

# I-395 HOV Ramp at Seminary Road

From: Sanger Avenue To: Seminary Road

with

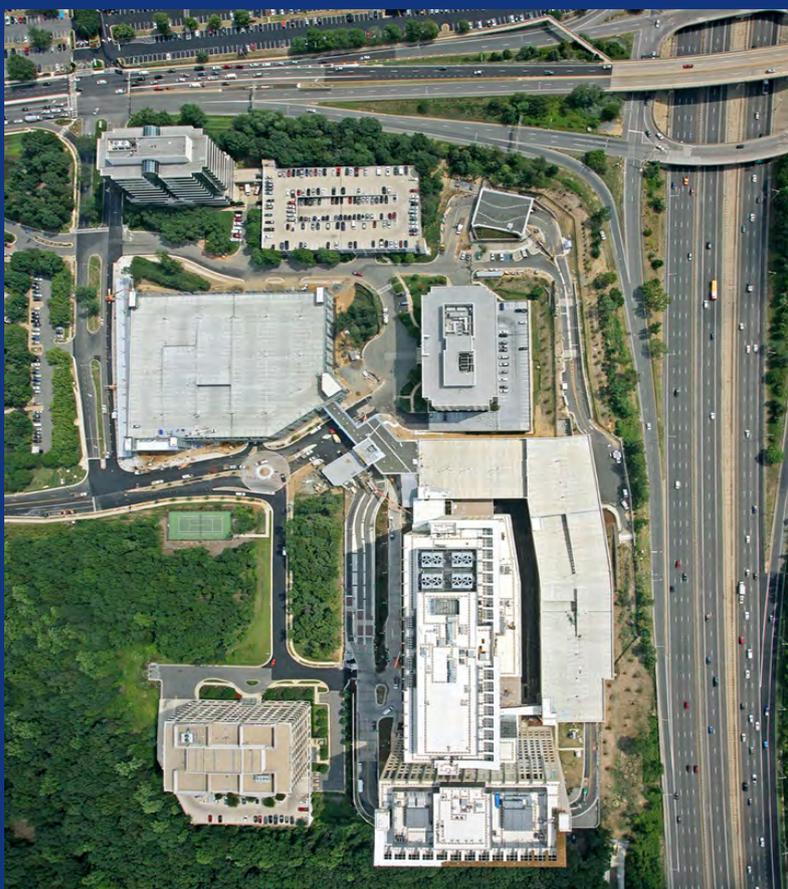
# I-395 NB Auxiliary Lane Extension

From: Duke Street To: Sanger Avenue

A DESIGN-BUILD PROJECT

City of Alexandria, Virginia

## *Volume I: Technical Proposal*



State Project No.: 0395-100-722, 0395-100-736

Federal Project No.: IM-5A01(362), NH-5A01(363), pending

Contract ID Number: C00096261DB50

SUBMITTED TO:



SUBMITTED BY:



IN ASSOCIATION WITH:







January 9, 2013

Mr. Bill Arel, PE  
Virginia Department of Transportation  
1221 East Broad Street  
Main Building, 4th Floor  
Richmond, VA 23219

RE: I-395 HOV Ramp at Seminary Road  
From: Sanger Avenue  
To: Seminary Road With I-395 NB Auxiliary Lane Extension  
From: Duke Street To: Sanger Avenue  
City Of Alexandria  
Contract ID Number C00096261DB50  
Section 4.1 - Letter of Submittal

Dear Mr. Arel:

Shirley Contracting Company, LLC (Shirley), is pleased to submit this Technical Proposal for the I-395 HOV Ramp at Seminary Road and I-395 NB Auxiliary Lane Extension Design-Build Project (the Project) to the Virginia Department of Transportation (VDOT). Together with Dewberry Consultants LLC (formerly Dewberry & Davis LLC) as the Engineer of Record, we will provide VDOT and the traveling public with an unequalled level of assurance that the Project will be completed successfully and will exceed the priorities established.

**Declarations:**

Should Shirley be selected to enter into a contract with VDOT for the Project, it is our intent to do so in accordance with the terms of this Request for Proposal (RFP). Further, the offer represented by our Technical and Price Proposals will remain in full force and effect for one hundred twenty (120) days from the date this Technical Proposal is actually submitted to VDOT.

Our Official Representative and Point of Contact for this Project will be:  
**Garry A. Palleschi**  
Vice President  
Shirley Contracting Company, LLC  
8435 Backlick Road  
Lorton, Virginia 22079  
703-550-3579 (Phone) 703-550-9346 (Fax)  
gpalleschi@shirleycontracting.com

Our Principal Officer who will execute the contract for this Project will be:  
**Michael E. Post**  
President/CEO/Manager  
Shirley Contracting Company, LLC  
8435 Backlick Road  
Lorton, Virginia 22079  
703-550-8100 (Phone) 703-550-3558 (Fax)  
mpost@shirleycontracting.com

**Interim Milestone, Substantial and Final Completion Dates:**

***Interim Milestone:***

Proposal A-September 24, 2015  
Proposal B-September 24, 2015

***Substantial Completion:***

Proposal A-December 18, 2015  
Proposal B-December 18, 2015

***Final Completion:***

Proposal A-December 18, 2015

Proposal B-December 18, 2015

**Proposal Payment Agreement:**

An executed Proposal Payment Agreement, Attachment 9.3.1 is included as an attachment to this Letter of Submittal.

**Certification of Debarment:**

Signed Certification of Debarment Forms are included as an attachment to this Letter of Submittal.

**Written Statement of Compliance:**

Shirley's Technical Proposal is fully compliant with the Design Criteria Tables included in the RFP Technical Requirements and all other requirements of this RFP. Shirley also certifies that the proposed limits of construction are 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 Exceptions and/or Design Waivers unless they are identified or included in the RFP or Addendum.

On behalf of our Team, we thank the Virginia Department of Transportation for the opportunity to submit this Technical Proposal in response to your Request for Proposals and we look forward to your favorable review.

Sincerely,



Michael E. Post  
President/CEO/Manager  
Shirley Contracting Company, LLC

## 4.2 OFFEROR'S QUALIFICATIONS

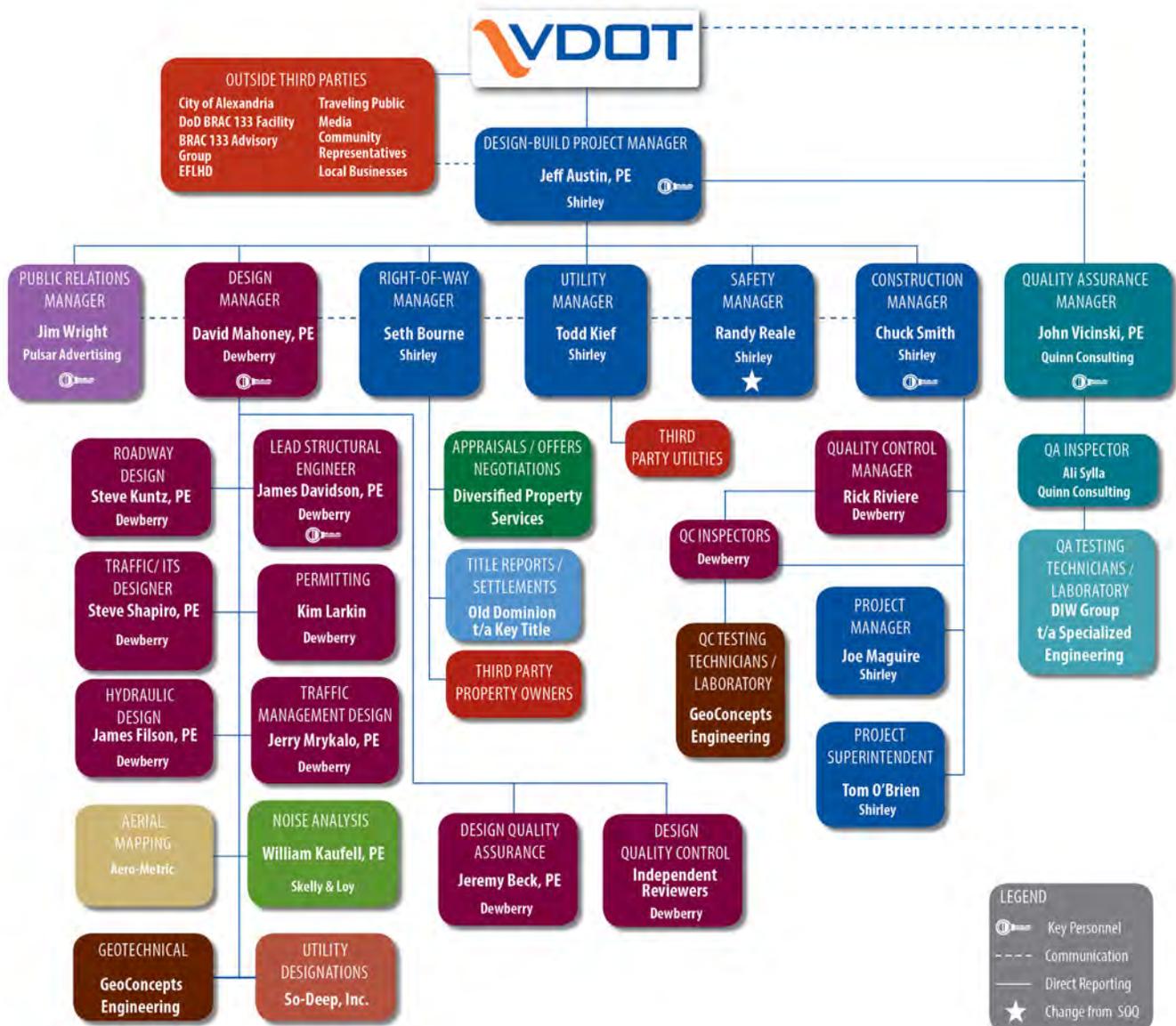
## 4.2 Offeror's Qualifications

### 4.2.1 TRUE, ACCURATE, AND UPDATED INFORMATION OF SOQ

Shirley Contracting Company, LLC hereby confirms that the information submitted in our Statement of Qualifications remains true and accurate, except for the following: Aaron Beraducci who was proposed as the Safety Manager is no longer with the company. He will be replaced by Randy Reale as was approved by VDOT on December 19, 2012.

### 4.2.2 ORGANIZATIONAL CHART

The Project Organization Chart shown below identifies the "chain of command" and major functions to be performed and their reporting relationships in managing, designing and constructing the Project, including independent quality control and quality assurance. There is one proposed change to the organization chart as stated above in Section 4.2.1. As there are no changes to the chain of command, an updated narrative is not required.





## 4.3 Design Concept

The I-395 corridor is a heavily travelled roadway which experiences regular, significant traffic delays during peak periods and special events. The intent of this Project is to help alleviate some of this congestion through the construction of a continuous auxiliary lane on northbound I-395 between the Duke Street and Seminary Road Interchanges, and most importantly to provide a direct access connection from the HOV lanes to Seminary Road. The design concept proposed by the Shirley Team is included in Volume 2 of our Technical Proposal. Our concept is consistent with the design provided as part of the RFP package and will fall completely within the right-of-way (existing or proposed) identified with the RFP documents with the exception of permanent and temporary easements which will be finalized as design is further developed and approved. Additionally, our design has been developed such that it meets all design requirements identified in the Design Criteria Tables (Tables 2.3.1, 2.3.1B, and 2.3.2 of Part 2 of the RFP documents) and so that no additional design exceptions or design waivers are required. Provided below is a description of the specific project elements which will be provided as part of the roadway plans and bridge plans.

### 4.3.1 CONCEPTUAL ROADWAY PLANS

The improvements to I-395 consist of two distinct projects – the HOV Ramp at Seminary Road and the Auxiliary Lane Extension between Duke Street and Seminary Road. For the purposes of developing our conceptual plans, both elements have been combined into a single document (Volume 2), however the Shirley Team recognizes that each element of the Project has unique features and challenges and provides different operational benefits.

#### HOV Ramp at Seminary Road

The improvements proposed by the Shirley Team for the HOV Ramp at Seminary Road are consistent with those shown in the RFP documents. The HOV Ramp improvements essentially consist of the three following elements – the HOV Ramp and associated I-395 widening and realignment, the rehabilitation and reconstruction of Seminary Road, and the construction of a new pedestrian overpass to the north of Seminary Road. With respect to the HOV Ramp, our Team will maintain the proposed maximum vertical grade of 5% but the location of the abutment at the southern end of the HOV Bridge has been shifted to the north to coincide with the beginning of the lane taper. This modification was done in an effort to reduce the overall bridge length and improve on the spacing of the bridge piers, both of which will be discussed more in the following section. Along both sides of the HOV Ramp, and adjacent to the realigned and widened HOV lanes, concrete barriers will separate the northbound I-395 general purpose lanes, the HOV lanes, and the proposed HOV ramp. As identified in the RFP documents, full width milling and overlay of northbound I-395, the HOV lanes, and Seminary Road will be completed within the Project limits. Widening of I-395 in the northbound direction will be completed to accommodate the increased HOV lane and ramp width, and curb and gutter or retaining walls will be used on the right side adjacent to a full width shoulder in an effort to reduce impacts to the slope and grading between I-395 and Van Dorn Street.

With respect to the second element – the rehabilitation and reconstruction of Seminary Road – the roadway typical section will be developed in accordance with the latest RFP addendum and FHWA requirements to accommodate the westbound to southbound turning movement through construction of a dedicated left turn lane in the median of the roadway. Additionally, the right turn movement from the northbound HOV ramp to eastbound Seminary Road will also be accommodated. The typical section for Seminary Road will be consistent with that identified in the RFP documents, and the alignment of Seminary Road has not been adjusted. Consideration was given to incorporating a slight shift in the roadway such that all widening of the bridge abutments could be isolated to either the north or south side of the existing bridge. However, this adjustment raised concerns with respect to the deck overhang and stresses on the bridge girders on the widened side, and was therefore ultimately not selected.

as our Team's preferred roadway alignment.

In accordance with the RFP requirements, all turning movements have been checked to ensure they accommodate a WB-67 vehicle. This check identified concerns with two elements of the design which our Team has revised. Specifically, we removed the small concrete island located at the southwest corner of the intersection of Seminary Road and the HOV ramp and adjusted the location of the end of the median immediately east of the HOV ramp intersection. AutoTurn analysis indicated that the WB-67 turning movement from eastbound Seminary Road to the southbound HOV lanes would not have been properly accommodated if the island were constructed, and that the median nose needed to be shifted slightly to the east to accommodate the westbound Seminary to southbound HOV lane movement. In lieu of the concrete island, a painted island can be incorporated at this location to help channelize smaller vehicles but still accommodate the larger design vehicle. The HOV directional gate at this location will be mounted behind the parapet and will not be affected by the revised island marking. In the median of Seminary Road, final design will identify the number and location of directional gates required to effectively restrict turns to the appropriate times. Our Team has relevant experience in designing these types of facilities having designed the HOV ramps on I-66 at Monument Drive and Stringfellow Road. Gate locations will be selected such that turning paths of the design vehicle are not compromised and protection of the gates will also identify whether barrier, guardrail, and/or impact attenuators are required.

For the third element, our Team investigated several alternatives for the pedestrian facility over I-395. We considered an alignment consistent with that shown in the RFP documents, an alignment which provided a facility parallel to Seminary Road with a standard barrier separation from the westbound travel lanes, and a third concept as shown in our Volume 2 documents. Based on considerable investigation, this third alignment was selected by our Team. As required by the RFP documents, the pedestrian facility will be located north of the Seminary Road bridge, will provide free flow pedestrian access across I-395 and for the entire length of the limits of work on Seminary Road, and will meet all ADA requirements for a sidewalk facility as clarified in our proprietary meeting and in the RFP addendums. Additionally, the facility will be located completely within the right-of-way (existing and proposed) identified in the RFP documents. Based on the alignment proposed, the reduced span lengths have allowed us to provide the required 17'-6" vertical clearance over the "rotary level" portions of Seminary Road while using standard structural girders, as opposed to a pre-fabricated structure. In our discussions with suppliers of prefabricated structures, and based on our Team's recent experience in construction of a similar prefabricated structure on Trap Road over the Dulles Toll Road, we are aware that fabrication of a structure with extremely long spans, as would have been necessary for the alignment depicted in the RFP, may not have been feasible. One major concern with the prefabricated structure was the availability of space to erect the segments of the pedestrian facility, since each span would need to be assembled near-by, or delivered to the site in large sections for immediate installation. Based on limited availability on-site, lack of open space or undeveloped property immediately adjacent to the project, and limited ability for full roadway closures, we believe delivering and erecting the large prefabricated segments would have been difficult, if not impossible without significant impacts to the public and local businesses and community. As required by ADA guidelines, the profile of each approach to the spans over the "rotary level" will incorporate 8.33% vertical grades for a longitudinal distance of 30'. Each of these grades will be separated by a 5' "landing" area with a grade of no more than 2.0% in each direction. This configuration is consistent with the pedestrian overpass approach recently constructed on a VDOT project, adjacent to Route 50 near Seven Corners and Patrick Henry Drive.

In addition to the design elements above, our Team recognizes the recent approval of the IMR for the Seminary Road improvements and will comply with the requirements of that document. We will complete the conceptual study and operational analysis of the surrounding facilities, specifically in the areas of Kenmore Avenue and Library Lane. Traffic data and signal operation analysis will help to determine if additional construction elements

need to be considered or implemented to improve operation and safety of the roadway network. As required, we will coordinate with VDOT and the City of Alexandria to identify the additional alternative to be studied as well as the two alternatives identified in the RFP to determine what safety and operational improvements could be implemented.

### Auxiliary Lane Extension

The auxiliary lane extension portion of the Project consists of widening the existing single lane entrance ramp from Duke Street to northbound I-395 from a single to a dual lane and extending the existing auxiliary lane for the full length of I-395 to the Seminary Road exit ramp (a portion of this widening is associated with the HOV Ramp Project identified above). This extension will help improve capacity on I-395 and provide an extended length for weaving of traffic between the two heavily used interchanges. The vertical profile of the auxiliary lane extension will be based off of the existing grades of I-395. Widening will be completed at the required cross slope, and a full width paved shoulder (15' per RFP requirements) will be provided on the right side of the northbound lanes. In accordance with the RFP documents, the entire width of northbound I-395 will be milled and overlaid. Based on the close proximity of Van Dorn Street and significant vertical grade differences between the two roadways, retaining walls will be required adjacent to northbound I-395. As shown in our Volume 2 document, we have identified the potential need for seven retaining walls along northbound I-395 in the following locations:

WALL IDENTIFICATION	BEGINNING STATION	ENDING STATION
Retaining Wall "A"	Duke Street Ramp Sta. 17+50	NB I-395 Sta. 278+00
Retaining Wall "B"	NB I-395 Sta. 283+25	NB I-395 Sta. 286+25
Retaining Wall "C"	NB I-395 Sta. 288+75	NB I-395 Sta. 290+25
Retaining Wall "D"	NB I-395 Sta. 292+25	Sanger Avenue South Abutment
Retaining Wall "E"	Sanger Avenue North Abutment	Sta. 308+75
Retaining Wall "F"	Seminary Road Ramp Sta. 408+50	Seminary Road Ramp Sta. 410+50
Retaining Wall "G"	Seminary Road Ramp Sta. 415+50	Seminary Road Ramp Sta. 416+30

In locations where retaining walls are not required, curb and guardrail will be installed to eliminate drainage runoff from the fill slopes and to minimize clearing and grading impacts to the existing slope. The existing I-395 bridge over Sanger Avenue will be widened to accommodate the same typical section proposed for the roadway, and retaining walls will be extended from both abutments in order avoid slope impacts to the existing pedestrian and traffic signal facilities at the intersection of Sanger Avenue and Van Dorn Street.

### Potential Noise Barriers

As identified in the noise analysis technical reports completed for the HOV Ramp and Auxiliary Lane Projects, a substantial amount of noise barriers may be required as part of this Project. Specifically, noise barriers were

NOISE BARRIER NUMBER	APPROX. BEGINNING STATION	APPROX. ENDING STATION
Noise Barrier #1	SB Duke Street Exit Ramp *	SB I-395 Sta. 212+25 *
Noise Barrier #2	NB I-395 Sta. 277+00	Seminary Road Ramp Sta. 413+25
Noise Barrier #3	SB I-395 Sta. 221+75	SB I-395 Sta. 232+75

\*Indicates that stationing is approximate since existing survey and topography has not been completed. An opening in the barrier will be provided at Quantrell Avenue consistent with the Noise Analysis Technical Report completed for the Auxiliary Lane Project.

As identified in the preliminary noise reports, a gap of approximately 950' will be maintained adjacent to the Winkler Botanical Preserve property where the existing cut slope is adequate for noise attenuation. As noted in

the technical report documents, noise barrier heights are anticipated to be between 15' and 30'. Final locations and heights of the barriers will be determined based on a final noise analysis which will reflect final design grading and proximity of the noise barriers to the travel lanes. During the initial stages of design, all field surveys and project mapping will be updated and completed. At that time, locations of the potential noise barriers, consistent with the locations identified in the technical reports, will be developed and coordinated with existing features. Noise walls will be located so they do not require additional right-of-way and to minimize and avoid impacts or conflicts with existing utilities and drainage facilities. As required by the RFP documents, public outreach will be completed to determine the desire for construction of the warranted noise barriers before final design is completed. Our Team understands that the southernmost noise barriers along southbound I-395 as identified in Part 2, Section 2.5.8.1 of the RFP will be considered as part of a possible work order pending the results of the final surveys, analysis, and public outreach. The construction of all other noise barriers are included in the scope of the project.

