Technical Proposal - Volume I
Design-Build I-64 Widening and
Route 623 Improvements
Goochland and Henrico Counties, Virginia

State Project No.: 0064-964-110, P101, C501, B610-B614, B617, B616, D601-D606
Federal Project No.: NH-064-2(150)
Contract ID Number: C00070542DBSS5

May 30, 2013
4.1 Letter of Submittal

in conjunction with
HAND DELIVERED

May 30, 2013

Stephen D. Kindy, PE
Virginia Department of Transportation (VDOT)
1401 East Broad Street
Annex Building, 8th Floor
Richmond, VA 23219

RE: Request for Proposal
Design-Build I-64 Widening and Route 623 Interchange Improvements
From: 0.99 Miles West of Route 623 (WB-Route 622, EB-Route 623)
To: 0.38 Miles West Route 271 (Pouncey Tract Road) in Short Pump
Goochland County and Henrico County, VA
State Project No.: 0064-964-110, P101, RW201, C501, B610-B614, B616, B617, D601-D606
Federal Project No.: NH-064-2(150) / Contract ID Number: C00070542DB55

Dear Mr. Kindy:

Corman Construction, Inc. (Corman) is submitting 10 identical Technical Proposals and one CD-ROM containing the entire proposal in a single PDF file to provide design-build services for the I-64 Widening and Route 623 Interchange Improvements project. Corman has thoroughly reviewed the RFP, Addendums 1 and 2, visited the project site, and attended the mandatory meetings.

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

4.1.2 Corman hereby declares if selected, to enter into a contract with VDOT for the project per the RFP.

4.1.3 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 this Technical Proposal is submitted to VDOT.

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

4.1.5 Principal Officer for Corman: Arthur C. Cox, III, Vice President of Corman Construction, Inc., 12001 Guilford Road, Annapolis Junction, Maryland 20701; 410-792-9400, x235 (Office) / 240-882-3973 (Cell).

4.1.6 Substantial Completion Date: 11/20/15 / Final Completion Date: 11/20/15

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

4.1.8 Certification Regarding Debarment Forms are attached in the Appendices.

4.1.9 Our Technical Proposal is fully compliant with the Design Criteria Table and all other requirements 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 shown on the RFP plans with the exception of permanent and temporary easements and that our design concept does not require Design Exception and/or Design Waivers unless they are identified or included in the RFP or Addendum.
Our Design-Build Team is enthusiastic about the opportunity to participate in the design-build process for the I-64 Widening and Route 623 Interchange Improvements project and can complete this project on time and within budget. Corman and RK&K have the leadership, skills and shared core values to assist VDOT in delivering projects that set the standards for others to follow.

Sincerely,

CORMAN CONSTRUCTION, INC.

[Signature]

Arthur C. Cox, III, Vice President
4.2 Offeror's Qualifications
4.2 OFFEROR’S QUALIFICATIONS

The Corman Design Build (DB) Team confirms that the information contained in our SOQ remains true and accurate in accordance with Section 11.4. The organizational chart narrative as provided in our SOQ is wholly incorporated into this Technical Proposal for reference. The organizational chart below has been updated (as shown in red) to include the replacement of our Wetland Delineation and Environmental Permitting Coordinator, Tom Heil (not a key personnel member) who is no longer employed by RK&K. We propose to assign Justin Reel of RK&K to this full time Non Key Staff position.

The Corman DB Team Organizational Chart below illustrates the functional relationships, our “chain of command” and notes Key Personnel team members. Solid lines identify the reporting relationships of our team members in managing, designing and constructing the project, and illustrate clear reporting lines from the DBPM to the design and construction team. Dashed lines represent indirect reporting and obligations to the owner and/or Corporate Management. The chart also shows that a clear separation exists between QA and Construction QC inspection and field/laboratory testing.
4.3 Design Concept
4.3 DESIGN CONCEPT

4.3.1 Technical Approach

During the development of our technical proposal and preliminary plans the Corman DB Team evaluated numerous options to improve maintainability of the final product, reduce impacts to the environment as well as the traveling public and reduce cost. The more significant enhancements are shown in the following table and are explained in more detail in the following written sections.

### Design Enhancements to the RFP Concept

<table>
<thead>
<tr>
<th>Description</th>
<th>Location</th>
<th>Positive Impacts</th>
</tr>
</thead>
</table>
| Widen Ramps A & B to the outside in lieu of widening to both sides. | I-64 west and east bound off-ramp to Route 623 | ✓ Minimizes environmental disturbance by limiting grading to one side  
✓ Shorter construction duration  
✓ Lower construction cost |
| Replace the existing three span bridge with a new single span structure | I-64 west and east bound | ✓ Lowest initial construction costs  
✓ Lowest long term maintenance costs  
✓ Shorter construction duration  
✓ Enhanced Scour Protection  
✓ New structure meets all current standards  
✓ Remove piers from floodway |
| Utilize walls in lieu of box culvert extensions | All box culverts | ✓ Minimizes impacts to Wetlands & Streams  
✓ Lower construction cost  
✓ Shorter construction duration  
✓ Reduced loading on existing culverts |

### 4.3.1.1 Roadway Design Concept:

The I-64 improvements begin approximately 1.0 miles west of Route 623 and continue approximately 4.5 miles east to 0.4 miles west of Route 295 (Pouncey Tract Road). The primary purpose of this project is to extend the three-lane segment of I-64 further to the west so that a minimum of three continuous lanes are provided from Richmond to the Route 623 exit. With the additional through lane, full-depth shoulders will be provided to the left and right. At the Route 623 exit, the westbound ramp turn lanes will be extended to handle turning movements at the signalized ramp terminus. The existing signal at the intersection of the westbound ramps and Route 623 will be upgraded from signals on span wire to mast arms. The turn lanes on the eastbound exit ramp from I-64 to Route 623 will also be extended. This ramp will remain unsignalized. Route 623 will be widened to create a left turn bay for traffic traveling south on Route 623 to I-64 eastbound along with shoulders and guardrail.
There are several design exceptions and waivers that have been approved for the project. These include a design waiver for the pavement transition on Route 623 between the existing bridge and the eastbound ramp termini; a design waiver for the skew of the existing bridges along I-64; a design exception for the shoulders on the two existing I-64 bridges over Little Tuckahoe Creek as well as the vertical clearances for the Route 623 bridge over westbound I-64; the Route 623 bridge over eastbound I-64 and the Route 288 bridge over eastbound I-64; a design exception for the eastbound and westbound I-64 right (outside) shoulder width; and a design exception for the existing superelevation along westbound I-64 from 0.99 miles west of Route 623 to 0.38 miles west of Route 295.

I-64 is classified as a Rural Interstate and will be designed to GS-1 Standards. This section of I-64 currently has an ADT of 48,313 that is predicted to grow to an ADT of 73,900 by 2036. Trucks make up 13% of this traffic. Design speed is 75 MPH and maximum superelevation rate is 8%. Route 623 is classified as a Rural Collector and will be designed to GS-3 Standards. Route 623 currently has an ADT of 11,405 that is expected to grow to an ADT of 17,450 by 2036. Trucks make up approximately 5% of this traffic. Design speed is 50 MPH and maximum superelevation is 8%. The interchange ramps will be designed to GS-R Standards with a design speed of 35 MPH and 8% maximum superelevation. The attached plans, in Volume II depict the design features in additional detail and depict the limits of construction, horizontal and vertical geometry, number and width of lanes and shoulders, typical sections, proposed hydraulics and stormwater designs, any utility relocations and structures. All proposed work will be located within the existing right of way limits and no new design waivers or exceptions will be required in addition to those already approved.

We plan to widen Ramp A&B by adding new pavement to the outside (right) and maintaining the existing hinge point on the inside (left) edge of travelway. This is accomplished on Ramp A by extending the existing departure/exit radius of 792’ to move the alignment right, matching the proposed four foot paved shoulder up with the existing edge of travelway. This prevents the need to perform grading operations on the inside of the ramp, minimizes environmental disturbance, shortens construction duration and is less impactful to motorists. It also results in a full depth paved left shoulder. Ramp B will also be widened to the outside. The existing 16’ lane will be narrowed to 13’ and the right side is widened to create two 13’ lanes.

**Stormwater Management Design Concept:** The stormwater management strategy in the RFP documents indicates this project falls under the guidance of the VDOT Stormwater Management Program Advisory (SWPA) 12-01, where water quality treatment must be provided to the maximum extent practicable. A preliminary assessment of water quality needs in the RFP showed that a minimum of 29 lbs/year of phosphorus removal is required of the project. The RFP documents indicate this was intended to be achieved through the credits available at an existing extended detention basin in the northwest quadrant of the Route 288/I-64 interchange, and with the installation of new water quality swales in the median of I-64. We will be following the same overall concept to meet the 29lbs/year removal requirement.

The stormwater management strategy of using water quality swales is similar to the RFP plan. We have been able to reduce the linear foot distance of water quality swales by 11% over the RFP approach. This was done by determining the minimum linear foot distance of water quality swale needed to provide the required water quality volume to meet the requirements. Reducing the limits of water quality swale distance will reduce construction costs and long term future maintenance needs.
4.3.1.2 Conceptual Structural Plans

**Bridge Design and Construction Concept:** The RFP describes the bridge work as primarily a superstructure replacement project. We have approached this project with a more global view to provide not only a new widened superstructure, but also a structure with minimal future maintenance needs and a long service life.

Based on our review of the RFP and supporting documents, we have a full understanding of the design requirements and other factors affecting the design of these bridges. These requirements include all loading requirements included in the 6th Edition of the AASHTO LRFD Bridge Design Specifications, as well as additional load to account for future wearing surface and construction tolerances, in accordance with the RFP and VDOT I&I MS&B-80.4. Additional factors influencing the design of these bridges are the necessary repairs to the existing abutments and piers, as described in the February 2011 inspection reports for these structures. We further recognize the need to design the bridges so that deck joints may be eliminated. This would be accomplished by the use of a superstructure that is continuous over the existing piers as well as utilizing deck slab extensions at the abutments.

In investigating the design of superstructure replacement and widening, there are several challenges that suggest the proposed configuration is not the most efficient or economic option in the long run. The existing span arrangement of three approximately equal spans results in an inefficient span arrangement for a continuous superstructure. Additionally, the continuous span arrangement results in higher reactions at the piers than were previously designed for. This, coupled with the increased live load under the LRFD Specifications and the additional wearing surface and construction loads prescribed by VDOT, means that significantly more load will need to be carried by the existing piers, and it is unlikely that these piers, even with rehabilitation, will be able to meet current LRFD standards without extensive upgrading.

Another issue to face is determining efficient beam spacing. The existing beam spacing of 7'-9” is not the most efficient option for the bridge cross-section, and material savings could be found if a larger beam spacing was utilized. However, the use of different beam spacing would load the existing pier caps in locations different from the original loading configuration, and may introduce a moment at locations that are not designed for. Lastly, all of the existing substructure units require some level of repair, including galvanic anode units to prevent further deterioration of the rebar. These repairs are only effective for short periods of time, and cannot ensure that substructure will have a remaining service life equal to the new superstructure.

