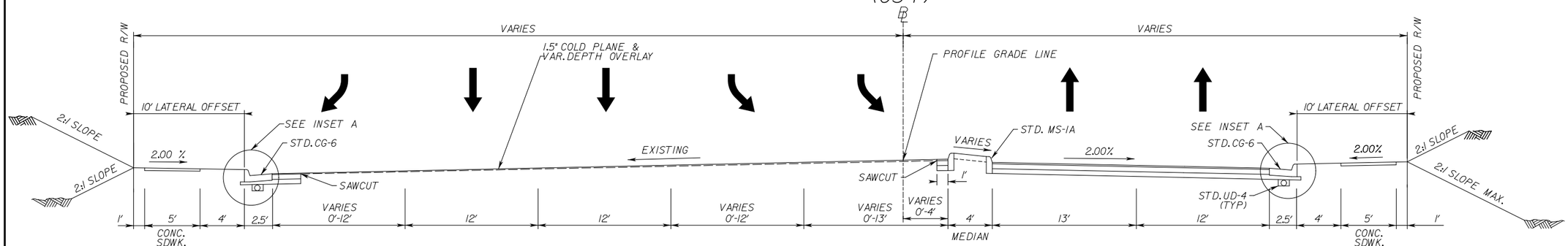
INSET A



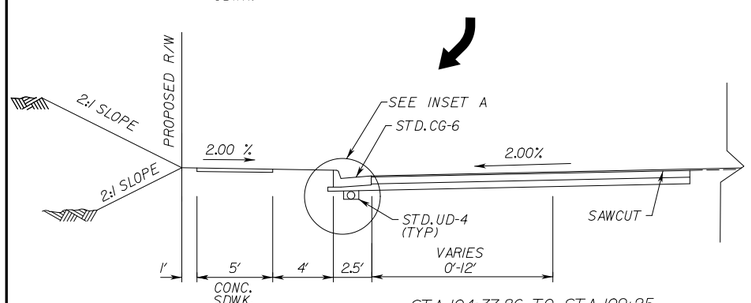
INSET B



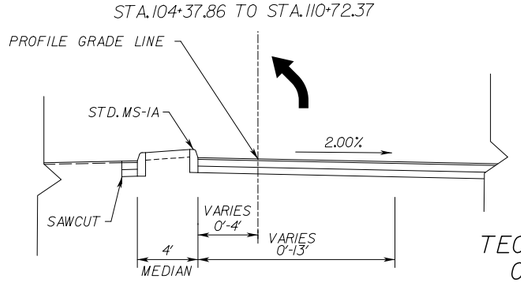
FALL HILL AVENUE (GS-7)



STA. 104+37.86 TO STA. 110+72.37



STA. 104+37.86 TO STA. 109+25



STA. 107+25.00 TO STA. 110+72.37

TECHNICAL PROPOSAL
CONCEPT PLANS

CONCEPTUAL TYPICAL SECTIONS

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 2 OF 25

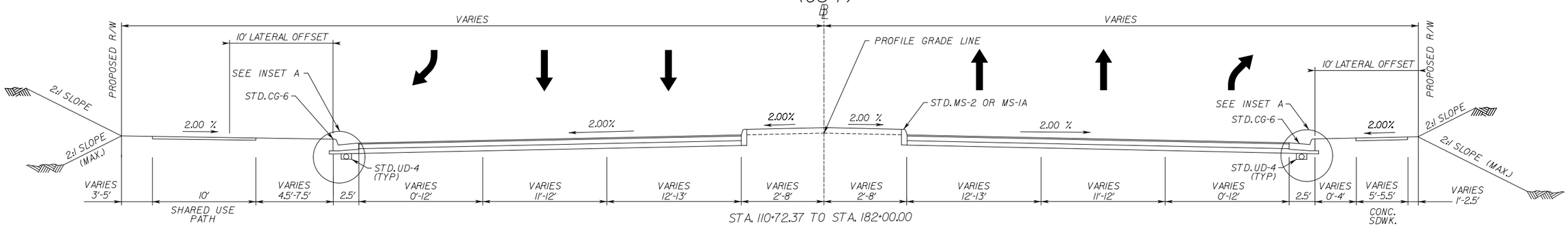
CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP

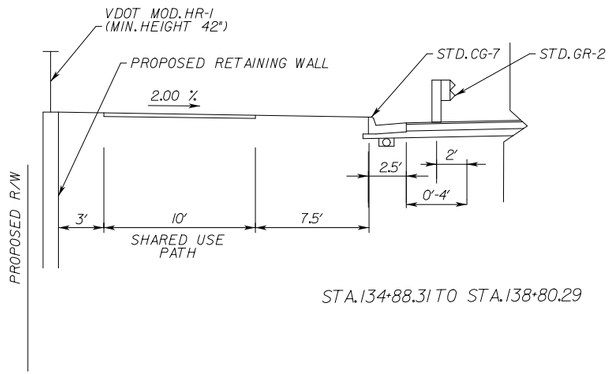
TYPICAL SECTIONS

NOT TO SCALE

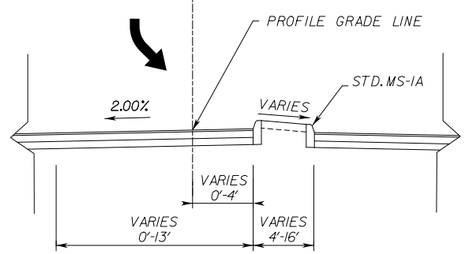
FALL HILL AVENUE (GS-7)



STA. 110+72.37 TO STA. 182+00.00

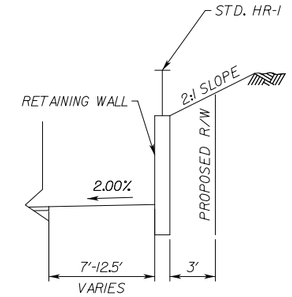


STA. 134+88.31 TO STA. 138+80.29

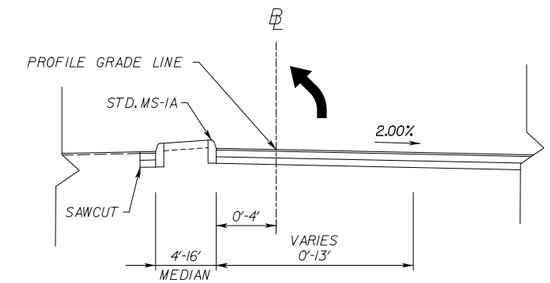


STA. 110+72.37 TO STA. 114+44.00
STA. 125+48.71 TO STA. 128+00.00
STA. 141+05.16 TO STA. 143+52.43
STA. 150+98.32 TO STA. 153+47.08

STA. 156+61.47 TO STA. 158+96.31
STA. 167+50.00 TO STA. 169+00.00
STA. 173+44.28 TO STA. 174+51.25

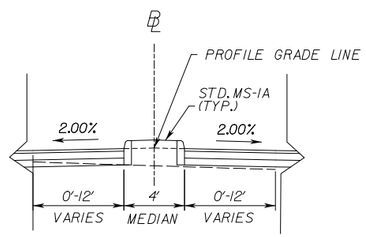


STA. 178+63.75 TO STA. 182+00.00



STA. 123+17.00 TO STA. 125+48.71
STA. 138+55.97 TO STA. 141+05.16
STA. 147+52.67 TO STA. 150+98.32

STA. 154+23.04 TO STA. 156+61.47
STA. 170+70.04 TO STA. 172+52.06



STA. 169+00TO STA. 170+70.04

NOTES:

1. FOR LIMITS OF MILL AND OVERLAY AND FULL DEPTH PAVEMENT. REFER TO THE PLAN SHEETS.
2. REFER TO GEOTECHNICAL ENGINEERING DATA REPORT FOR PAVEMENT DESIGN.
3. ALL SIDEWALK CURB RAMPS WILL BE CONSTRUCTED PER ADA STANDARDS.

CONCEPTUAL TYPICAL SECTIONS

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 3 OF 25

TECHNICAL PROPOSAL
CONCEPT PLANS

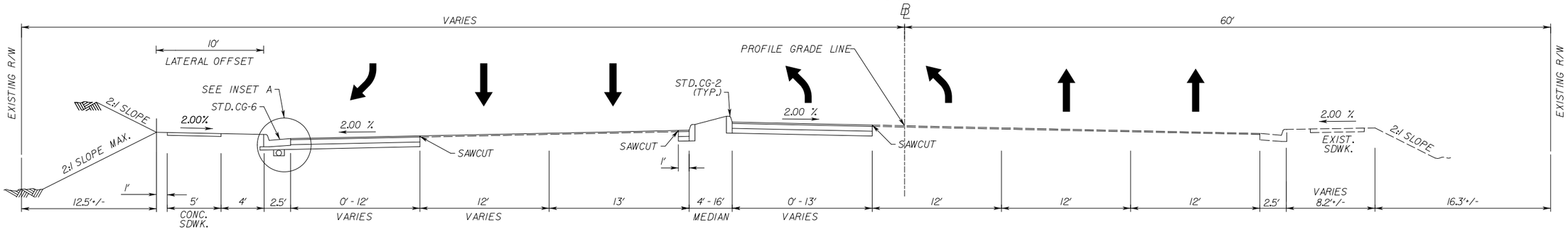
CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP

TYPICAL SECTIONS

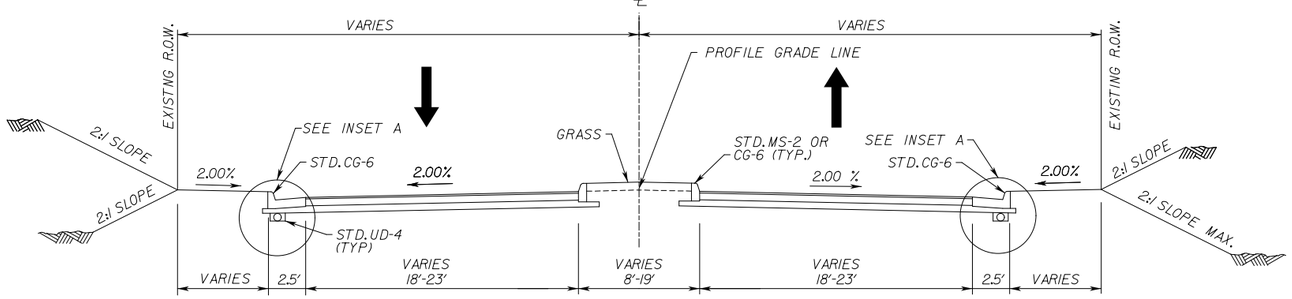
NOT TO SCALE

JEFFERSON DAVIS HIGHWAY (US RT.1)
(GS-5)



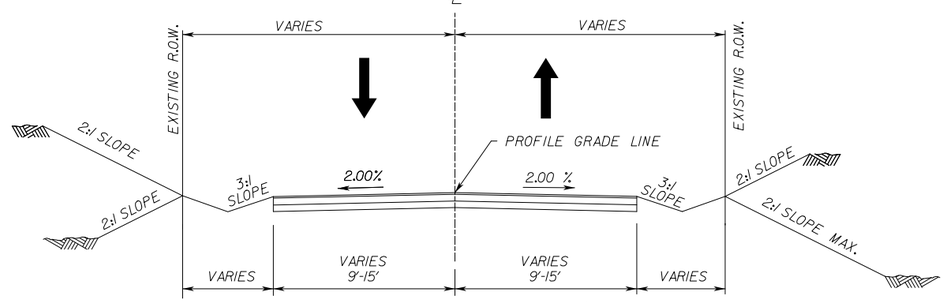
STA.609+55 TO STA.614+32.67

SIDE STREETS
(PRIVATE ROAD)



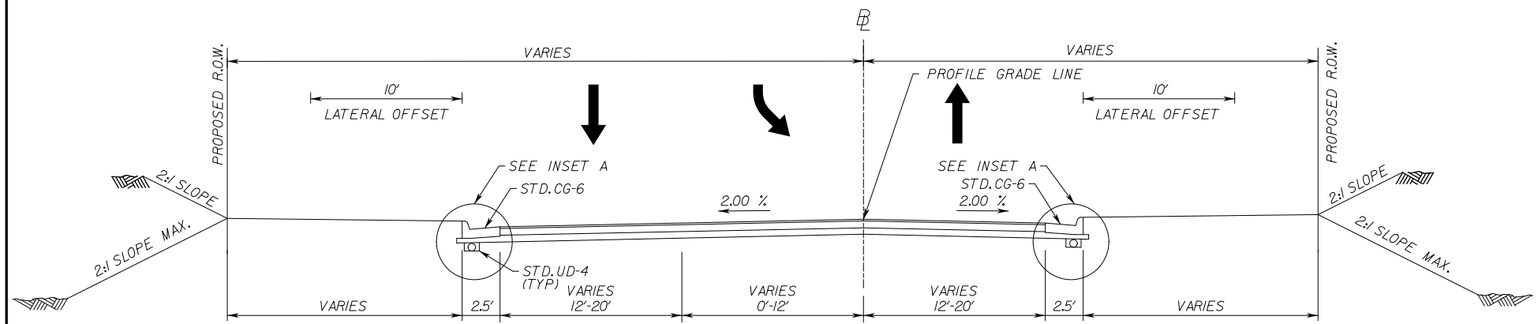
CRESTVIEW WAY STA.71+25.00 TO STA.72+11.09
WESTON LANE STA.73+53.30 TO STA.74+00.00
SAM PERRY BLVD. STA.251+56.00 TO STA.252+00.00

BRISCOE LANE
(GS-9)

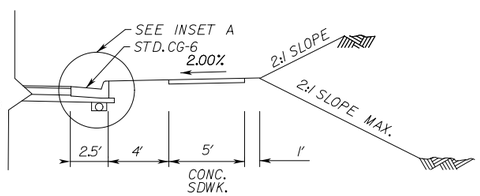


STA.20+76.31 TO STA.22+00.00

SIDE STREETS
(GS-8 & PRIVATE ROAD)



FREDERICK PLACE STA.31+25.00 TO STA.37+02.25
BRAGG HILL DRIVE STA.40+00.00 TO STA.42+85.70
ROFFMAN ROAD STA.50+00.00 TO STA.52+25.00
WICKLOW DRIVE STA.62+25.00 TO STA.65+13.56
FALL HILL OFFICE PARK STA.80+75.00 TO STA.82+25.00
HOSPITALITY LANE STA.31+00.00 TO STA.32+00.00
HOSPITAL DRIVE STA.276+30.09 TO STA.277+07.53



FREDERICK PLACE STA.31+25.00 TO STA.37+02.25

NOTES:

1. FOR LIMITS OF MILL AND OVERLAY AND FULL DEPTH PAVEMENT, REFER TO THE PLAN SHEETS.

2. REFER TO GEOTECHNICAL ENGINEERING DATA REPORT FOR PAVEMENT DESIGN.

3. ALL SIDEWALK CURB RAMPS WILL BE CONSTRUCTED PER ADA STANDARDS.

CONCEPTUAL TYPICAL SECTIONS

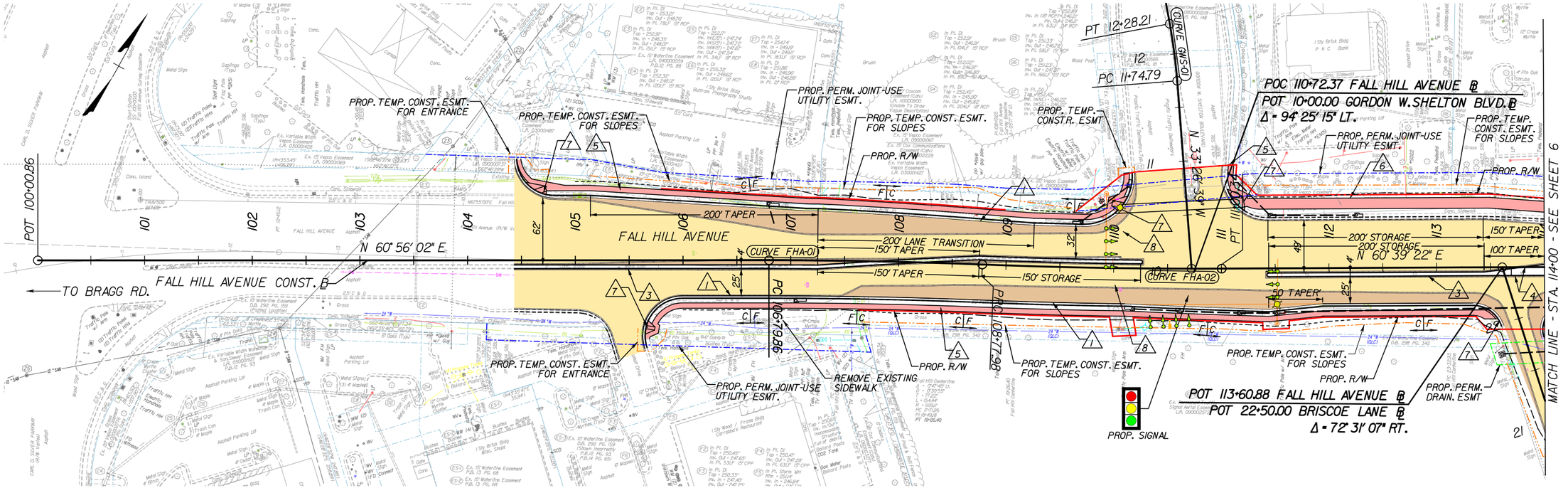
FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 4 OF 25

TECHNICAL PROPOSAL
CONCEPT PLANS

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP



PLAN

1. STD. CG-6 REQ'D.
2. STD. MS-1A REQ'D.
3. STD. MS-2 REQ'D.
4. PROP. 5' CONC. SIDEWALK
5. PROP. 10' SHARED USE PATH
6. STD. CG-12 REQ'D.
7. EXIST. PIPE TO BE REMOVED/ABANDONED

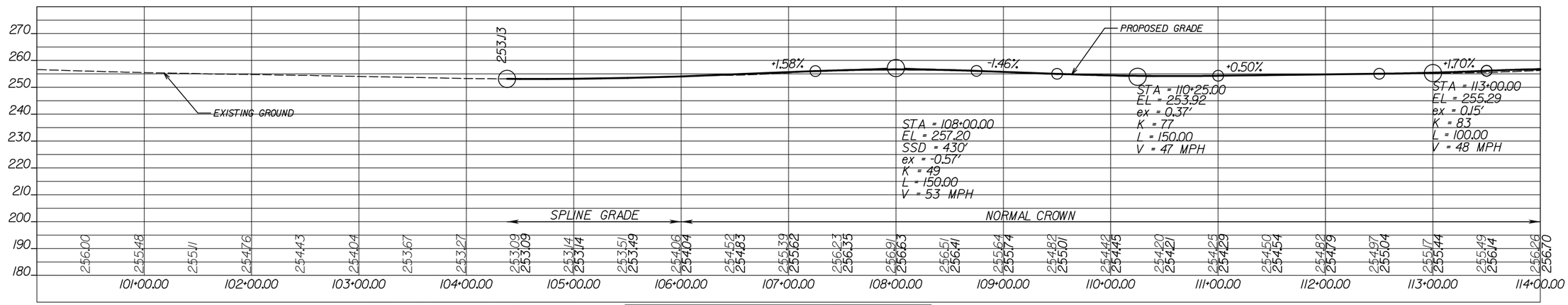
CURVE FHA-01 Curve FHA-01
PI = 107+78.94
DELTA = 2° 16' 13.09" (RT)
D = 1° 08' 45"
T = 99.07'
L = 198.12'
R = 5,000.00'
PC = 106+79.86
PRC = 109+77.98
V = 40 MPH
E = NORMAL CROWN

CURVE FHA-02 Curve FHA-02
PI = 109+89.18
DELTA = 2° 32' 53.09" (LT)
D = 1° 08' 45"
T = 111.20'
L = 222.36'
R = 5,000.00'
PRC = 108+77.98
PT = 111+00.34
V = 40 MPH
E = NORMAL CROWN

CURVE GWS-01 Curve GWS-01
PI = 12+01.52
DELTA = 6° 07' 17.00" (LT)
D = 11° 27' 33"
T = 26.74'
L = 53.42'
R = 500.00'
PC = 11+74.79
PT = 12+28.21

PROPOSED UTILITY IMPACTS:
SEE "PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT" FOR POTENTIAL LOCATION OF RELOCATED DRY UTILITIES.