For the noise barrier adjacent to the northbound I-395 travel lanes, the barrier is anticipated to either be constructed as part of a "combination" noise barrier and retaining wall or as a ground mounted structure behind the proposed guardrail and curb. As shown in our Volume 2 documents, the barrier will be flared at necessary locations to accommodate the required overhead and cantilever sign structures, and the front face of the noise barrier will be located no less than 6' from the face of guardrail and curb to accommodate proposed drainage structures, longitudinal drainage pipes, and guardrail deflection requirements. Where noise barriers are installed as part of a combination retaining wall system, a concrete barrier (MB-7D) will be constructed in front of the noise barrier and the void between the concrete barrier and noise barrier will be filled in accordance with the VDOT Road Design Manual to prevent ponding of water or collection of debris.

Along the southbound lanes, each of the noise barriers will be located horizontally to accommodate a future single lane widening of southbound I-395 in accordance with the RFP requirements. Our Team also recognizes that it may be desirable to increase the existing 11' lane widths on southbound I-395 to 12' lanes when the widening occurs. To account for this, we have located the potential noise barriers at an offset to accommodate full 12' lane widths for the existing lanes, the additional 12' lane widening, and a 15' shoulder for consistency with the northbound typical section.

### **Drainage & Stormwater Considerations**

There are three major components or considerations for the Project drainage system:

1. Use of existing storm sewers and proposed storm sewer design
2. Avoidance of the existing Holmes Run Culvert
3. Stormwater management

### ***Existing System***

Based on preliminary investigations of the existing storm sewer system, our Team proposes to design the Project's storm sewer systems to avoid connections to the existing systems to the greatest extent possible. This decision was made for two main reasons. First, the existing survey information currently available shows that several existing culverts may be undersized and unable to accept additional flow from the Project. The addition of flow to these existing systems may require significant work to either open cut, or jack and bore new crossings from the east side of I-395 to the west side. New crossing installations would need to be coordinated with potential temporary lane closures, consider existing utilities, and be completed while maintaining flow to the existing systems. Second, many of the existing crossings are extremely deep below I-395 since they also collect flow from the lower portions of Van Dorn Street. If connections were made to these deep systems, extensive temporary shoring and/or sheet piling would be required immediately adjacent to traffic in multiple locations,

introducing the need to install additional barrier and potentially temporary lane shifts which would otherwise be unnecessary. These issues would add significant cost, time, and risk to the Project scope. Therefore, we have designed our storm sewer systems to run longitudinally along I-395 requiring the least number of lateral crossings of the roadway as possible. Existing drainage will be resurveyed as part of the initial field survey work, and existing pipes which will need to be reused or replaced as part of the proposed system will be investigated to determine their size, condition, and adequacy. At this time, in accordance with the RFP requirements, we have assumed that existing pipes which need to be used as part of our proposed systems will be removed and replaced. If existing pipes are sized appropriately and in a condition which could allow for their reuse, we will make the needed submissions to VDOT to confirm their adequacy and modify the proposed design.

### ***Holmes Run Culvert***

The avoidance of impacts and/or modifications to the existing Holmes Run culvert and pedestrian walkway is a critical component of the Project. Our Team has significant experience in designing widening improvements over existing culverts while maintaining and not impacting the existing structure. We also have significant experience with design and construction of protection slabs to avoid impacts to existing structures and utilities. This experience has led our Team to our proposed solution for the widening of I-395 over Holmes Run culvert and pedestrian walkway as discussed in our Proprietary Meeting. As noted in that meeting, the Holmes Run culvert and pedestrian walkway were designed to account for the full height of earth load placed on the culvert by the existing I-395 travel lanes. The widening proposed for the northbound auxiliary lane will result in a load consistent with the existing travel lane area above the pedestrian walkway and culvert. Our preliminary structural analysis, taking into consideration the additional earth load, wall load, and noise barrier load, will not overload the existing structures. The analysis we have completed and which we will finalize during final design, converts the load of the wall and noise barrier to an equivalent earth load. This analysis has been completed on several of our recent projects, including the Route 28 PPTA and Route 27/244 Interchange, resulting in cost effective solutions for both projects which did not include replacement of the culvert or construction of a significant underground structure or “grade beam”. This past experience, combined with our preliminary analysis of the Holmes Run culvert, confirms that this same method and solution will also be acceptable at this location.

### ***Stormwater Management***

We have completed a preliminary analysis of the existing drainage routes and confirmed that our proposed storm sewer design will not affect the functioning of existing stormwater facilities or require construction of new stormwater facilities. Based on these preliminary investigations and our conceptual drainage plan, we concur with the RFP documents which indicate that new stormwater management facilities are not required for this Project. As part of our final design, we will ensure that adequate amounts of flow are maintained to existing facilities, including on the Winkler Botanical Preserve property. The construction of new, separated storm sewer facilities will also help to ensure that construction runoff can be controlled to avoid the potential for sediment to impact existing facilities. Proper E&S controls will be installed and maintained throughout the Project site, with specific care given to critical areas, including the outfalls to Holmes Run and the Winkler Botanical Preserve property.

## **Additional Design Elements**

### ***Landscaping***

Although landscaping may be a minor cost element of the Project, it is certainly one of the most visible elements and could have an impact on whether the local community along Van Dorn Street considers the Project a success. Based on existing grades and proximity of existing roadways adjacent to I-395, there is limited area where

landscaping can be implemented to “soften” the impacts of the proposed roadway improvements. As shown on our Conceptual Roadway Plans in Volume 2, our Team intends to complete a substantial landscaping package along northbound I-395 between the back of the potential noise barrier and the existing pedestrian facilities along Van Dorn Street. Plantings will be in accordance with the required standards and memos as identified in the RFP documents, and will utilize native species which will survive in the potentially severe roadside environment. In general our concept incorporates the following considerations:

- Street trees along Van Dorn Street to supplement the existing street trees and provide a uniform planting concept adjacent to the pedestrian facilities.
- Additional trees and mid-level plants will be installed to screen the wall elements directly across from each side street approach where motorists will directly view the noise barrier and/or retaining walls. This concept will be repeated along the barrier/walls directly across from each residential structure along Van Dorn Street where the frontage of the structure has direct view of the barrier/walls.
- Based on final design and limits of clearing, a tree survey will be completed to identify the number of trees greater than 6” in diameter which will be impacted. Based on that quantity, flatter slopes which are conducive to planting of trees will receive additional trees 2” caliper or larger in accordance with the RFP requirements. It is anticipated that these additional trees will be primarily planted at the northern end of the Project where slopes are flatter between I-395 and Van Dorn Street.
- Along southbound I-395, plantings will be installed to replace trees and shrubs removed as required for installation of the potential noise barriers.
- Clearing will be kept to a minimum while still allowing adequate construction access for construction of the noise barrier foundations, as well as for erection of the noise barrier panels.

In all locations, planting of trees and other landscaping elements will consider future maintenance needs, safety issues such as sight lines, and will be coordinated with the local community and citizen groups as outlined in the RFP documents.

### ***Roadway Lighting***

As required by Section 2.10.2 of Part 2 of the RFP documents, roadway lighting will be provided for the new ramps and to replace existing lights impacted by construction. Based on the roadway concept developed by our Team, we expect that roadway lighting will be provided through installation of standard offset fixtures which will either be located behind guardrail or on top of the barriers / parapets associated with the potential noise barriers and retaining walls. Lighting analysis will be completed in accordance with the contract documents utilizing AGI-32 analysis, and electrical designs will be coordinated with the utility company to determine best locations for service points, if they are required to be in different locations from the existing services. Combination light poles and signal poles will be designed where appropriate, and coordinated with the City of Alexandria since it is anticipated that these combination lights will only be required on Seminary Road.

### ***Intelligent Transportation Systems (ITS)***

Our Team has significant experience designing and installing ITS elements, having completed installation of similar and more complex elements on I-95 4th Lane and I-66 Widening projects. As identified in the RFP documents, the existing ITS conduit system, including the portions leased to public utilities, will be relocated to accommodate the widening of I-395. Conduits will be installed at a minimum depth of 36” as required by the RFP documents, and will be located to allow for future maintenance with minimal shoulder and/or lane closures. Prior to design of the relocated facilities, we will coordinate with CenturyLink to determine requirements for relocation of their conduits.

For the proposed gate control system, it is anticipated that separate conduits will be required in both parapets of the Seminary Road Bridge. Conduits will be designed to provide power and communication to all devices associated with the gates, gate CCTV camera, and gate dynamic message sign (DMS). Conduits for these components will be located in coordination with conduits required for traffic signal operation and roadway lighting elements.

As required by the RFP, all proposed systems will be coordinated with the systems being upgraded as part of the I-95 Express Lanes project and/or ATMS systems upgrade.

### 4.3.2 CONCEPTUAL STRUCTURAL PLANS

The Shirley Team's proposed bridge concepts meet all of the requirements of the RFP bridge criteria and commitments. The Project involves the design and construction of a new HOV Ramp Bridge which will tie into the south fascia of the existing Seminary Road Bridge, the rehabilitation of the Seminary Road Bridge, a new pedestrian bridge across I-395 north of Seminary Road, widening and rehabilitation of the existing Sanger Avenue Bridge, replacement and installation of overhead sign structures, and construction of several retaining walls and noise barriers. Additionally, the retaining wall and noise barrier along northbound I-395 over the existing Holmes Run culvert will require special design consideration. In addition to the design of the new bridges and rehabilitation work, two comprehensive in-depth inspections and evaluation for the Sanger Avenue and Seminary Road bridges will be required. Each of these items is addressed in the following sections.

#### HOV Ramp Bridge

The Shirley Team has revised the span arrangement shown in the RFP in an effort to reduce overall bridge length. The south abutment has been moved as far to the north as feasible to reduce the overall bridge length without reducing the median shoulder width on northbound I-395. The southern approach to the bridge will be supported by MSE walls on both sides of the ramp leading up to the south abutment, and the pier locations have been established to avoid impacting existing utilities and storm sewer facilities. Based on the width of the median between the northbound I-395 lanes and the HOV lanes, a structurally independent barrier, designed to TL-5 crash test requirements, will be constructed at the edges of the paved shoulders to protect the HOV bridge piers within the clearzone. Our Team recognizes that the median shoulder of northbound I-395 will be under the proposed bridge deck, and that adequate vertical clearance must be maintained on the shoulder for the entire length of the HOV bridge overhang. Accordingly, our structure type, pier locations, and pier cap configurations will be designed to satisfy this requirement. Our Team considered the use of both prestressed concrete Bulb-T beams as well as continuous weathering steel plate girders for this bridge. Based on the vertical clearance required at the southern abutment (16.5' due to the overhang of the northbound shoulder) and the desire to reduce the number of girders, our Team has chosen to utilize continuous weathering steel plate girders. Selection of this type of girder has allowed us to maintain the required vertical clearance while maximizing the pier spacing and eliminating one (1) girder line from the majority of the bridge as compared to the RFP plans. Elimination of one (1) girder line results in the need for only four (4) girder lines on the bridge. Variable girder spacing will be utilized to accommodate changes in the geometry of the bridge including curvature of the alignment and the flare required at the lane taper at the south end of the bridge. This proposed configuration represents a significant reduction in maintenance needs through elimination of the girder line, and the use of weathering steel reduces long-term maintenance while lending itself to the flared framing required. The southern abutment will be a cast in place Virginia Alternate Abutment type, and we recognize that final design of the abutment will need to account for potential soil settlement based on the existing subsurface material and weight of the proposed embankment fill. These considerations will be taken into account in the final foundation design either through accounting for downdrag loads in the piles or through working with our Geotechnical Engineer to design soil improvement

methods such as light-weight fill or consolidation to minimize settlement to within allowable limits. As discussed in more detail in Section 4.4.3 of our Technical Proposal, our Team has significant experience in utilizing each of these design options having recently incorporated them into the Route 27/244 Interchange Improvements as well as the U.S. Army Corps Of Engineers BRAC 133 Mark Center site improvements.

A unique design element of this structure is the interface between the new HOV bridge and the existing Seminary Road Bridge. Our Team considered a framing plan which would have connected the new HOV Ramp girders to the existing Seminary Road girders while maintaining a short (60') span from the last HOV bridge pier to the existing Seminary Road fascia. However, our analysis of this concept indicated that this configuration would result in increased loads on the existing Seminary Road girders which would require their replacement. In addition, the existing Pier 2 of the Seminary Bridge would have required strengthening of the cap, columns and foundations due to the increased loads from the HOV Ramp span. To alleviate these concerns while still providing a jointless connection, our Team has selected a layout which places a pier immediately adjacent to the existing Seminary Road Bridge, similar to the RFP plans. This layout will allow the existing girders to remain in place (without overstressing or overloading) and avoids modification to the existing Pier 2. To comply with the requirement to not have a joint at the interface between the HOV bridge and the Seminary Road bridge, we intend to tie the deck together and provide a structural system between the HOV Ramp girders and the existing fascia girders that will address the potential for slab cracking due to differential deck deflection between the Seminary Road Bridge and the HOV Ramp. This must be addressed in order to reduce any potential future maintenance associated with this unique structural configuration.

It is anticipated that the approach fill at the south abutment will cause settlement of the approach fill due to presence of compressible clays. See Section 4.4.3 "Geotechnical" for more details of our proposed approach to the geotechnical aspects of the project. We will look into different options to limit or accommodate this settlement including the possible use of lightweight MSE backfill and designing the abutment piles for downdrag loads.

Finally, the new structural framing design will accommodate HOV gate arms and traffic mast arm poles that are required as part of the traffic plans. We have experience designing this type of configuration having completed it for the Monument Drive ramp connection in the median of I-66. Final locations of the support structures will be identified through final design of the HOV gate arm system and traffic signal configuration. A Fire Protection System (standpipes) will also be designed for this bridge.

### **Seminary Road Bridge Rehabilitation**

As part of our work in preparing this Technical Proposal, our Team has reviewed the existing structural plans available and performed preliminary fatigue analyses for the Seminary Road bridge. Some of the key details studied included welds, cross frames, connector plates and longitudinal stiffeners. Our analysis indicates that there are no details which require retrofitting due to inadequate load induced fatigue resistance. However, we have identified at least one crossframe connector plate detail which is susceptible to distortion induced fatigue and may need to be retrofitted. Repairs to the substructure and superstructure as identified in the 2012 Biennial Inspection Report will be performed, and the first of the two required in-depth inspections will identify if there are any members which require repair or rehabilitation. The Shirley Team has determined that the most cost effective approach is to rehabilitate and retain the existing girders. This approach also significantly reduces the construction impacts that would be required to demolish the existing girders and erect new girders over I-395. As part of the rehabilitation, all of the existing bearing components will be removed and new laminated elastomeric bearings will be installed. The deck will be completely replaced in a phased approach with a new, wider deck to accommodate the number of lanes, turn lane, shoulders, and wider F-shape parapets as required in Part 2 of

the RFP. This will also require widening of the existing abutments. The required F-shape parapet will increase the load on the exterior girders because of the increased overhang dimension and parapet weight compared to the existing bridge. Our preliminary analysis indicates that due to the added weight of the F-shape parapet, the exterior girders may be slightly overstressed. To eliminate this concern, we will consider the use of lightweight deck concrete during final design. Additionally, a new traffic signal pole will be required at the new intersection with the HOV ramp bridge which will need to be mounted from the Seminary Road Bridge. We have designed several of these types of connections recently for new interchanges at Route 28 and Willard Road, and Route 7 and Loudoun County Parkway. Our proposed method of attachment of this signal pole is shown in our Volume 2 documents and will not overstress the existing girders. A Fire Protection System (standpipes) will also be designed for this bridge.

We have also investigated ways to reduce the number of joints on the existing bridge following construction of the project. Our preliminary analysis has indicated that the existing deck joints at Piers 1, 2, and 4 can be eliminated, thus significantly reducing future maintenance issues. We also investigated elimination of the joint at Pier 3, but this modification would have required a tooth expansion joint at the east abutment of the bridge. Introduction of a tooth joint on the existing bridge is not feasible without significant reconstruction of the backwall to create the space needed for this type of joint. In addition to the deck replacement and structural steel rehabilitation, our Team will also complete the full replacement of the existing bearings. The new elastomeric bearings installed will be designed to accommodate the revised deck joint layout

### **Pedestrian Bridge**

As noted in Section 4.3.1 above, our Team has developed a different alignment for the pedestrian facility which is similar to the existing pedestrian alignment. The proposed alignment will be completely within existing and/or proposed right-of-way as identified in the RFP documents. By incorporating “level landings” at the approaches to the spans over the “rotary level” of Seminary Road, the entirety of the bridge structure can utilize standard structural girders in a three-girder cross section while still providing the required minimum vertical clearance of 17’-6”. Pier locations have been identified so that construction can be completed without impacts to the existing retaining walls adjacent to Van Dorn Street, as well as while minimizing and avoiding temporary lane shifts and impacts to traffic on I-395. Additional details, including the typical section and conceptual span configurations are included in our Volume 2 documents.

### **Sanger Avenue Bridge Widening and Rehabilitation**

Our Team has reviewed the existing structural plans provided with the RFP documents and information packages for the I-395 bridge over Sanger Avenue and has identified one load-induced fatigue prone detail. Our fatigue evaluation indicates that retrofitting will be required at the partial length welded cover plate terminations in order to achieve the service life required by the RFP. To address this issue, we have investigated both the use of Ultrasonic Impact Treatment (UIT) and bolted retrofits to each of the bridge girders. Based on our analysis of both methods, we propose to use the UIT to retrofit the load-induced fatigue prone elements. This method was selected since it will require the least impacts to the traveling public during implementation since the time required for the UIT is much less than the time required to complete bolted retrofits. The UIT has been used recently by VDOT to extend the service life of existing bridges, and will require only minor and short term impacts to traffic through temporary lane closures to allow the existing welds to be improved. A conceptual detail for the UIT is included in our Volume 2 documents. In addition to the load-induced fatigue prone detail, we have also identified at least one diaphragm connector plate detail which is susceptible to distortion-induced fatigue and may need to be retrofitted. Retrofit of this detail is anticipated to require bolting of additional angles to the girder flange and the connector plate to provide a rigid attachment which will address the fatigue prone detail.

In addition to the modifications above, the first of the two required in-depth inspections will identify if there are any additional members that will require repair or rehabilitation. A more detailed description of the in-depth inspections is included in a separate section below. Repairs to the substructure and superstructure as identified in the 2012 Biennial Inspection Report will also be completed.

In addition to the repair and rehabilitation of the existing bridge structure, the northbound bridge will also be widened to accommodate the continuous auxiliary lane between Duke Street and Seminary Road, as well as to support installation of a possible 30' tall noise barrier. To reduce impacts to the traveling public and minimize the amount of deck removal and replacement, our Team has developed a conceptual plan which will reuse the existing exterior beam and install two new girders to support the roadway widening and potential noise barrier. A special design truss cross frame will be required to resist the large overturning load from the wind force on the noise barrier. A section depicting our proposed concept and the truss cross frame is included in our Volume 2 document. Lightweight noise barrier panels will be used and mounted to the deck in accordance with the Sound Wall Barrier Attachment in VDOT's Structure and Bridge Design Manual in an effort to reduce the load on the bridge. With this proposed concept, our Team has reduced the number of additional girders required by two, helping to reduce the long-term maintenance needs on the structure.

Along with the northbound bridge widening, the southbound bridge will be widened to accommodate installation of a potential noise barrier, estimated to be 15' tall per the noise analysis provided with the RFP documents. The noise barrier will be attached in the same manner identified for the northbound bridge. The major challenge with modifications to this bridge is the existing minimal total bridge width and the existing typical section. This allows for virtually no temporary deck removal during construction. Maintaining the existing bridge section four (4) thru lanes and minimal shoulder widths does not allow for temporary shifting of traffic to install temporary barrier service. To address this challenge, we propose to reuse the existing exterior beam and add one new girder. This configuration allows us to maintain the required number of travel lanes and lane widths on I-395 by minimizing the shift required to install temporary barrier, as well as reducing the amount of bridge deck which needs to be removed. With respect to long term maintenance, the proposed beam configuration, shown in our Volume 2 document, eliminates one (1) girder as compared to the RFP concept, thus reducing long term maintenance and inspection needs.

A final challenge to the existing bridges over Sanger Avenue is maintaining the minimum vertical clearance while completing the widening to accommodate the final lane configuration and noise barriers. We have investigated the structural needs for the widened sections, and based on our beam configurations and spacing, we will achieve the required minimum vertical clearance for the bridges over Sanger Avenue with our design.

### Retaining Walls and Noise Barrier Walls

The Shirley Team considered several types and configurations of retaining walls and noise barriers. The table included in Section 4.3.1 identifies the limits of each of the potential noise barriers and anticipated retaining walls. The majority of retaining walls are required for the widening of northbound I-395 while minimizing impacts to the existing slope and Van Dorn Street located adjacent to I-395. Based on the preliminary noise analysis information, we anticipate that a noise barrier will need to be co-located with each of these retaining walls. During our analysis, we considered several wall options including multiple configurations of MSE walls and cast-in-place walls which would account for the loading of the noise barriers. Based on our investigation and significant experience with construction of each of the potential wall types on the recently completed the 4th Lane Widening of I-95, our Team believes that construction of a combination retaining wall/noise barrier will be the best alternative. A conceptual typical section for this alternative is included in Volume 2 of our

Technical Proposal. These walls avoid the need to install temporary shoring behind the temporary barrier along the northbound lanes of I-395, thus improving safety and minimizing impacts to the traveling public as compared to a typical MSE type wall installation, which would require excavation for strap installation. Our concept will utilize retaining walls supported by posts (soldier piles) which will be installed in drilled shafts. Concrete panels will be installed between the post flanges, and the panels below grade will be designed to resist lateral earth pressure. The panels above grade will be constructed to meet the requirements for sound barriers in accordance with absorptive and reflective requirements identified in the RFP. An architectural treatment will be provided on the outside face of the concrete panels that support earth fill. The combination retaining wall/noise barrier will be located behind a concrete barrier placed at the edge of the 15' shoulder as required by the typical section for I-395, and the minimal "open" space between the concrete barrier and the combination wall will be filled in accordance with the current VDOT Road Design Manual.