Based on these challenges to maintaining the existing substructure, and our desire to provide VDOT with efficiently design bridges with minimal maintenance requirements and a long service life, we have determined it is in the best interest of VDOT and the design build team to provide a new single span bridges in lieu of widening and rehabilitating the existing structures. In order to determine the most efficient span length feasible, we started with a full Hydrologic and Hydraulic Analysis of the bridge area.
The proposed new bridge design offers several advantages to simply widening and rehabilitating the existing superstructure. A new single span bridge can utilize an efficient span length and beam spacing, resulting in a reduced material cost over the replacement option. A new bridge also offers reduced future maintenance details as there are no piers to be maintained or collect floating debris. A completely new bridge also eliminates the need for rehabilitation and continued maintenance to the existing piers and abutments.

In order to ensure that the proposed structure has adequate scour protection, our design team conducted a full scour analysis as part of the preliminary design. Utilizing a conservative sieve analysis, the design team calculated the scour depth and has detailed the bridge appropriately. Specifically, the steel piles will be rock socketed into competent rock and riprap will be placed in front of and wrapping around the abutments. A 500 year storm event was the design storm for this scour detailing.

The proposed new structures will be two simple span steel girder bridges. The abutments maintain the existing 48 degree skew to allow for easier phased construction. With the Design Exception given as part of the RFP documents, deck slab extensions will be utilized at the abutments, allowing for the bridges to be jointless. We have also designed the closure pour between the stages of construction to minimize future water infiltration, thus providing a longer life to the bridge deck. Our pre-bid analysis will be fully evaluated after award, during the field investigation and final design stages to ensure there are no fatal flaws.

Weathering steel, as prescribed in FHWA Technical Advisory T5140.22 will be utilized to not only provide an efficient structure, but one with little to no painting requirements in the future. Corrosion resistant steel, as described in I&IM S&B-81 will also be used to further protect the structure and provide a very long service life. Low permeability concrete will be used for all concrete elements of the bridge, further protecting it from adverse effects from the weather and protecting it from de-icing salt and chemicals. Overall, we will deliver to VDOT well-designed, 100% new bridge structures with as minimal maintenance needs as currently possible, thus ensuring a long future service life.

Stream and Wetland Avoidance Concept: The RFP plans for the I-64 widening calls for modifications to existing box culverts at three different locations along the project. Without modifications, a 2:1 slope at the edge of the widened roadway would impact the streams at these locations. As an alternative to extending the culverts, we propose to evaluate the use of MSE retaining walls or similar systems to support the slopes adjacent to the widened roadway and minimize both stream and wetland impacts. Following is a table describing the potential walls and their reduction in stream and wetland impacts.
As shown in the representative cross-section below, a MSE or similar wall can be constructed without impacting the existing culvert or wingwalls. No de-watering of the culverts or construction activities within the streams would be necessary to build the walls as it would be for construction of culvert extensions. Wall construction can also be accomplished with minimal cut required at the existing slope for the installation of the MSE straps.

<table>
<thead>
<tr>
<th>Direction</th>
<th>Station</th>
<th>Approx. Height</th>
<th>Approx. Length</th>
<th>Reduction in Stream Impact</th>
<th>Reduction in Wetland Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westbound</td>
<td>536+00</td>
<td>13’</td>
<td>112’</td>
<td>~45’</td>
<td>~230 SF</td>
</tr>
<tr>
<td>Westbound</td>
<td>649+50</td>
<td>12’</td>
<td>118’</td>
<td>~17’</td>
<td>0 SF</td>
</tr>
<tr>
<td>Eastbound</td>
<td>649+70</td>
<td>13’</td>
<td>127’</td>
<td>~15’</td>
<td>~60 SF</td>
</tr>
<tr>
<td>Westbound</td>
<td>682+55</td>
<td>15’</td>
<td>110’</td>
<td>~60’</td>
<td>~ 50 SF</td>
</tr>
<tr>
<td>Eastbound</td>
<td>682+80</td>
<td>13’</td>
<td>107’</td>
<td>~60’</td>
<td>~ 50 SF</td>
</tr>
</tbody>
</table>

The proposed alternative will provide the same slope stability as a culvert extension option while providing several additional benefits. *The most important advantage to using a retaining wall structure is that it will lessen the environmental impacts to wetlands and streams.* The use of MSE walls is also a more cost effective option that will allow for faster construction. Lastly, the proposed retaining wall systems will result in reduced loads on the existing culverts as compared to the preliminary design provided in the RFP documents. During final field investigations and design, the assumptions made above will be verified to confirm the cost and environmental appropriateness of our suggested direction.
4.4 Project Approach
4.4 PROJECT APPROACH

4.4.1 Environmental Management

Our Environmental Team is adept at navigating the environmental process with VDOT and the various regulatory and permitting agencies including U.S. Army Corps of Engineers (USACE), Virginia Department of Environmental Quality (VDEQ), U.S. Fish and Wildlife Service (FWS) and Virginia Department of Game and Inland Fisheries (VDGIF). The Team’s overall approach to environmental risk management is 100% compliance following a detailed avoidance, minimization, and mitigation process. This process is built upon a foundation of accurate resource identification and thorough understanding of the rules and regulations protecting each resource. Early resource identification and Rare Threatened and Endangered Species (RTE) coordination will ensure we are aware of all the environmental design issues and inclusion of realistic permitting timeframes and Time-of-Year (TOY) restrictions in the design and construction schedule will substantially reduce the possibility of delays. Early informal meeting with the approval and regulatory agencies will ensure complete understanding of the nuances of permitting issues specific to our project, and regular consultation as the project progresses will eliminate surprises and risk.

Early design consideration of access, staging, and construction methodologies will ensure we have the minimum possible comprehensive Limit of Disturbance (LOD) for permitting purposes, while minimizing the risks associated with modifications during construction. Vigilance and awareness of environmental resources and the permitted limits of construction are hallmarks of our Team, which will eliminate encroachment. Permit modifications carry risk and will be avoided to the extent possible by consulting early and often with the construction team. Early and open communication with the regulatory agencies will keep risks to a minimum.

Our Environmental Team has walked the site and reviewed all the provided documentation. We understand the environmental issues this project faces. The following table summarizes these issues, our understanding and our approach to mitigation.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Understanding</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NEPA Re-evaluations</td>
<td>Provide information for VDOT to complete NEPA re-evaluations, including changes in project footprint or environmental conditions. VDOT will prepare re-evaluations at the ROW and PS&amp;E milestones.</td>
<td>✓ Project scope and footprint changes will be avoided to eliminate or substantially reduce the need for additional studies (including studies for historic properties).  ✓ The Team will provide accurate and timely identification of any changes to ensure VDOT completes final NEPA documentation easily, thereby avoiding delays.</td>
</tr>
<tr>
<td>2. Commitment Compliance</td>
<td>Provide all information to VDOT necessary for completing the Environmental</td>
<td>✓ Carry out all necessary environmental commitments and provide documentation of</td>
</tr>
</tbody>
</table>
### Certification/Commitments Checklist

VDOT will complete the Checklist prior to releasing the project for construction.

- Monitor environmental compliance, permitting and mitigation requirements for all environmental issues using a tracking database.

### 3. Rare, Threatened and Endangered Species (RTE) Understanding

Three species of concern have been identified: James Spiny Mussel, Small Whorled Pogonia, and Smooth Coneflower. VDOT has or is in the process of completing studies to determine impacts to these species. The Team is responsible for requesting the latest RTE information and conducting studies and analysis required for any additional species. All RTE coordination will be provided to VDOT prior the project being released for construction.

- Project scope and footprint changes will be avoided to ensure VDOT’s RTE surveys remain valid for already identified species.
- RTE coordination will be initiated immediately upon NTP to avoid delays in identifying any potential new species.
- Time of year restrictions for general warm water species spawning (15 April – 15 July) have been anticipated and are included in the project schedule.

### 4. Wetlands and Water Quality Understanding

The Team is independently responsible for securing all 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 required in the RFP.

- The Team will complete early and accurate resource documentation.
- Avoidance and minimization of resource impacts through design enhancement is a primary goal. Anticipating a worst case scenario the Team has factored time for securing individual permits from USACE and VDEQ.
- Construct walls at median box culvert extensions to eliminate / reduce Stream or wetland impacts
- Mitigation will be secured from banks with approved credits following US Army Corps of Engineers procedures.

### Environmental Permitting

Our Team has successfully secured environmental permits on numerous other VDOT transportation projects and has a complete understanding of the required documentation, evaluation, analysis, and coordination necessary to secure critical environmental permits as quickly as possible. Following a design approach of avoidance first and minimization second, the team will look to reduce impacts below the thresholds of 1/3 acre and 300 linear feet per stream crossing in order to qualify for Virginia Water Protection General Permit 3 (Linear Transportation). However, taking a conservative approach the Team has assumed that individual permits will be required from both USACE and VDEQ for scheduling purposes. Mitigation bank credits from primary banks in the same watershed will be sought to compensate for any unavoidable impacts to wetlands and streams. A listing of the anticipated required environmental evaluations and permits follow along with the approving agency and their approximate review period.
### Anticipated Environmental Permits

<table>
<thead>
<tr>
<th>Evaluation/Permit/Approval</th>
<th>Regulated Resource/Approval Agency</th>
<th>Approx. Review Period</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmed Jurisdictional Determination</td>
<td>Wetlands, other Waters of the US, State Waters/USACE</td>
<td>3 months</td>
<td>Required prior to VWP General Permit or Individual Permits</td>
</tr>
<tr>
<td>Threatened, and Endangered Species</td>
<td>Federally Listed Species/DCR, USFWS</td>
<td>1 month</td>
<td>Obtain survey results from VDOT; verify from USFWS and DGIF databases that no other species are potentially present.</td>
</tr>
<tr>
<td>VWP General Permit WP3 “Linear Transportation Projects”</td>
<td>Wetlands, other Waters of the US, State Waters/DEQ</td>
<td>6 months</td>
<td>Potentially applicable if longitudinal stream impacts are reduced to less than 300 feet at each crossing.</td>
</tr>
<tr>
<td>Virginia Water Protection (VWP) Permit</td>
<td>Streams/DEQ</td>
<td>6 months</td>
<td>Includes 401 Certification</td>
</tr>
<tr>
<td>Individual Wetland Permit</td>
<td>Wetlands, other Waters of the US, State Waters/USACE</td>
<td>6 months</td>
<td>Requires “joint application submission through VMRC”</td>
</tr>
<tr>
<td>Virginia Stormwater Management Program Permit (VSMP)</td>
<td>Streams/DCR</td>
<td>1 month</td>
<td>Submitted with SWM, ESC, SWPPP plan prior to land disturbance activities. Coordination is only to VDOT unless a SWM BMP is proposed that is not a standard VDOT practice.</td>
</tr>
</tbody>
</table>

Per the RFP, the Team will be the permittee for all required environmental permits and will take the lead in all permit related agency coordination. The Team will work collaboratively with the regulatory agencies to determine permitting approach, achieve consensus on appropriate avoidance and minimization, ultimately secure required permits using limits of construction that are both feasible and cost effective. Internally the Team’s Permit Group will consist 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 between our permit specialists and designers and construction specialists are already underway and will continue in earnest following NTP. Collaboration with the regulatory agencies will begin during the JD confirmation field walk with USACE and VDEQ representatives. During the field walk, when reviewing each feature, avoidance and minimization possibilities and constraints will be discussed. Typically, additional field visits with the resource agencies are
not necessary and additional collaboration can be done over the phone or by email as design evolution requires.