SCALE
0 50' 100'



FALL HILL AVENUE PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24"W — EXISTING WATER
- E — EXISTING ELECTRIC
- FO — EXISTING FIBER OPTIC
- CATV — EXISTING CABLE TV
- T/Tg — EXISTING TELEPHONE
- TC — EXISTING TRAFFIC CONTROL
- Unk — EXISTING UNKNOWN UTILITY

- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- C _ _ _ DENOTES CONSTRUCTION LIMITS IN CUT
- F _ _ _ DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted In Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mtd. / Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

TECHNICAL PROPOSAL
CONCEPT PLANS

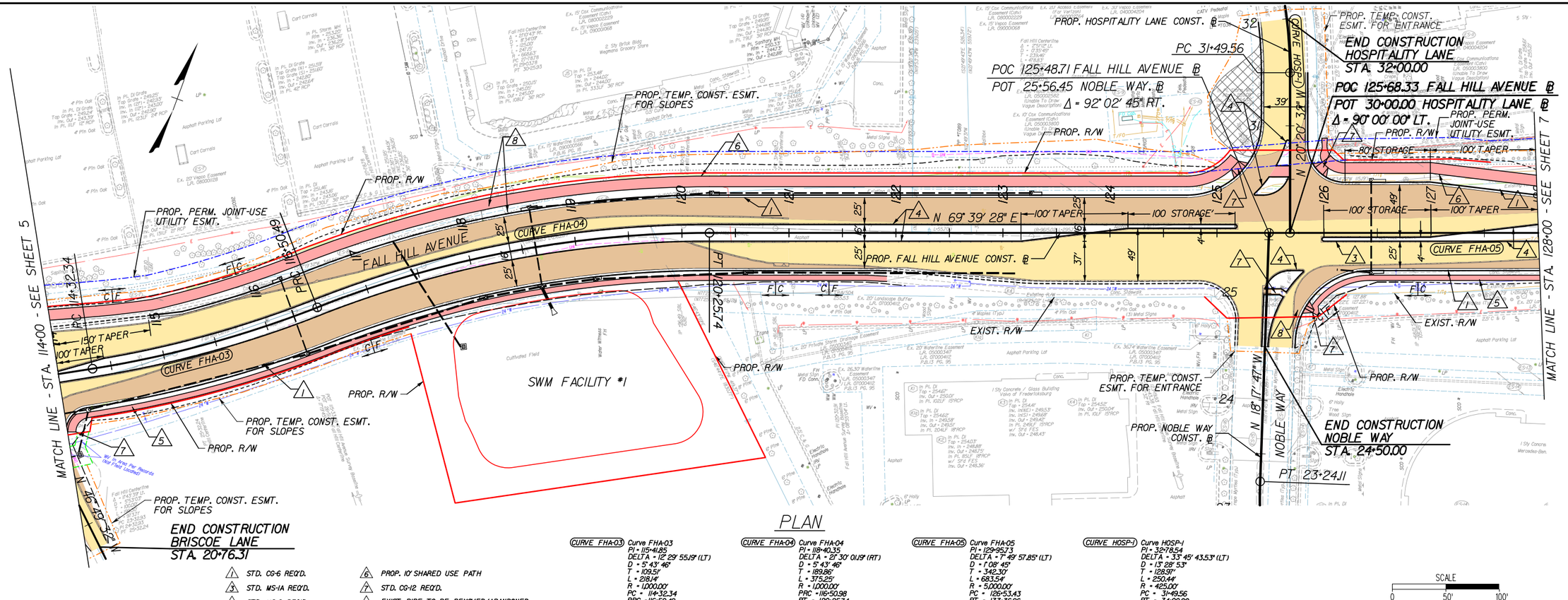
CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 5 OF 25

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP



1. STD. CG-6 REQ'D.
2. STD. MS-1A REQ'D.
3. STD. MS-2 REQ'D.
4. PROP. 5' CONC. SIDEWALK
5. PROP. 10' SHARED USE PATH
6. STD. CG-12 REQ'D.
7. EXIST. PIPE TO BE REMOVED/ABANDONED

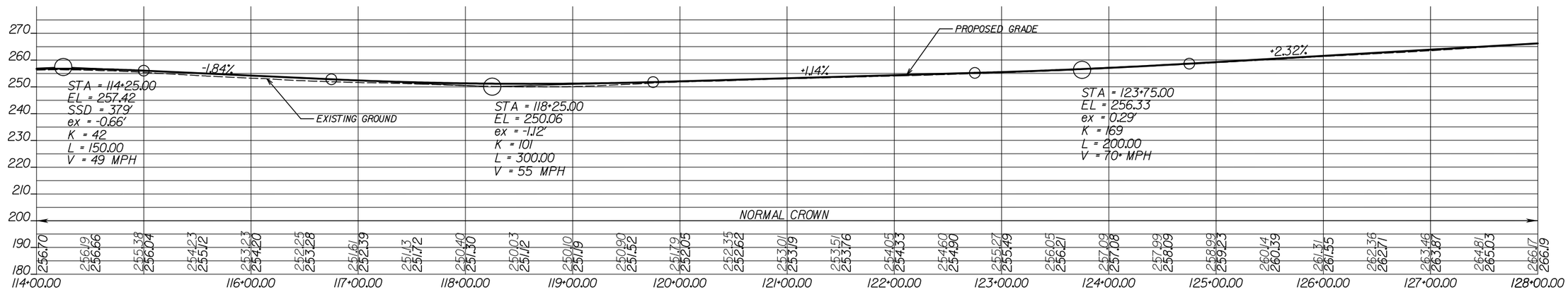
CURVE FHA-03 Curve FHA-03
PI = 115+41.85
DELTA = 12° 29' 55.19" (LT)
D = 5° 43' 46"
T = 109.51'
L = 218.14'
R = 1,000.00'
PC = 114+32.34
PRC = 116+50.49
V = 40 MPH
E = NORMAL CROWN

CURVE FHA-04 Curve FHA-04
PI = 118+40.35
DELTA = 21° 30' 01.19" (RT)
D = 5° 43' 46"
T = 189.86'
L = 375.25'
R = 1,000.00'
PRC = 116+50.98
PT = 120+25.74
V = 40 MPH
E = NORMAL CROWN

CURVE FHA-05 Curve FHA-05
PI = 129+95.73
DELTA = 7° 49' 57.85" (LT)
D = 1° 08' 45"
T = 342.30'
L = 683.54'
R = 5,000.00'
PC = 126+53.43
PT = 133+36.96
V = 40 MPH
E = NORMAL CROWN

CURVE HOSP-1 Curve HOSP-1
PI = 32+78.54
DELTA = 33° 45' 43.53" (LT)
D = 13° 28' 53"
T = 128.97'
L = 250.44'
R = 425.00'
PC = 31+49.56
PT = 34+00.00

SCALE 0 50' 100'



FALL HILL AVENUE PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24"W — EXISTING WATER
- E — EXISTING ELECTRIC
- FO — EXISTING FIBER OPTIC
- CATV — EXISTING CABLE TV
- T/Tg — EXISTING TELEPHONE
- TC — EXISTING TRAFFIC CONTROL
- Unk — EXISTING UNKNOWN UTILITY

- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- C ___ DENOTES CONSTRUCTION LIMITS IN CUT
- F ___ DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mtd. / Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

TECHNICAL PROPOSAL
CONCEPT PLANS

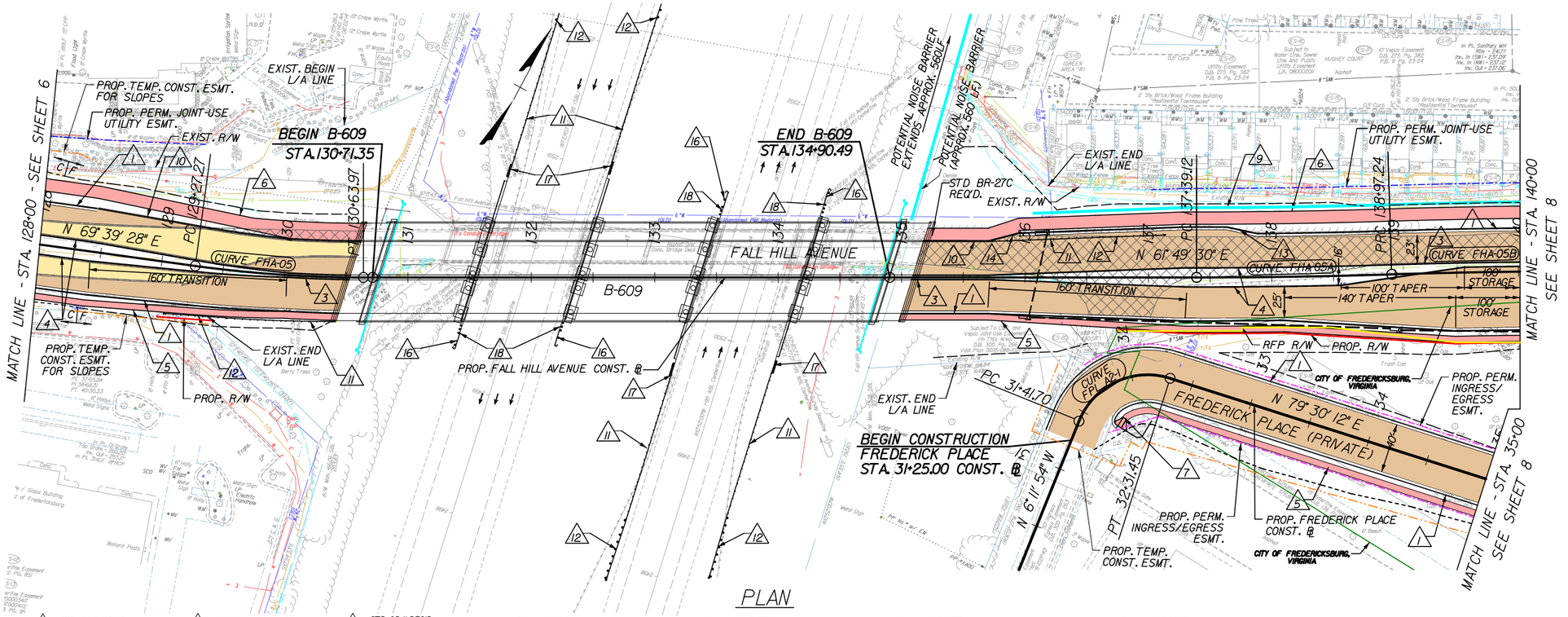
CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 6 OF 25

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP



PLAN

1. STD. CG-6 REQ'D.
2. STD. MS-1A REQ'D.
3. STD. MS-2 REQ'D.
4. PROP. 5' CONC. SIDEWALK
5. PROP. 10' SHARED USE PATH
6. STD. CG-12 REQ'D.
7. PROP. RETAINING WALL
8. STD. MB-8 REQ'D.
9. STD. GR-2 REQ'D.
10. STD. GR-9 REQ'D.
11. STD. CG-7 REQ'D.
12. STD. CG-3 REQ'D.
13. STD. GR-II REQ'D.
14. STD. GR-FOA-I,TYPE I REQ'D.
15. STD. GR-FOA-I,TYPE 2 REQ'D.

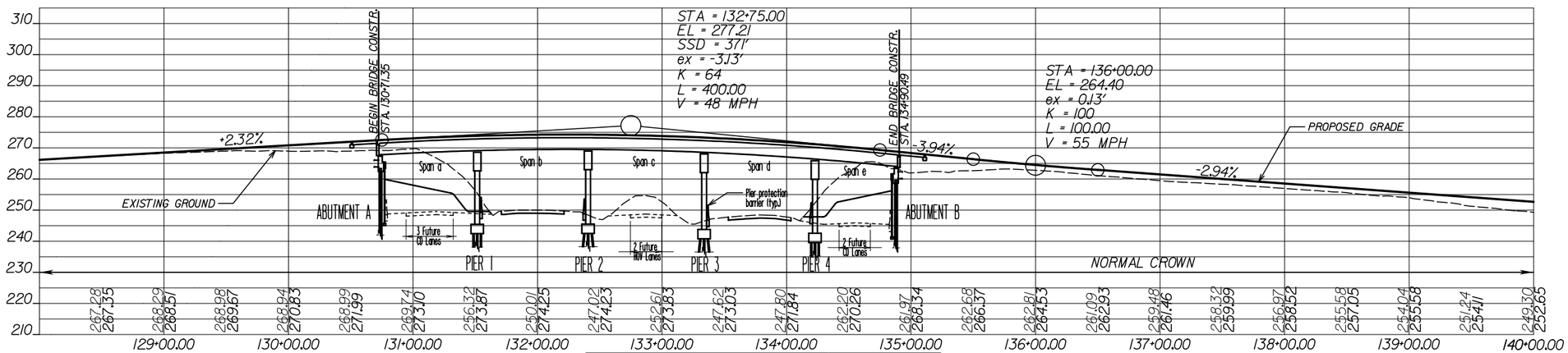
CURVE FHA-05 Curve FHA-05
PI = 129+95.73
DELTA = 7° 49' 57.85" (LT)
D = 1° 08' 45"
T = 342.30'
L = 683.54'
R = 5,000.00'
PC = 126+53.43
PT = 133+36.96
V = 40 MPH
E = NORMAL CROWN

CURVE FHA-05A Curve FHA-05A
PI = 138+17.33
DELTA = 1° 48' 42.94" (LT)
D = 1° 08' 45"
T = 79.07'
L = 158.12'
R = 5,000.00'
PC = 137+38.26
PT = 138+96.39
V = 40 MPH
E = NORMAL CROWN

CURVE FHA-05B Curve FHA-05B
PI = 139+75.45
DELTA = 1° 48' 42.94" (RT)
D = 1° 08' 45"
T = 79.07'
L = 158.12'
R = 5,000.00'
PC = 138+96.39
PT = 140+54.51
V = 40 MPH
E = NORMAL CROWN

CURVE FPL_A2-1 Curve FPL_A2-1
PI = 31+97.36
DELTA = 85° 42' 06.14" (RT)
D = 95° 29' 35"
T = 55.66'
L = 89.75'
R = 60.00'
PC = 31+41.70
PT = 32+31.45

SCALE 0 50' 100'



FALL HILL AVENUE PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24"W EXISTING WATER
- E EXISTING ELECTRIC
- FO EXISTING FIBER OPTIC
- CATV EXISTING CABLE TV
- T/Tg EXISTING TELEPHONE
- TC EXISTING TRAFFIC CONTROL
- Unk EXISTING UNKNOWN UTILITY
- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- C DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	PLAN SYMBOL EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mt'd. / Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

TECHNICAL PROPOSAL
CONCEPT PLANS

CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 7 OF 25

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP

END CONSTRUCTION ROFFMAN ROAD STA. 52+25.00

PROP. ROFFMAN ROAD CONST. ℄

ROFFMAN ROAD

N 28° 36' 2" W

CITY OF FREDERICKSBURG, VIRGINIA (SNOWDEN PARK)

PROP. PERM. JOINT-USE UTILITY ESMT.