### Widening over Holmes Run Culvert

The construction of the auxiliary lane on northbound I-395 will require pavement widening over the existing Holmes Run culverts and pedestrian structure. The existing culvert structure consists of two, 26' wide by 18' high arches with a 126" diameter concrete pipe immediately south of the arches. The existing fill slope extending down from the edge of I-395 to the culvert headwall is approximately 1.5 to 1, and can't be flattened or extended without requiring significant modifications to the inlet structure of the arch and culvert. To avoid extension of this structure, we intend to construct a retaining wall with a height of approximately 13'. Additionally, as identified in the RFP documents, a potential noise barrier wall may also be required along this side of the road with a height of 30'. Our Team has significant experience in dealing with widening over existing culverts while not requiring modifications to the existing culvert structure. It is this experience which will lead our Team to a successful engineering analysis and solution which will result in loading on the existing culvert that is no greater than the load applied to the culvert where the cover depths are greatest. In different terms, we will ensure that the loads applied by the noise barrier and retaining wall are no greater than the loads applied by the deepest cover depths which are currently located under the existing travel lanes of I-395. In addition to the widening and retaining wall/noise barrier loading considerations, we also recognize through analysis by our geotechnical engineers that global stability of slopes along I-395 does not meet the required factor of safety in this area. To address the combined effects of these multiple constraints, our Team considered several options, including:

- A retaining wall and a separate ground mounted noise barrier
- A cast-in-place cantilever wall that also supports the noise wall posts
- A large grade beam that supports both the retained earth and noise wall supports with foundations located outside the limits of the culverts; and
- An MSE type wall with a large moment slab that can support the noise wall

Based on our analysis, the MSE wall option will most effectively address each of the challenges while minimizing impacts to the public. The separated retaining wall and noise barrier option was deemed cost prohibitive since the noise barrier would need to be extended by a height equal to the retaining wall. The cast in place cantilever wall proved to be difficult to construct since the wall footing would extend significantly into the existing travel lanes, and the grade beam option would have required construction of a significant structure which could not have been adequately supported on drilled shafts adjacent to the culverts, with a shaft spacing approaching 100' (to span both arches and the pedestrian tunnel). The MSE wall option is anticipated to be the best solution since the straps can be installed without additional impacts to temporary traffic on northbound I-395. We estimate that the MSE straps will need to be approximately 24' long to account for the moment associated with the noise barrier, and these straps also eliminate the global stability concerns. Additionally, this option has an added benefit of

providing the ability to use lightweight MSE fill if necessary to further reduce loads on the existing arch culverts.

### In-Depth Inspections

As required in RFP Addendum 1, we will perform two comprehensive in-depth inspections and evaluations of the existing bridge superstructures. These inspections are intended to determine and document the extent of deterioration, distress, and repair needs, with particular emphasis on the fatigue issues of the bridge superstructures, prior to and after construction. Fatigue occurs in members subjected to continued reversal of stress, or repeated loading such that a range of change in stress occurs. Members that have a relatively constant, steady stress are not subject to fatigue. Fatigue is currently defined by the American Society of Testing Materials (ASTM) as “the process of progressive localized permanent structural change occurring in a material subjected to conditions that produce fluctuating stresses and strains at some point or points and that may culminate in cracks or complete fracture after a sufficient number of fluctuations.” Fatigue can result in loss of strength, loss of ductility, and reduced service life. Fatigue occurs at stress levels well within the elastic range, that is, less than the yield point of the steel, and is greatly influenced by minor imperfections in the structural material and by fabrication techniques. Fatigue fracture almost always begins at a visible discontinuity, which acts as a stress-raiser. Typical examples include design details such as holes, notches, or section changes, flaws in the material such as inclusions or fabrication cracks, poor welding procedures such as arc strikes and weld terminations. Certain structural details have been long recognized as stress-raisers, are classified as to their potential for damage, and appear in the current AASHTO Bridge Specifications. These common details are familiar to our bridge inspectors.

The two additional comprehensive, in-depth inspections and evaluations which will be completed by our Team will determine and document the extent of the deterioration/distress and repair needs of the superstructure subjected to loading during construction and in the final bridge configuration. These inspections will be complete hands-on inspections and will include non-destructive testing. There are several types of non-destructive testing, including radiographic, ultrasonic, dye penetrant, and magnetic particle inspection. One single technique may not be sufficient to assess damage and a combination of more than one may be required during our inspections. All of our inspection personnel have undergone the proper training to use these techniques. The selection of the type of non-destructive testing method for a particular location is usually a function of the detail. For instance, potential cracks at the ends of welded cover plates are often inspected by the use of radiographic methods. Subsurface defects such as inclusions may be found by magnetic field irregularities, and cracks adjacent to fillet welds are usually inspected by dye penetrant. We will use access equipment including ladders, bucket trucks and snoopers as necessary to access all locations on the bridge. Our Team will provide maintenance of traffic as required for these inspections. Our inspection teams will include Team Leaders from Dewberry meeting all National Bridge Inspection Standards with extensive experience in bridge inspections with focus on fatigue details. Beyond the normal NBIS training, FHWA-NHI-134062A – Bridge Evaluation for Rehabilitation Design Considerations and FHWA-NHI-130078 – Fracture Critical Inspection Techniques for Steel Bridges provide the strong basis of the training for performing these required inspections. The existing bridges have two primary stress-raiser details, longitudinal stiffeners welded to the exterior girders and partial length cover-plates welded to the bottom flange. All these welds will be extensively inspected for any signs of fatigue stress, including cracks of the welds and base material. Our Team will document any distress or cracks visible in the bridge superstructure. The findings of the first inspection will be used to develop the most appropriate repair/rehabilitation for the bridges. Our Team will complete the second inspection after the bridge superstructure construction is complete to ensure the intended improvements were provided.



## 4.4 Project Approach

### 4.4.1 ENVIRONMENTAL MANAGEMENT

A significant benefit the Shirley Team provides to VDOT is that we have the in-house resources needed to efficiently manage the environmental and permitting processes continuously as design and construction progresses. Our permitting staff is well versed in the required Project commitments and numerous permit requirements, and has extensive construction experience to ensure the commitments and permit requirements are effectively implemented in the field. This includes not only the roadway improvements, but also considers effects from utilities, drainage, noise barriers, temporary traffic control, and construction staging and access considerations. Our environmental staff has conducted a thorough review of the proposed project improvements, all environmental investigations which have been conducted to date, the existing NEPA Environmental Assessment/FONSI documents, and re-evaluations for the I-395 HOV/Transit Ramp at Seminary Road, as well as the noise analysis and the October 2012 Categorical Exclusion for the I-395 NB Auxiliary Lane Extension.

Our review of the documents noted these two projects will have no effect on historic resources or endangered species, and there is a low potential to encounter contaminated soils, groundwater, or other hazardous materials within the Project limits. We understand testing for lead based paint, and asbestos containing materials, will be required for structure demolition and reconstruction work. Our Team has recent, relevant experience with respect to testing, permitting, and developing plans which address treatment and removal of hazardous materials having recently completed these same tasks on VDOT Design-Build Projects including the Route 50 Widening, Pacific Boulevard Extension and the Route 27/244 Interchange Improvement Projects. We also understand there are several commitments from the EA that must be complied with throughout design and construction. These include minimizing impacts to trees, incorporation of landscape improvements, analysis, final design, and construction of noise barriers, compliance with erosion and sedimentation and stormwater management regulations, invasive plant species management, and adhering to construction noise specifications.

We understand that there has been a great deal of public involvement on this project and additional involvement is necessary to assess the community desire for noise barriers and landscaping elements. Our Team has recent experience resolving design and construction challenges associated with these types of community involvement concerns. One example of this was on the Fairfax County Parkway Phase III Project, where our environmental staff worked with the designers in the context of an approved Environmental Assessment and completed a NEPA Re-Evaluation document to help satisfy nearby citizen concerns related to tree preservation, noise concerns, and roadway impacts. We modified elements of the original RFP design to eliminate impacts to approximately seven acres of forested land adjacent to the project, maintaining visual and aesthetic buffers for the adjacent residents. We were also able to eliminate a stormwater management pond that would have impacted a forested wetland through modifications to an adjacent existing stormwater management basin.

Our Team utilizes an integrated, comprehensive approach toward environmental management on all of our projects. We have found that by utilizing this type of approach, we are able to solve a variety of environmental challenges early in the process so that the project is seamless in its integration of environmental commitments and requirements. This process also provides for early identification of any need for additional studies and clearances which are outside of the original study areas. When additional studies cannot be avoided based on more detailed design, utility relocations, or site constraints, our Team conducts those necessary studies to obtain updated clearances and permits, notifies the appropriate VDOT personnel as to the need to address any required changes in a NEPA document, and provides documentation and support to the VDOT staff to coordinate appropriate clearances through FHWA and other regulatory agencies as necessary.

We are proactive in providing information to and soliciting comments from the appropriate VDOT representatives and we have formed long-standing relationships with the appropriate regulatory agencies, including the Virginia Department of Environmental Quality (DEQ), the Norfolk District of the U.S. Army Corps of Engineers (USACE), the Virginia Marine Resources Commission (VMRC), the Virginia Department of Historic Resources (DHR), the U.S. Fish and Wildlife Service (USFWS), and the Virginia Department of Conservation and Recreation (DCR). Due to our early and effective coordination efforts with pertinent agencies, our Team more thoroughly understands project specific challenges for the regulatory agencies so that submittals are approved more quickly. This will ensure that we can provide a smoother permitting process in a shorter amount of time, assuring that we meet the project schedule and minimize the associated risks.

Our Team is also very familiar with the various methods of obtaining numerous water quality permits for roadway projects, including pre-construction notifications for USACE Nationwide permits and the joint permit application process for DEQ/ USACE general and individual permits. There are a several tributaries adjacent to the project site including Holmes Run and a tributary to Winkler Pond. **Impacts to Holmes Run will be avoided by our design through the use of retaining walls, as previously discussed.** The tributary to Winkler Pond parallels the southbound lanes of I-395 and may contain a combination of wetlands and waters. Historic topography maps also identify a small tributary which at one time crossed I-395 and is now contained in a 24” culvert. Our Team will delineate these areas, as well as complete an overall search of the project limits, to determine jurisdiction and maximize avoidance opportunities during design. We do not propose changes to or encroachments into the Winkler Pond tributary or Holmes Run channels for noise barrier construction or utility relocation.

**Based on our preliminary analysis and our intent to avoid the existing Winkler Pond tributary and Holmes Run, we do not believe there will be a need for water quality permits beyond the Virginia Stormwater Management Program Permit (VSMP).** Our Team has significant experience in obtaining the VSMD permit, as well as in obtaining permit coverage for roadway improvements under DCR’s VAR10 General Permit for Discharges of Stormwater from Construction Activities. We also have significant experience in completing and submitting the VDOT LD-445 documentation and in developing the required Stormwater Pollution Prevention Plan (SWPPP) sheets. Our Team’s experience in dealing with challenging projects, coordinating with significant community and public input, and in obtaining each of the permits that will be required for this project, will help to ensure all environmental commitments are met and that all required permits are obtained on a timeline that meets all project schedules.

#### 4.4.2 UTILITIES

The I-395 HOV Ramp at Seminary Road Project is located along Interstate 395 in a congested, urbanized area of Alexandria. The corridor has extensive private and public utilities that serve the surrounding business and residential communities. In preparation of this Proposal, the Shirley Team has done a thorough study of the potential utility encounters, their impacts, and ways to avoid and/or minimize these impacts.

Our key to the successful completion of utility relocations within the Project schedule is having the experienced resources and relationships in place at the time the project starts. Through our 10 year history of completing design-build projects for VDOT and other Owners, the Shirley Team has gained extensive experience working with and coordinating relocations for over 25 different public and private utility owners, including all of the utility owners affected by this project. In addition to the multitude of utility conflicts that we have avoided through alternate design solutions, our Team has successfully completed the relocation of utilities totaling more than \$37 million on our design-build projects. This direct experience has allowed us to form close relationships

and a working knowledge with the individual utility companies, their processes and procedures. It is because of this experience that we have learned first-hand the importance of avoiding utility conflicts and relocations altogether. This will be our first and highest priority throughout the design and construction phases of the Project. If conflicts cannot be avoided by design, then we will work diligently to minimize these relocations through a combination of design and/or protection measures that allow the utilities to remain in place. Only as a last resort will we relocate utilities to eliminate conflicts with the new construction.

### Approach to Utility Coordination

For this Project, the Shirley Team will be following the VDOT Utility Relocation Policies and Procedures Manual with regard to the utility scope of work. We have already begun activities to ensure the success of the utility scope of work during preparation of this Technical Proposal, and the following is a general outline of the steps and activities to be performed once the Project is underway:

1. During the design phase, the Utility Manager will work closely with the design engineer(s) to obtain utility designations, test pit information and locations of existing easements. Based on this information, detailed feedback will be provided to the design, permitting and right of way discipline managers in an effort to create design solutions that provide additional avoidance and/or minimization of utility relocations.
2. The Utility Manager will make contact with each utility company to review utility relocation plans, identify relocations that are not necessary due to our Team's avoidance strategies, and communicate the schedule for Project completion. Specific attention will be given to the location of the proposed relocations so that any right of way and easements needed can be integrated into the right of way acquisition process.
3. The Utility Manager will hold UFI Meetings with private utility owners for all utilities that are in conflict with the proposed construction. He will then work closely with the individual utilities to establish a relocation plan, budget and schedule. These relocation plans and individual schedules will be integrated in the overall project schedule and coordinated with the other major project disciplines.
4. The Utility Manager will perform a thorough review of each private utility's prior rights in the early stages of the process. UT-9 forms will be prepared and pro-rata share budgets and relocation schedules will be finalized.
5. For the private utility relocations, our Utility Manager will coordinate with the utility to negotiate and execute utility agreements, and obtain utility relocation plans and cost estimates. If applicable, he will obtain a letter of "No Cost" if the utility does not have a compensable right or a letter of "no Conflict" where the utilities facilities have been successfully avoided. These documents will then be packaged and submitted to VDOT for approval.
6. For the public utility relocations, the Utility Manager will meet with the utility and our Design Team to identify the necessary scope for avoidance and/or relocations. These measures will then be designed by our Team. The plans will be submitted to the utility owner for review and approval and the construction activities coordinated with them to schedule inspections and outages as needed.
7. Once the utility relocation plans are completed and estimates and schedules have been approved by VDOT, our Utility Manager will then notify each utility in writing that relocations can begin. The approved plans and relocation schedule will also be communicated and coordinated with the design, construction and QA/QC teams.

Our Team's Preliminary CPM Schedule, included with this Technical Proposal, is already integrated to include all

of the utility coordination and relocation activities with appropriate ties to the design, right-of-way acquisition, and construction activities that are dependent on the utility schedule. Throughout our Team’s utility coordination efforts listed above, schedule progress will be closely monitored both by the Utility Manager and the Design-Build Project Manager as to the overall Project Schedule and with the established individual milestones. The CPM Schedule will be updated based on our avoidance and minimization efforts with activities modified and durations adjusted to reflect updated utility relocation plans and the utility companies’ work schedules. This detailed schedule integration and constant monitoring will provide our Team the earliest possible notification of potential schedule slippages allowing for more time to implement corrective measures and schedule mitigation techniques. These measures could include use of additional resources by the utility owner, adjustments to the Project schedule and phasing, and/or partial completion of relocation work by other construction staff (for example, placing conduit for cable relocations or drilling holes for placement of utility poles). If necessary, the delay issue will be elevated within the utility company, VDOT, and others as appropriate until an acceptable resolution is reached.

**Specific Project Utility Impacts**

As required by Part 2, Technical Requirements of the RFP, the following Public/Private utilities are required to be relocated and are included in our Proposal:

*VDOT ITS Utility Ductbank System:* Per the requirements of Section 2.16.1 of Part 2-Technical Requirements of the RFP, our Team has included the relocation of the existing VDOT owned ITS Ductbank System currently located in the right shoulder of existing I-395 Northbound. Our Team will design and construct the necessary communication and power conduit systems and provide the manholes, cabling, splicing and terminations as necessary for the nearly 8,000 linear feet of relocation. Additionally, we will provide the necessary coordination and conduits required for Century Link (Qwest Government) in this ductbank system. All work will be completed during the construction of the I-395 Northbound widening and construction of the new Auxiliary Lane.

Additionally, through our investigations and studies in preparation of this Technical Proposal, the Shirley Team has identified numerous potential impacts with existing utilities. These impacts are identified and a relocation plan or avoidance strategy is included in Exhibit 4.4.1.

**Exhibit 4.4.1**

UTILITY IMPACT SUMMARY					
UTILITY/OWNER	APPROXIMATE LOCATION	APPROX QUANTITY	UNIT	KNOWN OR POTENTIAL CONFLICT	RELOCATION PLAN / AVOIDANCE STRATEGY
<b>ELECTRIC</b>					
Va. Power (UG)	Crossing I-395 NB at Station 336+00	400	LF	Bridge Pier B-687	Pier Layout Designed to Avoid Utilities
Va. Power (UG)	Crossing Seminary Rd Exit Ramp at Station 410+00	400	LF	Retaining Wall/Noise Wall at Ramp	Use of Drilled Shaft Foundation - Spacing will avoid conflict
Va. Power OH	Crossing I-395 NB Station 282+80	2	POLES	Noise Wall Height	Raise Poles
Va power OH	Crossing I-395 NB Station 310+50	2	POLES	Noise Wall Height	Raise Poles

UTILITY IMPACT SUMMARY					
UTILITY/OWNER	APPROXIMATE LOCATION	APPROX QUANTITY	UNIT	KNOWN OR POTENTIAL CONFLICT	RELOCATION PLAN / AVOIDANCE STRATEGY
<b>TELEPHONE</b>					
Verizon NVA UG	Pedestrian Ramp at between Stations 26+00 to 27+00	100	LF	MSE Pedestrian Ramp Approach-East End	Expose Utility - Relocate In-Place out of Conflict
Verizon UG	Under Existing Seminary Rd Exit Ramp	600	LF	No Impact/ Confirmation Required	Utility is under existing pavement - Intended not to Disturb
<b>WATER</b>					
VA American Water	Crossing Seminary Rd Exit Ramp at Station 410+00	400	LF	Retaining Wall/Noise Wall at Ramp	As-Built or Test Pit Data to determine if 42" Casing needs to be extended for VAWC Maintenance purposes. Not a Direct Conflict
<b>SANITARY SEWER</b>					
FairfaxCounty Sewer	I-395 NB at Station 292+25 30'	75	LF	Retaining Wall/Noise Wall at Ramp	Use of Drilled Shaft Foundation - Spacing will avoid conflict
FC Sewer Manhole	I-395 NB at Station 292+25 30'	1	ea	Retaining Wall/Noise Wall at Ramp	Use of Drilled Shaft Foundation - Spacing will avoid conflict
<b>GAS</b>					
Wash Gas 12" gas	Crossing I-395 NB at Station 336+00	400	LF	Bridge Pier B-687	Pier Layout Designed to Avoid Utilities
Wash Gas 12" gas	Crossing Seminary Rd Exit Ramp at Station 410+00	400	LF	Retaining Wall/Noise Wall at Ramp	Use of Drilled Shaft Foundation - Spacing will avoid conflict
Wash Gas 2" gas line	Pedestrian Ramp at Station 27+00	100	LF	MSE Pedestrian Ramp Approach-East End	Expose Utility - Relocate In-Place out of Conflict
<b>FIBER OPTIC</b>					
VDOT ITS Ductbank	I-395 NB under existing shoulder for limits of project	7,800	LF	I-395 Northbound Shoulder and Roadway	Replace to new Shoulder per RFP Requirements
Century Link (Qwest Gov't)	I-395 NB under existing shoulder-located in VDOT ductbank	7,800	LF	I-395 Northbound Shoulder and Roadway	Replace to new Shoulder per RFP Requirements- add Add'l conduits
ATT Long Distance	Under Existing Seminary Rd Exit Ramp	600	LF	No Impact/ Confirmation Required	Utility is under existing pavement - Intended not to Disturb

### Utility Relocation Strategies and Avoidance

- As we have prepared our response to this RFP, the Shirley Team has invested a significant amount of time and effort to determine where utilities are currently located, how they are affected by the design, the cost to relocate unavoidable conflicts, and the schedule for doing so. As part of this analysis, we have

already identified several opportunities for minimizing the relocation of utilities by designing around them as well as planning relocations at strategic locations and stages of work to have the least impact to construction activities as well as the traveling public. While the feasibility of these will be finalized as the design is completed, the following demonstrate our commitment to a continued focus on this effort: As discussed in our Design Concept for the new Auxiliary Lane construction along I-395 Northbound, our Team will design and construct retaining walls, noise walls and combination retaining/noise walls via the use of drilled shafts with embedded pile construction. The use of this type of foundation allows the designers to space the foundation piling in order to avoid utility conflicts. Per Exhibit 4.4.1, we have highlighted those utilities where this a key strategy. These include the many utilities crossing the I-395 corridor within the project limits especially those at Station 336+00 along I-395.