A specific example of avoidance and minimization being discussed for this project is the extension of triple cell box culverts located at Station 682+50 carrying an unnamed tributary to Little Tuckahoe Creek under I-64. By essentially raising the headwalls at the existing box culvert in the median, stream impacts can be avoided and some natural median drainage may be maintained to reduce impacts. Another location of concern is the existing bridge crossing of Tuckahoe Creek. Construction methods in this location will ultimately determine the extent of temporary and/or permanent impacts. The Team’s Designers and Construction Specialists will work together to develop appropriate alternative designs including removal of all piers to minimize impacts to the environment while maximizing constructability.

4.4.2 Utility Coordination Approach

Our Utility Team has longstanding relationships and frequently works with the utility companies having facilities within the project area, including Goochland County, Henrico County, City of Richmond, Verizon, Dominion Power, and Comcast. Our team members performed field reconnaissance and identified the potential relocation impacts. Our utility coordination approach is a well-developed and effective four-stage process based upon previous experiences with VDOT and affected utilities on this project. Our most recent and relative experience is on the US 250/McIntire Road interchange project in Charlottesville where most of the same franchise utilities have the same type of utilities present.

There was substantial progress during the pre-award phase for this new project in identifying potential utility conflicts and determining if they can be avoided, mitigated through design changes, or must be relocated. Contacts were made with all utilities / providers that currently have facilities within the work area. Meetings generated detailed discussions about their utilities, specific features, utility maps, as-built drawings, and relocation criteria, where applicable. Our Utility Matrix later in this section details our research.

Utility Coordination, Relocation, and Mitigation Strategy

The Corman DB Team will utilize the following project proven ‘Four-Stage Process’ outlined below to ensure utilities do not adversely impact the projects schedule or cost.

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 \((\text{noting that there may be more than one provider for a particular utility in some cases})\);
- Obtained drawings of the utility’s facilities in the area of interest;
- Identified each utility point of contact(s);
- Held Technical Review Meeting with all utilities having facilities within the project limits; and
- Obtained additional information; such as, as-built drawings with profiles, elevation data, materials, procedures for managing relocations from design through construction and acceptance.

The Corman DB Team has already performed this first step and developed alternatives to resolve conflicts as shown in the Public Utility and Private Utility Matrices. If the conflict is unavoidable, the relocation scope was determined and costs incorporated into the proposal pricing.
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Contract ID #: C00070542DB55

Stage 2 – After Contract 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 them with the Utility Design Team. The Corman DB Team will manage scheduling, materials, traffic control, outages, and all other elements of the relocation to minimize public disruption in the work area;
- Within 45 days of Notice to Proceed, Corman’s Utility Team meets with VDOT’s Regional Utilities Office to review what is required with each utility submittal. Preparation for the meeting includes a thorough review of the concerns relative to the project to be addressed;
- Within 90 days of Notice to Proceed, a Preliminary Utility Status Report is submitted identifying utilities within the project limits, the conflicts and proposed resolutions, time impacts, cost responsibilities, and supporting documentation;
- The Corman DB Team will conduct a UFI as practical to discuss the project with all utility owners. UT-9 forms will be prepared for each utility owner as a means of resolving any questions about relocations required and responsibility for the relocation cost;
- Relocation plans, if required, certified by the Corman DB Team, will be submitted to VDOT for review / approval prior to the start of the relocation.

Stage 3 – Accomplish Relocations / Conflict Resolutions

The Corman DB Team, utility companies, or both, will complete any potential relocations per the approved design. *Should the affected utility companies not be available to quickly relocate their utilities, the Corman DB Team will, with the utilities’ approval, use our own forces to relocate and keep the Project moving forward.*

Stage 4 – Final Completion

The Corman DB Team certifies to VDOT that conflicts were resolved, relocations accomplished, and as-builds completed and submitted per VDOT and utility owner requirements.

Mitigation Strategies: The best plan of attack on unexpected utility delays is precision planning and scheduling with schedule reserves to mitigate potential impacts on the overall construction schedule. This means assigning one lead person responsible from the Corman DB Team for the entire utility process, as well as fast start after Notice to Proceed to physically identify and precisely locate every surface and subsurface utility along the project limits.

As illustrated on our Organizational Chart, Dave Plum, PE will lead the utility efforts coordinating with Mark Warden for field location service survey and our Construction Utility Manager, Anmarie Collins. Corman expects to subcontract with Utility Professional Services, Inc. to mitigate dry utility impacts during
design and construction. The entire Team will utilize our Four-Stage Process outlined above to get the job done.

*During this pre-award phase, the Corman DB Team has proactively met the utilities identified and made personal contact with ALL known utilities in the corridor, and integrated data from these contacts into the Corman DB Team’s conceptual plans and schedule.* These designs are refined with the hard data from the utility database and define conflicts and potential conflicts identified.

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 strategies include overtime work and overlapping relocation work of several utility companies, such as common excavation for utilities in the same location. This strategy would reduce schedule and traffic impacts.

A significant impact is discovering an unknown utility within the project limits. Although we have identified several additional utilities not shown on the RFP plans, there is high confidence in the remaining information obtained from the major public utilities for this location on one of the most important interstate corridors in the state. However, our Utility Team will proactively search for additional unknown utilities through initial field walks. Telltale signs can be unmarked valves or pull boxes, cleared tree lines or long narrow strips of replaced asphalt. If any of these surface, additional research and exploration will be conducted prior to the plan submittal for this area.

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

Even though the majority of the work is being performed on an interstate highway with limited utilities, the Corman DB Team will exercise extreme care during the initial stages of construction when it is most probable that such facilities could be encountered. This is especially true at the Route 623 interchange where we will be widening the ramps and installing a new traffic signal. If or when such an event happens, the Corman DB Team will contact the VDOT Project Manager and CRO Transportation Operations Center (TOC), and if necessary cease operations until an impact assessment has been performed. Again, immediate action is required to integrate any additional relocations into the Master Scheduling Plan, using slack time and/or other acceleration process to mitigate adverse scheduling impact.

**Utility Coordination, Relocation, and Mitigation Strategy**

**Mitigation Strategies:** The Corman DB Team’s work up to this point has confirmed there are no utility conflicts within the project limits and therefore mitigation is not considered to be a major factor in the I-64 widening project.

**Anticipated Utility Relocations:** The RFP Concept Plans required one fire hydrant to be relocated farther from the travel lanes at Ramp B from I-64 EBL to Rte. 623. However, our designers have eliminated the need for this relocation. The associated valves with this branch connection will require adjustment to match pavement finish grades.
## Public Utility Matrix

### PUBLIC UTILITY MATRIX I-64 Widening

<table>
<thead>
<tr>
<th>Station</th>
<th>Utility Size &amp; Material</th>
<th>Utility Owner</th>
<th>Prior Rights</th>
<th>Conflict?</th>
<th>Description</th>
<th>Proposed Mitigation or Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>538+40</td>
<td>8” HDPE San FM</td>
<td>Goochland Co</td>
<td>Yes</td>
<td>None</td>
<td>Sanitary Force Main installed by HDD</td>
<td>None required</td>
</tr>
<tr>
<td>552+95</td>
<td>16” DI W</td>
<td>Goochland Co</td>
<td>Yes</td>
<td>None</td>
<td>Water Transmission Main WTM is in three separate 30” steel casing pipes under main line and ramps</td>
<td>None required</td>
</tr>
<tr>
<td>62+50 L Rte. 623</td>
<td>16” DI W</td>
<td>Goochland Co</td>
<td>Yes</td>
<td>None</td>
<td>The 16” pipe is in a 30” casing under the off ramp.</td>
<td>None required</td>
</tr>
<tr>
<td>620+20</td>
<td>24” DI San Sewer</td>
<td>Goochland Co</td>
<td>Yes</td>
<td>None</td>
<td>Gravity Sewer in 48” Steel Casing U/S Inv. =152.95, D/S Inv. =150.35 Pavement is approx. at Elev. 176</td>
<td>None required</td>
</tr>
<tr>
<td>649+20</td>
<td>15” Conc. San. Sewer</td>
<td>Henrico Co</td>
<td>Yes</td>
<td>None</td>
<td>Capped gravity sewer. Apparently for future use.</td>
<td>None required</td>
</tr>
<tr>
<td>683+10</td>
<td>12” Conc. San. Sewer</td>
<td>Henrico Co</td>
<td>Yes</td>
<td>None</td>
<td>Capped gravity sewer. Apparently for future use.</td>
<td>None required</td>
</tr>
<tr>
<td>687+10</td>
<td>16” DI W</td>
<td>Henrico Co</td>
<td>Yes</td>
<td>None</td>
<td>Two separate 30” Casing pipes installed under I-64 as part of N. Gayton Rd. project</td>
<td>None required</td>
</tr>
<tr>
<td>710+50</td>
<td>10” Conc. San. Sewer</td>
<td>Henrico Co</td>
<td>Yes</td>
<td>None</td>
<td>Capped gravity sewer. Apparently for future use.</td>
<td>None required</td>
</tr>
<tr>
<td>742+70</td>
<td>24” DI W</td>
<td>Henrico Co</td>
<td>Yes</td>
<td>None</td>
<td>24” WM installed in the 36” steel casing pipe.</td>
<td>None required</td>
</tr>
<tr>
<td>742+90</td>
<td>12” Steel Gas Main</td>
<td>City of Richmond</td>
<td>Yes</td>
<td>None</td>
<td>Gas main is encased in 20 “ steel casing pipe</td>
<td>None required</td>
</tr>
<tr>
<td>744+50</td>
<td>4” San</td>
<td>Henrico Co</td>
<td>Yes</td>
<td>None</td>
<td>Probably a San. FM</td>
<td>None required</td>
</tr>
<tr>
<td>744+65</td>
<td>24” DI W</td>
<td>Henrico Co</td>
<td>Yes</td>
<td>None</td>
<td>24” WM in a 36”steel casing pipe</td>
<td>None required</td>
</tr>
<tr>
<td>Station</td>
<td>Utility Size &amp; Material</td>
<td>Utility Owner</td>
<td>Prior Rights</td>
<td>Conflict?</td>
<td>Description</td>
<td>Proposed Mitigation or Avoidance</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>--------------</td>
<td>--------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>503 + 50</td>
<td>4 overhead electric wires</td>
<td>Dominion</td>
<td>No</td>
<td>None</td>
<td>3 phase electric overhead crossing – 34.5 KV</td>
<td>None</td>
</tr>
<tr>
<td>503 + 50</td>
<td>48 count fiber optic cable and .825 Coax</td>
<td>Comcast</td>
<td>No</td>
<td>None - 23.67' above roadway</td>
<td>CATV overhead crossing</td>
<td>May require tensioning</td>
</tr>
<tr>
<td>503 + 80</td>
<td>48 count fiber optic cable/900 pair copper cable</td>
<td>Verizon</td>
<td>No</td>
<td>None</td>
<td>Copper and fiber optic communication cables</td>
<td>None</td>
</tr>
<tr>
<td>524 + 80</td>
<td>2 overhead electric wires</td>
<td>Dominion</td>
<td>No</td>
<td>None</td>
<td>1 phase electric overhead crossing – 19.9 KV</td>
<td>None</td>
</tr>
<tr>
<td>563 + 40</td>
<td>4 overhead electric wires</td>
<td>Dominion</td>
<td>No</td>
<td>Unknown at this time</td>
<td>3 phase electric overhead crossing – 34.5 KV</td>
<td>If necessary, lines will be re-stretched or replaced</td>
</tr>
<tr>
<td>669 + 80</td>
<td>2 overhead electric wires</td>
<td>Dominion</td>
<td>No</td>
<td>None</td>
<td>1 phase electric overhead crossing – 19.9 KV</td>
<td>None</td>
</tr>
<tr>
<td>710 + 65</td>
<td>4 overhead electric wires</td>
<td>Dominion</td>
<td>No</td>
<td>None</td>
<td>3 phase electric overhead crossing – 34.5 KV</td>
<td>None</td>
</tr>
<tr>
<td>711 + 20</td>
<td>Overhead transmission wires</td>
<td>Dominion</td>
<td>Probably</td>
<td>None</td>
<td>500 KV electric transmission overhead crossing</td>
<td>None</td>
</tr>
<tr>
<td>712 + 15</td>
<td>Overhead transmission wires</td>
<td>Dominion</td>
<td>Probably</td>
<td>Unknown at this time</td>
<td>230 KV electric transmission overhead crossing</td>
<td>None If necessary, lines will be re-stretched or replaced</td>
</tr>
<tr>
<td>712 + 68</td>
<td>7 overhead electric wires</td>
<td>Dominion</td>
<td>No</td>
<td>Unknown at this time</td>
<td>Dual Circuit 3 phase electric overhead crossing - 34.5 KV each circuit</td>
<td>If necessary, lines will be re-stretched or replaced</td>
</tr>
<tr>
<td>745 + 65</td>
<td>4 overhead electric wires</td>
<td>Dominion</td>
<td>No</td>
<td>None</td>
<td>3 phase electric overhead crossing</td>
<td>None</td>
</tr>
<tr>
<td>745 + 65</td>
<td>216 count fiber optic cable and three coax cables</td>
<td>Comcast</td>
<td>No</td>
<td>None 24.84' above roadway</td>
<td>CATV coax and fiber overhead crossing</td>
<td>None</td>
</tr>
</tbody>
</table>
### 4.4.3 Geotechnical