MAINTAIN EXISTING PAVEMENT AS ACCESS

PROP. TEMP. CONST. ESMT. FOR SLOPES

PROP. FALL HILL AVENUE CONST. ℄

PROP. R/W

EXIST. R/W

MATCH LINE STA. 41+00 SEE SHEET 17

MATCH LINE - STA. 62+50 SEE SHEET 17

PROP. WICKLOW DRIVE CONST. ℄

POTENTIAL NOISE BARRIER APPROX. 179 LF

PROP. TEMP. CONST. ESMT. FOR SLOPES

PROP. R/W

100' STORAGE

PROP. BRAGG HILL DRIVE CONST. ℄

PC 40+71.44

CURVE BHDR-01

N 29° 13' 27" W

100' TAPER

N 61° 49' 30" E

FALL HILL AVENUE

50' TAPER

50' BUS STOP STORAGE

200' STORAGE

CURVE FHA-06

CURVE WIC-01

PC 61+41.56

100' BUS STOP STORAGE

MATCH LINE - STA. 140+00 SEE SHEET 7

MATCH LINE - STA. 152+50 SEE SHEET 9

CURVE FHA-05B

CURVE FPL_A2-2

POT 141+05.16 FALL HILL AVENUE CONST. ℄

POT 37+73.31 FREDERICK PLACE CONST. ℄

POT 40+00.00 BRAGG HILL DRIVE CONST. ℄

Δ = 91° 02' 57" LT.

POT 146+56.51 FALL HILL AVENUE CONST. ℄

POT 50+00.00 ROFFMAN ROAD CONST. ℄

Δ = 90° 25' 51" LT.

POC 150+98.32 FALL HILL AVENUE CONST. ℄

POC 61+37.45 WICKLOW DRIVE CONST. ℄

Δ = 90° 00' 00" LT.

POT 60+00.00

PROP. SIGNAL

PROP. TEMP. CONST. ESMT.

PROP. PERM. DRAIN ESMT.

PROP. PERM. INGRESS/EGRESS ESMT.

PROP. FREDERICK PLACE CONST. ℄

PROP. PERM. DRAINAGE ESMT.

PROP. TEMP. CONST. ESMT. FOR SLOPES

PROPOSED BASKETBALL COURTS

SWM FACILITY #2

SNOWDEN PARK

PROPOSED 40 SPACE PARKING

PROPOSED BALL FIELD

PLAN

SCALE 0 50' 100'

1 STD. CG-6 REQ'D.
2 STD. CG-2 REQ'D.
3 STD. MS-1A REQ'D.
4 STD. MS-2 REQ'D.
5 PROP. 5' CONC. SIDEWALK
6 PROP. 10' SHARED USE PATH
7 STD. CG-12 REQ'D.
9 PROP. RETAINING WALL

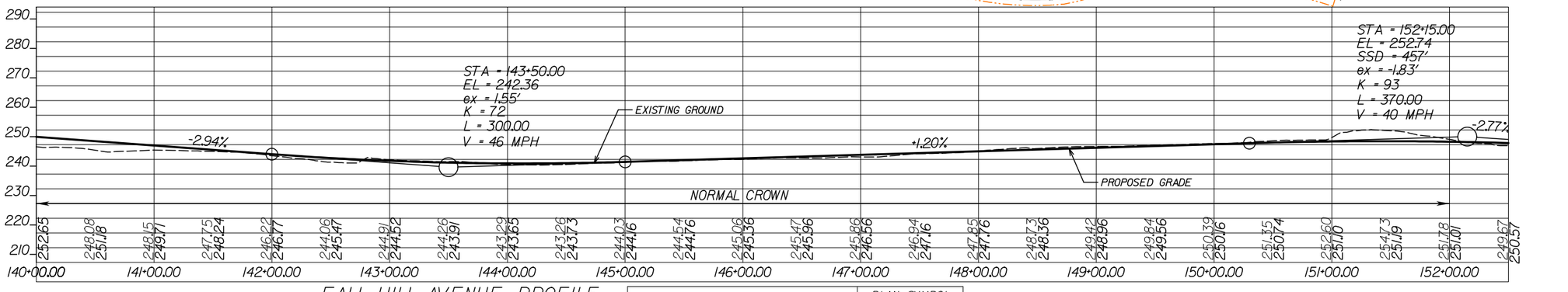
CURVE BHDR-01
Curve BHDR-01
PI = 40+90.62
DELTA = 14° 34' 43.52" (LT)
D = 38° 11' 50"
T = 19.19'
L = 38.17'
R = 150.00'
PC = 40+71.44
PT = 41+09.60
V = 20 MPH
E = NORMAL CROWN

CURVE FPL_A2-2
Curve FPL_A2-2
PI = 36+42.18
DELTA = 108° 43' 39.54" (LT)
D = 63° 39' 43"
T = 125.54'
L = 170.79'
R = 90.00'
PC = 35+16.64
PT = 36+87.43
V = 15 MPH

CURVE FHA-05B
Curve FHA-05B
PI = 139+75.45
DELTA = 7° 48' 42.94" (RT)
D = 1° 08' 45"
T = 79.01'
L = 158.12'
R = 5,000.00'
PC = 138+96.39
PT = 140+54.51
V = 40 MPH
E = NORMAL CROWN

CURVE FHA-06
Curve FHA-06
PI = 150+38.82
DELTA = 27° 54' 39.85" (RT)
D = 4° 38' 08"
T = 307.15'
L = 602.11'
R = 1,236.00'
PC = 147+31.67
PT = 153+33.77
V = 40 MPH
E = NORMAL CROWN

CURVE WIC-01
Curve WIC-01
PI = 62+15.15
DELTA = 3° 22' 21.00" (RT)
D = 2° 17' 31"
T = 73.60'
L = 147.15'
R = 2,500.00'
PC = 61+41.56
PT = 62+88.71
V = 30 MPH



FALL HILL AVENUE PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24"W EXISTING WATER
- E EXISTING ELECTRIC
- FO EXISTING FIBER OPTIC
- CATV EXISTING CABLE TV
- T/Tg EXISTING TELEPHONE
- TC EXISTING TRAFFIC CONTROL
- Unk EXISTING UNKNOWN UTILITY
- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- C DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	PLAN SYMBOL EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted In Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mt'd. / Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

TECHNICAL PROPOSAL CONCEPT PLANS

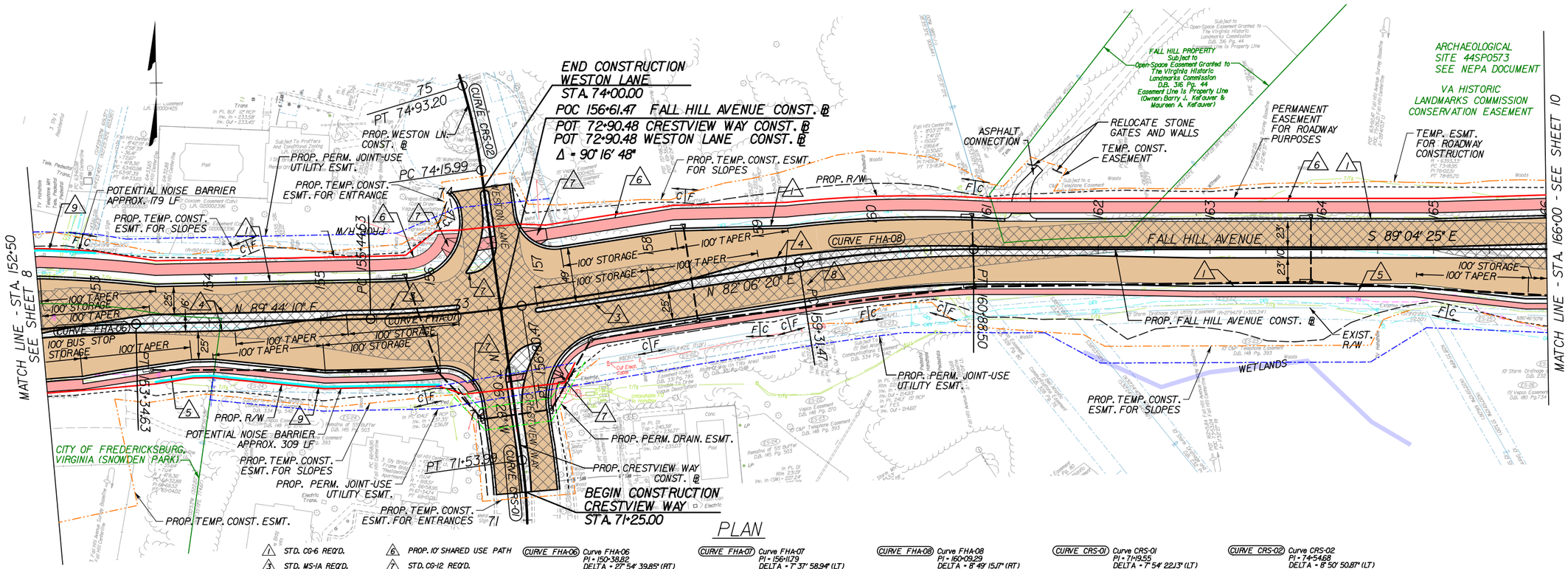
CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 8 OF 25

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP



1	STD. CG-6 REQ'D.	6	PROP. 10' SHARED USE PATH
3	STD. MS-1A REQ'D.	7	STD. CG-12 REQ'D.
4	STD. MS-2 REQ'D.	8	EXIST. PIPE TO BE REMOVED/ABANDONED
5	PROP. 5' CONC. SIDEWALK	9	PROP. RETAINING WALL

CURVE FHA-06 Curve FHA-06
PI = 150+38.82
DELTA = 22° 54' 39.85" (RT)
D = 4° 38' 08"
T = 307.15'
L = 602.11'
R = 1236.00'
PC = 147+31.67
PT = 153+33.77
V = 40 MPH
E = NORMAL CROWN

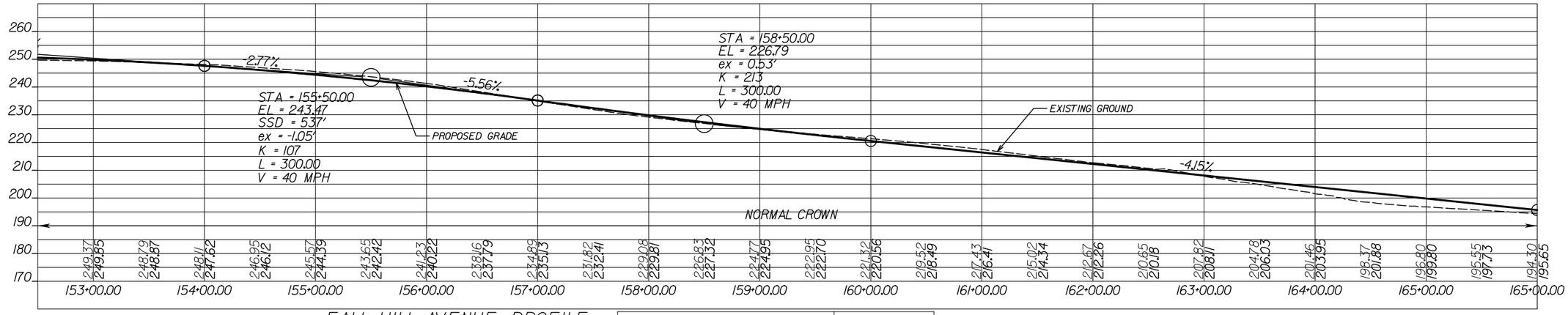
CURVE FHA-07 Curve FHA-07
PI = 156+11.79
DELTA = 7° 37' 58.94" (LT)
D = 5° 37' 02"
T = 68.04'
L = 135.89'
R = 1020.00'
PC = 155+43.77
PT = 156+79.62
V = 40 MPH
E = NORMAL CROWN

CURVE FHA-08 Curve FHA-08
PI = 160+09.29
DELTA = 8° 49' 15.17" (RT)
D = 5° 37' 02"
T = 78.67'
L = 157.03'
R = 1020.00'
PC = 159+30.62
PT = 160+87.65
V = 40 MPH
E = NORMAL CROWN

CURVE CRS-01 Curve CRS-01
PI = 71+19.55
DELTA = 7° 54' 22.13" (LT)
D = 11° 27' 33"
T = 34.55'
L = 68.99'
R = 500.00'
PC = 70+85.00
PT = 71+53.99

CURVE CRS-02 Curve CRS-02
PI = 74+54.68
DELTA = 8° 50' 50.87" (LT)
D = 11° 27' 33"
T = 38.68'
L = 77.21'
R = 500.00'
PC = 74+15.99
PT = 74+93.20

SCALE 0 50' 100'



FALL HILL AVENUE PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24"W EXISTING WATER
- E EXISTING ELECTRIC
- FO EXISTING FIBER OPTIC
- CATV EXISTING CABLE TV
- T/Tg EXISTING TELEPHONE
- TC EXISTING TRAFFIC CONTROL
- Unk EXISTING UNKNOWN UTILITY
- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- C DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mt'd. / Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

TECHNICAL PROPOSAL
CONCEPT PLANS

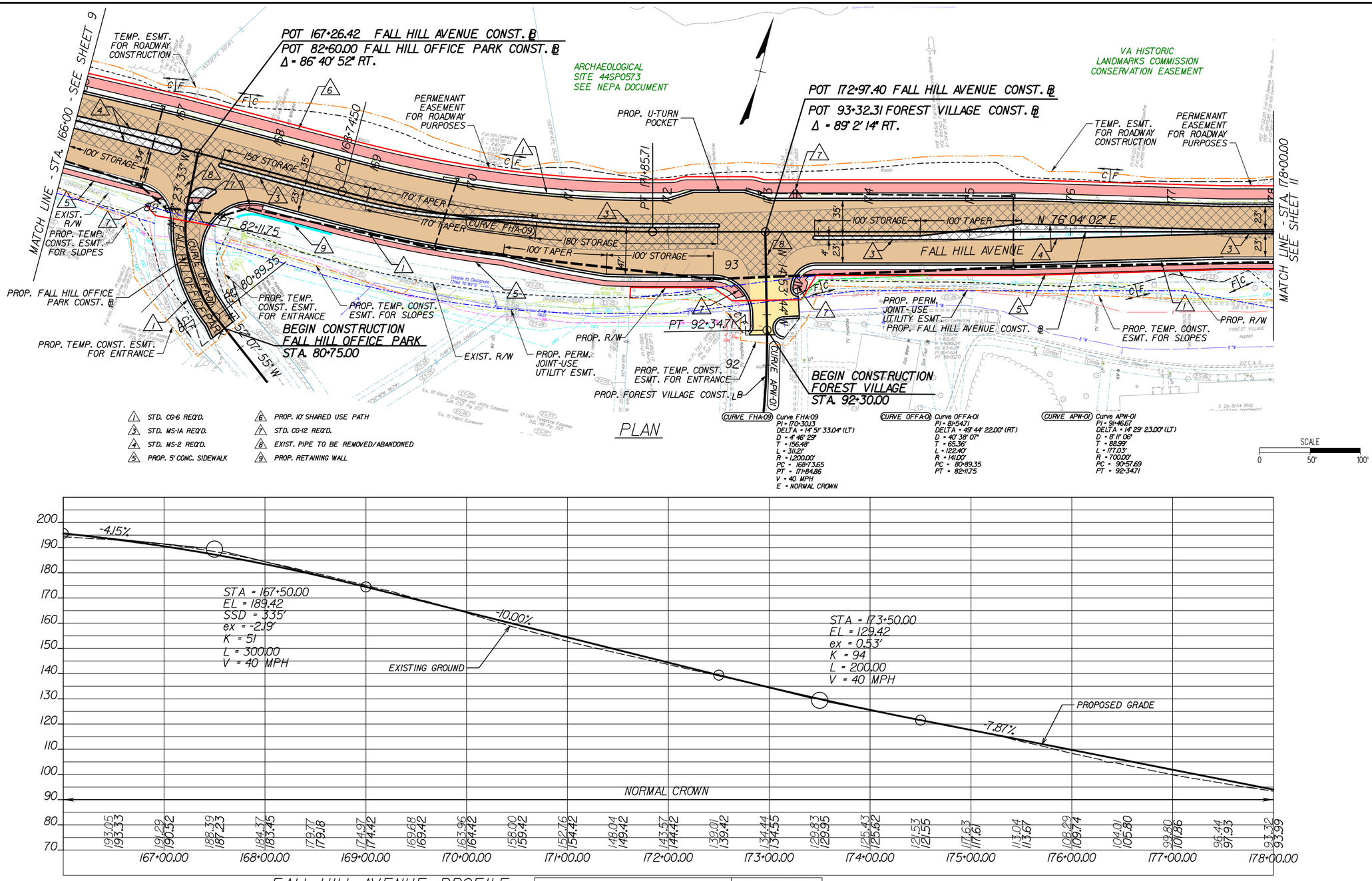
CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 9 OF 25

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP



FALL HILL AVENUE PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24"W EXISTING WATER
- E EXISTING ELECTRIC
- FO EXISTING FIBER OPTIC
- CATV EXISTING CABLE TV
- T/Tg EXISTING TELEPHONE
- TC EXISTING TRAFFIC CONTROL
- Unk EXISTING UNKNOWN UTILITY
- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- C DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	PLAN SYMBOL EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mt'd.		
Traffic Signal Sign — Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