- Where applicable and again as highlighted in Exhibit 4.4.1, our Team also will utilize an “in-place” relocation method that we have successfully used numerous times on other design-build projects. Where conflicts with underground utilities, such as electric, fiber optic, copper, and gas, cannot be avoided through design, we will excavate the utility to the point that it can be hand-relocated both horizontally and vertically enough to avoid the new construction. These type of relocations will be coordinated through and with the utility owner(s). In some cases, the utility owner will allow Shirley crews to relocate the lines. We have allowed time in our Project CPM Schedule to vet the options of relocation in front-end of the schedule. There are two such areas that this is anticipated along the Pedestrian Bridge Ramp approach. This area will employ shallow MSE Leveling Pad foundations and it is anticipated that the existing utilities in this area (Verizon and Wahington Gas-2”) can be relocated “in-place”.
- Duct bank: A strategy that has worked successfully on previous design/build projects has been to relocate several individual fiber optic lines into a common shared-use duct bank. The benefits include a single duct bank location within the Project limits, reduced cost to each utility, and greater schedule control over the completion of these relocations.

### Mitigation of Utility Risks

Utilities have the potential to significantly impact the Project schedule and cost. On design-build projects this risk is even greater for several reasons. First, at this stage of the Project’s development, the roadway plans are at a very preliminary level of completion and utility test pits have not been performed. It is virtually impossible at this stage to determine the accurate location of the existing facilities or the full extent of the impact the design will have on them. Second, the majority of the utility companies have not begun their design and analysis of the cost and schedule for their potential relocations. Finally, there is limited leverage available to the design-builder to affect the utility companies to complete their work within the overall project schedule.

It is precisely our Team’s experience managing these risks that has lead to the successful completion of every one of our design-build projects for VDOT. We have a proven strategy for mitigating these risks, one that VDOT can count on the Shirley Team implementing on the I-395 HOV Ramp at Seminary Road Project. These strategies include:

***A. Designating a full time Utility Manager whose primary focus is to manage the utility scope of the Project from concept to completion.*** Our in-house Utility Manager has served in this role on every one of our design-build projects to date and is already intimately involved in this Project. He has the relationships in place, a fundamental working knowledge of the individual utility companies, an indication of the existing utilities present in the project corridor, and a thorough understanding of the interaction between the utilities and all other project disciplines. Having an in-house Utility Manager is a key strength that our Team brings to the I-395 HOV Ramp at Seminary Road Project given the significant utility impacts we have identified. Not having to utilize an outside

third party consultant or subcontractor for this function allows our Team to exercise more control of the utility relocation process, provides quicker response and flexibility to adapt to project challenges, and facilitates the overall integration and constructability review functions

***B. Completely integrating utilities with all other project disciplines including design, right of way, permitting, construction, and QA/QC.*** The primary method of accomplishing this task is by holding, at a minimum, weekly Design Meetings with the entire Project Team. Led by the D/B Project Manager, these meetings are an extremely important tool in ensuring that all design-build disciplines have input into the design and each other's disciplines. All aspects of the design are reviewed and meeting minutes kept in order to track progress and define responsibility. Issues, and options for their resolution, are discussed and agreed to by all Team members. This interactive process among the various disciplines occurs continuously outside of the scheduled Design Meetings as well. VDOT can be assured that when plans are submitted, they have been created with input and review by all Project disciplines, including utilities.

***C. Creating a realistic Project Schedule with input from the utility and other disciplines.*** As shown in the project schedule included in Section 4.6, we have already reviewed the known utility conflicts and incorporated them into the overall sequence of work. Our Utility Manager has met with each individual utility company and discussed the project scope and potential conflicts with them. Based on these discussions, our previous experience, and the information provided by the utility companies at the Mandatory Pre-Proposal Utility Meeting on August 21, 2012, we have anticipated the timeframes for their relocations and coordinated those with the other disciplines, such as right of way, permitting and construction to arrive at a proposed sequence of work. In addition to this sequence meeting the RFP completion date, it highlights the need to remain focused on the management and coordination of the utility work. Throughout the Project, utility progress will be updated on a regular basis by the Design-Build Project Manager and the Utility Manager in order to identify schedule slippages as early as possible so that corrective measures can be taken without impacting the construction milestones and completion dates

***D. Holding weekly (at a minimum) Construction Progress Meetings on the jobsite.*** Led by the Construction Manager, these meetings are used to facilitate coordination, during the construction phase, among the utility, construction and QA/QC disciplines. Open for attendance by the Owner's representative(s), the detailed day-to-day schedule of work is reviewed specifically with the foremen and superintendents responsible. The Utility Manager will also attend, along with specific utility company representatives, so that utility work can be directly coordinated with the construction crews.

***E. Supplementing and assisting the Utility companies with their work.*** Because of our close relationship with the individual utility companies, we have employed several techniques that have allowed us to expedite and maintain greater control over their cost and schedule. First, in many cases, we are able to complete the conceptual design for them. This allows us to not only directly integrate their relocation design with that of the overall project's, but also complete this task more quickly. Second, we have also perfected the concept of a "common duct bank" for the relocation of multiple underground utilities, such as fiber optic cables. By negotiating an agreement between multiple utilities allowing us to design and construct the duct bank, each realizes a cost and time savings. VDOT and the Project itself benefits by the cost and time savings, but equally important are the benefits of having a single location for underground utilities instead of many individual locations to deal with for years to come. Finally, we are able to perform portions of the relocation work ourselves, thus saving additional cost and time. Examples include constructing duct banks, drilling and setting of wood poles for aerial relocations, performing the "in-place" relocations described above, and setting up temporary traffic control requirements for the utilities use.

### 4.4.3 GEOTECHNICAL

Our Team has significant experience working on design-build projects together, and is currently working on the Route 27/244 Interchange Modification Design-Build Project located in close proximity immediately west of I-395. Many of the challenges on this Project were also properly addressed by our Team on the Route 27/244 Project. That experience is one of the ways that our Team can ensure the successful completion of the Geotechnical Program on this Project. In fact, our understanding and identification of potential challenges has led us to develop a field investigation program which exceeds the minimum requirements of VDOT MOI and the current AASHTO LRFD Bridge Design Specifications for the field investigation. Early field investigations will be completed to supplement the geotechnical exploration and analysis already completed by VDOT as part of the RFP documents. Test boring data will be analyzed and a complete geotechnical document, including previous and new test boring logs, lab test results, and project recommendations will be submitted for review and acceptance as part of the plan approval process. Based on the elements of work associated with this project, we have identified the following elements where detailed geotechnical analysis and careful consideration will be required:

#### Existing Shoulder Pavements

An initial stage of our construction sequence is to improve the strength of the existing northbound I-395 median shoulder to handle vehicular traffic. Information provided with the RFP documents indicated only one pavement core was completed within this existing shoulder area. In order to adequately determine whether temporary buildup of the shoulder will be required, additional pavement cores will be completed to identify more accurately the depths of existing shoulder asphalt. Depending on this analysis, the limits of temporary shoulder pavement replacement may be reduced or isolated to accelerate construction during this early stage. Having recently completed temporary shoulder improvements on the Dulles Greenway, I-66 and Route 28, our Team is well versed with the requirements of temporary shoulder build-ups and the analysis required to determine the scope and limits of work required.

#### Slope and Global Stability for Roadway Widening and Retaining Wall Construction

Having recently completed significant slope stability analysis for the Route 27/244 Interchange Project and dealing with similar types of soils and subsurface conditions, we are well versed with the challenges associated with “sliver” widening of existing slopes and the potential for slope instability. In order to properly account for the challenges associated with the soil types expected and the work required along these “sliver” fill slopes, our Team will perform residual direct shear tests to determine the residual friction angle for Potomac Formation clays. The laboratory test results of residual direct shear tests will be compared with the published correlations, and the design value of residual friction angle for our slope stability analysis will be selected based on the reliability analysis of laboratory test data and correlation values. The global stability will also be determined by using the residual friction angle for Potomac Formation clays. It is anticipated that in order to achieve the target factor of safety required for the proposed fill slopes, some areas of the project may require slope stabilization techniques such as flattening of fill slopes or use of lightweight fill material.

#### Potential for Long-Term Settlement

Another focus of our geotechnical program will be to deal with the long term settlement of elastic silt and fat clay soils which are anticipated within project limits and which will be located beneath proposed embankment fills required for the widening of northbound I-395 and construction of the HOV Ramp approach roadway and MSE Retaining Walls. Our Team plans to perform consolidation tests to determine the settlement characteristics of Potomac Formation elastic silt and fat clay soils as well as fine grained soils of the existing fill stratum. A key consideration for settlement control will be the use of staged construction of the existing and proposed embankment fills. The final geotechnical investigations and recommendations will identify if specific waiting

periods will be required for settlement prior to placement of final pavement or retaining wall parapets and moment slabs, and staged construction will be considered when determining the settlement of new embankment fills being constructed into existing embankments. By using staged construction for settlement analysis and using lightweight fill material and/or surcharge techniques, we have estimated that post construction settlement will be less than 1-inch, as required by the RFP documents. In addition to settlement of embankment foundations, bearing capacity analysis of embankment foundations will be an important consideration in the geotechnical analysis and design of these embankments. Our Team plans to perform consolidated undrained (CU) and unconsolidated undrained (UU) triaxial tests to determine the bearing capacity in drained and undrained conditions.

### **Widening of Existing Bridges and Construction of Bridge Foundations**

With our recent and local experience constructing a new bridge and widening of slopes at the Route 27/244 Interchange Project, which consists of similar soil conditions, we understand the testing, exploration, and analysis required to properly identify the foundation types for the structures on this Project. Our Team will evaluate the use of spread footings and deep foundations, including driven H-piles and/or caissons (drilled shafts), for support of the bridge abutments and piers. In order to properly design the deep foundations for the bridge, our Team plans to perform consolidated undrained (CU) and unconsolidated undrained (UU) triaxial tests. The undrained shear strength will be used for undrained analysis of deep foundations and drained shear strength will be used to perform the effective stress analysis of deep foundations.

Because of the fill heights possible at the bridge approaches, specifically the proposed HOV Ramp and pedestrian overpass bridges, settlements of the compressible clays at the bridge abutment location are anticipated to occur over an extended period of time, likely well beyond the completion of the proposed construction, without pre-consolidation. If the piles are driven before fills are placed and settlements are complete, the clay soils in existing embankments and the underlying Potomac Formation clay will move down relative to the abutment foundation elements. This relative movement will apply downdrag loads to the piles in addition to any structural load applied at the top of the foundation. With this understanding prior to design, the downdrag load will be considered while calculating the design pile capacity.

In areas of bridge widening, such as Sanger Avenue, our Team will follow the recommendations of VDOT Road and Bridge Specifications Section 303.04 (h) that requires that the existing slopes be continuously benched where embankments are constructed into slopes of existing embankments. Based on the as-built bridge information, we recognize that the existing bridge foundations consist of spread footings. In analyzing the preliminary geotechnical information provided in the RFP, we expect that the foundation for the bridge widenings will also be supported by spread footings. In order to avoid the underpinning of the existing abutment footings, the new spread footings will be placed at approximately the same elevations of the existing footings. However, undercutting and replacement of loose soils will be required prior to placement of the footings due to the existence of approximately two (2) feet of a loose sand layer at the approximate footing elevation.

#### **4.4.4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)**

The Shirley Team is committed to providing VDOT with a project that is of the highest quality. Our extensive experience in design-build has led to the development of a proven QA/QC Program, complete with comprehensive procedures which address all aspects of quality from document inception to construction completion and final acceptance. This Program has been customized for the Project to incorporate all of the project specific contract requirements and the requirements of *VDOT's Minimum Quality Control & Quality Assurance Requirements for Design Build & Public-Private Transportation Act Projects, January 2012* (hereafter VDOT's Minimum QA/QC Requirements). Our Team has successfully implemented this Program, including utilization of independent Quality Assurance and Quality Control teams, on numerous design-build

projects for VDOT over the past ten years including the Route 28 Corridor Improvements, Battlefield Parkway, Pacific Boulevard, Route 50 Widening and Route 27/244 Interchange Modifications Design-Build Projects. As a result of our performance and commitment to QA/QC, VDOT has been able to reduce costs by minimally staffing these projects with only the basic oversight needed to confirm that quality standards are exceeded.

To protect the interests of VDOT and other Project stakeholders this Quality Assurance and Quality Control Plan (QA/QC Plan) shall be implemented and complied with by all Project Team members including: the Design/Builder; design engineers, consultants and subconsultants; contractors, subcontractors and suppliers; and quality assurance and quality control inspectors, testing technicians and laboratories. This Plan is described on the following pages and reflects the responsibilities and unique relationships among each of the parties involved in this project for both the Design QA/QC and Construction QA/QC.

### Description of Design QA/QC Procedures

Providing a completed project which meets VDOT's requirements and standards for plan development and long term cost effectiveness requires thorough QA and QC processes during design activities. The Shirley Team's Design QA and QC procedures have been developed to conform to VDOT's Minimum QA/QC Requirements. Our Team's design QA and QC functions are performed separately by independent staff not involved in the other quality role or the production of the design documents.

As identified in our Team's organizational structure, the Design Manager will be Dave Mahoney, PE of Dewberry. Mr. Mahoney will be responsible for oversight of all design disciplines, ensuring that each discipline coordinates with other disciplines to minimize rework and conflicts. He will also be responsible for monitoring the completion of the Design QA and QC functions for all design documents preparing final design certifications and signing and sealing of all final and construction documents. Design QA will be performed by Jeremy Beck, PE and Design QC will be completed by competent design engineers who were not involved in development of the specific design elements they are reviewing.

### Interdisciplinary Coordination

This project includes a variety of work items—bridge structures, retaining walls, noise barriers, roadways, pedestrian facilities, traffic signals, lighting, ITS, drainage, erosion and sediment controls, SWM facilities, permitting, right-of-way, and utilities. The interaction between the designers of these various disciplines and the Right-of-Way Manager, Utility Manager, Permitting Manager, and Construction Manager, is a vital part of our Design QA/QC Program to make the Project comprehensive and complete and to minimize inter-discipline conflicts. During the Design Phase of the Project, the Design Manager will hold weekly interdisciplinary coordination meetings to discuss the ongoing design work, identify potential conflict items or items that may be overlooked, schedule, and constructability challenges. Inter-discipline coordination shall be a major focus of the Design Manager and members of the Design Team before all milestone phases of development and document submission.

### Design Quality Control (QC) Procedure

As indicated above, our Team has established a process for completion of Design QC functions which has worked successfully on several design-build projects, resulting in minimal VDOT reviews and timely approvals of our plan submissions. Formal QC checking of the plans, calculations, and other project documents (traffic reports, traffic analysis, hydraulic analysis, etc.) will be performed for each design submission. Qualified engineers not involved in the development of the design work will perform these checks and reviews, and provide comments back to the original design engineer for incorporation and revision, or explanation before



completion of the QC process for that component of the submission will be documented on a check print sign-off sheet. A sample of this “Design QC Check Print Sign-Off Sheet” is included as Figure 4.5.2. Both the “Review Comment Summary and Resolution Sheet” and “Design QC Check Print Sign-Off Sheet” will be kept in a QC notebook maintained as part of the project records at Dewberry’s Fairfax office. These documents will be available at anytime for VDOT review and audit following a formal submission.

### Constructability Reviews

Prior to formal submission to VDOT, and coincident with design QC reviews, two (2) sets of plans will be provided to the construction staff for review and comment for a constructability review. The constructability review will be conducted by qualified construction staff, designated by the Construction Manager, to ensure that the proposed design does not introduce unnecessarily difficult, unsafe, or costly work for the construction staff, and to ensure that the proposed design and sequence of construction maintains the contract schedule. Comments generated from the construction staff will be submitted to the Design Manager for distribution to the design team for incorporation or further discussion. Agreement to necessary plan changes or explanation of the proposed work will be discussed between the Project Manager, Construction Manager, Design Manager, and design staff to determine what changes to the plans will be implemented. All design changes resulting from the constructability review will be sent to the QC Reviewer to ensure that a complete QC review is performed prior to the QA process and submission to VDOT.

FIGURE 4.5.2

### Design Quality Assurance (QA) Procedure

As shown in the organizational chart, Mr. Mahoney has assigned Mr. Jeremy Beck, PE to perform the Design QA reviews. This final QA review will not take place until all QC comments have been completed and addressed by the QC reviewers and design engineers. Following completion of the design QC process, all check prints, “Review Comment Summary and Resolution Sheets” and “Design QC Check Print Sign-Off Sheets” as well as the updated/corrected set of plans and documents will be provided to the Design QA Reviewer for final review and approval. The purpose of the Design QA Review will be to:

- Verify that the design engineer assessed the design accurately and applied correct analysis
- Verify qualified personnel were assigned to the specific design tasks
- Evaluate whether the design solution is practical and cost effective
- Verify implementation of and conformance to constructability reviews and findings
- Confirm interdisciplinary reviews have been completed with all comments resolved
- Evaluate overall conformity of final design documents to the design scope of work, project criteria, and client expectations
- Confirm materials used and elements in the work have been designed to perform for the purpose intended
- Verify overall appearance, organization and technical accuracy, and
- Verify application of the seal, signature and date of the responsible registered VA Professional Engineer

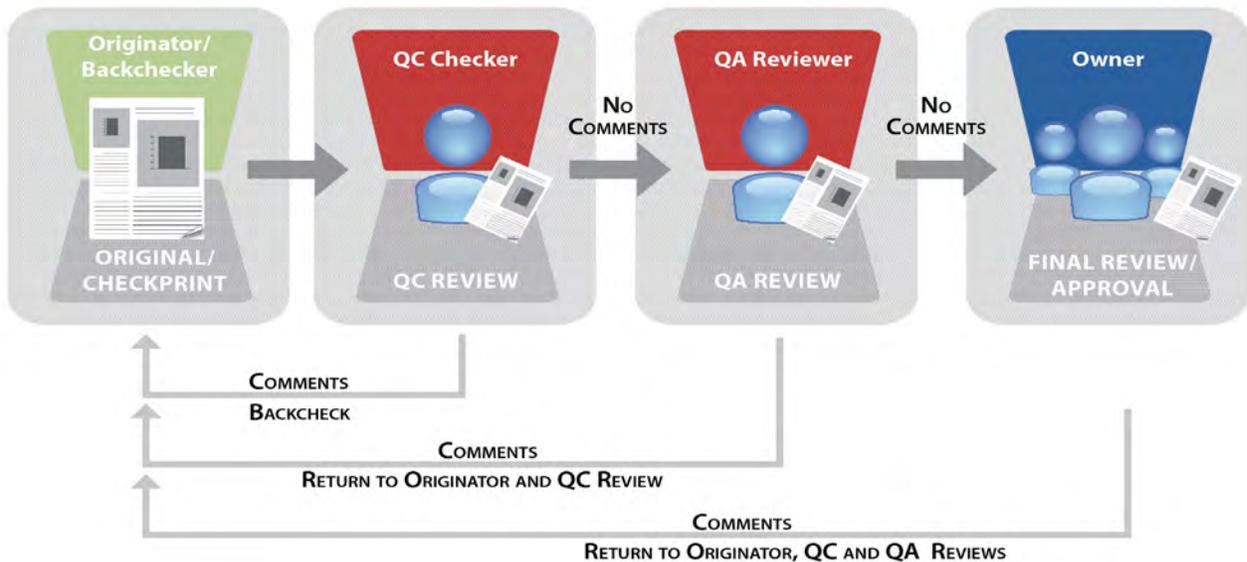
Once the Design QA check is completed the Design QA Reviewer and Design Manager will sign and complete the “Design QA Review Memorandum” and include a record of it in the project file. An example of the “Design QA Review Memorandum” is included as Figure 4.5.3.

The Design QC and QA processes described above are graphically illustrated by Figure 4.5.4. As indicated on figure 4.5.4, the QA/QC process could require multiple iterations to ensure the design meets contract requirements, avoids conflicts between disciplines, utilizes the appropriate materials and supplies in the correct manner, and ensures that all QA and QC review comments are adequately addressed.

As verification of the completion of the QA and QC reviews, each submission will be accompanied by copies of the completed Design QC Check print Sign-off Sheets and Design QA Review Memorandum in addition to the standard VDOT LD-436 form showing that plans have been audited and approved and include all appropriate elements for each plan submission.

FIGURE 4.5.3

FIGURE 4.5.4



Procedure to be used to develop, check and review an individual document through the Design QC and QA processes. Check-prints and sign-off sheets are maintained as a record of the QC and QA activities performed.

### QA/QC Approach to Unique Design Element/Work Activity

Perhaps the most unique and challenging aspect of this project is the rehabilitation and widening of the Seminary Road overpass of I-395 and the introduction of additional and changed loading associated with

construction of and connection to the HOV Ramp Bridge. Completion of design for this work requires coordination not only between several bridge engineers, but also with the roadway design engineers who are developing the temporary traffic control (TTC) and transportation management plan (TMP) elements.

With respect to the structural design components, the most important issue is determining whether or not the existing elements to be retained have the structural capacity for the additional loads that will result from the connection of the new HOV Ramp Bridge to the existing Seminary Road Bridge. This will require assembling all of the as-built plans and the most recent bridge inspection report(s) to enable the bridge designer to accurately model and analyze the existing bridge elements (girders, piers, abutments). With the importance of this element of the design, this work will be done by or under the direct supervision of the senior bridge engineer responsible for the design. Additionally, the Lead Structural Engineer will be intimately involved in reviewing the general details of the existing bridge model and working with the design engineers to make sure that all of the interpretations of the existing plans are accurate. Once the existing model is agreed to and checked, the loads associated with the connection of the HOV Ramp Bridge to the existing bridge as well as the modifications to the existing bridge (e.g. change in overhang due to change in the type of parapet and total roadway width) will be applied to determine whether the existing bridge elements affected have sufficient structural capacity for the new design loads. If there is sufficient capacity, no additional modifications will be made to the existing element beyond what is required to incorporate the new bridge tie-in and/or changes to the existing superstructure (e.g. parapet type). If it is determined that one or more of the existing elements has insufficient structural capacity, a modification to strengthen this element will be designed and detailed in the contract drawings. All of the structural calculations and details associated with either scenario will be thoroughly checked by a senior structural engineer.