#### Local Geology

The Corman DB Team is comprised of geotechnical professionals with many years of experience in designing and constructing VDOT projects within the unique geologic setting of the I-64 Widening project. The subsurface conditions identified by the Geotechnical Engineering Data Report (GDR) include a general description of both Piedmont and Coastal Plain Geologic Provinces. The project alignment passes through three distinct NE-SW trending geologic formations. From west to east, these include Metavolcanic rocks of the early Paleozoic Era, Sedimentary rocks of the Richmond Triassic Basin, and Petersburg Granite of the middle Paleozoic Era. Tuckahoe Creek flows in a broad, flat floodplain through the middle of the Triassic Basin and is located at the approximate midpoint project alignment.

The near surface soils anticipated include Existing Fill (SC and SM) ranging in thickness from 2 to 4 feet and Piedmont residual soils (SM, SC, ML, and CL) ranging in thickness from about 2 feet to 15 feet. For the Tuckahoe Creek Bridge we anticipate Sandstone rock of the Newark Super Group at a depth from existing ground surface ranging from 20 to 25 feet. Ground water was not encountered in the shallow borings conducted through the alignment as presented in the GDR. Based on previously completed VDOT projects along the alignment we anticipate groundwater depths to range from 15 to 20 feet.

#### Geotechnical Risks and Mitigation Measures

The Project Team’s Geotechnical staff have identified potential geotechnical risks for the project and offers respective mitigation measures. The risks and mitigation measures are summarized below and are also presented in Geotechnical Risk Mitigation Table.

**Potential Unsuitable Soils**

Based on sections of the alignment that cross broad floodplains, and in particular the area of Tuckahoe Creek, there is the likelihood that subgrade soils could be unsuitable for roadway embankment and pavement subgrades. Unsuitable soils typically exhibit natural moisture contents greater than or equal to about 20% of the respective soils optimum moisture content. Subgrade soils classifying as highly-plastic clays and silts (CH and MH) are unsuitable and must be modified in place or removed entirely. Wet, loose and highly-plastic soils pose a risk to the project due to the additional time required to delineate the extent of these soils and the time required to modify or remove and replace these soils with suitable fill.

**To mitigate the potential for unsuitable soils to negatively affect the project schedule, the Project Team will focus early phase geotechnical explorations in the floodplain area around Tuckahoe Creek, other low-lying areas, and portions of the alignment that cross the Triassic Basin geologic formation.**

<table>
<thead>
<tr>
<th>Station</th>
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<th>Description</th>
<th>Proposed Mitigation or Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>745 + 65</td>
<td>144 count fiber optic cable</td>
<td>Comcast</td>
<td>No</td>
<td>None</td>
<td>CATV 144 fiber underground crossing</td>
<td>None</td>
</tr>
<tr>
<td>743+00</td>
<td>600 pair copper cable and 144 fiber optic cable</td>
<td>Verizon</td>
<td>No</td>
<td>None</td>
<td>Copper and fiber optic communication cables</td>
<td>None</td>
</tr>
</tbody>
</table>
The early phase exploration will also focus on laboratory tests of the samples to include natural moisture contents, Atterberg limits, and Standard Proctor tests. The results of these tests will help the Team delineate the lateral extent and depth of unsuitable soils to allow for proactive measures such as soil additives or soil improvement measures to be evaluated during design and early earthwork construction phases.

**Excavatability of Existing Soils**

The proposed alignment crosses two geologic formations including Metavolcanic rocks of the early Paleozoic Era and Petersburg Granite of the middle Paleozoic Era. The Petersburg Granite is deeply weathered with a residuum which varies from coarse sand to clay.

Excavation of subgrade soils along the alignment in these two formations may encounter harder phases of soil and decomposed rock that contain the relict features of the underlying rock. These soils can typically be excavated with conventional earthwork equipment without additional blasting measures. However, based on the close proximity of the Luck Stone Rockville Quarry and our experience in the area, a project risk exists if harder phases of decomposed rock are encountered. Additional measures to excavate these materials, including blasting and ripping, pose a risk to the project schedule.

To mitigate this potential adverse impact, the Project Team will focus on delineating these areas with a combination of test pits and SPT soil test borings. Early identification of these areas reduces the risk to the critical path of the project due to delays that could result in mobilizing different earthwork equipment, preparing blasting and ripping protection measures, etc.

**Settlement of Embankment Fill**

New embankment fills will be constructed for bridge structures crossing Tuckahoe Creek, culvert extensions, and mainline widening. Risks to the project include long-term and post-construction settlement that must be analyzed and designed for by the Project Team.

To mitigate this risk careful consideration of geotechnical investigation field and laboratory testing will be followed. In-situ testing (CPTu, DMT, and PMT) of the on-site soils can be used to compliment traditional SPT soil test borings.

Laboratory testing will include Consolidation testing to supplement traditional standard index testing. Results of these investigations will be critical to identifying both magnitude and time-rate of anticipated settlement at the bridge approaches.

**Global Slope Stability**

Global slope stability of planned cut and fill slopes will be critical for long-term performance of the mainline widening and new embankment fills. Careful consideration of short-term and long-term factors of safety will be required for slopes planned at 2H:1V or steeper.

To mitigate this risk additional in-situ field testing (CPT, DMT, and PMT) may be utilized to supplement traditional SPT soil test boring data. Additional laboratory shear strength testing will be utilized to supplement traditional index testing. Results of this additional data will be used in engineering analyses to support the final slope and embankment fill side slope geometry.
### Geotechnical Risk Mitigation

<table>
<thead>
<tr>
<th>Risk</th>
<th>Mitigation</th>
</tr>
</thead>
</table>
| **Potential Unsuitable Soils** | • Obtain additional test borings and laboratory test data to determine in-situ moisture contents and classification of embankment subgrade soils  
• Identify clearly on the project plans, the locations of anticipated unsuitable soils and possible soil modification techniques  
• Close observation and recommendations during proofrolling of subgrades that exhibit pumping and/or rutting during construction immediately prior to fill placement  
• Geotechnical Engineer will work closely with the Construction field staff to inspect pavement sub-grades and minor structure excavations just prior to placing aggregate base, sub-base, or bedding to identify unstable areas |
| **Excavatability of Existing Soils** | • Early phase test pits and SPT soil test borings to identify depth and lateral extent of harder residual soils and decomposed rock  
• Identify clearly on the Project Plans, the locations of the anticipated decomposed rock and residual soils  
• Coordination with Project Team to evaluate anticipated earthwork equipment at specific locations to minimize potential schedule delays |
| **Settlement**              | • Obtain additional SPT soil test borings and compliment the SPT data with in-situ testing (CPT, DMT, and PMT) at critical locations  
• Conduct additional laboratory testing to determine in-situ settlement characteristics of subgrade soils  
• Identify potential locations of monitoring, type of monitoring, and duration of monitoring of post-construction settlement |
| **Slope Stability**         | • Obtain additional SPT soil test borings and compliment the SPT data with in-situ testing (CPT, DMT, and PMT) at critical locations  
• Conduct additional laboratory testing to determine in-situ strength characteristics of foundation/subgrade soils |

### Planned Structures

**Bridges over Little Tuckahoe Creek**

The existing abutments for the Tuckahoe Creek bridges are supported on steel HP piles. Similar, rock socketed, end-bearing piles are anticipated for the new bridges with anticipated lengths from 20 to 25 feet. The existing piers are supported on shallow foundations bearing on harder phases of decomposed rock or rock. Careful consideration during final design will address construction considerations relative to the close proximity of existing and new foundations. The Geotechnical Team is experienced with similar projects and the required protection measures to avoid impacts to the existing pier foundations and foundation subgrades. During design, foundation elevations and construction techniques are evaluated to minimize impacts to existing structures including lateral spacing between foundations and consideration of footing elevations.
with respect to subsequent load distribution. During construction, proactive measures typically involve isolation of existing foundations via sheet piling in addition to preconstruction survey and monitoring efforts to document movements during construction.

Existing Box Culverts

The RFP indicates the existing box culverts will be extended in the current median. Our proposal is to construct MSE type walls above the existing culverts to eliminate the extensions and resulting environmental impacts. Careful consideration will be given to bearing materials for foundation support that will minimize loading and differential settlement on the existing culverts due to the new loading conditions. Engineering analyses will focus on maximum allowable bearing pressures during design that will also minimize potential long-term impacts to the existing culverts. It is important to note that our design places significantly less load on the existing culverts as compared to the RFP concept design.