TECHNICAL PROPOSAL CONCEPT PLANS

CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

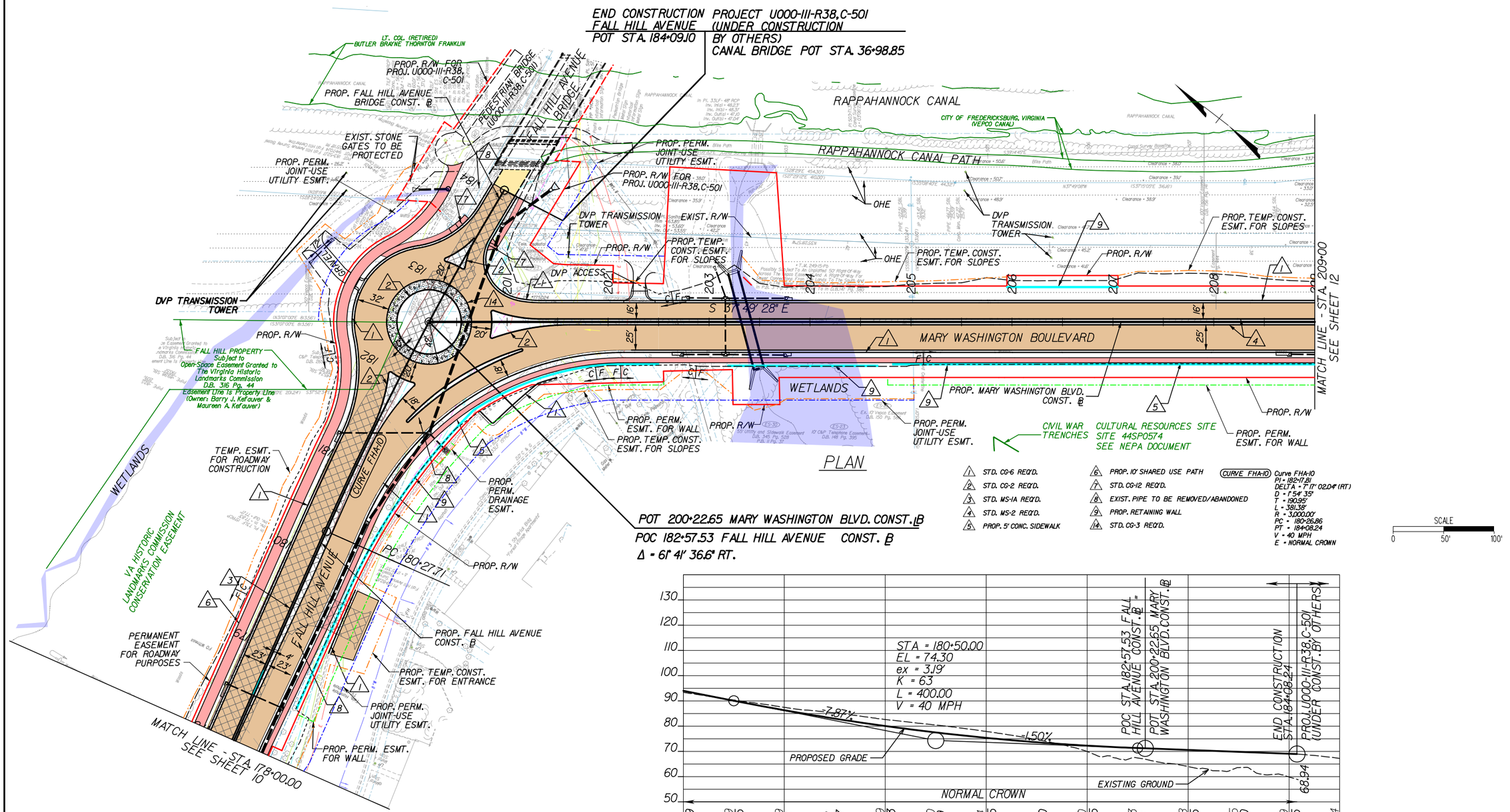
SHEET 10 OF 25

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP

END CONSTRUCTION FALL HILL AVENUE POT STA. 184+09.10

PROJECT U000-III-R38, C-501 (UNDER CONSTRUCTION BY OTHERS) CANAL BRIDGE POT STA. 36+98.85



PLAN

POT 200+22.65 MARY WASHINGTON BLVD. CONST. ℄

POC 182+57.53 FALL HILL AVENUE CONST. ℄

Δ = 61° 41' 36.6" RT.

1. STD. CG-6 REQ'D.
2. STD. CG-2 REQ'D.
3. STD. MS-1A REQ'D.
4. STD. MS-2 REQ'D.
5. PROP. 5' CONC. SIDEWALK
6. PROP. 10' SHARED USE PATH
7. STD. CG-12 REQ'D.
8. EXIST. PIPE TO BE REMOVED/ABANDONED
9. PROP. RETAINING WALL
10. STD. CG-3 REQ'D.

CURVE FHA-10
Curve FHA-10
PI = 182+17.81
DELTA = 7° 17' 02.04" (RT)
D = 1° 54' 35"
T = 190.93'
L = 381.38'
R = 3,000.00'
PC = 180+26.86
PT = 184+08.24
V = 40 MPH
E = NORMAL CROWN

SCALE 0 50' 100'

FALL HILL AVENUE PROFILE

SEE SHEET 13 FOR MARY WASHINGTON BOULEVARD PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24"W EXISTING WATER
- E EXISTING ELECTRIC
- FO EXISTING FIBER OPTIC
- CATV EXISTING CABLE TV
- T/Tg EXISTING TELEPHONE
- TC EXISTING TRAFFIC CONTROL
- Unk EXISTING UNKNOWN UTILITY
- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- C DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	PLAN SYMBOL EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mtd. / Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

CONCEPTUAL PLAN AND PROFILE

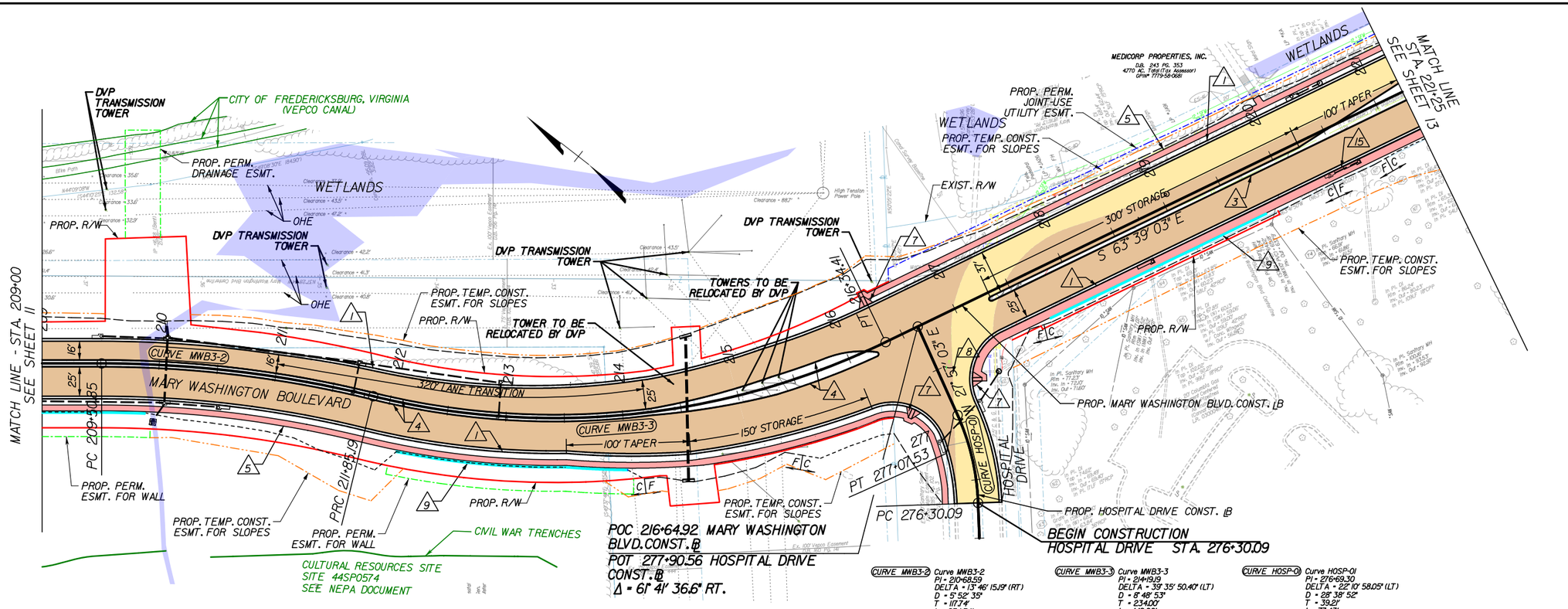
FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 11 OF 25

TECHNICAL PROPOSAL
CONCEPT PLANS

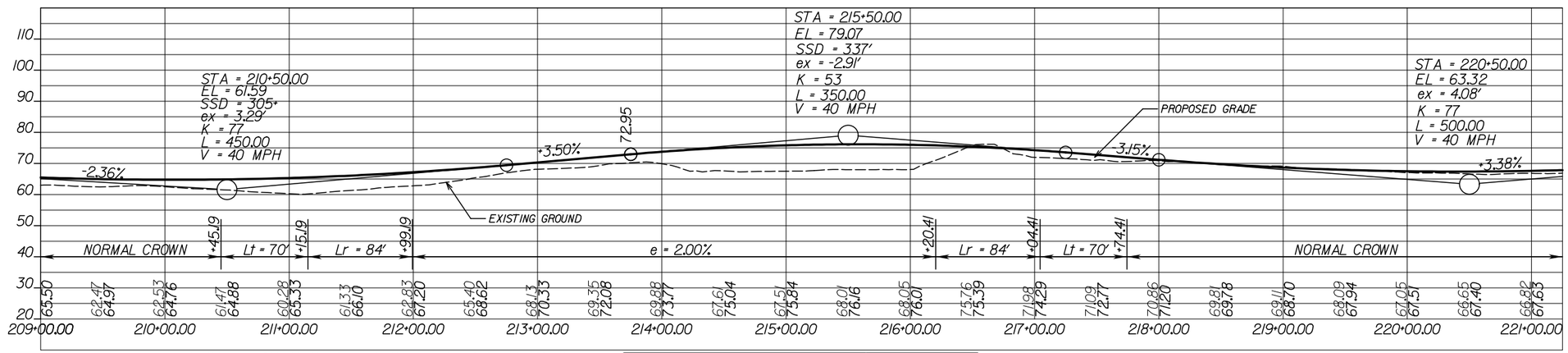
CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP



PLAN

1 STD. CG-6 REQ'D.
3 STD. MS-1A REQ'D.
4 STD. MS-2 REQ'D.
5 PROP. 5' CONC. SIDEWALK
7 STD. CG-12 REQ'D.
8 EXIST. PIPE TO BE REMOVED/ABANDONED
9 PROP. RETAINING WALL
15 PROP. 7' CONC. SIDEWALK



MARY WASHINGTON BOULEVARD PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24 "W — EXISTING WATER
- E — EXISTING ELECTRIC
- FO — EXISTING FIBER OPTIC
- CATV — EXISTING CABLE TV
- T/Tg — EXISTING TELEPHONE
- TC — EXISTING TRAFFIC CONTROL
- Unk — EXISTING UNKNOWN UTILITY
- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- C — DENOTES CONSTRUCTION LIMITS IN CUT
- F — DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	PLAN SYMBOL EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted In Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mt'd.		
Traffic Signal Sign — Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

TECHNICAL PROPOSAL CONCEPT PLANS

CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 12 OF 25

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP

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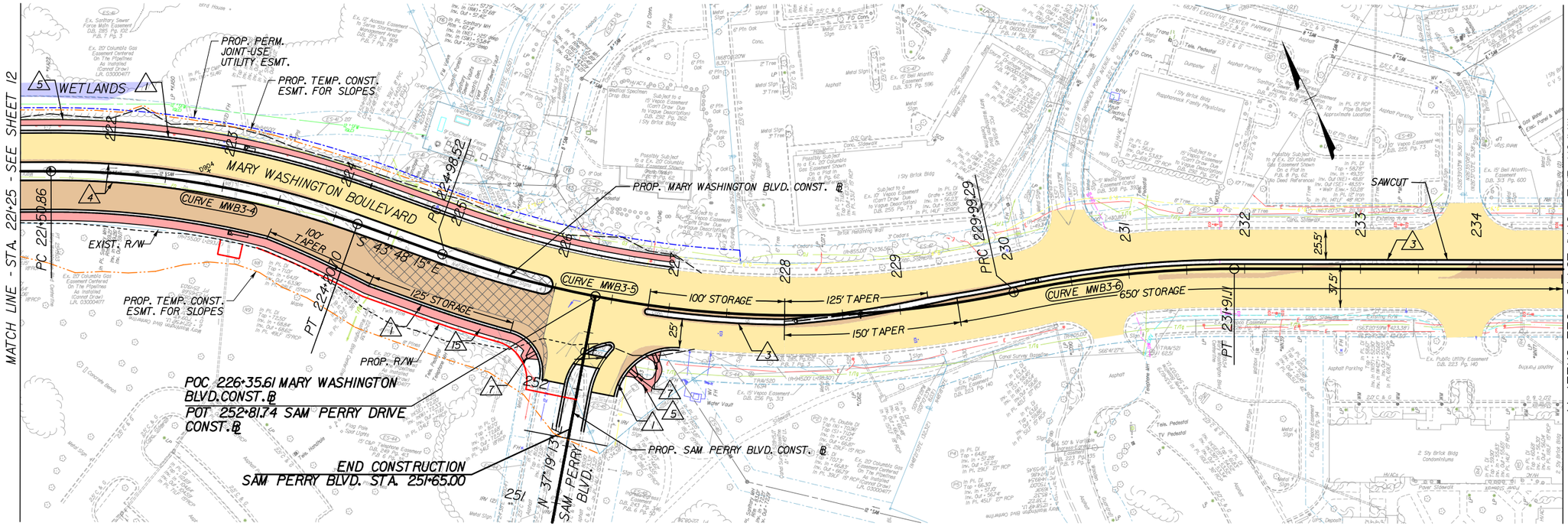


PLAN

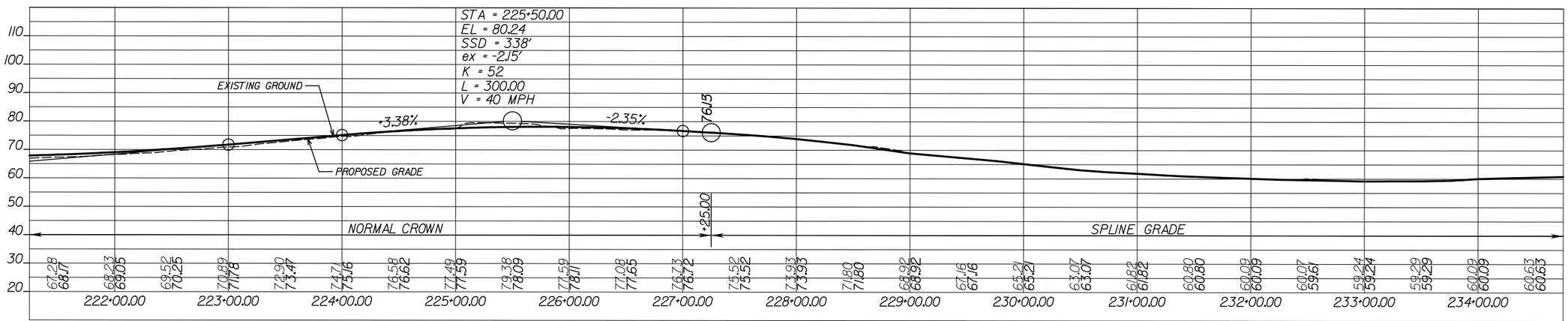
△1 STD. CG-6 REQ'D.
△3 STD. MS-1A REQ'D.
△4 STD. MS-2 REQ'D.
△5 PROP. 5' CONC. SIDEWALK
△7 STD. CG-12 REQ'D.
△15 PROP. 7' CONC. SIDEWALK

CURVE MWB3-4 Curve MWB3-4
PI = 222+87.14
DELTA = 19° 50' 48.13" (RT)
D = 7° 21' 18"
T = 136.28'
L = 269.84'
R = 779.00'
PC = 221+50.86
PT = 224+20.70
V = 40 MPH
E = NORMAL CROWN

CURVE MWB3-5 Curve MWB3-5
PI = 227+55.54
DELTA = 31° 48' 32.32" (LT)
D = 6° 21' 07"
T = 257.02'
L = 500.76'
R = 902.00'
PC = 224+98.52
PRC = 229+99.28
V = 40 MPH
E = NORMAL CROWN

CURVE MWB3-6 Curve MWB3-6
PI = 230+95.56
DELTA = 12° 11' 06.20" (RT)
D = 6° 21' 07"
T = 96.28'
L = 191.83'
R = 902.00'
PRC = 229+99.28
PT = 231+91.11
V = 40 MPH

SCALE 0 50' 100'



MARY WASHINGTON BOULEVARD PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24"W EXISTING WATER
- E EXISTING ELECTRIC
- FO EXISTING FIBER OPTIC
- CATV EXISTING CABLE TV
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- MILL AND OVERLAY
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- PAVEMENT DEMOLITION
- C DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	PLAN SYMBOL EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mt'd.		
Traffic Signal Sign — Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

TECHNICAL PROPOSAL
CONCEPT PLANS

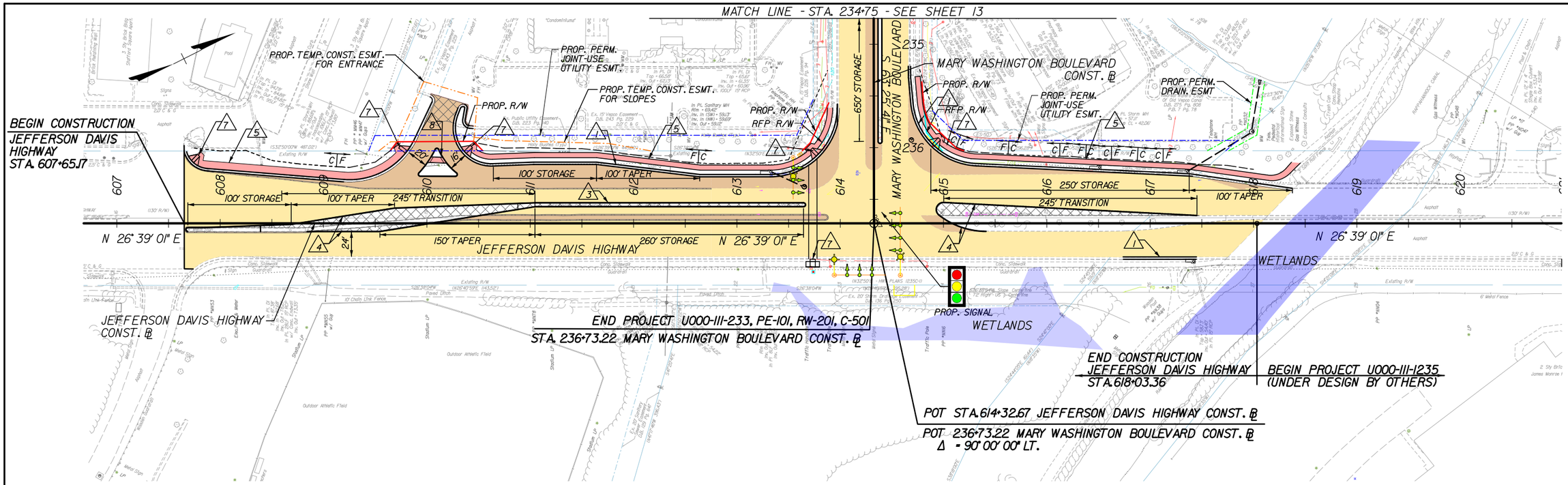
CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 13 OF 25