Once the final configuration of the existing and new bridge are designed and checked by the QC Reviewer, it is important to make sure that interim, construction phasing is considered in the design as well. As the project requires that traffic be maintained on the existing Seminary Road Bridge during the replacement of the deck slab, there will be multiple phases in order to accomplish this. Each phase of the construction will need to be modeled to determine what, if any, impact it has on the structural elements of the bridge. This will consist of developing a load rating for each phase of the construction of the bridge to determine if the bridge load rating drops below 1.0. In the event that any proposed phase of construction results in a substandard rating, either the phasing will be modified or elements of the bridge will be strengthened such that the resulting rating will be at least 1.0. Should the phasing need to be modified, constant and close coordination between the road and bridge designers will be critical to ensure that any modifications are fully vetted and carried through to all elements of the design\construction.

As noted above, coordination and proper QC of the bridge rehabilitation will also require QC and QA from the roadway elements to ensure construction phasing is coordinated with the TTC and TMP plans. During the initial design stages, roadway and bridge engineers will work together to determine the required bridge reconstruction phasing. The required phasing will be based on traffic operation analysis and the determination of where the three lanes will be maintained on the portion of bridge deck not being replaced during that stage. Proper bridge widths will be maintained to account for the number of lanes, the width of the lanes, the offsets to temporary and/or permanent barriers, and the barrier widths. Additionally, barrier and lane placement will consider the existing girder locations and the alignments where saw cutting and deck removal can be completed without overloading girders or introducing significant and unacceptable temporary overhangs of existing girders. Deck removal above the rotary level and I-395 travel lanes will be coordinated with temporary lane closures, if necessary, and in all cases will account for protection of the travel lanes

from demolition debris. Following initial coordination between the roadway and bridge engineers, regular coordination and “impromptu” meetings and discussions will occur to identify any need for adjustments to either the roadway phasing/sequencing or to the bridge sequencing. Prior to developing a formal submission, the lead traffic engineer and lead bridge engineer will meet to discuss the design and plan elements and ensure previous discussions and agreements were properly incorporated into the plans. Following this agreement, the formal QC process by staff not involved in the day-to-day design will be completed to ensure that no plan elements were overlooked. This QC check will involve both roadway and bridge engineers since both elements need to be considered for a complete QC overview. Following agreement that the QC is complete and no discrepancies identified, or appropriate modifications made to correct discrepancies, the official QA review will be completed as described in our project QA/QC plan.

### QA/QC Field Changes To The Design

Field changes to the design occurring after final submission and release of the Construction Documents to the field shall be subject to the same rigorous procedures stipulated in the Design QA/QC Plan. Requests for field changes shall be reviewed by the design engineer that performed the original design. No field changes shall be allowed without approval by the design engineer indicating compliance with applicable design standards, and the certification of the Design Manager indicating completion of all Design QA and QC procedures. After certification by the Design Manager and approval by VDOT, the change can be implemented in the field and documented on the as-built drawings.

### Description of Construction QA/QC Procedures

The Shirley Team’s Construction QA and QC Procedures, found within our QA/QC Plan, have been established to conform to VDOT’s Minimum QA/QC Requirements. Our Plan stipulates the specific requirements of the Project and implements appropriate Witness and Hold Points for inspection of work at critical stages. These critical inspection points allow for VDOT review and approval and identify inspection requirements by the key members from the Design Team prior to construction activities continuing. Having this level of Design Team involvement in construction activities allows the engineer to confirm that actual construction conditions conform to the parameters anticipated during design.

During construction, the QA and QC Teams will follow the established and approved QA/QC Plan. The QA/QC plan is structured to ensure that QC and QA functions are performed independently and that procedures and work products are regularly audited. Key elements of the Construction QA/QC Procedures are summarized in the following paragraphs.

### Construction Quality Assurance

The Quality Assurance Manager (QAM), John Vicinski, P.E. with Quinn Consulting Services, Inc., is independent of the Designer, Contractor and QC Team, and is responsible for the Quality Assurance of the roadway, bridge and other physical construction operations, including the independent QA testing technicians. The QAM will report directly to the Design-Build Project Manager and have the authority and responsibility to stop work and withhold payment for any work not being performed in accordance with the Contract requirements or lacking the QA/QC documentation necessary to prove that the work meets the Contract requirements. This authority is given to the QAM in writing by the Design-Build Project Manager prior to the start of construction and a copy of the letter is included in the QA/QC Plan. The QAM will oversee and direct the personnel responsible for performing QA inspections and testing of all materials used and work performed on the Project. He will have personnel representing the QA Team that reports directly to him and are not part of the QC Team.

All QA inspection staff will complete daily reports and QA Independent Assurance (QA IA) and verification

sampling and testing (QA VST) reports of all quality assurance inspections. The QAM will compare QA IA and QA VST results to the QC, Owner Independent Assurance (OIA) and Owner Verification Sampling and Testing (OVST) results to ensure consistency and accuracy at all testing levels. The QAM will determine and certify to VDOT whether the materials and work are in compliance with the approved drawings, specifications, and applicable VDOT standards and reference documents as outlined in the Contract. The QAM will also ensure that all inspectors have adequate certifications for the testing performed and that copies are maintained in the QAM project files on site. The QAM has autonomy and the responsibility to coordinate QA inspections and report findings directly to VDOT.

The QAM oversees the establishment and maintenance of a comprehensive system for project documentation that will organize, track and disseminate all Construction QA and QC information. The records will present a factual representation of the work performed by the Design-Builder on the Project and allow a determination by the QAM that all work was completed and tested in accordance with the plans and specifications. All documentation will be adequately identified and cross-referenced to support a field audit by the QAM and VDOT during the life of the Project as well as final audit after project completion. At a minimum, the QAM will audit the testing and inspection records each month prior to certifying the monthly payment application.

### **Construction Quality Control**

The Construction Quality Control Manager (QCM), Rick Riviere, with Dewberry, will manage the day-to-day QC inspections and material testing of the construction as directed by the Construction Manager and will report directly to the Construction Manager. The QCM and the QC Team are responsible for inspection of the construction activities and all QC sampling, testing and analysis of materials on the Project to ensure that construction quality is verified at frequencies exceeding those required by the VDOT Construction Manual, the Materials Manual of Instructions and Tables A3 and A4 of VDOT's Minimum QA/QC Requirements. As the QCM, he assures that the QC materials sampling and testing is consistent with the QC plan.

Erosion and sediment controls will be inspected by the QC Team to ensure implementation in accordance with the approved plans, the erosion and sediment control laws and regulations, and the erosion and sediment control standards and specifications approved by the Virginia DCR.

All QC staff actively inspecting and/or testing segments of work will complete an Inspector Daily Report (IDR). The IDR's will be electronic dairies in accordance with VDOT's Construction Division Memorandum CD-2000-14 and will include, as an attachment, copies of all QC materials tests completed for the day's activities. Signed hard copies of the IDR's will be submitted to the QCM on a daily basis for review and approval. The QCM will complete an electronic Daily General Report, which will summarize the work covered by the IDR's. Copies of all signed Daily General Reports, IDR's, and test reports will be forwarded to the Construction Manager, QA Manager and others of the Design/Build Team for use and review while the original documents will be placed in three-ring binders, by project and month and maintained as part of the permanent QC records. All binders will be stored in fireproof storage cabinets at the Project site and will be available for audit by the QAM and VDOT at any time. A weekly report will be produced by the QCM that contains summaries of tests, materials placed, actions taken for failing materials, NCR's, safety, inspection, environmental and schedule challenges.

### **QA/QC Approach to Significant Construction Element/Work Activity**

A unique element on this project will be the construction of wall systems that include drilled shafts with embedded steel soldier piles which in turn support the construction of vertically stacked soil retaining walls and noise barriers. As is the Shirley Team's practice and per the minimum requirements as set forth in the VDOT QA/QC Design-Build Manual, the first step prior to starting any activity is to hold a Preparatory Meeting with

the Contractor and his Subcontractors performing the work. As part of this meeting, the material submittals for the wall system(s) will be reviewed and discussed and work will not begin until all materials have been submitted and approved for use. For this wall system, some items such as the noise barrier wall panels will be produced and inspected offsite by the Department. For items such as these, the Department will be notified of the panel production schedule so the Department can efficiently schedule its offsite inspection personnel. A Source of Materials will be maintained on site so that the QA/QC inspectors know how each project element is to be, or has been, inspected when it arrives on the project. From a QA/QC perspective, there are many wall construction elements that must be monitored and inspected and a description of the various elements and inspection requirements are as follows:

***Drilled Shafts and Steel Soldier Pile Placement*** – The location of drilled shafts will need to be closely coordinated with the existence of, and planned for, utilities and storm drain pipes. All existing utilities must be carefully marked and a QC inspector must be present at all times during shaft drilling. It will be the QC inspector's responsibility to maintain a drilled shaft and soldier pile log that includes the following elements:

- Drilled shaft and pile number, location, and final top and bottom elevations of piles and encasement concrete.
- Final location of drilled shaft/pile axis and variation from design locations.
- Pile and drilled shaft plumbness.
- Drilled shaft diameter and pile size including any approved splices.
- Date and start/finish time of drilled shaft excavation and concreting operations.
- Elevation of any groundwater encountered during drilling operations.
- Concrete mix design and testing data including the method of placement.

In conjunction with maintaining these logs, QA/QC inspectors will monitor the drilled shafts for cave-ins, inspect the placement and bracing of piles, perform concrete materials testing and verify the concrete placement method corresponds with the approved mix design (i.e. free fall mix vs. tremie mix), and make certain no drilled shaft holes are left unprotected.

***Precast Retaining Wall and Noise Barrier Installation*** – Before the placement of retaining wall or noise barrier wall panels can proceed detailed shop drawings must be submitted and approved by the Engineer (Dewberry). These shop drawings will include among other things: a detailed sequence of construction; details for connections which include methods for joining, fastening, and centering connections; aesthetic requirements; details of drainage including the use of weep holes, porous backfill, and/or drainage composites; and the requirements for vertical and horizontal wall monitoring. In addition, before installation of a wall system in the field the Contractor may be required to construct a three panel sample section that will be used as a basis of comparison for construction quality including the structural details and aesthetic finishes. QA/QC inspectors will compare wall construction to this approved mock-up and will also be responsible for monitoring the wall installations for conformance with the approved shop drawings, VDOT Specifications, and appropriate Special Provisions. Items to be monitored and inspected include:

- Making certain the required concrete foundation strengths have been attained prior to panel placement either by the use of field cylinders or 28-day break results.
- Checking the overlap of pile flanges and panels and various connection details.
- Assuring that the panel face is up against the pile flange on the road side of the wall.
- Verifying the plumbness of wall panels.
- Verifying all tie-backs have been installed and tested (if required).
- Assuring that wooden lagging boards (if required) are installed on vertical soil faces at the maximum

- excavation depths as prescribed in the contract documents.
- Verifying that noise barrier walls heights meet but do not exceed the sound attenuation line.
- Checking for positive drainage in front of, behind, and through (weep holes) walls.
- Making certain that panels have not been damaged during storage or installation and if they have been damaged then repairs were performed per manufacturer recommendations.

To summarize, for all construction elements such as the retaining and noise barrier wall system(s), the Shirley QA/QC Plan will minimize the effort VDOT must expend performing QA/QC on the project by implementing proven and time tested QA/QC procedures that include comprehensive preparatory meetings, regular inspections using prepared checklists, thorough QA/QC documentation, regular document audits, and a system of checks and balances that begins at design and continues to project close-out.

### Project Staffing

The Construction QA Team will consist of the Quality Assurance Manager assisted by a full time Senior QA inspector and an Office Engineer to complete on-site QA inspections/testing and manage the QA/QC documentation system. The QA Team will be supplemented by Specialized Engineering to complete off-site laboratory testing and additional on-site testing technicians as necessary based on construction volume.

The Construction QC Team will be comprised of a senior bridge inspector, a senior roadway inspector, and two inspectors from Dewberry to complete QC inspections. GeoConcepts Engineering will provide two testing technicians to perform on-site QC testing. GeoConcepts will also perform off-site laboratory testing for the QC team and provide geotechnical engineers on an as-needed basis to inspect foundations as required by the Contract. The QC team will be supplemented by additional inspectors and testing technicians during peak construction timeframes.

### Scheduling of Inspection and Coordination with VDOT

During the design phase, the Design Team will identify items of work that require special attention by the Construction QA and QC Teams. The applicable levels of inspection and standards of quality of these items will be addressed with the Construction Manager, the QCM and QAM prior to the start of construction and incorporated in the QA/QC Plan and the Project's CPM Schedule. During construction the QCM will coordinate daily with the Construction Manager in reviewing the Project schedule and determining the requirements of the QC Team to adequately and properly monitor the construction activities for certification of compliance to VDOT. Furthermore, the QCM will coordinate with the QC Team to continuously monitor and assure compliance with erosion and sediment control, environmental permit obligations, and maintenance-of-traffic procedures.

On a weekly basis, the Construction Manager will hold a Construction Progress Meeting attended by the QAM, QCM, VDOT representatives, and construction personnel to discuss the progress of construction, review the previous weeks QC and QA tests, and discuss the upcoming inspection requirements based on a two week look-ahead schedule. The schedule review will highlight any upcoming Witness and Hold Points to provide ample time for VDOT to schedule inspections. This meeting also provides an opportunity to discuss ongoing testing and inspection procedures, documentation, and any issues that need to be addressed/resolved. These weekly meetings have been a valuable tool on our other design-build projects, providing a regular forum to make sure the inspection and testing process is working well and that all issues are addressed.

The Quality Assurance and Quality Control procedures outlined in this section are the result of many years of completing Design-Build and PPTA projects for VDOT including the Route 28 Corridor Improvements, Battlefield Parkway Design-Build, Pacific Boulevard Design-Build, Fairfax County Parkway Phase III, and other projects. With each new project we have improved upon the QA/QC process based on project experience, VDOT

expectations and feedback, and changes in VDOT QA/QC specifications. Shirley has a focused commitment to quality both to minimize rework during construction and reduce long term maintenance costs.

#### 4.4.5 COORDINATION WITH THIRD PARTIES

Based on our past design-build project experience, and in recognition of the significant amount of coordination and outreach which has already been completed on this Project, our Team member Pulsar Advertising and Jim Wright as the Public Relations Manager will lead our Team's public relations effort. We understand that close and constant coordination with numerous third parties and project stakeholders will be critical to the success of the project, and Pulsar will help to provide project updates between the project Team and the public to ensure the public involvement process is collaborative and transparent. Communication between our Project Team and the public will include timely and regular updates and clear communications with all interested parties. Our Team has significant experience in effectively disseminating information and managing the public's expectations and perception of past projects. We fully expect information to be transmitted to the public through many formats, including updates to VDOT's website and project site, developing slide presentations for discussions at public meetings and project update sessions, distributing flyers and mailers to adjacent and impacted property owners, and through research and questionnaires to determine the most desired outcome, especially with respect to landscaping and noise barrier improvements.

We recognize that there will be multiple key stakeholders who will need to be kept involved and updated on project progress and milestones. These groups include the City of Alexandria, VDOT MegaProjects staff, the construction team completing the Short- and Mid-Term Improvements project, the local community, local businesses, residents, commuters and citizen involvement organizations that may be affected by Project's improvements. Additionally, Police, Fire, and EMS staff, and local schools and hospitals will also be important stakeholders. Our Team's continuous updates and coordination described above will help to identify concerns from each of these groups early in the project process and help to identify solutions which will address their concerns, and maintain support for the project. As part of our Technical Proposal preparation, our Team has identified the following stakeholders and the coordination activities which we expect to undertake as part of the Project:

- **City of Alexandria** – Coordination will be required with respect to drainage into the Winkler Botanical Preserve and existing off-site stormwater management basins, as well as temporary traffic control items which could impact or require temporary modifications to existing adjacent traffic signals. Immediately upon Notice to Proceed we will include the City in Project discussions. Updated drainage surveys will be completed to properly identify project outfalls which could impact the Preserve and offsite stormwater facilities. As proposed drainage design is initiated, coordination meetings will be scheduled to identify critical areas and areas where avoidance is necessary. Proposed drainage patterns can be discussed in advance of the design being finalized so that minor modifications can be incorporated early without significant cost or schedule impacts. As temporary traffic control plans are developed, we will highlight traffic pattern changes and the expected durations. Signal timing adjustments, if any, will be identified and coordinated with the City. Through our experience with the construction of the Mark Center WHS BRAC 133 Project, Shirley has worked with the City's Department of Transportation and Environmental Services in planning lane closures, temporary traffic control schemes, and permit requests. Coordination with bus routes and other public groups, such as schools and emergency responders, will be identified so that advance notification can be provided, and time restrictions (if any) can be incorporated into the schedule.
- **Mark Center Employees** – We understand that a major purpose of these improvements is to provide additional and improved access to the recently constructed an opened Mark Center building immediately

west of I-395 and south of Seminary Road. Impacts to these tenants, as well as other businesses on Seminary Road and west of I-395, will need to be minimized during construction. The interim improvements to I-395, especially the advanced opening of the continuous auxiliary lane and additional lane on the Seminary Road exit ramp, will help to improve traffic flow earlier in the Project duration. Outreach efforts will include direct coordination with the Mark Center building contact so that advance notification of traffic changes can be distributed to all employees prior to the traffic pattern change being implemented in the field. Since the number of existing lanes will be maintained on the rotary level of Seminary Road and Seminary Road between the west side of I-395 and Beauregard Street throughout the duration of the Project, no additional queuing or delays are anticipated for these motorists and tenants.

- ***VDOT's Virginia MEGA Projects Group*** - For the past four (4) years, Shirley has been a member contractor with the Virginia MEGA Projects Team. The I-95 4th Lane Widening Project, the Fairfax County Parkway Phase III Project and currently, the I-95 Ramp to Fort Belvoir North Area are all projects that we have served as the Lead Contractor or Lead Design-Build Contractor. We are prepared to continue the coordination and cooperative efforts necessary to design and construct the I-395 HOV Ramp and Auxiliary Lane Project in an efficient manner. With our Team's experience with the MEGA Projects staff we will be able to eliminate the normal learning curve in any contractual relationship; whether in design or construction. We are extremely familiar with the other Virginia Mega Projects and we are currently attending coordination meetings, submitting design and construction submittals for review, lane closure requests, as well as communicating daily with the VDOT staff. A strategy of continued and consistent cooperation will be our plan for the I-395 HOV Ramp projects.
- ***Citizen and Community Organizations*** – As noted in the RFP documents, input from citizens and community organizations will be solicited with respect to the landscaping plan, and regular communication will be identified and completed as part of the TMP with respect to construction sequencing, advance notification of changed traffic patterns, and regular progress updates. With respect to the landscaping design, roadway grading, drainage and pavement plans will be developed to a point which will allow our Team to identify limits of clearing and which existing trees and landscaping features will be impacted by the project. Upon identification of those limits, a landscaping package will be developed in accordance with the RFP requirements and will be submitted to VDOT for review. At that time, copies will also be submitted to citizen and community groups as deemed appropriate for input. Comments generated from those reviews will be discussed, and meetings set up to involve VDOT, the City and the citizen/community groups as appropriate to adequately address all comments. Since landscaping is typically an element which is completed at the end of the project, it has a very little impact on the overall project schedule, and we don't anticipate any concerns being raised which would adversely affect the project.

Our Team is confident that with our past experience on VDOT design-build projects providing public relations and third party stakeholder involvement, will lead to a successful Project. Our open and transparent process will provide numerous ways to gather information and address stakeholder concerns during the life of the Project.

## 4.5 CONSTRUCTION OF THE PROJECT

## 4.5 Construction Of The Project

### 4.5.1 SEQUENCE OF CONSTRUCTION

As part of developing our sequence of construction plan, our Team works to provide for and maximize the safety of the traveling public, adjacent property owners, the workers on the Project and other project stakeholders as our first priority. This is done while developing an efficient design which meets the RFP and contract requirements. For this project, several different elements of work will be ongoing at any given time to help reduce the time impacts to the traveling public. The construction sequence of the I-395 HOV Ramp Project is made up of many inter-related activities as well as several independent areas of construction. The major geographical work areas consist of the following:

#### **Proposal A - I-395 HOV Ramp Project**

- I-395 NB Widening including Seminary Rd Exit Ramp
- Sanger Avenue Bridge B-685
- HOV Ramp Bridge B-687
- Seminary Road Bridge B-684 and Approach Roadways
- Pedestrian Bridge B-686
- Noise Barriers along I-395 Southbound

#### **Proposal B - Auxiliary Lane Project**

- I-395 NB Auxiliary Lane Extension

Within each of these areas, there are several phases or stages of construction required for completion. The interdependence between these phases or stages is shown in detail on our CPM Construction Schedule in Section 4.6 of this Proposal. Construction is anticipated to start upon approval of the Roadway and Bridge Plans. We have included a section for major Construction Submittals and Material Procurement which will help to identify some of the critical submittals necessary for successful completion of construction. Construction work will commence as follows:

**I-395 NB Widening (Auxiliary Lane) Phase I:** In order to accommodate the widening of northbound I-395, the initial stage of construction will require temporary strengthening of the existing median shoulder in the northbound direction. Information provided with the RFP documents indicate that at least some of the shoulder already contains 6” of asphalt pavement, which may be suitable for temporary traffic loading. During the geotechnical investigations, additional pavement cores will be completed to determine the thicknesses of existing shoulder asphalt throughout the Project limits. Depending on the results of that information, combined with the anticipated interim traffic loading, the depth of and limits of temporary pavement strengthening will be identified. Consistent with our Team’s experience in other corridors, we anticipate this work to be completed over a relatively short time period utilizing temporary off-peak lane closures for pavement removal and replacement during the same work shift. No pavement drop-offs will remain during non-working hours. Following completion of the temporary shoulder strengthening, traffic will be shifted towards the median to allow for temporary barrier placement on the outside (right shoulder) of the existing general purpose travel lanes.