4.4.4 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 an adequate level of QA is the 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 need to assign valuable resources; and, 4) assure VDOT of a well-maintained, safe construction site with all design criteria and construction and materials meeting the overriding specifications. Our DBPM will instruct the QC staff early on that their job goes beyond keeping records and testing materials. It includes the traditional duties of a VDOT inspector and being assertive if anything is non-compliant. Knowing early if any work items are not performed properly sparks immediate correction while the cost and schedule impacts are minimized.

Our QA/QC program will be in accordance with VDOT’s Minimum Requirements for Quality Assurance and Quality Control on Design Build and Public-Private Transportation Act Projects, January 2012.
During our Partnering meeting, representatives from VDOT, Utilities, Local Jurisdictions, and other involved stakeholders will be invited to discuss and resolve “rocks in the road” to achieve quality goals. Including Quality in the Partnering meeting’s 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 QA/QC Manager will establish the design criteria and checklists for each design element, then distribute to assigned staff engineers. They will then audit the work 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.

**Key to project success will be an integrated QA/QC process that includes the QC staff, designers and contractors, as well as the design team’s quality control checkers.** During the design process, plans will be 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 their impact on traffic. Review checklists will be prepared during the constructability reviews and those comment sheets will be rechecked for the action taken prior to the plans being issued for construction. **Special attention will be given to adequacy of temporary drainage and sight distance impacts of temporary Traffic Controls during construction.**

The mission of the QA/QC procedure for the design elements 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:**

- Designing features that are safe and meet VDOT regulations and Design Manuals;
- Conforming to the standards and reference documents in RFP, Part 2, Section 2.1.1;
- Design elements that meet project requirements, are constructible, durable, economical, and minimize maintenance;
- Meeting design schedule, budget, and construction staging requirements;
- Minimizing design costs;
- Ensuring that an organized and indexed set of design calculations, including design criteria and assumptions; are provided;
- Minimizing VDOT review effort.

A flow chart for the design QA/QC process described is shown on Page 20.

**Checking Design Deliverables:** It is essential that the design deliverables show complete and clear fabrication and construction requirements/details. The Design QA/QC Manager will develop a QA/QC Plan and is responsible for implementation. The processes/procedures defined in the Plan will be strictly enforced and thoroughly documented to minimize VDOT reviews.
Design Preparation: Design deliverables will be prepared under the Lead Discipline Engineers (Structural, Roadway, Utilities, Drainage Geotechnical, etc.). Weekly meetings will be held throughout the design process, led by the Design Manager, and include the Lead Discipline Engineer, QC staff, the Construction Manager or their representative and representatives from key construction team members, such as the fabricator and erector. VDOT can also participate in these meetings at their discretion. These meetings reduce overall design and VDOT review time by facilitating coordination of design and construction requirements.

Checking Design deliverables will come in the form of drawings and calculations. Review starts within the discipline lead before the deliverable is reviewed by the Design QA/QC Manager, Design Manager and others. Reviewing each deliverable follows the steps below. At the end of each step, the check print stamp is signed. A stamp on each sheet is required for the drawings and a stamp is required on the cover sheet for the calculations.

Originator – Responsible for the initial preparation of the deliverable to be checked. The originator is accountable for accuracy and adequacy of the deliverable, and prepared per the requirements outlined 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. The checker 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 the set to the originator. The checker is a senior staff member with the experience to check the design.

Back-checker – Responsible for reviewing the checked deliverable and confirming 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 Design Manager resolves the difference.

Corrector – Responsible for ensuring that the changes marked on the check print are addressed and revised on the original deliverable. The corrector is either the originator or a CAD drafter. A CAD drafter can be the corrector for drawings.

Verifier – Responsible for reviewing a copy of the corrected deliverable against the check print and verifying the corrections marked have been properly addressed/incorporated. The verifier is also the checker.

Interdisciplinary Review – Once checking the design deliverable is completed, the Design Manager organizes all discipline leads (Structural, Roadway, Utilities, Drainage, Geotechnical, 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 Manager 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 member of the team.

Contractor Review – As a final review, prior to submitting to VDOT, the contractor will again review for constructability and conformance to his anticipated means and methods.
Design-Build for I-64 Widening and Route 623 Interchange Improvements  
Contract ID #: C00070542DB55

Submit to VDOT – The Lead Discipline Engineer signs a form that all QA/QC efforts are in accordance with the required procedures and transmits it to the Design Manager. The Design Manager and Contractor sign off their acceptance. At this time, the deliverables are ready to be signed and sealed by the Lead Engineer as a Professional Engineer registered in the Commonwealth of Virginia and our Project Manager submits the completed and reviewed documents to VDOT for information and approval. VDOT reviews the design and submits any comments to the Corman DB Team. If VDOT has any comments, the Team will address them into the final design, as appropriate, and resubmits the design for VDOT approval. The approved plans will be used to construct the I-64/Route 623 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 that all quality control procedures were performed for the individual discipline. The Design QA/QC Manager and the Design Manager are ultimately responsible for Quality Assurance. Copies of the documents for each submittal, including revisions, will be kept for the duration of the project. Final design records of the required forms and check prints are maintained by the Design Manager in the project files.

One Unique Design QA/QC Element: The project element we deem most critical from a design perspective is ensuring the safety of the existing 3-span bridge during the staged construction of the new single span bridge. A high priority during design will be performing load ratings for each of the proposed stages of construction to determine that the existing structure is adequate under various loading conditions. This structural investigation will be done not just for superstructure, but for substructure components as well. It will be critical to ensure that there will not be overstress on any of the existing piles or spread footings during partial demolition or under new load configurations.

During the design process, cross-discipline communication between our structural and geotechnical engineers will be important to ensure that pile installation and construction of new abutments do not compromise the stability of the existing abutments while they are still in service. Additionally, temporary sheeting at the existing abutment will be carefully designed so that the abutment stability will be maintained during demolition and construction.

During the staged construction process, it will be necessary to bolt traffic barriers to the existing bridge deck. Placement of the barriers will be carefully chosen to ensure that the locations of the bolts in the existing deck and girders allow for adequate remaining capacity while in service.

Our staffing plan will involve having all of our roadway and structural design done locally in one office. We will then have qualified staff from another office, with experience in these fields, conduct a thorough QA/QC review of all design calculations and plans as per the previously described QA/QC process. Additionally, we will offer to work with VDOT during design in an over-the-shoulder review process to determine that all proposed design and construction concepts are acceptable.

Every aspect of our QA/QC review for the design of these new bridges will be done in accordance with our firm’s QA/QC Manual. This manual outlines a specific color-coded checking process for all design calculations and plans that is universally followed throughout the firm. Following this process will result in easily audited documentation of our QA/QC review for every aspect of this project.
Construction QA/QC: No matter how accurate the design is, its implementation during construction will determine the ultimate success of the project. 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’s and the community perspectives. Achieving this goal takes pre-planning and effective communication of that plan. Prior 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 further 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 overall 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 goal can be accomplished through implementing structured QA/QC procedures that include comprehensive preparatory meetings, routine inspections, using prepared checklists, thorough QA/QC documentation, and following a communications plan that provides procedures for project 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 a minimum of 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. We also made arrangements with a testing laboratory, as well as a back-up, 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 specifically address the past Lessons Learned on this project to limit the need for 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 proper oversight;
- Poor maintenance / protection of completed work (e.g. underdrains);
- Lack of follow-up inspections and punch lists; and
- Incomplete or late QC/QA 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 to include Preparatory meeting minutes, completed QC and QA 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 QC/QA Element: We evaluated the critical construction risks on the project identifying the 20% of the tasks that represent 80% of the risk. That analysis identified construction of the bridge, ramps, subgrade, utility relocation and MOT as the most likely to cause the majority of the risk. After several internal discussions, we anticipate that the MOT on the I-64 will be the major risk factor on this 20% list having the most impact to VDOT if not performed properly. Not providing effective MOT could cause tie-ups and congestion to the traveling public and resulting unfavorable traffic reports and delays. The Corman DB Team has learned firsthand on the substantially completed Telegraph Road (I-495/I-95) project how to handle traffic control on heavily traveled interstates. This lesson was also learned when we rehabilitated the Route 623 bridge over this section of I-64. Our team clearly understands the local traffic and community issues associated with this project based on our past working history within the project limits. On this new I-64 project, we will employ these lessons learned from that and other projects where we effectively managed high volumes of suburban commuter traffic through tight, congested construction zones.

With the high volumes of traffic on I-64 and the associated ramps, our QA/QC team must verify that Contractor and Subcontractor personnel closely follow the approved Traffic Management Plan. All traffic controls are checked that they are set up in accordance with the applicable contractual versions of the Manual of Uniform Traffic Devices (MUTCD) and the Virginia Work Area Protection Manual (VWAPM). Failing to efficiently move vehicles through the construction zone will impact traffic in the major commuting corridor between Richmond and the areas to the west. As part of the approved project-specific QA/QC Plan, a Preparatory Inspection Meeting will be held for Maintenance of Traffic. This preparatory meeting will be 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 will be required to attend. In addition, Department representatives and other stakeholders, such as EMS, police, and the other affected public services, will be invited and encouraged to participate, as these meetings are intended to facilitate a dialogue between all project stakeholders. An item up for discussion could include using traffic modeling for special events at the local universities.

For this project, our QA/QC Approach to the unique construction element of maintenance of traffic on I-64 and associated ramps would start during the development of the project-wide TMP in the early stages of design. Our Construction MOT personnel will review the initial MOT Plan based upon their expertise on our past projects, such as Telegraph Road, where we streamlined the original 10 phases of MOT to six phases, and reduced our time on the road by months.

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 assigned Quality Assurance Inspector, working in concert with the QAM, will monitor the Contractor and QC inspection staff for adherence to the requirements of the TMP. TMP elements that will be monitored/inspected by the QA/QC Staff include:

- Project Phasing;
- Temporary Traffic Control Plans;
Motorist and Pedestrian 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 & 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, as well as at the end of each work day, to make certain the work zone is safe and no unnecessary signage remains in place. In addition to reviewing the work zones for correct signage and devices, inspectors will also check that devices are clean and have the proper retro-reflectivity. Additional inspections will be performed when there are traffic pattern changes or severe weather that can potentially impact the MOT devices and markings.
4.5 Construction of the Project
4.5 CONSTRUCTION OF THE PROJECT

4.5.1 Sequence of Construction

We have divided the project into three geographic sections (A, B and C) as shown in the graphic below. These three geographic sections are then constructed in three main phases. This eliminates conflicting MOT stages and allows the project to start early. **Section A** encompasses the median widening from approximately Station 621+00 to Station 749+00 and includes the initial median widening of the bridges. **Section B** includes the median widening from approximately Station 503+50 to Station 621+00 and completes the median widening of the bridges. **Section C** encompasses the outside widening from approximately Station 503+50 to Station 661+00, the outside bridge construction and the Route 623 interchange ramp and intersection improvements. After the completion of the above three sections, the final milling and surface course will be performed and pavement striping and markers installed.