CORMAN CONSTRUCTION

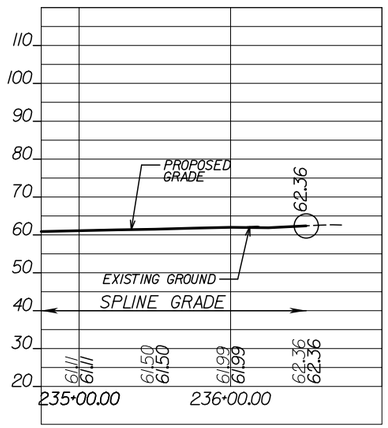
WR&A Whitman, Requardt and Associates, LLP



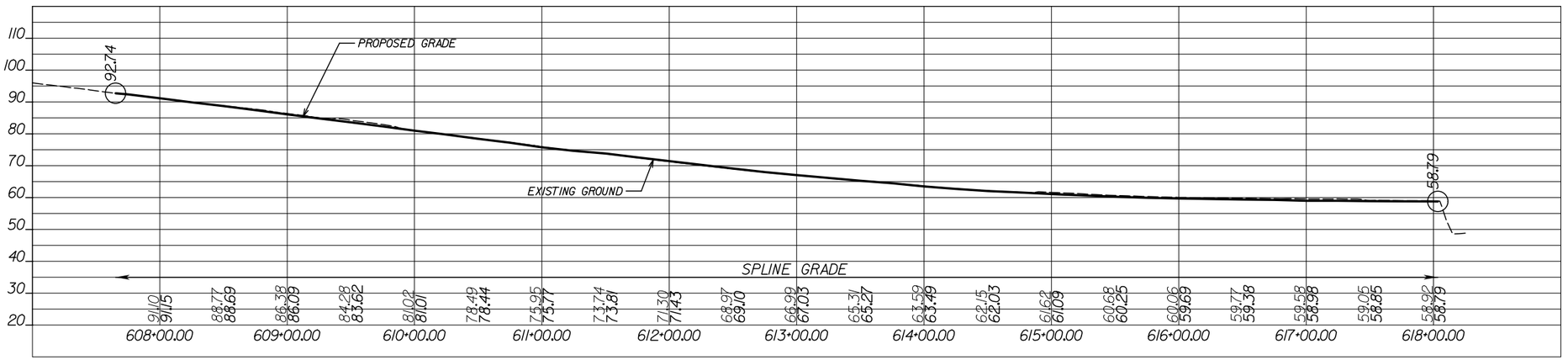
PLAN

1 STD. CG-6 REQ'D.
3 STD. MS-1A REQ'D.
4 STD. MS-2 REQ'D.
5 PROP. 5' CONC. SIDEWALK
7 STD. CG-12 REQ'D.

SCALE
0 50' 100'



MARY WASHINGTON BOULEVARD PROFILE



JEFFERSON DAVIS HIGHWAY PROFILE

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24"W EXISTING WATER
- E EXISTING ELECTRIC
- FO EXISTING FIBER OPTIC
- CATV EXISTING CABLE TV
- T/Tg EXISTING TELEPHONE
- TC EXISTING TRAFFIC CONTROL
- Unk EXISTING UNKNOWN UTILITY

- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- C _ _ _ DENOTES CONSTRUCTION LIMITS IN CUT
- F _ _ _ DENOTES CONSTRUCTION LIMITS IN FILL

TRAFFIC ITEM	PLAN SYMBOL PROPOSED	PLAN SYMBOL EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted In Signal Pole Legend)		
Pedestal Pole and Foundation (Std. PF-2)		
Traffic Signal Head		
Pedestrian Signal Head		
Traffic Signal Sign — Mast Arm or Span Wire Mt'd. / Pole Mounted		
Video Detection Camera		
Junction Box (Std. as noted on plans)		
Signal Luminaire (250 W)		
Controller Cabinet & Foundation		

TECHNICAL PROPOSAL
CONCEPT PLANS

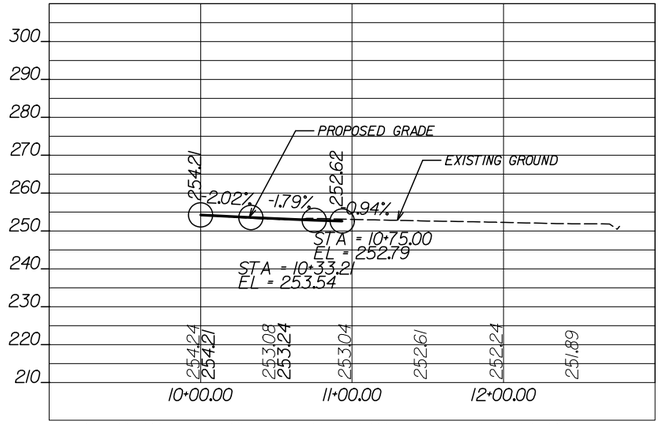
CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

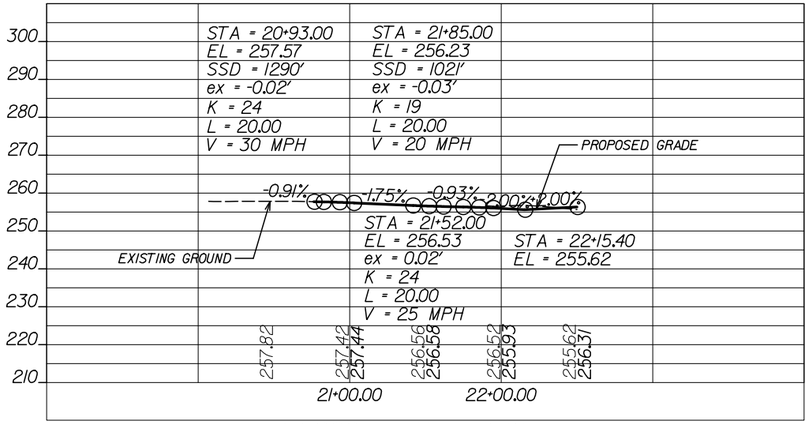
SHEET 14 OF 25

CORMAN CONSTRUCTION

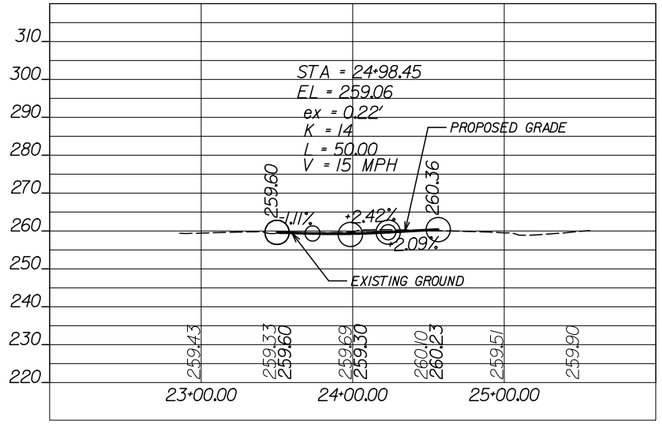
WR&A Whitman, Requardt and Associates, LLP



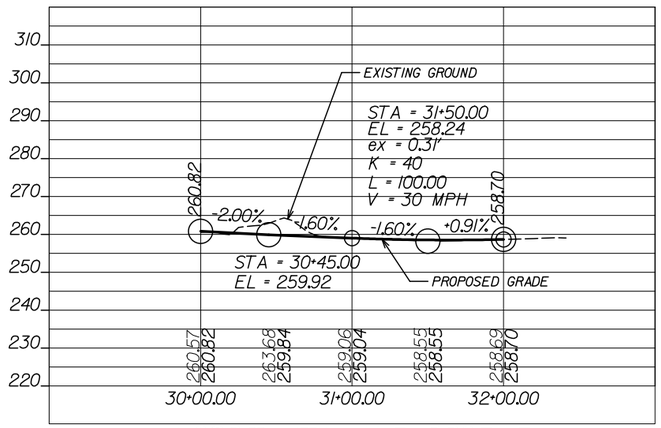
GEORGE W. SHELTON BOULEVARD PROFILE



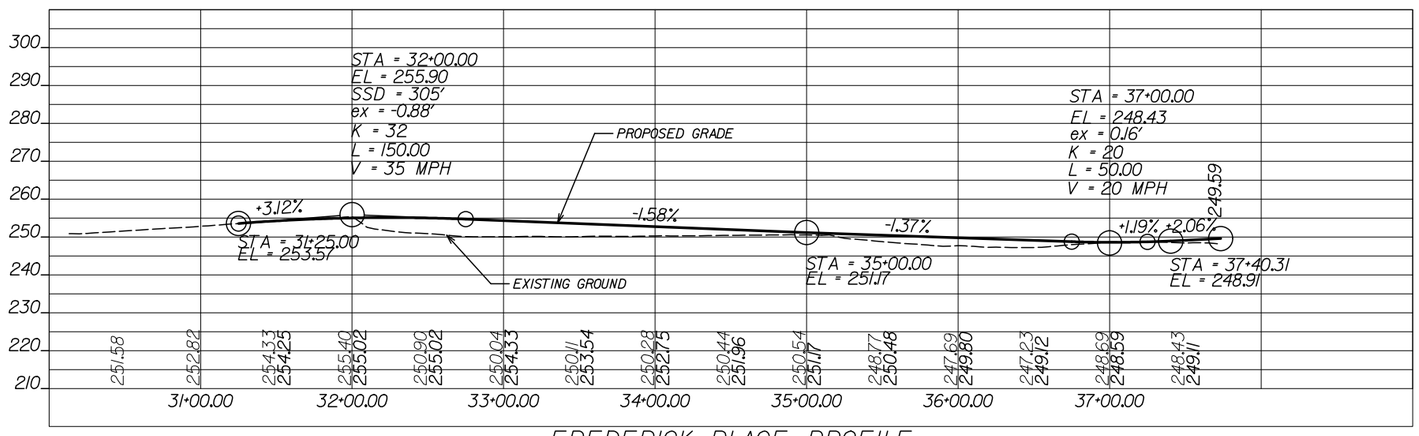
BRISCOE LANE PROFILE



NOBLE WAY PROFILE



HOSPITALITY LANE PROFILE



FREDERICK PLACE PROFILE

SCALE
0 50' 100'

TECHNICAL PROPOSAL
CONCEPT PLANS

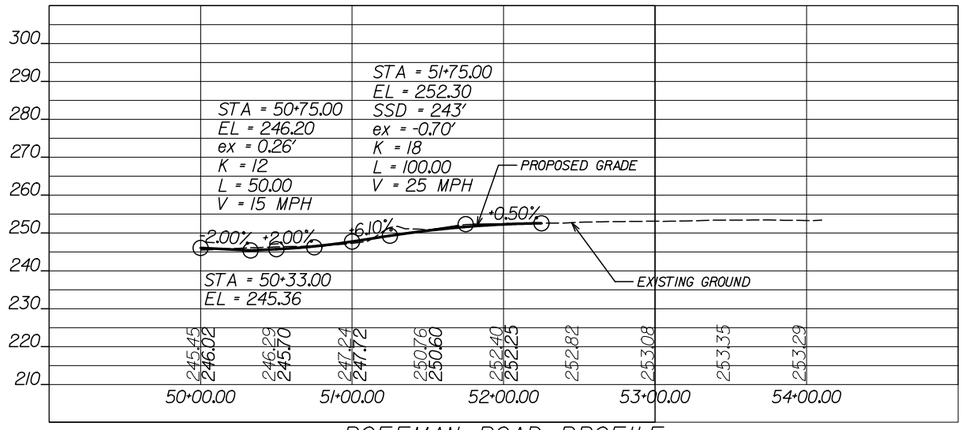
CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

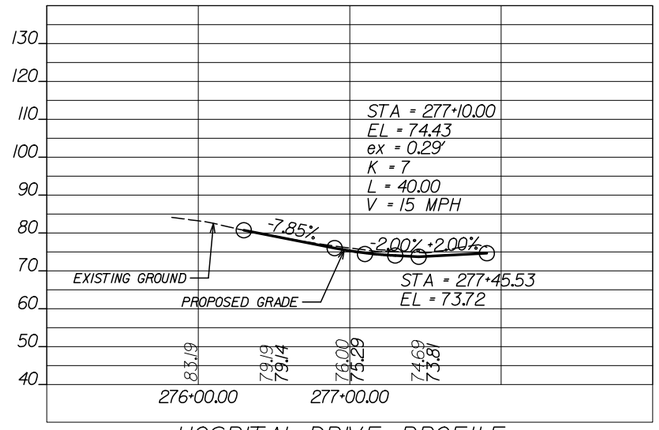
SHEET 15 OF 25

CORMAN CONSTRUCTION

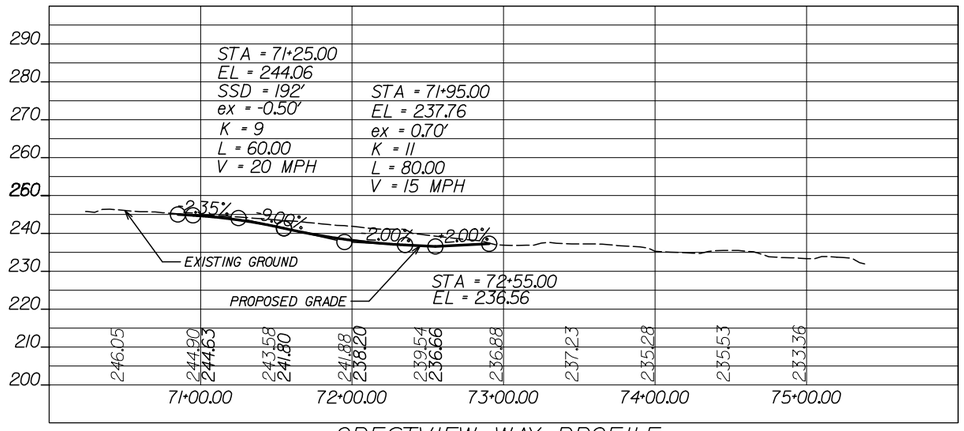
WR&A Whitman, Requardt and Associates, LLP



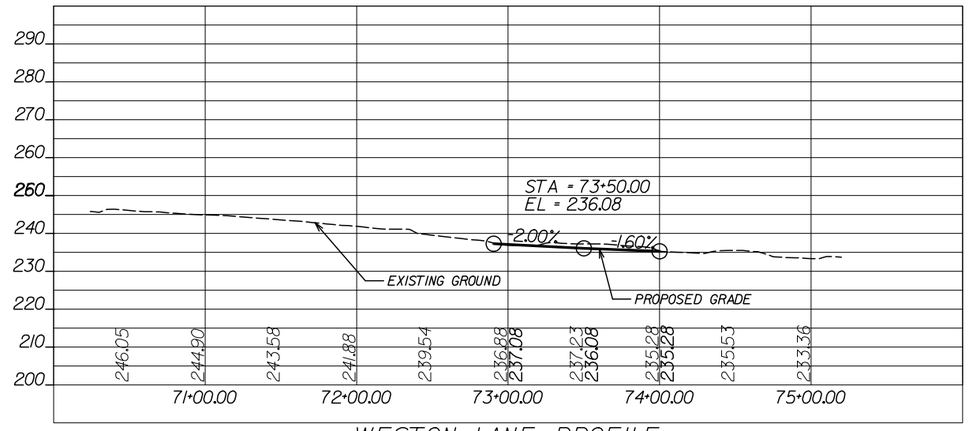
ROFFMAN ROAD PROFILE



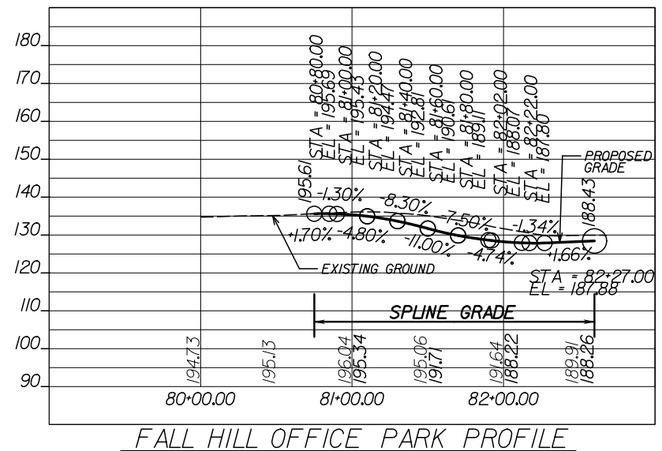
HOSPITAL DRIVE PROFILE



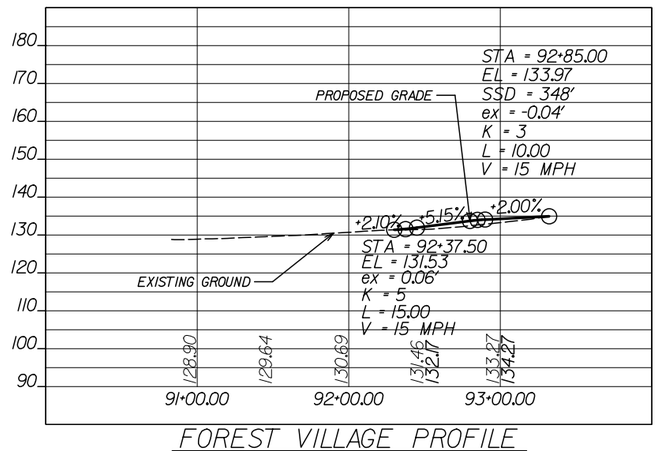
CRESTVIEW WAY PROFILE



WESTON LANE PROFILE



FALL HILL OFFICE PARK PROFILE



FOREST VILLAGE PROFILE

SCALE
0 50' 100'