**I-395 NB Widening (Auxiliary Lane) Phase II:** Following the shift of traffic to the median, work will begin on the widening of northbound I-395 and the exit ramp to Seminary Road. Initial activities will include installation of temporary traffic control devices and temporary concrete traffic barrier along the right travel lane. Permanent construction behind the temporary barrier will include construction of retaining walls, curb and gutter, installation of drainage facilities, overhead sign foundations, and noise barriers. The installation of the required relocation

of the VDOT ITS Ductbank System will be performed in this Phase. Pavement will be constructed during this stage to the top of the intermediate layer. Also during this stage the widening of the northbound I-395 bridge over Sanger Avenue will be completed along with deck repairs and structural rehabilitation. Areas of deck and superstructure rehabilitation in the shifted travel lanes will be completed during night-time operations with temporary lane closures. Following completion of the widening of northbound I-395, travel lanes will be shifted to the new outside widening to allow for safe construction access to the HOV improvements and the critical portions of the new HOV Ramp to Seminary Road. Completing this widening as part of the earliest stage of permanent construction also allows the opening of the continuous auxiliary lane to be expedited, providing some immediate relief to commuters and the traveling public.

**Sanger Avenue Bridge B-685:** As stated above, the I-395 northbound widening of the Sanger Avenue bridge will occur during Phase II of the northbound Auxiliary Lane construction. A dedicated bridge crew will perform all substructure and superstructure elements of the widening. This widening is very similar to that which was just completed by Shirley on the I-95 4th Lane Widening project for VDOT. There we found a safe and effective means to demolish the existing parapet and overhang with minimal impact to the traveling public. By performing the substructure and steel erection first, we are able to shield the debris generated by demolition between the existing outside girder and the new girder just placed adjacently. This will be the plan for both the northbound and southbound widening of the Sanger bridge. The southbound widening is one the more independent areas of the project carrying a larger float component in CPM Schedule. We have included time for the completion of the retrofitting of the bridge steel elements and the completion of the remedial work required by prior and subsequent inspection reports. The Sanger Avenue northbound work is expected to complete November 2014.

**HOV Ramp Bridge B-687:** With the anticipation of utilizing two (2) major structural bridge crews, the substructure elements of Piers 4 through 8 of Bridge B-687 are accessible following the completion of the I-395 northbound Phase I maintenance of traffic (MOT) activities and setting of temporary concrete traffic barrier. The work on Piers 4 through 8 including the superstructure erection of steel and bridge decks will continuously progress until Phase II of I-395 northbound Auxiliary Lane work completes. At that time (Phase III of I-395 northbound) the critical elements to this bridge include the approach MSE Ramp, Abutment A and Piers 1 through 3 become available. Work will progress through the superstructure elements of the bridge. Once the bridge decks are complete the parapets, lighting, and HOV Gate infrastructure work can be completed.

**I-395 NB Widening (Auxiliary Lane) Phase III:** Once traffic is shifted onto the outside widening of northbound I-395, work will begin to complete the HOV Ramp approach and bridge to Seminary Road (Abutment A and Piers 1 through 3) as well as the widening of the HOV lanes for the new auxiliary lane. Barrier will be placed adjacent to the eastern edge of the HOV lanes, and proper end treatments and temporary traffic control devices will be installed at both ends of the barrier in recognition that the HOV lanes accommodate both directions of travel. Work during this stage will include widening of the existing pavement, installation of drainage structures and storm sewer pipe, and construction of the MSE wall approaches and backfill, and all bridge structural items associated with the HOV Ramp Bridge. Also included during this phase of construction is the permanent left shoulder reconstruction required on northbound I-395 between approximately Sta. 303+75 and Sta. 311+60 as identified in the RFP.

**Pedestrian Bridge B-686:** In order to facilitate reconstruction of the Seminary Road Bridge, construction of the pedestrian overpass of I-395 will begin as early as possible. Construction of the sub-structure elements will require placement of temporary barrier on I-395 adjacent to the existing travel lanes to allow for excavation and construction of the pier footings and columns. In order to facilitate construction of the new pedestrian approach ramps to the new overpass, removal of the existing approach ramps will be required. During this time, temporary

pedestrian facilities will be provided on the second level of the Seminary Road rotary. Temporary modifications such as temporary marking, temporary pedestrian signalization, temporary barriers, and temporary fencing installed adjacent to the existing bridge parapet on the second level bridges over I-395 will be incorporated to maintain a safe temporary facility. The duration of operation of this temporary crossing will be minimized to the fullest extent possible.

Construction of the approach ramps to the pedestrian overpass will require acquisition of easements and right-of-way from the adjacent property owners. In order to accommodate construction of these elements early in the construction schedule, advance right-of-way plans will be developed for these areas to allow appraisals, negotiations, and acquisition to be completed early in the Project schedule. Our Team is also well versed in seeking temporary rights-of-entry from property owners, and will consider this approach as well to help accelerate construction of the approach ramps. Should delays occur during the acquisition process, the advance work of these approach elements would still not impact the overall project schedule.

Immediately upon completion of the approach ramps and pedestrian overpass, pedestrian traffic will be shifted onto the new facility and all temporary pedestrian accommodations removed.

**Seminary Road Bridge B-684:** The Seminary Road Bridge and Approach Roadways will be constructed in three (3) Phases. With the requirement for the complete demolition and replacement of the existing bridge decks as well as maintaining traffic at all times, our team has developed a staged construction commencing from south to north. Following the shift of pedestrians to the temporary facilities described above, the existing sidewalk on the Seminary Road Bridge will be removed to allow traffic to be shifted to the north. This Phase 1 stage will allow for the southern portion of the deck to be removed and the first phase of beams and bearings to be repaired, cleaned, and retrofitted to remove joints and provide the required service life. Bridge abutments on the southern side of the bridge will be extended and reconstructed to account for the increased bridge width, and approach roadway work will also be constructed along the southern side.

Following completion of the southern portion of bridge rehabilitation, eastbound traffic will be shifted to the newly re-constructed south side of the bridge adjacent to the permanent parapet, with temporary barrier installed across the ultimate HOV Ramp intersection. Westbound traffic will remain on the north side of the bridge to allow for deck removal and rehabilitation of the middle portion. This Phase 2 configuration will allow for placement of temporary barrier along the left sides of the travel lanes to facilitate removal of the remaining original deck and retrofitting of the existing beams to complete repairs consistent of those completed during Phase 1. Similar to the Phase 1 work zone configuration, three travel lanes will be maintained on the Seminary Road bridge at all times.

Finally in Phase 3 of B-684, westbound Seminary Road traffic will be shifted to the permanent middle portion of the bridge adjacent to eastbound traffic which will remain adjacent to the southern parapet. This configuration will allow for placement of temporary barrier along the northern side of the temporary travel lanes to provide and safe operation of the travel lanes and access to the construction site. This final bridge phase consists of removal of the remaining original deck and retrofitting of the remaining existing beams to complete repairs consistent of those completed during Phase II and Phase III. All permanent abutment widening and approach roadway work along the northern edge of the road will also be completed at this time. Following completion of the deck replacement and bridge repairs in the northern portion of the bridge, the permanent median will be completed, along with the medians on the approaches to the bridge, and all HOV control gates will be installed. Temporary barrier will be removed from all sides of the travel lanes. Approaches to the Seminary Road Bridge will be milled and final surface paving and pavement markings will be installed, allowing the facility to be opened to traffic in the permanent condition.

**I-395 Southbound Work:** Work on southbound I-395 will have minimal impacts to the traveling public. In order to facilitate construction of the noise barriers, which are located outside of the existing travel lanes and shoulder, temporary barrier will be placed on the existing right shoulder to accommodate temporary construction access. Travel lanes will not be shifted since the lane widths and left shoulder widths are already at the minimum permitted widths. Construction will consist of minimal clearing to access the potential noise barrier locations, installation of noise barrier foundation elements, and erection of the noise barrier panels.

At the Sanger Avenue Bridge, temporary barrier service will be required to allow for the removal of the existing bridge parapet and railing, partial deck removal, widening of the bridge, and installation of the noise barrier panels immediately adjacent to the new parapet. Details of this bridge widening are shown in our Volume 2 conceptual bridge plans, and deck replacement has been reduced in recognition of the number of existing travel lanes, the 11' width of the existing travel lanes, and the inability to shift the lanes to the median due to the existing 2' median shoulder width.

**Final Stages of Project:** On I-395, the Final Stages of the work will consist of milling of all travel lanes and shoulder areas within project limits as identified in the RFP plans and placement of final surface paving and final pavement markings. Travel lanes will be shifted to their permanent locations, and all temporary traffic barrier and channelizing devices will be removed. Additional work will include finishes such as final grading/dress up, landscaping, final configuration and testing of the HOV access control gates and lighting, as well as any punch list activities which may be identified.

**I-395 NB Auxiliary Lane Extension Project - Proposal B Only:** Depicted on our Proposal B Schedule is the work associated with the I-395 NB Auxiliary Lane Extension from the Duke Street On-Ramp to the Sanger Avenue bridge. If this work is included, our Team has the necessary resources to schedule this work within the timeframes of the contract duration. The widening work is very similar to that required for the HOV Ramp project and we will combine our Retaining and Noise wall designs, shop drawings, and material procurements to fall within the currently scheduled I-395 Northbound widening area. One unique element of this area is the wall construction necessary to span over the existing Holmes Run Culvert and Pedestrian Tunnel. Our use of the MSE Wall, Lightweight Fill and Structure Mounted Noise Wall will allow the construction of the work to be complete within the timeframes of the Proposal A work along I-395 Northbound.

## 4.5.2 TRANSPORTATION MANAGEMENT PLAN

Our Team fully understands that a thoroughly planned and well implemented Transportation Management Plan (TMP) is critical for a successful project. Accordingly, our TMP will be focused on the principals of maximizing safety (both for the traveling public and construction personnel) and minimizing travel delays during construction. In order to meet these principals, we will prepare a comprehensive "Type B" Transportation Management Plan (TMP) and site-specific Temporary Traffic Control (TTC) plans per VDOT's IIM-241.5 (Work Zone Safety and Mobility) requirements.

Our Team has extensive experience working together on work zone design and construction on congested arterials and interchange reconstruction projects. The TMP and TTC plan will be designed, implemented, and inspected by staff certified in VDOT Work Zone Traffic Control, and our Team has an in-house VDOT approved Work Zone Traffic Control training program for our staff for all three certification levels (Advanced, Intermediate, and Basic). We are also well versed in the principals and requirements of both the new 2009 MUTCD and the new 2011 Virginia Work Area Protection Manual.

### Early Opening of Continuous Auxiliary Lane

Our Team is committed to going above and beyond maintaining minimum or even existing traffic operations during construction. We are focused on improving the existing traffic operations during construction. In doing so, we have developed our sequence of construction in a way that prioritizes the construction of the continuous auxiliary lane between Duke Street and Seminary Road. As noted above, completion of the Phase II widening of northbound I-395 will allow for the continuous auxiliary lane to be opened to traffic prior to completion of the overall project. While construction continues on the ultimate HOV Ramp and Seminary Road improvements, the continuous auxiliary lane will help improve the weaving level of service between interchanges and help traffic flow through added “capacity” in the auxiliary lane. Additionally, the widening of the exit ramp to Seminary Road from a single lane to two lanes in Phase II will be completed and opened to traffic, allowing for additional storage on the ramp, helping to reduce queuing from the rotary signal onto the mainline and auxiliary lane of northbound I-395.

### Commitment to Detail and Coordination

In order to accomplish our safety and mobility goals, we will pay careful attention to design details during TTC development. For example, special care will be required when identifying temporary signing, barrier placement, and end treatments in the HOV lanes due to the two-direction traffic which those lanes accommodate. Flare rates will be required on both ends of the barrier, and begin and end construction signing will be required at both ends of the Project in the HOV lanes. Run-on end treatments for barriers will be required at both ends of any temporary barrier as well to account for the changes in peak direction travel. Another “common practice” for our designs is to design all temporary lane shifts and tapers to meet the full desirable “L” length (double the minimum length) in an effort to maximize driver safety and mobility when navigating temporary traffic patterns. In addition we understand the dangers of improper drop-off protection, and will design all work areas to be protected by temporary barrier with no hazards within the clear zone (including in the deflection area behind temporary barrier). Other TTC design elements that will be thoroughly detailed include maintenance of positive drainage during construction, detailed temporary signing and pavement marking plans, detailed maintenance of pedestrian traffic and temporary sidewalk plans, and detailed temporary traffic signal plans.

Our TMP will also be carefully coordinated with other design and construction elements, such as the deck repair and rehabilitation work required on the Sanger Avenue Bridge. Construction personnel will also be actively engaged in the TMP and TTC development process, and will regularly complete constructability reviews for potential construction challenges and the need for special accommodations.

### Planned Mitigation of Traffic Impacts

In order to accomplish our goal of improving the existing traffic operations during construction, we will maintain all existing I-395 and HOV travel and ramp lanes throughout construction. All existing travel lanes on intersecting streets will also be maintained throughout construction with the exception of the Seminary Road Bridge, where three lanes will be maintained. Our Team is committed to maintaining at least 12’ travel lane widths on I-395 and 11’ wide travel lane widths on all other roadways during construction. Also the use of full length tapers in all locations will help to reduce slowing of vehicles through the construction site and maintain capacity of the roadway during construction. Early opening of the continuous auxiliary lane and second northbound exit ramp lane following completion of Phase II construction will help to provide early relief to the traveling public, in advance of the final completion date.

Temporary lane closures to facilitate construction will be limited to off-peak temporary lane closures per hours prescribed in the RFP (and approved as part of our TMP). On Seminary Road, as permitted by the RFP, three lanes will be maintained on the upper level of the interchange. Preliminary analysis based on current traffic data

indicates that operation of a single eastbound lane during construction will still adequately accommodate existing and projected traffic volumes for the construction years. Close coordination and communication will occur with VDOT and the City of Alexandria in advance of this traffic pattern change, and will continue during operation to identify if additional temporary measures, such as signal timing modifications, are necessary to improve traffic flow through the area. In advance of implementation of temporary lane closures and as part of the work zone traffic analysis required by the Transportation Operations Plan component of the TMP, our Team will analyze the allowable closure hours to ensure that temporary closures will still provide acceptable operations throughout the construction site. Using analysis software such as Synchro, Quick Zone, and HCS+, we will ensure that temporary lane closures are limited to hours which align with the least impacts to the traveling public based on traffic volumes anticipated during the construction period. Through this process we ensure that construction efficiency is maximized while also limiting motorist delay.

No roadway detours will be implemented to facilitate the construction of the proposed roadway and bridge improvements. In order to facilitate activities such as bridge demolition, the installation of the pedestrian overpass, and overhead sign structure work, temporary shutdowns will be utilized where necessary during off-peak hours with police assistance. Similar to the temporary lane closure hours, the planned stoppages will be thoroughly analyzed as part of the TMP to ensure they occur at the least disruptive hours.

Our Team does not anticipate the need for regulatory speed reductions thru the work zone, as all geometry and lane shifts will be designed to meet standards, and 11'-12' lane widths will be maintained throughout construction. Our experience based on similar past projects has found that maintaining existing posted speed limits where geometric conditions permit has multiple benefits. In addition to minimizing motorist delay, we are well aware that research has proven that lowering speed limits where geometric conditions do not require the reduction actually lessen safety, as large deviations between driver speeds commonly result in increased accidents. Although no speed reductions are proposed at this time, a full Work Zone Speed Analysis will be prepared during TMP and TTC design, and possible reductions will be thoroughly analyzed with and discussed with VDOT.

As noted in the previous section, temporary pedestrian detours will be required to facilitate construction of the new pedestrian ramp facilities as well as to allow for replacement of the Seminary Road Bridge deck. Safe pedestrian access will be provided throughout all phases of construction on Seminary Road and temporary signing will be installed to alert both pedestrians and motorists of the change in pedestrian patterns. Where necessary, temporary pedestrian crossing signals, pushbuttons, and markings will be installed, and where pedestrians will cross over the existing rotary level of the Seminary Road bridges, temporary barrier and/or safety fence will be installed adjacent to the bridge parapet.

Our team also fully understands the dangers of construction vehicle ingress / egress on high speed roadways. Therefore, construction entrances on I-395 will be designed for locations where safe deceleration and acceleration can be accomplished on the shoulders instead of in the travel lanes wherever possible. In addition our Team will prepare a comprehensive Incident Management Plan as part of the TMP, which is especially critical on I-395 given the high traffic volumes and regional importance of the roadway.

**In addition to the mitigation strategies required by the RFP, our Team will employ site-specific impact management strategies in order to further increase safety and mobility.** For example, temporary raised pavement markers will be used to supplement lane line pavement markings for increased visibility, especially at night and during wet pavement conditions. Also full-width paved shoulders will be provided during construction wherever possible on I-395 for vehicle refuge and enforcement. Other strategies that will be utilized where

warranted include the use of wider than normal lane lines for increased delineation of lane shifts, use of temporary transverse rumble strips for alert motorists of unusual conditions, the use of tighter than required channelizing device spacing for increased work zone delineation and construction personnel safety.

### Public Awareness and Stakeholder Accommodations

We fully understand the importance of a comprehensive public awareness campaign in order to effectively communicate project information to the local community as well as commuters and interstate traffic through the work zone. From our past successful design-build experience, we know that this objective is accomplished by using a combination of outreach methods. This includes the use of Portable Changeable Message Signs (PCMS). These PCMS are an excellent way to communicate directly with the traveling public, and will be installed in advance of changes in travel patterns on affected roadways. Also our Team will provide regular updates to VDOT regarding project status and travel impacts. Information will include, but not be limited to, a schedule for lane closures and traffic switches, diagrams detailing new or changed traffic patterns, and draft press releases to highlight items more critical in nature. (See 4.4.5 Coordination with third parties for additional details).

In addition, we plan to hold informational “Pardon our Dust” Public Information Meetings to keep the public informed. The timing of these meetings will be coordinated with VDOT and major project stakeholders, and at the least will include an opportunity to introduce the Team, present the design, outline the construction phasing and schedule, and inform the public about specific impacts. From past experience, we have found that holding these meetings prior to major traffic pattern changes helps to reduce confusion and gain support for the Project and the progress being made. Another form of communication we will use is the preparation of notices and flyers to be distributed to the public and stakeholder that show specific detail about the upcoming activities or changes to property access. We anticipate handing out flyers door to door to local residences, businesses, and distributing via the VDOT Office of Public Affairs.

We understand that in addition to the general public, there are project stakeholders located near the Project. It is our goal to minimize impacts to these stakeholders to the greatest extent possible, and to maintain open and regular lines of communication with these stakeholders. These stakeholders are listed below, along with their anticipated impacts during construction:

- **Mark Center Employees** – We understand that a major purpose of these improvements is to provide additional and improved access to the recently constructed an opened Mark Center building immediately west of I-395 and south of Seminary Road. Impacts to these tenants, as well as other businesses on Seminary Road and west of I-395, will be minimally impacted during construction. The interim improvements to I-395, especially the advanced opening of the continuous auxiliary lane and additional lane on the Seminary Road exit ramp, will help to improve traffic flow earlier in the Project duration. Outreach efforts will include direct coordination with the Mark Center building contact so that advance notification of traffic changes can be distributed to all employees prior to the traffic pattern change being implemented in the field. Since the number of existing lanes will be maintained on the rotary level of Seminary Road and Seminary Road between the west side of I-395 and Beauregard Street throughout the duration of the Project, no additional queuing or delays are anticipated for these motorists and tenants.
- **Winkler Botanical Preserve** – No impacts to the Winkler property are anticipated during construction. Coordination with the property owner and operation staff will occur to notify them when noise barrier installation and associated clearing within VDOT right-of-way will occur. Construction noise for completion of these elements is expected to be minimal, and should not cause significant concern or changes in habitat for the wildlife on the property.
- **Local Residents along Van Dorn Street** – While all of the construction elements will be completed

on I-395 and Seminary Road, minimal impacts along Sanger Avenue and Van Dorn Street will also be expected during construction. Erection of beams for the widening of Sanger Avenue will require temporary closures of Sanger Avenue during the nighttime, and work along the I-395 slope adjacent to Van Dorn Street could introduce minimal delays due to curious motorists passing the Project site. Communication with local residences will keep them informed of project progress and upcoming changes, as well as alert them to times when travel on Sanger Avenue should be avoided to help reduce congestion during girder erection. Night time work will be minimized to the fullest extent possible to reduce concerns and complaints associated with night time noise and loss of sleep.

In addition to the major stakeholders discussed in detail above, applicable government agencies and adjacent project teams will be included in our public outreach effort. These include the City of Alexandria and the design-build team completing the Short-and Mid-Term Mark Center Improvements on Seminary Road.

## 4.6 PROPOSAL SCHEDULE

## 4.6 Proposal Schedule

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Please see Proposal Schedule & Narrative included in the Appendix.