**Phase 1A (EB & WB) - Section A and Section B**

- During night operations, where the existing shoulder is not adequate for temporary traffic, a lane closure will be implemented to perform a 6’ wide mill & wedge section (wider near the bridges at Station 621+00 to facilitate required additional shift) on the existing outside shoulders to provide structural build-up for traffic.
Phase 1B–(EB & WB) Section A

- Work continues on Phase 1A above.
- Restripe lane and move both EB and WB towards the outside (approximately 6’) utilizing existing full depth outside shoulder from approximately Station 621+00 to Station 749+00. Shift will be greater than 6’ near the bridges. Provide emergency pull-offs in accordance with the Virginia Work Area Protection manual.
- During night operations, using a lane closure, install temporary concrete barrier (TCB) along the left edge of pavement for WB & EB from approximately Station 621+00 to the western limit. Safe entry points will be used along the TCB for easy access for crews and material deliveries with minimal disturbance to the traveling public.
- Establish E&S controls in median and maintain drainage.
- Grade for new median widening, extend cross culverts, build retaining walls and construct ditches.
- Saw cut, remove existing shoulder, and construction widening in the medians including placement of new guardrail.
- Begin constructing the median phase of the two bridges adjacent to the existing bridge including all erosion control and stream diversions.
- Prepare to relocate TCB from Section A to Section B.

Phase 1C (EB & WB) –Section B (as construction is completed in Section A)

- During night operations, using a lane closure, relocate the TCB from Section A to the left edge of pavement for Section B for both WB & EB. Safe entry points will be used along the TCB for easy access for crews and material deliveries with minimal disturbance to the traveling public. Attenuators will also be relocated as appropriate. Shift traffic in Section A to the permanent lane configuration and re-stripe (same configuration as 1B, above).
- Establish E&S controls in median and maintain drainage.
- Grade for new median widening, extend cross culverts, build retaining walls and construct ditches.
- Saw cut, remove existing shoulder, place guardrail where required and construction widening in the medians.
- The TCB will remain in place as median bridge construction continues during this phase.
- Upon completion, remove the TCB and shift travel lanes to the newly constructed median lane and shoulder to allow for construction of Phase 2 – Section C, outside shoulder improvements.
Phase 2 (EB & WB) - Section C

- During night operations, using a lane closure, install temporary concrete barrier (TCB) along the outside edge of pavement for WB & EB from approximately Station 503+50 to Station 661+00. Safe entry points will be used along the TCB for easy access for crews and material deliveries with minimal disturbance to the traveling public.
- Begin outside bridge demolition and construction.
- Establish E&S controls along the outside & maintain drainage.
- Saw cut, remove existing shoulder, grade for new shoulder reconstruction and upgrade or replace existing guard rail.
- Construct outside portion of the bridge structure during this phase of construction including new foundations, piers and superstructure.
- Install TCB along interchange ramps maintaining a 12’ ramp roadway. Construct widening along Ramps A, B and Route 623. Install new signal at the intersection of the WB I-64 Ramp and Route 623.
- At the completion of Phase 3, remove TCB, relocate traffic to the permanent lane configuration and provide temporary striping.

Phase 3 (EB & WB) - Sections A, B and C

- Mill and overlay both WB & EB lanes where specified and installing permanent markings and markers using temporary off-peak and / or night lane closures.
- Make final adjustments to the permanent signage
- Place final roadway into service

4.5.2 Transportation Management Plan

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, staying ahead of the curve, and even beating the CPM schedule. Led by our Construction Manager, Daily Coordination Meetings, Weekly Schedule Meetings, 30, 60, and 90-day look ahead Schedule Meetings, and Schedule Review Meetings will be conducted with field supervision and QC/QA staff present. 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. As with our experience at Telegraph Road, it is critical to coordinate with adjacent projects to avoid schedule delays and communicate plans clearly to the public.
Public Outreach to Project Stakeholders: The I-64 Widening and Route 623 Interchange Improvements project comes with a unique set of circumstances mandating a highly-effective public outreach program. Stakeholders include:

- VDOT
- FHWA
- Goochland County
- Henrico County
- Commuters
- Centerville Fire and Rescue
- Field Day of the Past (yearly event in September) other events on weekends & evenings such as tractor and truck pulls
- Quarries and Asphalt Plants
- 623 Landfill, Inc.
- Rockville Commerce Center

As demonstrated on Corman’s and RK&K’s joint Chippenham Parkway project, success will come from early and frequent communication with key stakeholders. For example, on several occasions, bridge and roadway construction on Corman’s Telegraph Road project reduced the Capital Beltway to a single lane. Armed with traffic modeling that predicated 14-mile backups, our team effectively used the media to convince drivers to avoid the area. As a result, traffic backups never exceeded three miles. That may be an extreme case, but the application of that mitigation strategy on this project may prove useful.

Similarly with neighbors, by proactively getting the word out in predicting construction impacts, residents can go about their lives around the work zone. Moreover, when these impacts end up minor or less than anticipated, we find the public to be pleasantly surprised and receptive. On the flip side, we also found that impacts greater than anticipated – or even worse, not communicated properly – can infuriate residents and their elected officials.

Meetings and outreach will be in accordance with VDOT’s Policy Manual for Public Transportation projects. As the only local Richmond contractor shortlisted on this project, Corman’s local knowledge is unsurpassed as we understand the unique needs and concerns of the public along the corridor. The following outreach activities are recommended to proactively reach key constituencies and will be implemented in conjunction with VDOT’s review and approval:

Coordinating with Other Projects: Regular public outreach meetings and calls with upstream and downstream projects is essential to staying coordinated and keeping cumulative public impacts to a minimum.

Reaching Out to Elected Officials: Keeping local elected officials and staff abreast of project developments and upcoming work is vital when building and maintaining support. Such influential individuals can either be ambassadors or antagonists. We will assist VDOT by supplying background information in advance when upcoming plans go public. Often, these elected officials search for content for their websites and newsletters, providing VDOT another tool to positively communicate with affected members of the public.
Searching the Web and Social Media: Google and other internet search engines are the primary means when the public seeks information about any given transportation project. We will create and provide clear, current, frequent, and accessible content, including visuals, images and key milestones to the VDOT project webpage. We will also research search engine optimization to ensure the page is a headliner on search lists. With VDOT’s concurrence, we will search for positive project news placements in the local Richmond Times Dispatch, The Goochland Gazette and the Innsbrook Today publications.

We will also utilize VDOT’s Facebook page to amplify outreach regarding major traffic changes. Subject to VDOT’s approval, we can also create Twitter and Flickr accounts. Our goal is to provide the public with reliable up-to-the-minute information to plan their trips — on the Interstate and on adjacent impacted local roads.

Using Traditional and Digital Media: Cultivating solid relationships with major reporters who cover transportation and traffic can be resourceful when communicating with the public. In support of VDOT, we will host construction look-ahead briefings that will result in VDOT’s transportation plans being thoroughly, accurately, and fairly covered by the media.

Coordinating with First Responders: Coordinating closely with the State Police, as well as Goochland and Henrico County Police and Fire Departments for efficient, effective MOT is critical. We recommend forming an Incident Management Team that meets monthly and as needed. Connecting with these stakeholders and others can elicit suggestions that enhance MOT plans.

Emergency Communications: A Project Personnel Contact List will be updated quarterly to reach key personnel 24/7/365 in case of anemergency and a toll free telephone line open around-the-clock will be established and maintained.

Maintenance of Traffic: With the high volumes of traffic on I-64 and the associated ramps, our QA/QC team must verify that Contractor and Subcontractor personnel closely follow the approved Traffic Management Plan. All traffic controls are checked that they are set up in accordance with the applicable contractual versions of the Manual of Uniform Traffic Devices (MUTCD) and the Virginia Work Area Protection Manual (VWAPM). Failing to efficiently move vehicles through the construction zone will impact traffic in the major commuting corridor between Richmond and the areas to the west. As part of the approved project-specific QA/QC Plan, a Preparatory Inspection Meeting will be held for Maintenance of Traffic. This preparatory meeting will be 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 will be required to attend. In addition, Department representatives and other stakeholders, such as EMS, police, and the other affected public services will be invited and encouraged to participate, as these meetings are intended to facilitate a dialogue between all project stakeholders. Items up for discussion could include using traffic modeling for special events at the local universities.

To provide proper maintenance of traffic to the traveling public and a safe working environment to our work, the construction is anticipated to be performed in three major phases.

Phase 1A will start in March 2014 and involves the improvements to the outside shoulder for MOT from Sta. 661+00 to approximately Sta. 621+00 (100 feet beyond the bridge). This will enable traffic to be shifted to the outside for construction of the median side widening (WB and EB) including the bridge.

Phase 1B will occur during the time period of March 2014 through August 2014 and includes construction of the median side widening (WB and EB) including the bridge from western limit of the project to
approximately Sta. 621+00. During this time, the remaining substandard shoulder from Sta. 621+00 to the eastern limit of the project will be improved for future MOT use.

**Phase 1C** will occur during the time period of August 2014 through April 2015 and includes construction of the median side widening (WB and EB) including the bridge work from Sta. 621+00 to the eastern limit of the project.

**Phase 2** will commence in April 2015 and encompasses the outside shoulder reconstruction and outside bridge widening of both the WB and EB lanes. During this time, traffic will be shifted onto the newly constructed median roadway widening. This stage also includes the ramp improvements at Route 623.

**Phase 3** will commence in September 2015 and will include the final surface paving. The project completion date is November 20, 2015.
4.6 Disadvantaged Business Enterprises (DBE)
4.6 DISADVANTAGED BUSINESS ENTERPRISES

The Corman DB Team is committed to achieving a 10% 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 H&B Surveying and Mapping, LLC, and DMY Engineering Consultants, LLC. Although they were selected based on their premium work and abilities, they will also assist the Corman DB Team in achieving the 10% DBE participation goal through their designated project roles.

The 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. The 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.

As we have done on our past local Richmond projects, the Corman DB Team will modify Corman’s standard Local DBE Subcontracting Plan to meet the requirements and challenges of the I-64 project and it’s 10% participation goal. The following checklist specifies ways we solicit DBE firms during pre-construction:

1. Publish Proposal Notifications/Bid Notices in local and minority newspapers 30 and 10 days prior to bid;
2. Post Bid Notices 30 days and every subsequent Tuesday prior to bid on the Department of Minority Business Enterprise website;
3. Post plans and specifications on our FTP site for subcontractors to view;
4. Based on available scopes of work, identify potential DBE firms from our company DBE Firm Database;
5. The Corman DB Team’s Estimating Assistants will reach out to identify DBE firms, respond to project inquiries, and furnish requested information;
6. Maintain a spreadsheet with DBE subcontractor/supplier contact information and correspondence;
7. 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 personally 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. We also track the status of 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 ensure they are met.

During design and construction, the project team will monitor DBE participation for compliance with the required goal.
4.7 PROPOSAL SCHEDULE

4.7.1 Proposal Schedule Development
The Corman DB Team has thoroughly evaluated the Project RFP documents, performed site visits of I-64 and the I-64/Route 623 Interchange, 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 the project to deliver the project through our sequencing plan. This narrative explains how we plan to deliver a positive experience to VDOT and the stakeholders of the area. The project completion date is as shown in the RFP of November 20, 2015.