TECHNICAL PROPOSAL
CONCEPT PLANS

CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 16 OF 25

CORMAN CONSTRUCTION

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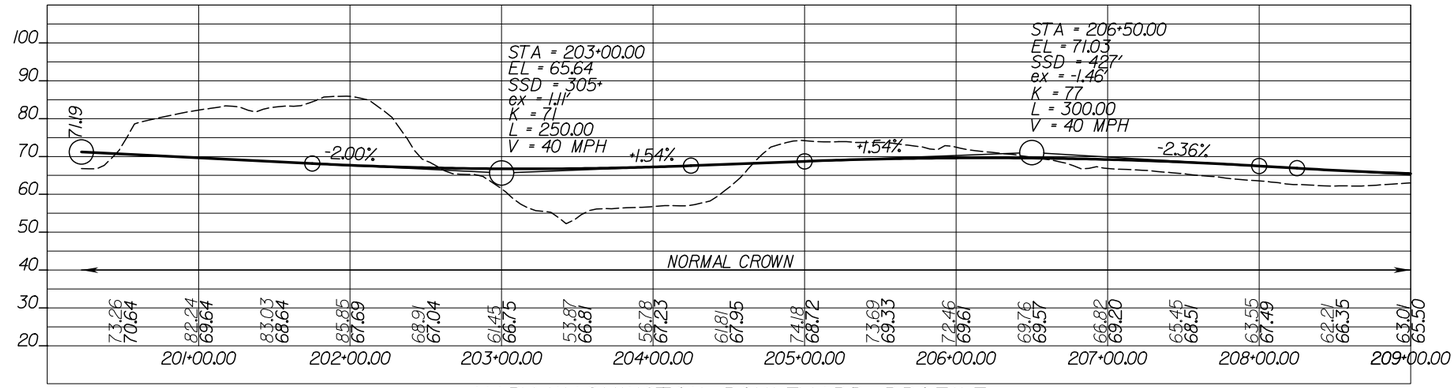
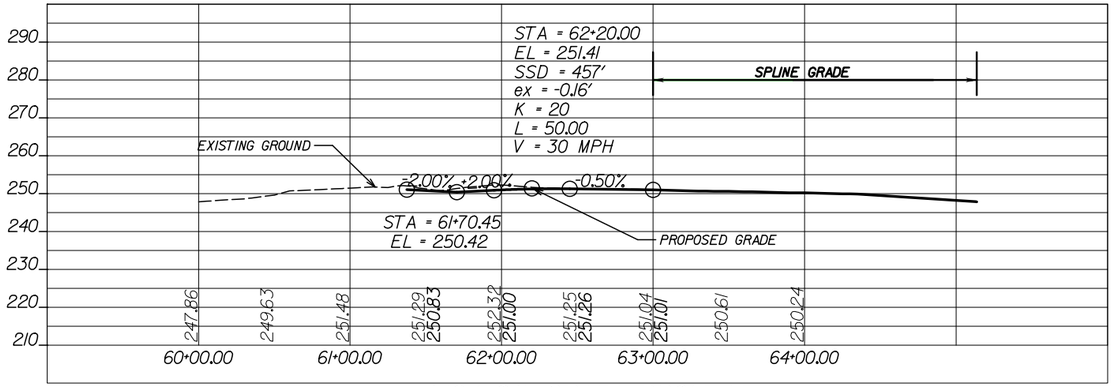
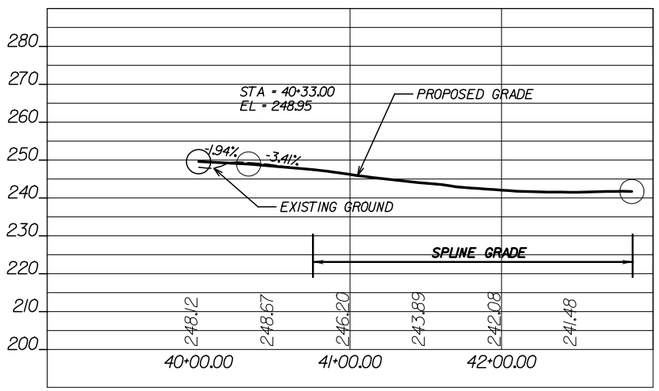


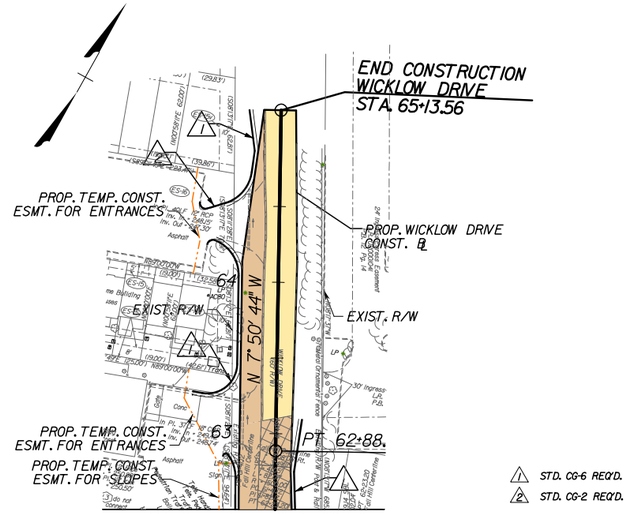
MARY WASHINGTON BOULEVARD PROFILE



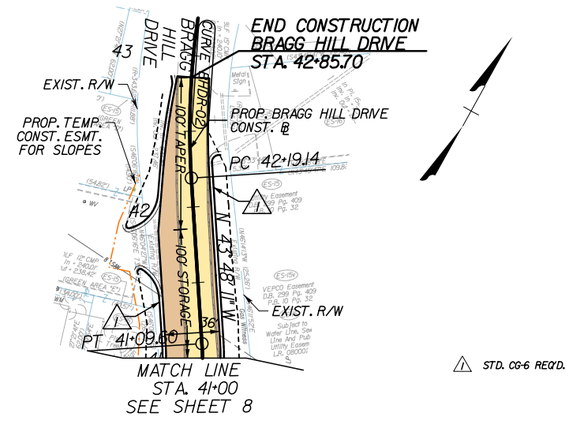
WICKLOW DRIVE PROFILE



BRAGG HILL DRIVE PROFILE



WICKLOW DRIVE PLAN



BRAGG HILL DRIVE PLAN

LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED PERMANENT JOINT-USE UTILITY EASEMENT
- PROPOSED INGRESS/EGRESS EASEMENT
- PROPOSED SOUND WALL/RETAINING WALL
- 24 "W — EXISTING WATER
- E — EXISTING ELECTRIC
- FO — EXISTING FIBER OPTIC
- CATV — EXISTING CABLE TV
- T/Tg — EXISTING TELEPHONE
- TC — EXISTING TRAFFIC CONTROL
- Unk — EXISTING UNKNOWN UTILITY

- MILL AND OVERLAY
- FULL DEPTH PROPOSED PAVEMENT
- CONCRETE SIDEWALK/SHARED USE PATH
- PAVEMENT DEMOLITION
- DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL

SCALE
0 50' 100'

TECHNICAL PROPOSAL
CONCEPT PLANS

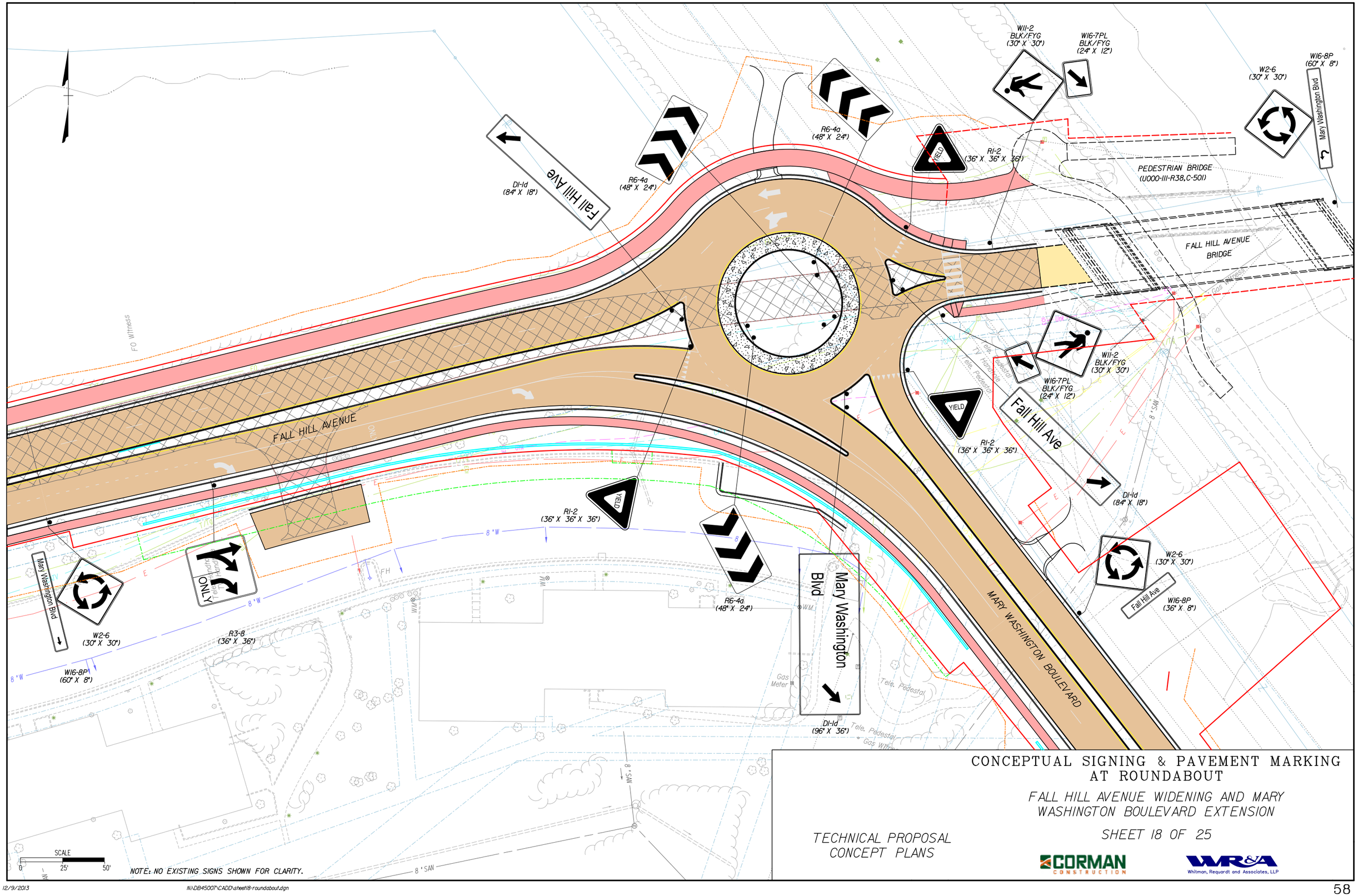
CONCEPTUAL PLAN AND PROFILE

FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 17 OF 25

CORMAN CONSTRUCTION

WR&A Whitman, Requardt and Associates, LLP



CONCEPTUAL SIGNING & PAVEMENT MARKING AT ROUNDABOUT

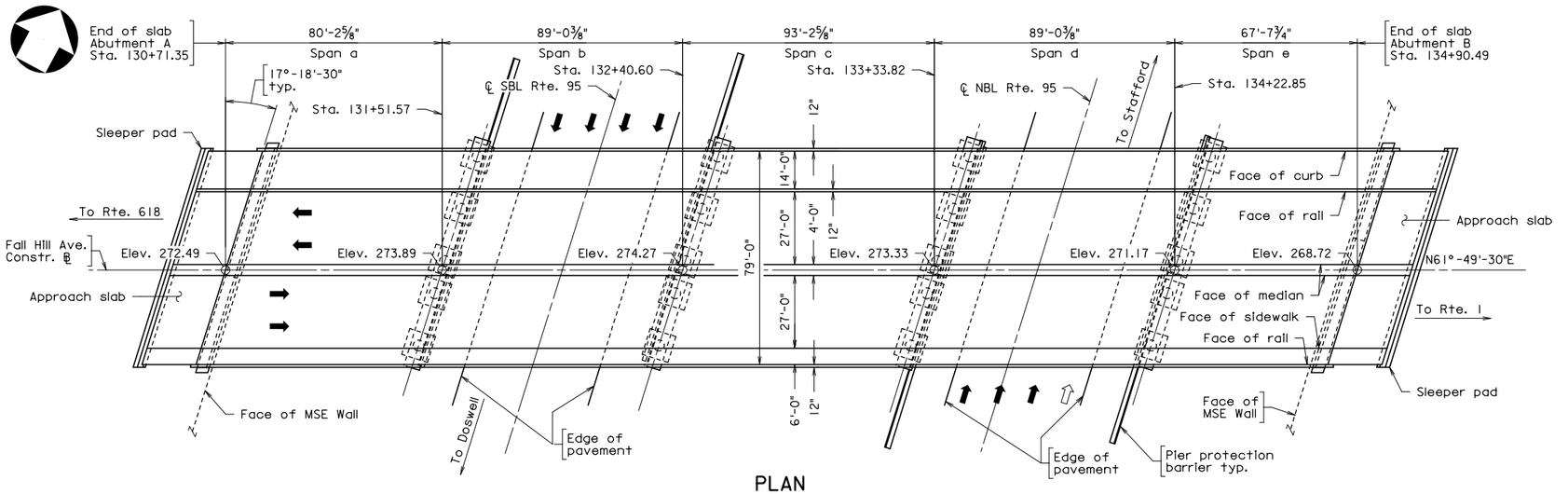
FALL HILL AVENUE WIDENING AND MARY WASHINGTON BOULEVARD EXTENSION

SHEET 18 OF 25

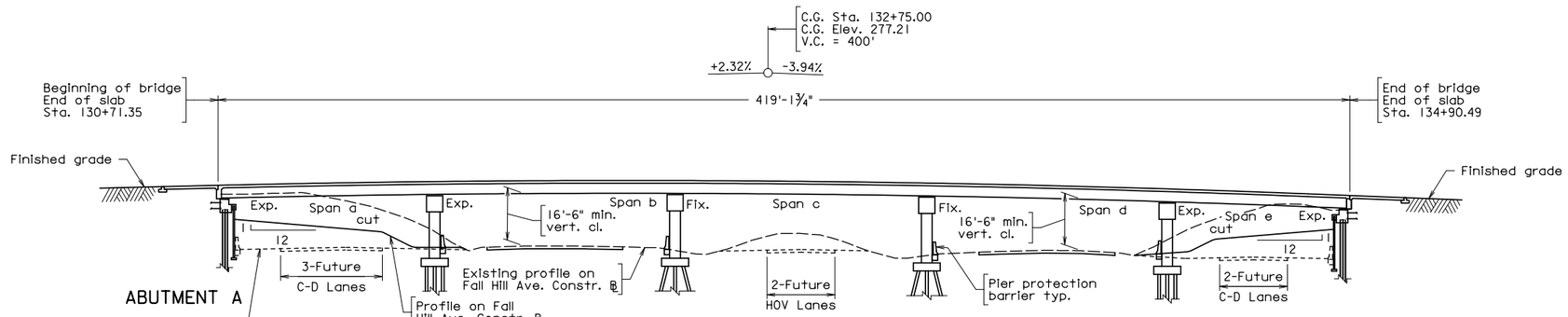
TECHNICAL PROPOSAL CONCEPT PLANS

CORMAN CONSTRUCTION

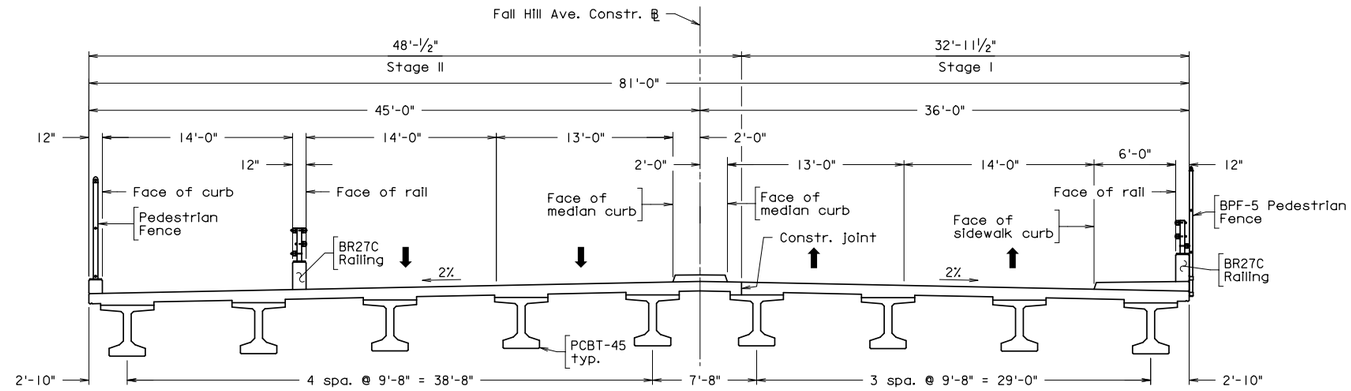
WR&A Whitman, Requardt and Associates, LLP



PLAN



DEVELOPED SECTION ALONG FALL HILL AVE. CONSTR. ℄



TRANSVERSE SECTION

Scale: 3/16" = 1'-0"

The BR27C railing shall incorporate the Dry stack texture architectural treatment on both faces.