## 4.7 Disadvantaged Business Enterprises (DBE)

### COMMITMENT TO ACHIEVING THE DBE GOAL

**Shirley Contracting Company, LLC (Shirley) is committed to achieving the 20% DBE participation goal for the I-395 HOV Ramp at Seminary Road Design-Build Project through design and construction activities.**

As one of Virginia's largest General Contractors performing Virginia Department of Transportation work, we take pride in our 38 year history of providing opportunities to Disadvantaged Business Enterprises. Our record of compliance in meeting federal, state and local DBE goals on all of our past and present projects is an accomplishment we are proud of.

### PLAN TO MEET DBE SUBCONTRACTING GOAL

Concurrent with the preparation of this Technical Proposal, and prior to our Price Proposal submission, we will solicit firm pricing for the work from potential DBE subcontractors and vendors. As part of the Price Proposal, we will include Form C-111 indicating how we plan to achieve the Project's DBE requirement during design and construction.

The following narrative outlines the steps that will be taken to meet this requirement during the Technical and Price Proposal preparation phase:

- Our Team will first examine the Project, the nature of the work, and our internal company DBE database to determine where we believe the opportunities for DBE participation will be available. Once we determine the areas where participation is likely, we will take the necessary steps to ensure that we communicate with and provide adequate notice of the project opportunities to the DBE community.
- Initially, we will contact DBE firms included in our company database to inform them of the opportunity. We will include in an e-mail solicitation the scope of the Project, the construction trades we believe will be able to provide subcontracting opportunities, and notice that plans are available at our company's main office for viewing. We will establish a single point of contact for all potential DBE firms so that questions regarding the Project and potential opportunities will be directed to the contact person and answered promptly.
- In addition to e-mails to subcontractors and vendors in our database, we will continue to make follow-up telephone calls to these firms as a means of determining actual interest in the Project and to answer any questions about possible opportunities.
- We will also post the opportunity on our company website to reach a broader spectrum of contractors, vendors and other potential interested persons. Once again, the name and phone number of a contact person will be included for questions about the opportunity.
- Another method that we will utilize for soliciting interest in the I-395 HOV Ramp at Seminary Road Design-Build Project will be to place ads in a local newspaper and other media outlets identifying the Project and the potential opportunity to supply materials and services. We will include a contact person and telephone number so that interested firms can make contact with us and discuss the potential opportunities on the Project.
- We will attend industry, major business organization and community group events where we will establish networking relationships to create interest in the Project and attract potential bidders. We also have had previous success soliciting assistance from various trade organizations in communicating with the DBE community.
- We will contact the VDOT Business Opportunity and Workforce Development Center (BOWD) and

advise them of the Project and the opportunity for DBE participation. One of the primary goals of the BOWD Center is to provide opportunities for DBE firms to partner with prime contractors.

- Throughout the development and preparation of our Technical and Price Proposals for the Project, we will track and maintain the status of our expected DBE participation. In this manner, we were immediately and constantly aware of the need to solicit increased participation from the DBE community in order to meet the goal. As the date for submission of the Price Proposal approaches, strategies for meeting the DBE participation goals are evaluated and finalized to ensure that the goal will be met with the submission of the Price Proposal. As we will plan to show on Form C-111 to be submitted with the price Proposal, Shirley plans to exceed the stated DBE goal for the Project.

As an ongoing process, Shirley stays up to date with changes and modifications to applicable DBE program rules so that we are best positioned to meet or exceed the goals established for the Project. Throughout the design and construction phases of the Project, we will continually monitor the status of our Team's DBE participation. The Design/Build Project Manager will be responsible for this task, and will develop a method to do so that will be shared with VDOT on a regular basis.





**ATTACHMENT 4.0.1.1**

**I-395 HOV RAMP AT SEMINARY ROAD WITH I-395 NB AUXILIARY LANE EXTENSION**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

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

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
<b>Technical Proposal Checklist and Contents</b>	Attachment 4.0.1.1	Section 4.0.1.1	no	N/A
<b>Acknowledgement of RFP, Revisions, and/or Addenda</b>	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	N/A
<b>Letter of Submittal</b>	NA	Sections 4.1		
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	1-2
Offeror's official representative information	NA	Section 4.1.1	yes	1
Authorized representative's original signature	NA	Section 4.1.1	yes	2
Declaration of intent	NA	Section 4.1.2	yes	1
120 day declaration	NA	Section 4.1.3	yes	1
Principal Officer information	NA	Section 4.1.4	yes	1
Final Completion Date	NA	Section 4.1.5	yes	2
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.6	no	2
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.7	no	2
<b>Offeror's Qualifications</b>	NA	Section 4.2		
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any	NA	Section 4.2.1	yes	3

**ATTACHMENT 4.0.1.1**

**I-395 HOV RAMP AT SEMINARY ROAD WITH I-395 NB AUXILIARY LANE EXTENSION**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
requested changes were previously approved by VDOT				
Organizational chart with any updates since the SOQ submittal clearly identified to include Lead QA Inspector	NA	Section 4.2.2	yes	3
Revised narrative when organizational chart includes updates since the SOQ submittal, to include Lead QA Inspector	NA	Section 4.2.2	yes	3
<b>Design Concept</b>	NA	Section 4.3		
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	4-10
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	10-15
<b>Project Approach</b>	NA	Section 4.4		
Environmental Management	NA	Section 4.4.1	yes	16
Utilities	NA	Section 4.4.2	yes	17
Geotechnical	NA	Section 4.4.3	yes	23
Quality Assurance / Quality Control	NA	Section 4.4.4		24
Coordination with Third Parties	NA	Section 4.4.5		34
<b>Construction of Project</b>	NA	Section 4.5		
Sequence of Construction	NA	Section 4.5.1	yes	36

**ATTACHMENT 4.0.1.1**

**I-395 HOV RAMP AT SEMINARY ROAD WITH I-395 NB AUXILIARY LANE EXTENSION**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
Transportation Management Plan	NA	Section 4.5.2	yes	39
<b>Proposal Schedule</b>	NA	Section 4.6		
Proposal Schedule	NA	Section 4.6	no	N/A
Proposal Schedule Narrative	NA	Section 4.6	no	N/A
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.6	no	N/A
<b>Disadvantaged Business Enterprises (DBE)</b>	NA	Section 4.7		
Written statement of percent DBE participation	NA	Section 4.7	yes	44
DBE subcontracting narrative	NA	Section 4.7	yes	44



**ATTACHMENT 3.6****COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION**

RFP NO. C00096261DB50  
 PROJECT NO.: 0395-100-722, 0395-100-736

**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 August 15, 2012 – RFP  
(Date)
2. Cover letter of November 5, 2012 – Addendum #1  
(Date)
3. Cover letter of December 14, 2012 – Addendum #2  
(Date)
4. Cover letter of December 20, 2012 – Addendum #3  
(Date)



SIGNATURE

January 9, 2013

DATE

Michael E. Post President/CEO/Manager

PRINTED NAME AND TITLE



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

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

**WITNESSETH:**

**WHEREAS**, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”), to the Virginia Department of Transportation (“VDOT”), pursuant to VDOT’s December 20, 2011 Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the I-395 HOV Ramp at Seminary Road with I-395 NB Auxiliary Lane Extension, Project Nos. 0395-100-722 and 0395-100-736 (“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 fifty thousand and 00/100 Dollars (\$50,000.00) ("Proposal Payment"), which payment constitutes payment in full to Offeror for the conveyance of Offeror's Intellectual Property to VDOT in accordance with this Agreement. Payment of the Proposal Payment is conditioned upon: (a) Offeror's Proposal being, in the sole discretion of VDOT, responsive to the RFP; (b) Offeror complying with all other terms and conditions of this Agreement; and (c) either (i) Offeror is not awarded the Design-Build Contract, or (ii) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror.

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

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

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

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

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

9. **Miscellaneous.**

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

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

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

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

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

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

VIRGINIA DEPARTMENT OF TRANSPORTATION

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

Name: \_\_\_\_\_

Title: \_\_\_\_\_

*[Insert Offeror's Name]* Shirley Contracting Company, LLC

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

Name: Michael E. Post

Title: President/CEO/Manager



# Proposal Schedule

## PROJECT MILESTONES

In accordance with the RFP documents, Shirley Contracting Company, LLC (Shirley) has provided Preliminary Schedules for both Proposal A - only the I-395 HOV Ramp project and Proposal B - inclusion of both the I-395 HOV Ramp and the Auxiliary Lane Extension project. In general, the narrative herein will speak to Proposal B as the majority of our scheduling principles and protocols apply to both.

The I-395 HOV Ramp at Seminary Road Project Schedule details our plan for all phases of the design/build process based on the following project Milestones listed in Table 4.6.1a and Table 4.6.1b

**Table 4.6.1a - Proposal Schedule A Dates of Project Milestone**

MILESTONE	DATE
Notice of Intent to Award	February 21, 2013
CTB Award	March 20, 2013
Design-Build Contract Execution	April 20, 2013
Notice To Proceed (04/25/2013)	April 25, 2013
Begin Construction	January 28, 2014
Open HOV Ramp Bridge to Traffic-Interim Milestone (9/24/15)	September 24, 2015
Project Ready For Final Walkthrough	November 1, 2015
Substantial and Final Completion	December 18, 2015

**Table 4.6.1b - Proposal Schedule B Dates of Project Milestones**

MILESTONE	DATE
Notice Of Intent To Award (02/21/2013)	February 21, 2013
Ctb Award	March 20, 2013
Design-Build Contract Execution	April 20, 2013
Notice To Proceed (04/25/2013)	April 25, 2013
Begin Construction	January 28, 2014
Open HOV Ramp Bridge To Traffic-Interim Milestone (9/24/15)	September 24, 2015
Project Ready For Final Walkthrough	November 1, 2015
Substantial And Final Completion	December 18, 2015

## Work Breakdown Structure

Level 1 of the Work Breakdown Structure (WBS) groups the schedule into the phases of the design/build process as follows:

**01. Project Milestones:** Area reserved for easy review of the Project status.

**02. Design:** Includes preliminary engineering services, plan development, QA/QC reviews, submittal milestones, and VDOT, City of Alexandria, and FHWA reviews and approvals of plans. This section of the schedule includes a second level WBS structure to group design activities by type of design submission including right-of-way, roadway, bridge, as well as the project's special requirements for the additional Noise Barrier Walls along I-395 South Bound.

**03. Public Involvement:** This section of the schedule includes milestones for planned public involvement meetings and updates to the Office of Public Affairs for major traffic shifts and the VDOT website.

**04. Environmental Permitting:** Includes permit management and preparation, and permit submissions, reviews and approvals. The environmental permits schedule includes activities including preparation of the LD 455/ VSMP permit, the re-confirmation of the threatened and endangered species findings and affirmation of the requirement for lead abatement at the existing bridges

**05. Right-of-way Acquisition:** This section of the schedule is used to monitor the acquisition of right-of- way and easements for the Project including title searches, appraisals and appraisal reviews, offers, negotiations, and settlements. In order to prioritize groups of properties by order of need, we have included a second level WBS structure that includes separate right-of-way acquisition activities by construction stage. Dividing the right-of-way activities into the construction stages will enable our Team to focus our right-of-way acquisition efforts on the most schedule critical acquisitions and track these critical acquisitions to ensure on-time completion.

**06. Utility Relocations:** Includes activities for UFI meetings, preparation of preliminary engineering (PE) estimates, approval of PE estimates, utility relocation design by the utility owner, approval of the utility design, and utility relocation construction. The utility relocations are separated into second level WBS groups based on Project location and third level WBS by utility owner.

**07. Construction:** Includes all components of roadway and bridge construction. The Construction section of the schedule is segmented by five additional levels of WBS structure to divide the construction activities into groups of work packages that can be easily tracked to ensure on-time completion of the Project.

Below is a complete outline of the WBS Structure for the Project:

**Table 4.6.2 - Work Breakdown Structure**

LEVEL 1	LEVELS 2, 3, 4, & 5
01	Schedule Milestones
02	Design Phase A Preliminary Design- Field Survey / Mapping B Roadway Design C Bridge Design D Special Design Requirements - Additional Noise Walls
03	Public Involvement
04	Environmental Permitting A LD 445 / VSMP / SWPPP Permit B Hazardous Materials
05	Right of Way / Easement Acquisition A ROW and Easements Required for Pedestrian Bridge B-686
06	Utility Relocations A Dominion Virginia Power - Raise Overhead Poles B Verizon Underground at Seminary Road C Virginia American Water - Potential Casing Extension D Washington Gas at Seminary Road

07	<p>Construction</p> <p><b>01 Pre-Construction, Submittals and Mat'l Procurement</b></p> <p><b>02 HOV Ramp Project</b></p> <p><b>02.B I-395 NB Widening including Seminary Rd Off-Ramp</b></p> <p>02.B.01 Phase I - Inside Shoulder Strengthening</p> <p>02.B.02 Phase II - Outside Permanent Construction</p> <p>02.B.02.A Retaining / Noise Combo Walls</p> <p>02.B.02.B Ground Mounted Noise Walls</p> <p>02.B.03 Phase III - Inside Permanent Construction</p> <p><b>02.C Sanger Avenue Bridge B-685</b></p> <p>02.C.01 Sanger Bridge NB B-685 Substructure</p> <p>02.C.02 Sanger Bridge NB B-685 Superstructure</p> <p>02.C.03 Sanger Southbound Construction for Noisewall</p> <p><b>02.D HOV Ramp Bridge B-687</b></p> <p>02.D.01 Bridge B-687 Substructure</p> <p>02.D.01.A Abutment A - Approach and Seat</p> <p>02.D.01.B PIER 1</p> <p>02.D.01.C PIER 2</p> <p>02.D.01.D PIER 3</p> <p>02.D.01.E PIER 4</p> <p>02.D.01.F PIER 5</p> <p>02.D.01.G PIER 6</p> <p>02.D.01.H PIER 7</p> <p>02.D.01.I PIER 8</p> <p>02.D.02 Bridge B-687 Superstructure</p> <p>02.D.02.A SPANS a,b,c</p> <p>02.D.02.B SPANS d,e,f</p> <p>02.D.02.C SPAN g over Rotary Level</p> <p>02.D.02.D SPAN h and Tie-In to Seminary Bridge</p> <p><b>02.E Seminary Road Bridge B-684 and Approach Roadways</b></p> <p>02.E.01 Seminary Bridge Phase 1</p> <p>07.E.02 Seminary Bridge Phase 2</p> <p>07.E.03 Seminary Bridge Phase 3</p> <p>07.E.03a Seminary Bridge Phase 3a and Approach Roadways</p> <p><b>02.F Pedestrian Bridge B-686</b></p> <p>02.F.01 Bridge B-686 Substructure</p> <p>02.F.01.A West Abutment B</p> <p>02.F.01.B PIER 1</p> <p>02.F.01.C PIER 2</p> <p>02.F.01.D PIER 3</p> <p>02.F.01.E PIER 4</p> <p>02.F.01.F PIER 5</p> <p>02.F.01.G East Abutment A</p> <p><b>02.G Noise Barriers along I-395 Southbound</b></p> <p>02.G.01 Noise Barrier #1</p> <p>02.G.02 Noise Barrier #3</p> <p>The following WBS Grouping was added in order to Provide a Separate Schedule to include the I-395 Auxiliary Lane Project</p> <p><b>03 I-395 Auxiliary Lane Extension</b></p> <p>03.01 Phase I - Inside Shoulder Strengthening</p> <p>03.02 Phase II - Outside Permanent Construction</p> <p>03.02.A Retaining / Noise Combo Walls</p> <p>3.03 Phase III - Inside Permanent Construction</p>
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The following is a description of the calendars used for this project.

**Global Calendar** – All calendars are based on 8 hour work days and include the following holidays: New Years Day, Memorial Day, 4th of July, Labor Day, Thanksgiving, the day after Thanksgiving, and Christmas.

**Calendar 1** - “5-Day Workweek” – This calendar is based on five working days per week and is used for all design and administrative activities that are unaffected by weather.

**Calendar 2** – “7-Day Calendar” – Assigned to activities that have durations based on calendar days instead of work days. For example VDOT’s 21 calendar day review duration.

**Calendar 3** – “5-Day Winter Imp” – This calendar is based on working part-time from December 25 to March 10. It is assigned to activities that are anticipated to have reduced productivity during the winter months.

### Schedule Timing and Critical Path

The narrative below describes, in detail, the Shirley Team’s planned schedule and sequence of operations by Phase.

**Design Phase** - The design phase includes preparation, Quality Assurance/Quality Control reviews, and submission of right-of-way, roadway, and bridge plans at multiple stages of the design process. As specified in the RFP we have included a 21 calendar day activity for VDOT review after each submission. Furthermore, we have included a week of additional review time to be used by VDOT and its Agency partners for any critical issues. The design phase also includes non-critical activities for the completion of surveys, utility designations, test pits, and geotechnical investigations, including a 90 calendar day activity for VDOT’s review of the geotechnical report prior to submission of the final roadway and bridge plans. The first formal plan submission will occur on September 7, 2013 and will include right-of-way, maintenance of traffic, and erosion and sediment control plans in an effort to get an early start on the right-of-way acquisition phase of the Project. The Preliminary Schedule reflects final approval of all Roadway plans by January 17, 2014. The Bridge Design section of the schedule includes the required In-Depth Field Inspections of the existing Seminary Road and Sanger Avenue Overpass bridges per the requirements of Part 2 of the RFP Documents. Additionally, we have included a Schedule Section representing the work necessary for the investigation of the additional noise walls along I-395 South between the Sanger Avenue Overpass and Duke Street.

Critical Path activities in the Design Phase of the Preliminary Schedule include the preparation, review and approvals of both the Roadway and Bridge Plans for the Project. These activities start immediately upon execution of the Contract and Notice of Proceed (anticipated to be April 25, 2013) with final approval of these plans scheduled for January 28, 2014. The inclusion of the I-395 NB Auxiliary Lane Extension Project does not change the planned start and completion dates for the Design Phase of the project. This work can be completed within the dates shown.

**Public Involvement** - The public involvement schedule includes submitting our Emergency Contact List upon Notice to Proceed, holding Public Information Meetings in incremental stages during design and construction, and providing regular updates to the Office of Public Affairs. The schedule includes the major milestone activities for the Public Information Meetings and major traffic changes. However, there are many other public involvement activities that our Team will perform throughout the Project, including meeting with local businesses and affected property owners, attending meetings with home owners associations, local government representatives, and community groups, and providing information for regular updates of the Project website and weekly lane closure plans.

**Environmental Permitting** - Environmental Permitting will begin upon Notice to Proceed. The Shirley Team will immediately confirm that the project has no adverse affects on threatened or endangered species and perform the

necessary testing and confirmations of lead based or asbestos materials at the existing bridges. We will complete the requisite VDOT stormwater forms (LD-445 series), and will provide Stormwater Pollution Prevention Plans (SWPPP) and related information for inclusion on the VDOT SWPPP General Information sheets. The LD 445/VSMP permit will be acquired by January 24, 2014 prior to the start of the Phase I construction.

***Right-of-Way Acquisition*** - The Shirley Team will begin the right-of-way and easement acquisition activities for the Project upon completion of the Right-of-Way Acquisition and Procedures Plan for submission to VDOT by the anticipated November 5, 2013 Notice to Proceed date.

The administration of the right-of-way acquisitions will start with title searches and appraisals for affected properties. There are a total of two (2) properties within the Project corridor from which various property rights will be acquired. These acquisitions will be required for the construction of the approach ramps for the new Pedestrian Facility along Seminary Road. The Shirley Team has identified and prioritized these acquisitions to coincide with this construction sequencing and schedule.

***Utility Relocations*** - Exhibit 4.4.1 in Section 4.4 of our Technical Proposal lists the anticipated utility relocations and potential conflicts for the Project. To simplify and track the utility relocations, we have created a work breakdown structure that groups the utility relocation activities by utility owner and Project location. This further allows us to coordinate the work with utility relocations with the construction sequencing. Within each utility owner group, we have included activities for holding the Utility Field Investigation (UFI) meeting, preparation of the Preliminary Engineering (PE) estimates by the utility owner, approval of the PE estimate, design of the utility relocation, and construction of the relocation by area. The utility relocation schedule starts with formal UFI meetings held in August 2013 following completion of all utility test pits. This will enable our Team to confirm and adjust our list of utility conflicts based on the field test pit data prior to holding the formal UFI meeting. We will continue this early coordination of utilities throughout the Design Phase of the Project to ensure that the Right-of-Way and Roadway Plans are coordinated with the utility relocation plans. In general, our sequence of Utility Relocations is as follows:

***Dominion Virginia Power: Raise Power Poles required for Noise Wall Construction***

Designs Complete by November 2013

Field Construction work will be phased with the work zone along I-395 North and are necessary for completion by June 23, 2014.

***Virginia American Water: Potential Casing Extension for Retaining Wall Construction***

Designs Complete by November 2013

Field Construction work will be phased with the work zone along I-395 North and are necessary for completion by June 23, 2014.

***Verizon Underground: Potential Conflict for Pedestrian Ramp***

Designs Complete by November 2013

Field Construction work will be phased with the work zone along Seminary Road and are necessary for completion by September 16, 2014.

***Washington Gas:***

Designs Complete by November 2013

Field Construction work will be phased with the work zone along Seminary Road and are necessary for completion by September 16, 2014.