The proposal schedule can be found in the Appendix.

Project Milestones

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Notice of Intent to Award Date</td>
<td>July 29, 2013</td>
</tr>
<tr>
<td>CTB Approval/Notice to Award</td>
<td>September 18, 2013</td>
</tr>
<tr>
<td>Notice to Proceed</td>
<td>October 17, 2013</td>
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<tr>
<td>Substantial Completion of Design</td>
<td>March 24, 2014</td>
</tr>
<tr>
<td>Mobilization</td>
<td>January 27, 2014</td>
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<tr>
<td>Substantial Completion of Project</td>
<td>November 20, 2015</td>
</tr>
<tr>
<td>Final Completion of Project</td>
<td>November 20, 2015</td>
</tr>
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Work Breakdown Structure

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

Level 4: Environmental Permitting – Includes preparation and approvals of Erosion and Sediment Control plans, JPA, SWPPP, VSMP, etc.

Level 5: Right of Way Acquisition – No ROW acquisition is anticipated for this project.

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, 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, wall construction, bridge demolition and construction, signals, ditches/drainage, lighting, and roadside improvements. QA/QC
Design-Build for I-64 Widening and Route 623 Interchange Improvements  
Contract ID #: C00070542DB55

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**

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Levels 2 and 3</th>
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<tbody>
<tr>
<td><strong>Phase 01</strong></td>
<td><strong>Schedule Milestones</strong></td>
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<tr>
<td><strong>Phase 02</strong></td>
<td><strong>Scope Validation Period</strong></td>
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<td><strong>Phase 03</strong></td>
<td><strong>Environmental Permitting</strong></td>
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<td><strong>Phase 04</strong></td>
<td><strong>Right-of-Way Acquisition</strong></td>
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<td><strong>Phase 05</strong></td>
<td><strong>Utility Relocations</strong></td>
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<td>ROW/Roadway</td>
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<td>Final Design</td>
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<td>6.3</td>
<td>Ready For Construction Design</td>
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<tr>
<td>6.4</td>
<td>Design Support During Construction/As-Built Drawings</td>
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<tr>
<td><strong>Phase 07</strong></td>
<td><strong>Construction</strong></td>
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<td>7.0</td>
<td>Temporary outside shoulder upgrades for MOT</td>
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<td>7.1</td>
<td>Section A – Inside Widening Sta. 621+00 to 749+00</td>
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<td>Roadway Widening</td>
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<td>7.1.2</td>
<td>Bridge Construction</td>
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<td>7.2</td>
<td>Section B – Inside Widening Sta. 503+50 to 621+00</td>
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<td>Ramp Construction</td>
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<tr>
<td>7.4</td>
<td>Final Asphalt Surfacing</td>
</tr>
</tbody>
</table>
Design-Build for I-64 Widening and Route 623 Interchange Improvements
Contract ID #: C00070542DB55

Calendars

Three project calendars were used in the schedule and include:

“I-64 - Calendar Day” – this calendar is based on seven days per week and is used for design and review periods.

“I-64 - Winter Calendar” – This calendar is based on a non-work period from December 22 through February 28 for weather dependent activities, such as asphalt paving.

“I-64 - Construction Calendar” – this calendar is based on five working days per week and is used for construction activities and includes holiday restrictions and anticipated weather days.

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 March 2014.

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

We do not anticipate any ROW acquisition for the project.

Utility Relocations

None.

Construction

Construction is scheduled to begin once the Roadway plans are approved and will begin by setting out all advance warning signs. Construction is anticipated to be performed in three major phases and the project has been divided into three Sections for construction. Section A is the upgrading of outside shoulders for MOT purposes and widening of the median from Sta. 621+00 to 749+00, including the first phase of the bridge construction. Section B is the widening of the median from Sta. 503+50 to 621+00. Section C is the permanent outside shoulder improvements, second phase of bridge construction and Route 623 and Ramp Improvements.

Phase 1A will start in March 2014 and involves the improvements to the outside shoulder for MOT from Sta. 661+00 to approximately Sta. 621+00 (100 feet beyond the bridge). This will enable traffic to be shifted to the outside for construction of the median side widening (WB and EB) including the bridge.
Phase 1B will occur during the time period of March 2014 through August 2014 and includes construction of the median side widening (WB and EB) including the bridge from western limit of the project to approximately Sta. 621+00. During this time, the remaining substandard shoulder from Sta. 621+00 to the eastern limit of the project will be improved for future MOT use.

Phase 1C will occur during the time period of August 2014 through April 2015 and includes construction of the median side widening (WB and EB) including the bridge work from Sta. 621+00 to the eastern limit of the project.

Phase 2 will commence in April 2015 and encompasses the outside shoulder reconstruction and outside bridge widening of both the WB and EB lanes. During this time, traffic will be shifted onto the newly constructed median roadway widening. This stage also includes the ramp improvements at Route 623.

Phase 3 will commence in September 2015 and will include the final surface paving. The project completion date is November 20, 2015.

4.7.2 Proposal Schedule Narrative

Plan to Execute the Work

In general, we plan to complete the design of the project prior to commencing construction, perform the construction in three (3) phases and complete the project on or before the Final Completion Date of 11/20/15.

For this project we have made the following assumptions:

- **Bridge**: The existing bridges will be replaced with single span, steel superstructure bridges.
- **ROW Requirements**: No ROW acquisitions are anticipated.
- **Utility Relocations**: None anticipated.
- **Signal Work**: Replacement of one signal.
- **Signing Work**: Updated signing.
- **Stormwater Management**: State-of-the-art application of stormwater management techniques.
- **Storm Drainage**: In lieu of the culvert extensions, our team is proposing small sections of MSE walls to retain the earth at each existing culvert location for the pavement widening.
- **Design Reviews**: The project design will be completed as one package with intermediate, final and RFC submissions.
- **Work Times/Traffic Control**: Traffic will be maintained per the requirements of the RFP. The outside shoulders will be improved for interim MOT purposes from Sta. 661+00 to the eastern limits. The schedule is based on the work hours allowed in the RFP.
- **Substantial and Final Job Completion**: Work will be completed by November 20, 2015.

Schedule Overview

Notice of Intent to Award: July 29, 2013

Design Activities: August 2013 – March 2014

Construction: March 2014 – November 2015

Final Completion: November 20, 2015
Construction

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

A sequence of construction graphic is shown on page 27.

Construction will be in three phases as follows:

Phase 1A – Outside shoulder improvements (WB& EB) Sta. 661+00 to approximately 621+00.

Phase 1B – Inside widening of WB and EB I-64 including the inside bridge widening from the western limit to approximately 621+00.

Phase 1C – Inside widening of WB and EB I-64 from approximately 621+00 to the eastern limits and the inside bridge widening.

Phase 2 – Outside shoulder reconstruction from Sta. 661+00 to the eastern limit, the outside portion of the bridge construction, the Route 623 and ramp improvements.

Phase 3 – Final surface paving of I-64 EB and WB.

Construction is scheduled to take place with multiple crews and EB and WB I-64 will be 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 overall project schedule, it was apparent that there is a time advantage to actually complete the entire design prior to starting any construction. This is made possible by design work beginning upon Notice of Intent to Award the project. During the Scope Validation Period, we will verify utilities and conceptual pavement designs, begin the geotechnical investigations, and spot check the survey and base maps. We allotted two 21-day review cycles and a RFC revision period 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. 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 roadway plan submissions, final reviews and revisions of the roadway package, the median roadway widening activities of earthwork/stonebase/paving/roadside improvements, the bridge construction during the outside shoulder reconstruction improvements, and the final surface paving.

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 other 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. The durations established 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 the impact of delays.

The schedule will be constantly reviewed and maintained to avoid slippage, as well as impacts discussed as part of the monthly partnering process, to 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 the 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 to the monthly meeting as required for anticipated issues during upcoming schedule activities.

The Executive Review Committee will meet monthly, usually 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 at these meetings, 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.

The 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 are 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. These schedules 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 problems, 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 activities through the CM and holds monthly progress meetings to review progress, conflicts, safety, and quality. The Corman DB Team will keep minutes of all meetings and distribute them to all 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 well in advance of project expectations.
Resource Availability

In the event additional resources are required 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 actively 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 November 20, 2015.*
# TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

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

<table>
<thead>
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ATTACHMENT 3.6

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFQ NO. C00070542DB55
PROJECT NO.: 0064-964-110, P101, RW201, C501

ACKNOWLEDGEMENT OF RFP, REVISION AND/OR ADDENDA

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

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

1. Cover letter of March 7, 2013 – RFP (Date)

2. Cover letter of April 23, 2013 – Addendum No. 1 (Date)

3. Cover letter of May 17, 2013 – Addendum No. 2 (Date)

________________________________________
SIGNATURE

Arthur C. Cox, III Vice President

________________________________________
DATE

May 30, 2013
ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this “Agreement”) is made and entered into as of this 30th day of May, 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”) pursuant to VDOT’s August 14, 2012 Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the I-64 Widening and Route 623 Interchange Improvements, Project No. 0064-964-110 (“Project”), under a design-build contract with VDOT (“Design-Build Contract”); and

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

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

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

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

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

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

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

5. **Effective Date of this Agreement.** The rights and obligations of VDOT and Offeror under this Agreement, including VDOT’s ownership rights in Offeror’s Intellectual Property, vests upon the date that Offeror’s Proposal is submitted to VDOT. Notwithstanding the above, if Offeror’s Proposal is determined by VDOT, in its sole discretion, to be nonresponsive to the RFP, then Offeror is deemed to have waived its right to obtain the Proposal Payment, and VDOT shall have no obligations under this Agreement.
6. **Indemnity.** Subject to the limitation contained below, Offeror shall, at its own expense, indemnify, protect and hold harmless VDOT and its agents, directors, officers, employees, representatives and contractors from all claims, costs, expenses, liabilities, demands, or suits at law or equity ("Claims") of, by or in favor of or awarded to any third party arising in whole or in part from: (a) the negligence or willful 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 willful 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.: 0064-964-110

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] 5/3/13
Signature   Date
-----------
Vice President
Title

Corman Construction, Inc.

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

Project No.: 0064-964-110

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

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

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

Signature Date Director, Transportation Title

Rummel, Klepper & Kahl, LLP (RK&K)

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

Project No.: 0064-964-110

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[Signature] [Date] [Vice President]

[Name of Firm]

ECS MID- ATLANTIC, LLC
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0064-964-110

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[Signature] 5/15/13 [Title]

[H&B Surveying and Mapping, LLC]

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

Project No.: 0064-964-110

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Signature: Mike A. Warden  Date: 5/3/13  Title: Vice President - Business Development

Name of Firm: So-Deep, Inc.
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0064-964-110

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[Signature] [Date] [Title]

CII Consultants, Inc.

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

Project No.: 0064-964-110

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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.