Scale: 1" = 25'-0", unless otherwise noted

STATE	FEDERAL AID ROUTE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	—			U000-111-233,B609	19
NBIS Number:			UPC No.	88699	
Federal Oversight Code:			FHWA Construction and Scour Code:	X281-SN	

DESIGN EXCEPTION(S):

GENERAL NOTES:

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

Width: 14'-0" shared use path, 12" median, 27'-0" roadway, 4'-0" median, 27'-0" roadway, 6'-0" sidewalk. Overall width 79'-0" face-to-face of curb/rail.

Span layout: 80' - 89' - 93' - 89' - 68' Prestressed concrete bulb-T beam spans continuous for live load.

Capacity: HL-93 loading.

Specifications:

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

Design: AASHTO LRFD Bridge Design Specifications, 6th Edition, 2010; 2010 Interim Specifications; and VDOT Modifications.

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

This project is to be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, June 2011 and latest revisions.

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

Design loading includes 15 psf allowance for future wearing surface

Prestressed concrete in beams shall be Class A5 having a minimum compressive cylinder strength at 28 days equal to 8000 psi and a minimum compressive cylinder strength at time of release of strands equal to 6400 psi.

Low permeability concrete shall be used in this project.

Bridge No. of existing bridge is 6082. Plan No. is 156-03.

The existing structure is designated a Type B structure in accordance with sec. 411.

TECHNICAL PROPOSAL CONCEPT PLANS

CORMAN CONSTRUCTION

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VDOT

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF TRANSPORTATION

PROPOSED BRIDGE ON
FALL HILL AVENUE OVER RTE. 95
SPOTSYLVANIA CO. - 1.2 MI N. OF RTE. 3
PROJ. U000-111-233, B609

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

PLANS BY:
COORDINATED:
SUPERVISED:
DESIGNED:
DRAWN:
CHECKED:

No.	Description	Date

REVISIONS

For Table of Revisions, see Sheet 2.

Recommended for Approval: _____ _____
State Structure and Bridge Engineer — Date

Approved: _____ _____
Chief Engineer — Date

Date: Dec. 2013

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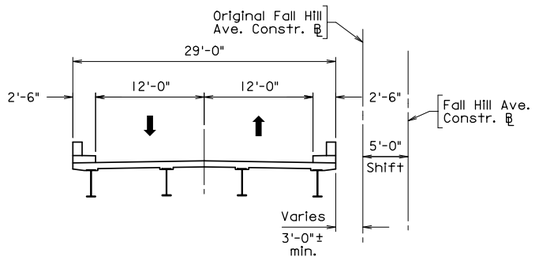
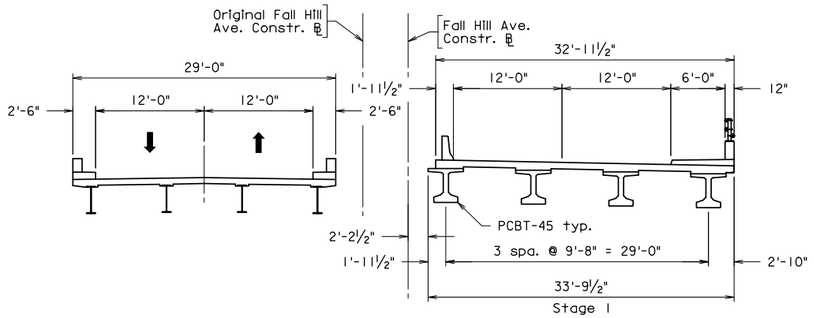
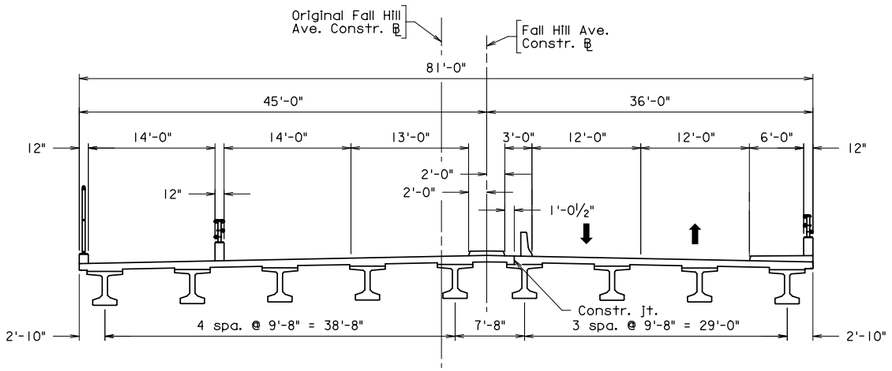
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		639	U000-111-233, B609	20



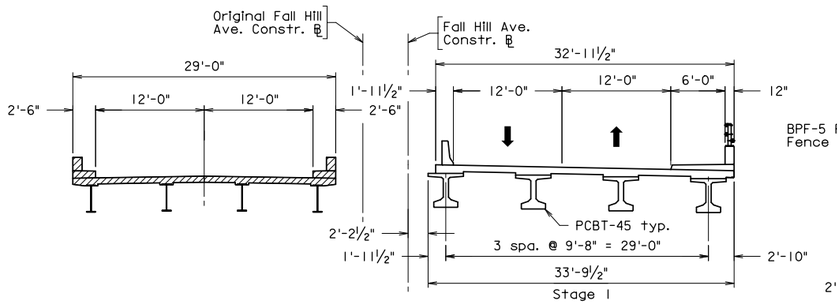
EXISTING BRIDGE



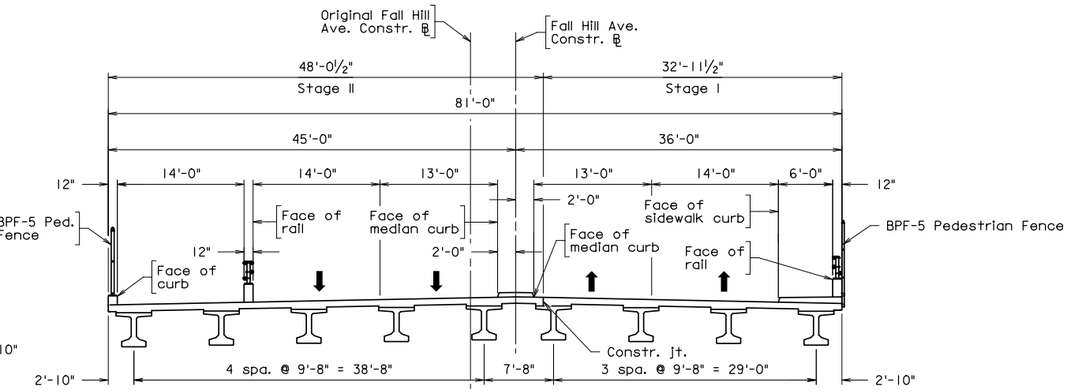
STAGE I



STAGE II



STAGE I DEMOLITION



TRANSVERSE SECTION

SEQUENCE OF CONSTRUCTION

Denotes portion of existing structure to be removed

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

Scale: ⅛" = 1'-0" unless otherwise noted.

TECHNICAL PROPOSAL CONCEPT PLANS

CORMAN CONSTRUCTION

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COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SEQUENCE OF CONSTRUCTION

No.	Description	Date
	Revisions	

Designed: WRA	Date	Plan No.	Sheet No.
Drawn: WRA	Dec. 2013		20 of 25
Checked: WRA			

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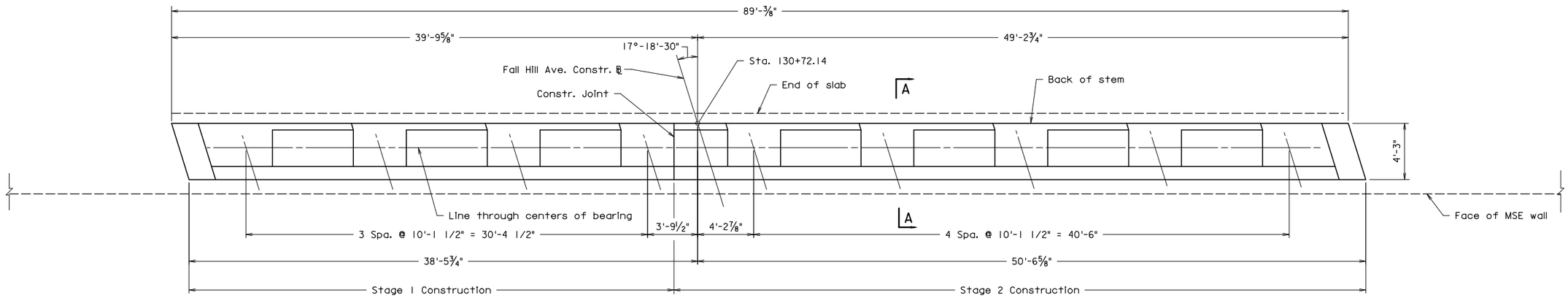
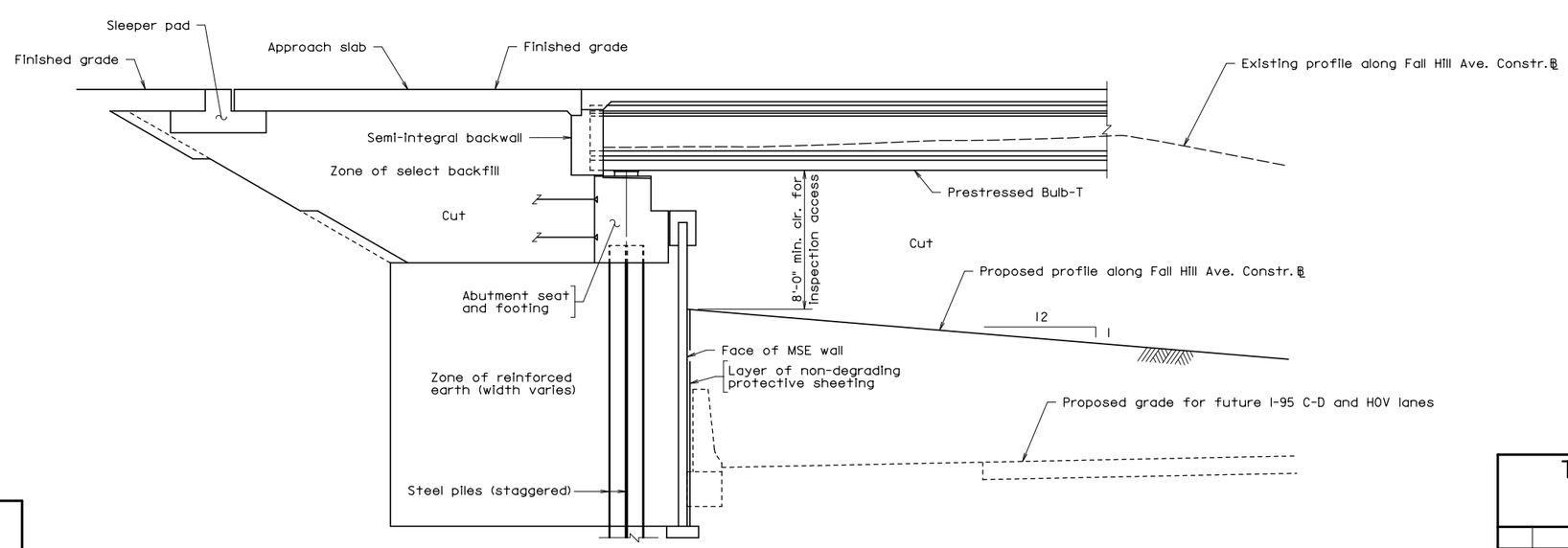
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		639	U000-111-233, B609	21



ABUTMENT PLAN



SECTION A-A

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Scale: ¼" = 1'-0"

TECHNICAL PROPOSAL CONCEPT PLANS

CORMAN CONSTRUCTION

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COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

ABUTMENTS

No.	Description	Date
	Revisions	

Designed: WRA	Date	Plan No.	Sheet No.
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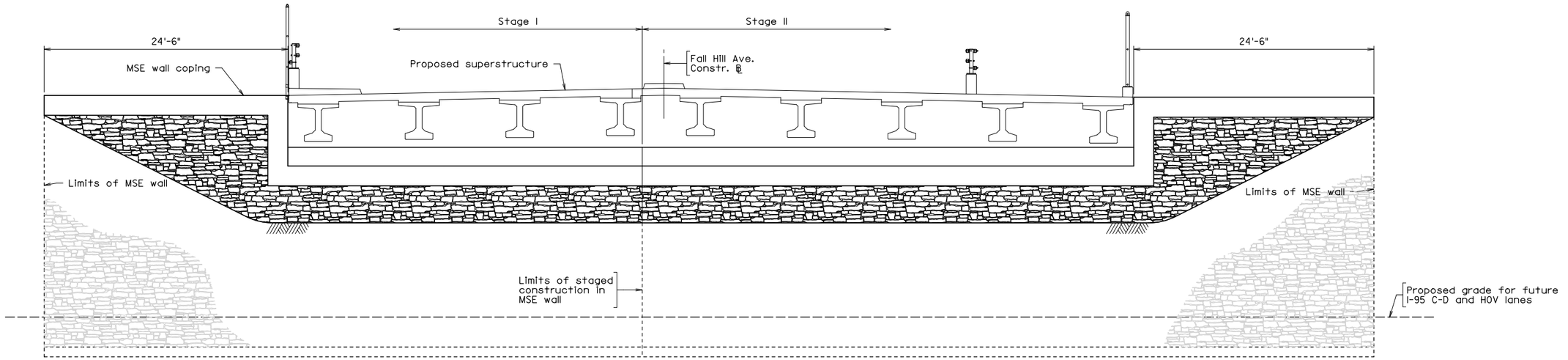
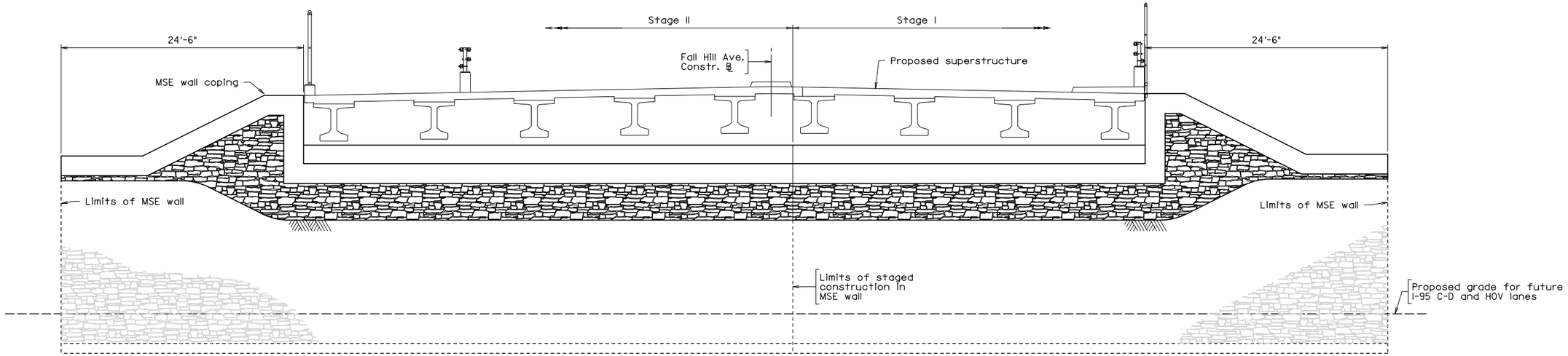
Checked: WRA			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		639	U000-111-233, B609	22



MSE WALL ELEVATION AT ABUTMENT A



MSE WALL ELEVATION AT ABUTMENT B

N:\DB45007\CADD\Bridge\MSE_wall details.dgn

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STRUCTURAL ENGINEER

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

TECHNICAL PROPOSAL CONCEPT PLANS

CORMAN CONSTRUCTION

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No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