EBA Engineering, Inc.
Name of Firm

[Signature] May 3, 2013 [First Exec. VP]
[Date] [Title]
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0064-964-110

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[Signature] [May 3, 2013] [President and CEO]
[Date] [Title]

[DMY Engineering Consultants, LLC]

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

Project No.: 0064-964-110

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[Signature] [Date] [President] [Title]

NXL Construction Services, Inc.
Name of Firm
Proposed Schedule
### I-64 Widening and Route 623 Interchange Improvements

#### Activity ID

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#### Design

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**Final Design**

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**Ready For Construction Design**

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**Design Support During Construction / As-Built Drawings**

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**Construction**

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### Section A - Inside Widening Sts. 621+00 to 749+00

#### Roadway Widening

- **CA100** MOT Section A
  - Start: 5-21-Mar-14
  - Finish: 28-Mar-14
  - Duration: 0
- **CA110** Establish E & S Controls
  - Start: 20-08-Apr-14
  - Finish: 09-May-14
  - Duration: 0
- **CA120** Clearing
  - Start: 30-15-Apr-14
  - Finish: 03-Jun-14
  - Duration: 0
- **CA130** WB Excavation / Grading
  - Start: 60-24-Apr-14
  - Finish: 31-Jul-14
  - Duration: 0
- **CA131** EB Excavation / Grading
  - Start: 60-24-Apr-14
  - Finish: 31-Jul-14
  - Duration: 0
- **CA132** Stormwater Management
  - Start: 40-28-May-14
  - Finish: 31-Jul-14
  - Duration: 0
- **CA135** Wall at Culvert at Sta. 682+00
  - Start: 20-28-May-14
  - Finish: 30-Jun-14
  - Duration: 20
- **CA136** Walls for Culvert at Sta. 649+80
  - Start: 20-28-May-14
  - Finish: 30-Jun-14
  - Duration: 20
- **CA140** Stonebase / UD
  - Start: 40-28-May-14
  - Finish: 31-Jul-14
  - Duration: 0
- **CA150** Asphalt Paving
  - Start: 30-01-Jul-14
  - Finish: 15-Aug-14
  - Duration: 0
- **CA160** Roadside Improvements
  - Start: 30-16-Jul-14
  - Finish: 02-Sep-14
  - Duration: 0
- **CA170** Signs
  - Start: 40-28-May-14
  - Finish: 31-Jul-14
  - Duration: 20
- **CA180** Lighting
  - Start: 40-28-May-14
  - Finish: 31-Jul-14
  - Duration: 20

#### Bridge Construction

- **CAB100** Demo Inside Portion of Exit. Bridges
  - Start: 20-15-Apr-14
  - Finish: 16-May-14
  - Duration: 112
- **CAB110** Build New Bridge
  - Start: 100-02-May-14
  - Finish: 10-Oct-14
  - Duration: 112

### Section B - Inside Widening Sts. 503+50 to 621+00

#### Roadway Widening

- **CB110** MOT Section B
  - Start: 05-03-Sep-14
  - Finish: 09-Sep-14
  - Duration: 0
- **CB120** Shift Traffic for Median Work
  - Start: 10-03-Sep-14
  - Finish: 16-Sep-14
  - Duration: 0
- **CB130** Establish E & S Controls
  - Start: 20-10-Sep-14
  - Finish: 10-Oct-14
  - Duration: 0
- **CB140** Clearing
  - Start: 30-26-Sep-14
  - Finish: 13-Nov-14
  - Duration: 0
- **CB150** WB Excavation / Grading
  - Start: 60-06-Oct-14
  - Finish: 14-Jan-15
  - Duration: 20
- **CB160** EB Excavation / Grading
  - Start: 60-06-Oct-14
  - Finish: 14-Jan-15
  - Duration: 20
- **CB161** Stormwater Management
  - Start: 40-06-Nov-14
  - Finish: 14-Jan-15
  - Duration: 20
- **CB170** Wall at Culvert at Sta. 537+00
  - Start: 20-06-Nov-14
  - Finish: 09-Dec-14
  - Duration: 20
- **CB190** Stonebase / UD
  - Start: 40-06-Nov-14
  - Finish: 14-Jan-15
  - Duration: 0
- **CB200** Asphalt Paving
  - Start: 30-10-Dec-14
  - Finish: 03-Apr-15
  - Duration: 0
- **CB210** Roadside Improvements
  - Start: 30-02-Mar-15
  - Finish: 21-Apr-15
  - Duration: 0
- **CB220** Signs
  - Start: 40-06-Nov-14
  - Finish: 14-Jan-15
  - Duration: 57
- **CB230** Lighting
  - Start: 40-06-Nov-14
  - Finish: 14-Jan-15
  - Duration: 57

#### Bridge Construction

#### Section C - Outside Widening Sts. 503+50 to 661+00

#### Roadway Reconstruction

- **CC110** MOT Section C
  - Start: 5-23-Apr-15
  - Finish: 30-Apr-15
  - Duration: 0
- **CC120** Shift Traffic for Outside Shoulder Rehab
  - Start: 10-23-Apr-15
  - Finish: 08-May-15
  - Duration: 0
- **CC130** Establish E & S Controls
  - Start: 20-01-May-15
  - Finish: 03-Jun-15
  - Duration: 5
- **CC150** WB Excavation / Grading
  - Start: 20-11-May-15
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### Final Striping/Roadside Improvements
### De-mobe and Clean-up

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### Milestone
- Bridge Construction
- Final Asphalt Surfacing
- Final Stripping/Roadside Improvements
- De-mobe and Clean-up
## I-64 Widening and Route 623 Interchange Improvements

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### Design

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### Construction

#### Section A - Inside Widening Sta. 621+00 to 749+00

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**Summary:**

- **Design:**
  - Right of Way Plan Design
  - Final Design

- **Construction:**
  - Section A - Inside Widening Sta. 621+00 to 749+00

---

**Milestone:**

- **09-Mar-14:** Roadway Final Revisions
- **27-Oct-13:** Right of Way Plan Design
- **16-Feb-14:** Final Design
- **09-Mar-14:** Ready For Construction Design
- **09-Mar-14:** Roadway Final Revisions
- **19-Mar-14:** Temp Pav Outside Shdr WB/EB 621+00 to 661+00
- **19-Mar-14:** MOT Section A
- **19-Mar-14:** Shift Traffic for Median Work
- **19-Mar-14:** Establish E & S Controls
- **19-Mar-14:** Clearing

---

**Legend:**

- **Actual Work**
- **Critical Remaining Work**
- **Summary**
- **Remaining Work**
- **Milestone**

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**Proposal Schedule**
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Technical Proposal - Volume II
Design-Build I-64 Widening and Route 623 Improvements
Goochland and Henrico Counties, Virginia

State Project No.: 0064-964-110, P101, C501, B610-B614, B617, B616, D601-D606
Federal Project No.: NH-064-2(150)
Contract ID Number: C00070542DB55

May 30, 2013

Submitted to: Virginia Department of Transportation
1401 E. Broad Street
Richmond, Virginia 23219
Section 4.3.1.1 Conceptual Roadway Plans
**Typical Sections**

- **I-64 Westbound**
  - From Station 503+50 to Station 749+00
  - SHOULDER TYPICAL in Fill

- **I-64 Eastbound**
  - From Station 554+72.40 to Station 747+06.91
  - SHOULDER TYPICAL with PIER PROTECTION

- **RTE. 623**
  - From Station 10+15.04 to Station 18+90.52
  - SHOULDER TYPICAL with GUARDRAIL

**RFP Plans**

These plans are unfinished and unapproved and are not to be used for any type of construction or the acquisition of right of way.

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**DESIGNED BY**

Ryan Masters (804) 782-1903

Jo Ellen Sines (301) 953-0900

David Burch (804) 524-6157

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**Note:**
- Standard edge drains (UD-4 and UD-1) and combination underdrains (CD-1 and CD-2) will be installed in accordance with the RFP. Section 2.7.1. They are not depicted on the Conceptual Plans for clarity.
- The new 12' lane shall match existing cross slope, and the acceptable range for the cross slope shall be from 1.5% to 2.5%.
- The new 12' lane shall match existing cross slope. The acceptable range for the cross slope shall be from 5.0% to 6.0%.
- The new 12' lane shall match existing cross slope. The acceptable range for the cross slope shall be from 36' to 48' clear zone.
Figures in parenthesis and dot-dot-dashed.

ACQUISITION OF RIGHT OF WAY.

State:

To be used for any type and unapproved and are not.
The state:

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I-64 Westbound

RFP Plans

255

250

245

240

235

230

225

220

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175

170

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160

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90

85

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35

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25

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5

0

SCALE: 50' = 1'-0"
Note:

- Temporary Easements denoted by lines.

- Traffic signals to be removed and replaced with new ones.

- Fire hydrants to be relocated.

- Support Poles and utility shafts to be relocated.

- Proposed saw cut line.

- Variable Width Paved Shoulder required.

- Standard GB-2 Guardrail Terminal required.

- Proposed construction handoff.

- Reuse of existing guardrail.

- Guardrail Terminal required.

- See Sines (301) 953-0900 for questions.

- Water Quality Study.

- Asbestos Abatement Study.

- Water Quality Study.

- PPT = 70 mph (Design Exception)

- Lr = 98' (Existing)

- e = 2.8% (Existing)

- R = 7650.00'

- L = 2927.19'

- PI = 538+47.49

- Station 553+98.55 I-64 Westbound Construction B

- Station 554+22.80 I-64 Eastbound Construction B

- Station 65+74.29 I-64 Westbound Construction B

- Station 65+67.99 Rte. 623 Construction B

- Station 66+67.99 Rte. 623 Construction B

- Station 67+06.91 Rte. 623 Construction B

- Station 71+06.91 Rte. 623 Construction B

- Station 74+06.91 Rte. 623 Construction B

- Station 74+26.80 Rte. 623 Construction B

- Station 74+26.80 Rte. 623 Construction B

- Station 84+06.91 Rte. 623 Construction B

- Station 84+06.91 Rte. 623 Construction B

- Station 84+21.80 Rte. 623 Construction B

- Station 85+21.80 Rte. 623 Construction B
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.
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Section 4.3.1.2 Conceptual Structural Plan
Abutment A of EB structure shown. All other abutments similar.

Scale 1" = 1'-0"

Notes:
- Abutment A is the structure shown. All other abutments are similar.

Page 82 of 88
GENERAL NOTES FOR ALTERNATE RETAINING WALLS:

Specifications:
- Constructions Virginia Department of Transportation Road and Bridge Specifications, 2001.
- The minimum design life of the MSE wall shall be 15-year.
- A geotextile shall be used as a separator between the mechanically stabilized earth mass and the subbase.
- All panel types and other related elements shall be detailed on shop drawings.
- Provide additional details such as perforated pipe underslab and/or drainage blanket based upon field conditions.
- Minimum panel design thickness is 5.5 inches. Thickness of concrete must increase to accommodate any architectural surface finish that may be specified.

These plans are incomplete unless accompanied by the Supplemental Bridge Standards, 2008. These plans are incomplete unless accompanied by the Supplemental Bridge Standards, 2008.

The selected wall supplier will submit a detailed design and shop drawings for approval.

The minimum design life of MSE Wall shall be 75-years.

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