MSE WALL AT ABUTMENTS

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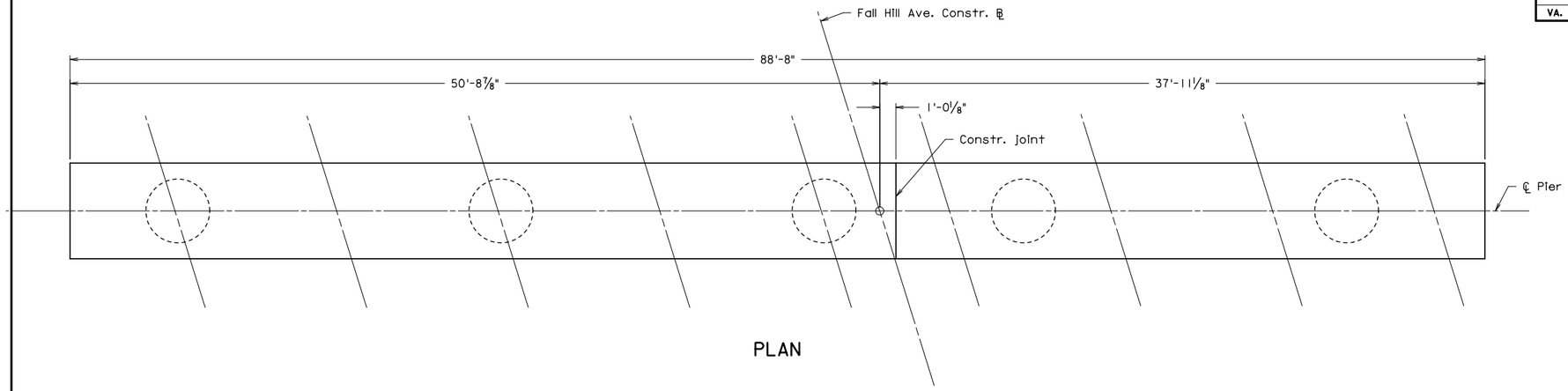
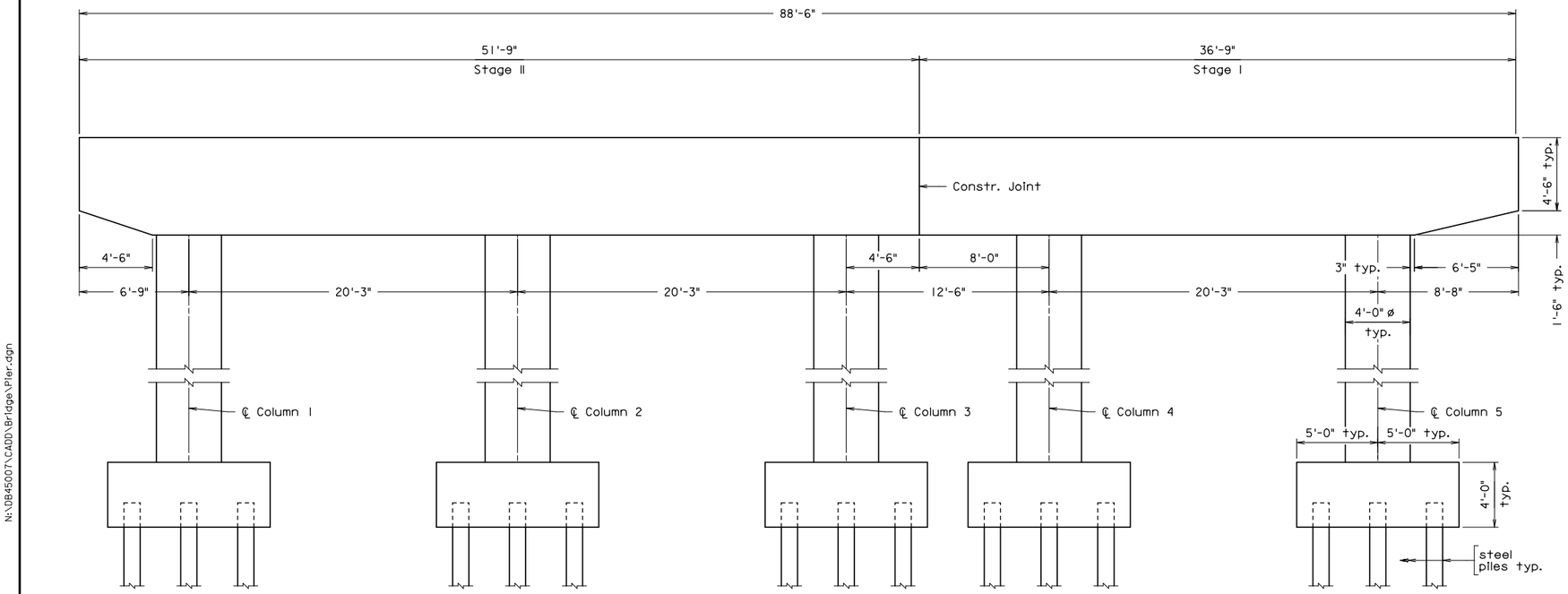
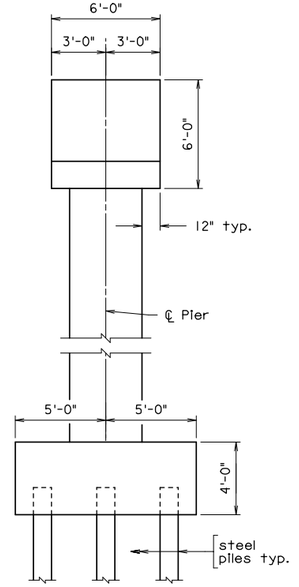
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		639	U000-111-233, B609	23



PLAN



ELEVATION



END VIEW

N:\DB45007\CADD\Bridge\Pier.dgn

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RICHMOND, VA
STRUCTURAL ENGINEER

Scale: ¼" = 1'-0" unless otherwise noted.

TECHNICAL PROPOSAL CONCEPT PLANS

CORMAN CONSTRUCTION

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No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

PIERS

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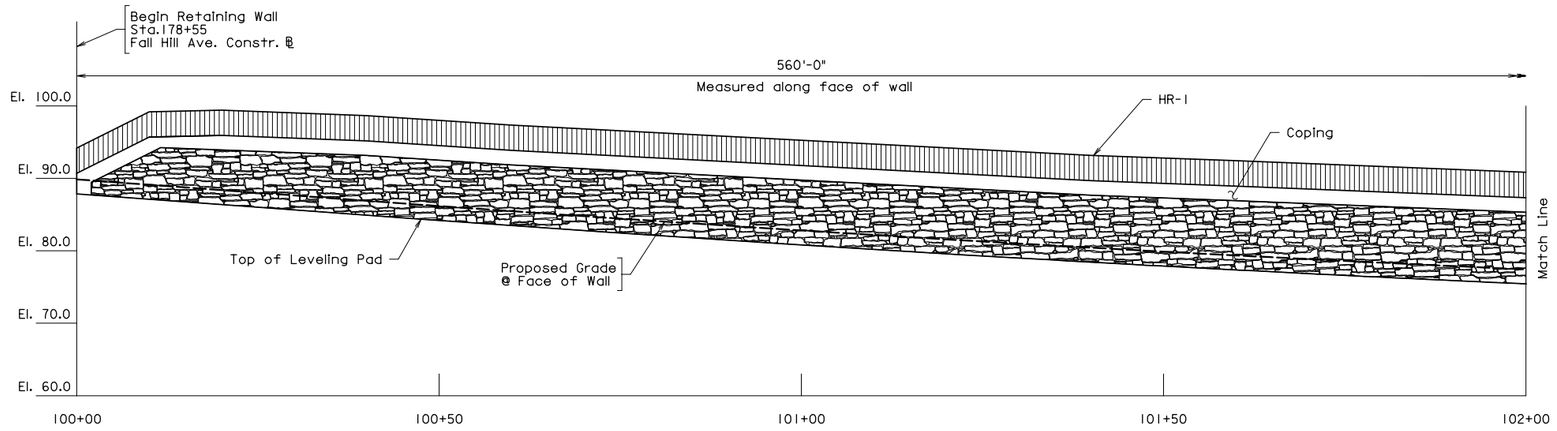
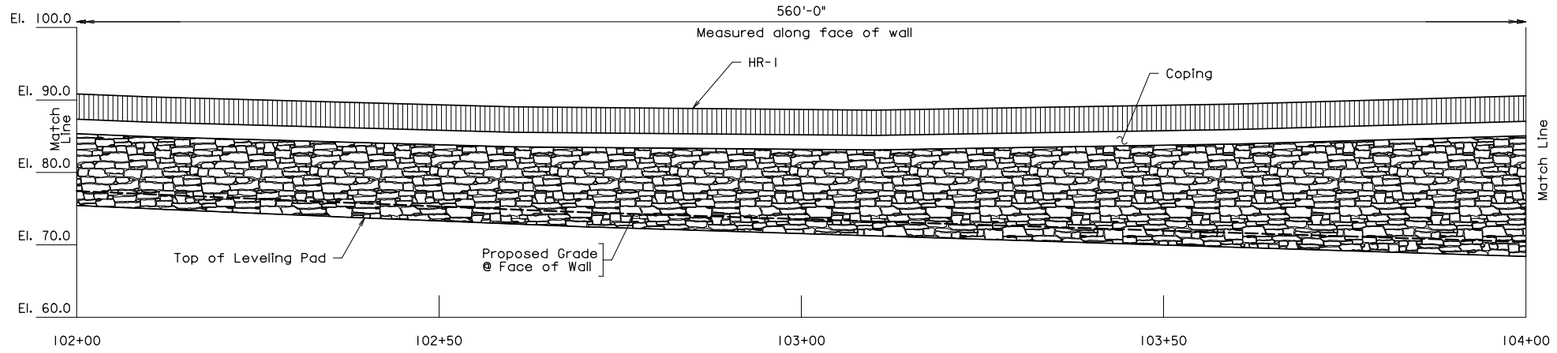
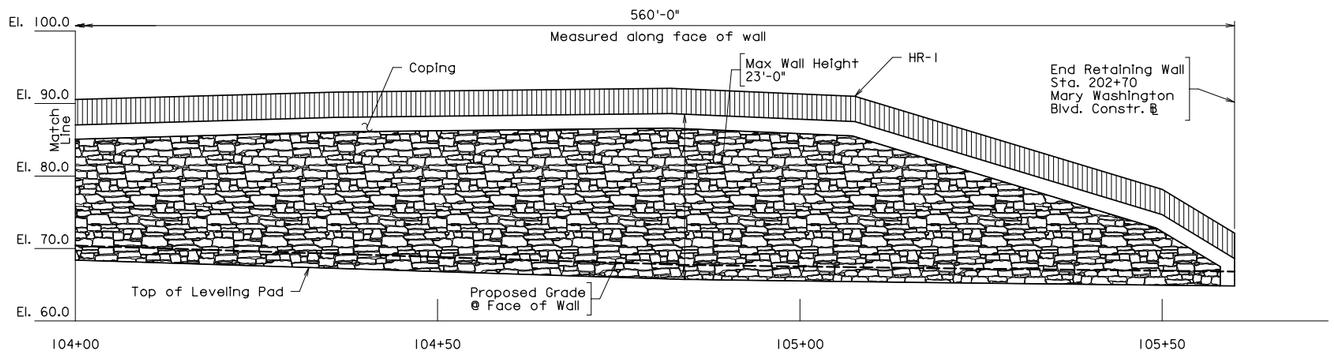
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		639	U000-111-233, C501	24



ELEVATION (FRONT FACE)



ELEVATION (FRONT FACE)

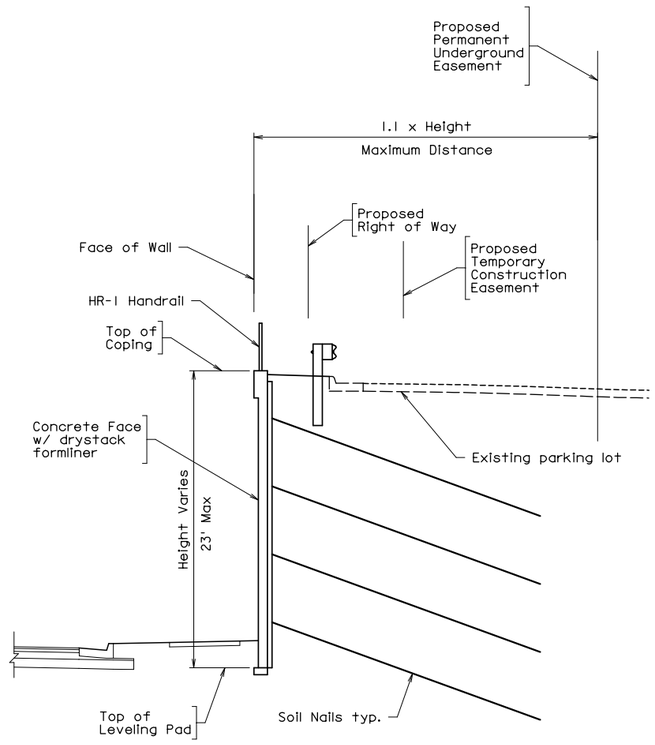


ELEVATION (FRONT FACE)

Notes:

Leveling pad not shown. Top of pad shall be constructed a minimum of 2'-0" below proposed grade.

Face of wall between bottom of coping and top of leveling pad shall recieve cast-in-place formliner architectural treatment of a pattern similar to New England Drystack.



WALL TYPICAL SECTION

Scale: 3/16" = 1'-0"

TECHNICAL PROPOSAL CONCEPT PLANS

CORMAN CONSTRUCTION

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COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SOIL NAIL RETAINING WALL BEGINNING @ STA. 178+55 RT. FALL HILL AVE CONSTR. ℄

No.	Description	Date
	Revisions	

Designed: WRA
Drawn: WRA
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Date: Dec. 2013

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Scale: 1" = 10'-0" unless otherwise noted.

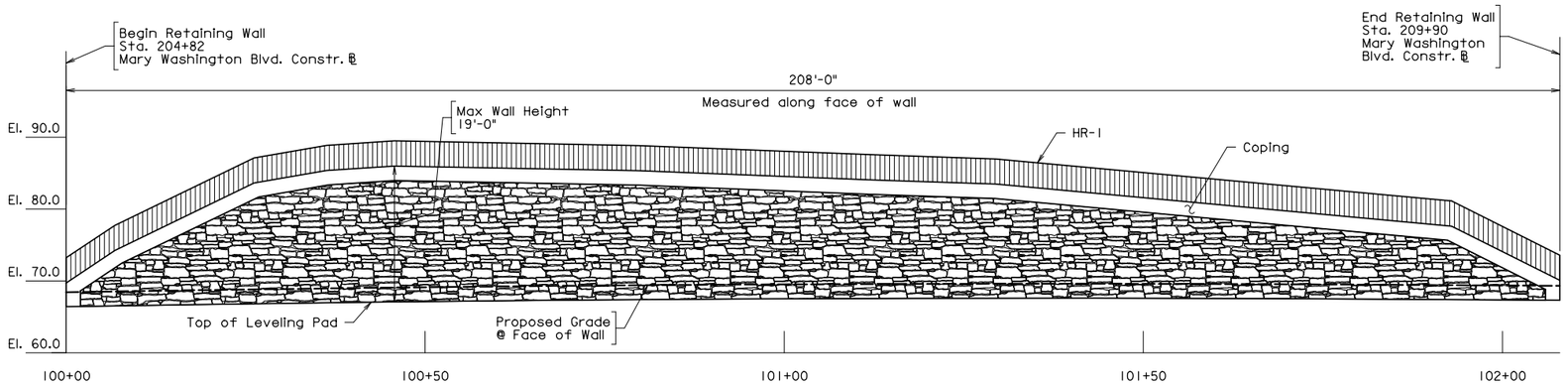
N:\DB45007\CADD\Bridge\Wall_Plan Sheet 1.dgn

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		639	U000-111-233, C501	25

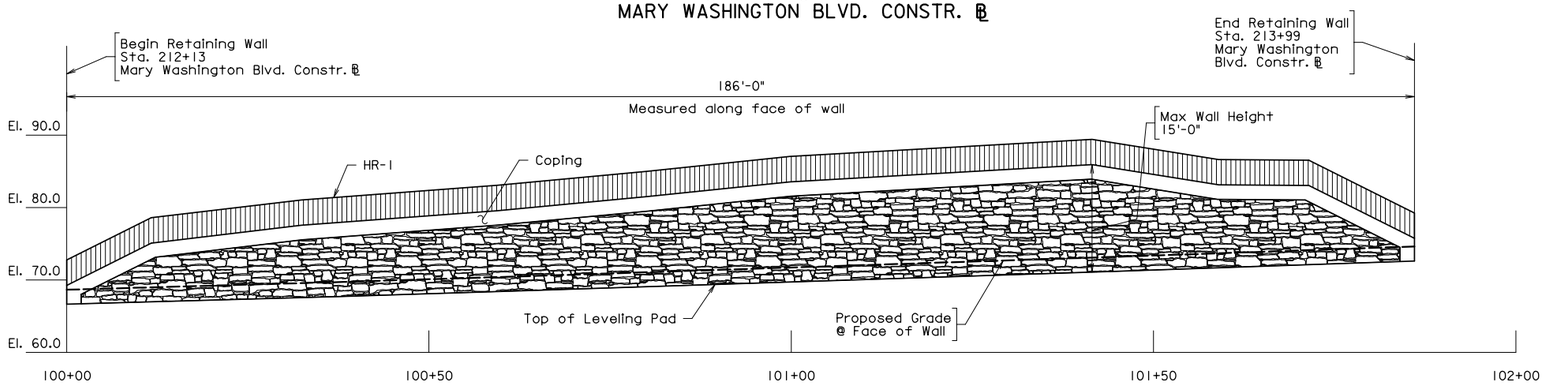
Notes:

Leveling pad not shown. Top of pad shall be constructed a minimum of 2'-0" below proposed grade.

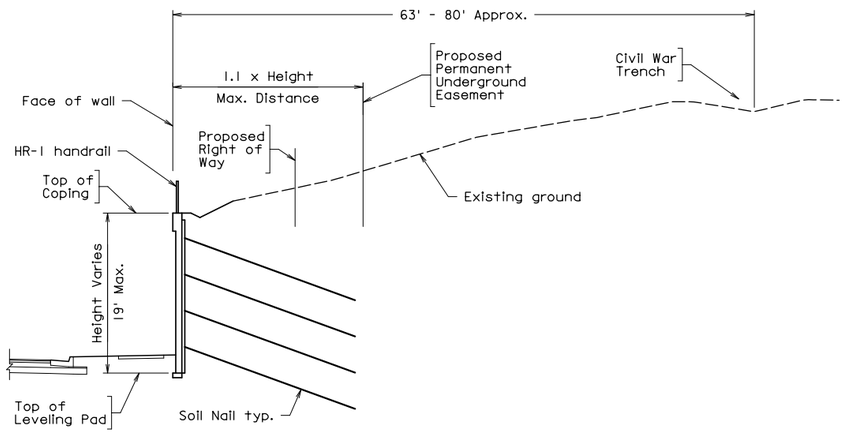
Face of wall between bottom of coping and top of leveling pad shall recieve cast-in-place forminer architectural treatment of a pattern similar to New England Drystack.



ELEVATION (FRONT FACE)
@ STA. 204+82 RT.
MARY WASHINGTON BLVD. CONSTR. ℄



ELEVATION (FRONT FACE)
@ STA. 212+13 RT.
MARY WASHINGTON BLVD. CONSTR. ℄



WALL TYPICAL SECTION

Scale: 1/8" = 1'-0"

Scale: 1" = 10'-0" unless otherwise noted.

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

TECHNICAL PROPOSAL CONCEPT PLANS

CORMAN CONSTRUCTION

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COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SOIL NAIL RETAINING WALLS @ STA. 204+82 & STA. 212+13 RT. MARY WASH. BLVD. CONSTR. ℄

No.	Description	Date
	Revisions	

Designed: WRA
Drawn: WRA
Checked: WRA

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Sheet No.: 25 of 25

N:\DB45007\CADD\Bridge\Wall_Plan Sheet 2.dgn

CORMAN CONSTRUCTION

WR&A