## Construction Sequence

The construction sequence of the I-395 HOV Ramp Project is made up of many inter-related activities as well as several independent areas of construction. Due to the large scale of the project from a geographical standpoint, the scheduling philosophy was to break these large work areas into separate groups and then inter-relate them from a predecessor and successor viewpoint. The major geographical work areas consist of the following:

- I-395 NB Widening including Seminary Rd Exit-Ramp
- Sanger Avenue Bridge B-685
- HOV Ramp Bridge B-687
- Seminary Road Bridge B-684 and Approach Roadways
- Pedestrian Bridge B-686
- Noise Barriers along I-395 Southbound
- I-395 Auxiliary Lane Extension

Construction is anticipated to start on January 28, 2014. At the onset of Design and Plan approvals we have included a section of major Construction Submittals and Material Procurement. These activities help identify some of the critical submittals necessary for successful completion of the construction sequence.

### *I-395 NB Widening including Seminary Rd Exit-Ramp*

The construction of the project begins with the Phase I - Inside shoulder strengthening along I-395 Northbound. This work is anticipated to take approximately one month. Following completion of the shoulder work, traffic will be shifted to the left to make room for traffic barrier and allow for the construction of the Phase II - Outside Permanent Auxiliary lane construction work along the right side of I-395 North. The auxiliary lane construction includes installation of Retaining walls, Noise walls and combination retaining/noise walls. The work in this area also includes the Seminary Road Exit Ramp widening and wall construction. Following completion of the majority of walls, the installation of the required storm drainage and required VDOT ITS ductbank system will occur. The outside work will be brought to intermediate asphalt grade and traffic will be shifted. The completion of the Phase II traffic switch is expected on December 19, 2014. Phase III work along I-395 Northbound includes the demolition and subsequent construction of the new roadway approach to the HOV Ramp to Seminary Road.

### *Sanger Avenue Bridge B-685*

The Sanger Avenue bridge work is broken into northbound and southbound construction. The northbound bridge widening is a near-critical component of the completion of the I-395 auxiliary lane construction while the southbound widening is one of the more independent areas of the project carrying a larger float component. We have included time for the completion of the retrofitting of the bridge steel elements and the completion of the remedial work required by prior and subsequent inspection reports. The Sanger Avenue northbound work is expected to complete November 7, 2014.

### *HOV Ramp Bridge B-687*

The substructure elements of Piers 4 through 8 of Bridge B-687 are accessible following the completion of some early MOT activities and setting of Traffic Barrier Service. Work is scheduled to begin in this area in March 2014. We will progress this work on Piers 4 through 8 including the superstructure erection of steel and bridge decks continuously until June 2015. We anticipate the use of two major structural crews for the construction of the bridge elements. This will allow the timing of these earlier elements to coincide with the opening of the I-395 Northbound widening work. The critical elements to this bridge include the approach MSE Ramp, Abutment A

and Piers 1 through 3. These elements are restricted from access until the I-395 Northbound widening work is complete and traffic can be shifted. These relationships have been identified on the schedule.

#### *Seminary Road Bridge B-684 and Approach Roadways*

The construction of the Seminary Road Bridge B-684 and the Approach Roadways is a critical element of the project. This work can begin upon completion of the Bridge Design Phase on January 28, 2014. The construction of the Bridge B-684 is a very linear process and challenging considering the work area, MOT concerns, and aged nature of the existing structure. In-depth inspections are required to verify the remedial work necessary for the retrofitting of the existing bridge. Additionally, care must be given to the pedestrian movements that are currently on the bridge. The relocation of the pedestrian movements and subsequent demolition of the walkway are necessary to start the remediation of the bridge decks and superstructure elements. We are anticipating a nearly twenty (20) month duration for the completion of the bridge and roadway elements on Seminary Road. The completion of the Seminary Road bridge is necessary for the opening of the new HOV Ramp bridge B-687. The work is scheduled to be complete by September 23, 2015.

#### *Pedestrian Bridge B-686*

Following completion of the relocation of the Pedestrian Movements on the existing Seminary Road facilities, we will dedicate another structural crew to the substructure elements of Bridge B-686. Our proposed alignment allows for relatively simple access to the work areas. It is anticipated that support of excavation shoring will be required for pier construction. This crew will linearly complete the substructure elements and move to the erection of structural steel in January 2015. Subsequent decking and concrete bridge pours will commence. The required fencing and pedestrian elements will then be installed. It is anticipated that the Pedestrian Bridge and associated approach ramps will be ready for opening by August 21, 2015.

#### *Noise Barriers along I-395 Southbound*

The Noise Barrier walls located along I-395 South represent a rather independent area of construction. The two walls have been labeled Noise Barrier #1 and Noise Barrier #3. We have scheduled the construction of these elements starting in early 2015 and coinciding with the completion of the I-395 Northbound widening work. This is when wall crews would be available to start on these elements. It is anticipated that the shop drawing and fabrication of materials would be available as well. We are anticipating approximately eight (8) months of construction to complete the two walls. Landscaping will also be performed in this timeframe.

#### *I-395 NB Auxiliary Lane Extension Project - Proposal B Only*

Depicted on our Proposal B Schedule is the work associated with the I-395 NB Auxiliary Lane Extension from the Duke Street On-Ramp to the Sanger Avenue Overpass. If this work is included, our Team has the necessary resources to schedule this work within the timeframes of the contract duration. The widening work is very similar to that required for the HOV Ramp project and we will combine our Retaining and Noise wall designs, shop drawings, and material procurements to fall within the currently scheduled I-395 Northbound widening area. One unique element of this area is the wall construction necessary to span over the existing Holmes Run Culvert and Pedestrian Tunnel. Our use of the MSE Wall, Lightweight Fill and Structure Mounted Noise Wall will allow the construction of the work to be complete within the timeframes of the Proposal A work along I-395 Northbound.

#### *Critical Path of the Work*

The project's critical path starts with the Notice to Proceed issued by VDOT on April 25, 2013. Both the Roadway and Bridge Design portions of the schedule are on the critical path with the anticipated Roadway plans complete by January 17, 2014 and the Bridge Plans complete by January 28, 2014.

Pre-Construction submittals of the Retaining and Noise Walls are on the critical path and the subsequent construction of the new Retaining and Noise walls along the I-395 Northbound widening for the Auxiliary Lane north of Sanger Avenue is as well. Completion and switching of traffic to this area are scheduled to be complete by December 19, 2014. Following switching of traffic, the work associated with substructure construction of Abutment A and Piers 1 through 3 of Bridge B-687 HOV Ramp move to the critical path. This is then followed by the erection of steel and bridge deck work associated with this portion of the bridge. Completion of the Bridge B-687 bridge decks on September 10, 2015 and subsequent opening of the HOV Ramp Bridge on September 24, 2015 satisfy the requirements of Interim Milestone 1 and are on the critical path.

There is a parallel critical path to the project in addition to that listed above. The construction of the Seminary Road Bridge B-684 and the Approach Roadways is also a critical element of the project. As stated above the project is anticipating twenty (20) months of construction for the bridge and roadway elements. The work is scheduled to be complete by September 24, 2015.

The final critical path elements include the Final Milling and Overlay pavement of I-395 Northbound and the Seminary Road exit ramp. All construction elements are scheduled to be complete and available for VDOT Final Walkthrough and Punchlist by November 1, 2015. Following completion of the Punchlist Items, the project will reach Substantial and Final Completion on December 18, 2015.

### Project Controls

Through our Team's experience delivering major design-build roadway projects ahead of schedule, Shirley Contracting has developed scheduling protocols to govern the development, implementation, progress tracking, and recovery of the CPM schedule through all of the Project phases. These methods have proven effective as evidenced by the fact that every design-build project completed by our Team has finished either on-time or ahead of schedule.

### Schedule Development

For any design-build project, it is imperative that the Project Team develop a detailed CPM schedule that considers the interrelationships between all of the design-build disciplines. This is especially important on a project with right-of-way and utility impacts that must be integrated into the design and construction sequencing. The Shirley Team has developed the Preliminary CPM Schedule included in this Proposal with a Work Breakdown Structure (WBS) that clearly delineates the tasks of each discipline manager, including Design, Permitting, Right-of-Way, Utilities, and Construction.

Each discipline manager is responsible for producing a schedule to govern his own work and providing insight into how his schedule activities affect and are affected by activities in other disciplines. Once each manager prepared his individual schedule, we hold schedule development meetings run by the Design-Build Project Manager and attended by all discipline managers to review the individual schedules and integrate them into the overall preliminary CPM Schedule. These meetings ensure that:

- The work packages within each discipline are comprehensive enough to define the work with no activities omitted;
- The work packages are integrated within each discipline and between disciplines to generate a clearly defined project critical path, confirm that the critical path makes sense, and that the schedule shows that the Project will complete on-time or ahead of schedule;
- Each discipline manager understands the schedules of the other disciplines and how their work inter-relates with the other disciplines;

- Each discipline manager understands how his work affects the critical path of the Project and the priorities of the Design-Build Project Manager and the other discipline managers; and
- The schedule meets the requirements of the Contract.

These meetings have enable the Shirley Team to create a detailed Preliminary CPM Schedule that has been jointly prepared by and agreed to by all of the discipline managers, providing realistic expectations of the schedule of work to be completed by all team members and third parties.

Throughout the design phase of the Project as more detailed plans are developed and utility conflicts are verified through test pitting, these meetings will continue to further develop the Preliminary CPM Schedule into the more detailed Baseline CPM Schedule. This schedule can then be utilized by all Team members to plan and track the progress of their work. It will be submitted to VDOT for review and approval and utilized during the planning phases for utilities, permitting, right-of-way, design, and subcontractor/supplier scope and purchasing. Specific milestone dates from the CPM schedule will be written into subcontracts and purchase orders, making them contractually responsible for meeting schedule deadlines.

### **Procedures for Monitoring and Reporting Schedule Progress to Ensure Timely Project Completion**

The key to effectively monitoring schedule progress is maintaining efficient communication between the discipline managers, resulting in constant coordination and schedule feedback. From the NTP date through the completion of design activities, the Shirley Team at a minimum will hold weekly Design Coordination Meetings that are run by the Design-Build Project Manager and attended by all of the discipline managers. Design Coordination Meetings have been a crucial tool on other design-build projects by facilitating face-to-face communication between the discipline managers. For each Design Coordination Meeting, the Design-Build Project Manager will review the CPM Schedule and identify all activities that were scheduled for completion the previous week or are planned for the next two weeks. During the meeting the Project Team discusses the status of progress since the last meeting with actual dates for completed activities; critical completion dates for future activities; the addition or deletion of schedule activities as the design evolves (for example the identification of a new utility impact or the ability to design around a planned utility relocation); the impact of revised schedule dates on other activities and disciplines; identification of ways to advance the schedule ahead of the planned completion or mitigate schedule delays; and general design review, constructability, and determination of means and methods.

After each weekly meeting, the Design-Build Project Manager will update the CPM schedule and forward copies of an updated “look-ahead” schedule to each of the discipline managers identifying the critical dates agreed to during the weekly design meeting. This process continues throughout the design, permitting, and right-of-way phases to ensure that there is no slippage to the start of the utility relocation and construction phases of the Project.

During the utility relocation and construction phases of the Project, the Design-Build Project Manager, Construction Manager, Designer Manager, QA Manager, QC Manager, and VDOT will continue to meet weekly for a Construction Progress Meeting to coordinate necessary QC, QA Independent Assurance (IA), QA VST, OIA and OVST inspections. At each meeting the Construction Manager will review the work performed during the previous week and outline the schedule activities that will be performed during the following two weeks.

An additional technique that Shirley uses to monitor construction progress is the “Daily Shift Cost Report” (DSCR). At the end of each day, the construction field personnel compare the quantity of work, and the cost

to do so, completed that day with the budgeted production and cost. Not only does this analysis provide an early indicator of cost concerns, but it also instantly highlights potential issues with the schedule by focusing on production rates. Diligently completing and reviewing the DSCR's allows the construction team to make immediate "real-time" adjustments to work crews, equipment, trucking, subcontractor resources, and material deliveries to adjust production rates in order to maintain the Project schedule. Our Team will also review and adjust the durations of future schedule activities based on the DSCR production rates to help identify and mitigate schedule concerns for the later phases of the Project.

In addition to weekly schedule meetings with the VDOT, our Team will also prepare and submit monthly schedule updates for review and approval by VDOT, including a narrative of the schedule modifications, updated activities, project issues affecting the schedule, and a description of the critical path with updated schedule milestones. These daily, weekly, and monthly reviews of production rates, activity durations, and overall schedule status will enable our Team to identify and mitigate potential schedule delays to ensure early completion of the Project.

### **Procedures for Rescheduling Activities and Schedule Recovery**

If during the course of the Project, delays to the Project critical path are encountered, we will complete a Time Impact Analysis (TIA), re-sequence the schedule, and prepare a schedule recovery plan to reclaim lost time. This plan may include increasing work shifts, adding crews and resources to construct critical path activities concurrently, and changing MOT schemes or modifying the design to remove activities from the critical path. If it is early in the Project at the time the delay is encountered, schedule recovery may require adjustments by any or all of discipline managers including, Design, Permitting, Right-of-Way, Utility Relocation, and Construction. However, if all other design-build disciplines have completed their tasks, re-sequencing the construction schedule by the Construction Manager will be the primary focus in order to mitigate the delay.

One example of our Team's ability to mitigate delays and initiate schedule recovery is the Battlefield Parkway Project. During construction of Battlefield Parkway, the Town of Leesburg approached VDOT and requested that they add a "T" intersection and stub for a future roadway. At no cost to VDOT, our Team prepared exhibits of the future Route 7 and Battlefield Parkway interchange for review by the Town of Leesburg and VDOT to set the profile elevation of the new intersection at an elevation that would reduce rework during future interchange construction. Then we delayed construction in the area of the intersection until funding for these improvements could be approved through the Town of Leesburg and the scope added to our contract. We then re-sequenced the schedule so these additional improvements could be completed without delay to the original project completion date.

### **Work Breakdown Structure - Payment Consideration**

Shirley Contracting will develop the Work Breakdown Structure (WBS) outlined earlier in the schedule narrative to logically divide the schedule into smaller groups that can easily be filtered to summarize activities by responsibility, project phase, type of activity, and area of the Project. The first level of the WBS structure includes Schedule Milestones, Design Phase, Public Involvement, Permitting, Right-of-way Acquisition, Utility Relocations, and Construction. The WBS Structure is further segmented into second, third, and fourth level activity groups to provide detail that can be used for planning and tracking by the managers of each phase of the design-build process. On a monthly basis during the Project we will submit an updated CPM Schedule with our Payment Application. The Payment Application will be organized based on WBS Structure included in the CPM Schedule with payment values assigned to each Work Package (the deliverable at lowest level WBS Group), as further defined in our Schedule of Values submitted with our Price Proposal. Since the organization of the Payment Application, the Schedule of Values and the CPM Schedule will be identical and will contain the same work packages, both Shirley and VDOT will easily be able to cross reference these documents to identify

the work packages that have started and completed each month and the scheduled value of each work package.

### **Mitigation of Major Delay Risks**

#### *Timely Review and Approval of Submittals*

Upon Notice of Award, Shirley will prepare a submittal schedule identifying all submittals that will be required for the Project. This schedule will identify the individual responsible for preparing the submittal, the anticipated submittal date, the parties responsible for reviewing and approving, the anticipated review durations, and a list of the individuals that must receive a copy of the approved submittal. At a minimum, the following submittals will be included:

- Design Submissions
- Permits
- QA/QC Plan
- CPM Schedule and Updates
- MOT and TMP Plans
- Materials Documentation, including Source of Supply and Shop Drawings

Submittals deemed critical to the success of the Project, including design and permitting submissions and major materials submissions (such as structural steel shop drawings), will be included in the Project CPM Schedule where the progress can be monitored concurrently with the affected construction activity.

Each submittal will include a transmittal cover sheet identifying the submittal's priority level. For submittals between the contractor and design firm, normal priority submittals will be returned within four weeks, high priority submittals within two weeks and urgent submittals within three days. This also allows the Team to prioritize multiple submittals that are turned in concurrently. For submittals to government agencies and utilities we will include adequate review timeframes in the CPM Schedule for approval of environmental permits and utility submissions as applicable.

We will also maintain a submittal log showing the status of all submittals. The log will be updated with the submission and return of each submittal and will show the submission date, anticipated response date, priority, and status. The submittal log will be reviewed at the weekly Design Coordination, Owner Progress, and Construction Progress meetings and can easily be sorted to distribute lists of active and overdue submittals. Issues affecting the timely completion of submittal reviews will be discussed with the responsible party and a plan for resolving them will be agreed to.

This process, along with diligent assessment of the CPM schedule, will ensure that timely review of submittals will be constantly monitored and managed to ensure that no construction activities are delayed by the submittal process

### **Right-of-Way Acquisition**

The I-395 HOV Ramp at Seminary Road Project requires the acquisition of right-of-way and easements from two individual properties. In order to mitigate the potential delays stemming from the late acquisition of right-of-way, our Team has taken several preventative measures to remove right-of-way acquisitions from the critical path and minimize the risks of delayed acquisitions.

First, we have included the cost to develop a separate right-of-way plan submission to gain early approval for acquisitions and get an early start on appraisals and offers to landowners allowing more time for negotiations. We

have included right-of-way activity durations based on extensive right-of-way acquisition experience including independent appraisal reviews, VDOT appraisal reviews, and extended negotiation and settlement durations.

With these preventative measures in place, we will be able to easily track the status of the acquisitions and identify potential concerns before they impact the schedule. After Notice of Proceed, we will begin contacting property owners to inform them of the Project and how their property will be affected. These meetings have been very effective on our other design-build projects to develop relationships with the property owners, ally their concerns with the Project, and to identify opportunities to work with landowners to negotiate right-of-entry agreements that allow early construction, which will further mitigate the potential for right-of-way delays.

### Utility Relocations

Some of the biggest risks to a design-build schedule involve public/private utility companies who do not have a vested interest in the Project and are not necessarily compelled to complete their work within the scheduled time constraints. On the I-395 HOV Ramp at Seminary Road Project this risk is magnified due to the number of utility impacts and the coordination required between the numerous utility companies. To combat this risk, we have started our planning and coordination process for these utilities by meeting with each affected utility and discussing the Project, the utilities impacts, potential relocation options, and discussing ways to accelerate the utility relocations after award of the Project.

These discussions have been facilitated by the preexisting relationships that we have developed through other design-build projects in the area. Our utility coordinator, Mr. Todd Kief has coordinated the relocations of over \$37 million of utility relocations on our design-build projects over the last nine years. This experience has enabled Mr. Kief to develop relationships with over 25 different utility owners in the area including all of the utilities that will be impacted on the I-395 HOV Ramp at Seminary Road Project.

This early coordination has enabled us to identify the following opportunities to advance the utility relocations and minimize the risk for utility delays after Notice to Proceed. The early personal contact with each utility enables us to manage their issues and concerns and allows us to build float into the utility relocation activities on the Project.

### Summary

The Shirley Team's comprehensive pre-proposal preparation, proven experience in all phases of design-build, and extensive project controls and schedule management and recovery techniques will serve to ensure that the I-395 HOV Ramp at Seminary Road Project will complete ahead of schedule. Over the years, we have built a solid professional reputation on meeting our commitments, completing projects ahead of schedule and under budget, performing quality work in a safe work environment, and establishing a problem-solving atmosphere and partnership with the Owner. This is a result of our extensive experience, quality people, and corporate commitment. The I-395 HOV Ramp at Seminary Road Project is a challenging and exciting Project for our Team and is one that we will bring this same level of commitment to for the benefit of VDOT, City of Alexandria, and the public.

# Schedule Proposal A

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Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016																							
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul																		
<b>Contract :C00096261DB50 - I-395 HOV Ramp at Seminary Road-Proposal A</b>						18-Dec-2015, Contract :C00096261DB50 -																																																											
<b>SCHEDULE MILESTONES</b>						18-Dec-2015, SCHEDULE MILESTONES																																																											
A1000	NOTICE OF INTENT TO AWARD (02/21/2013)	0d	21-Feb-2013*		0d	NOTICE OF INTENT TO AWARD (02/21/2013)																																																											
A1040	CTB AWARD	0d	20-Mar-2013*		0d	CTB AWARD																																																											
A1060	DESIGN-BUILD CONTRACT EXECUTION	0d	20-Apr-2013*		0d	DESIGN-BUILD CONTRACT EXECUTION																																																											
A1080	NOTICE TO PROCEED (04/25/2013)	0d	25-Apr-2013*		0d	NOTICE TO PROCEED (04/25/2013)																																																											
A1100	BEGIN CONSTRUCTION	0d	28-Jan-2014		0d	BEGIN CONSTRUCTION																																																											
A1110	OPEN TRAFFIC TO PERMANENT OUTSIDE WIDENINGS	0d		19-Dec-2014	244d	OPEN TRAFFIC TO PERMANENT OUTSIDE WIDENINGS																																																											
A1120	HOV RAMP OPEN to TRAFFIC-INTERIM MILESTONE(9/24/15)	0d		24-Sep-2015*	0d	HOV RAMP OPEN to TRAFFIC-INTERIM MILESTONE(9/24/15)																																																											
A1160	PROJECT READY FOR FINAL WALKTHROUGH	0d		01-Nov-2015	0d	PROJECT READY FOR FINAL WALKTHROUGH																																																											
A1180	COMPLETE VDOT PUNCHLIST	46d	02-Nov-2015	17-Dec-2015	0d	COMPLETE VDOT PUNCHLIST																																																											
A1200	SUBSTANTIAL and FINAL COMPLETION	0d		18-Dec-2015*	0d	SUBSTANTIAL and FINAL COMPLETION																																																											
A1220	SCOPE VALIDATION PERIOD (120 DAYS)	120d	25-Apr-2013	22-Aug-2013	152d	SCOPE VALIDATION PERIOD (120 DAYS)																																																											
<b>DESIGN PHASE</b>						01-Nov-2015, DESIGN PHASE																																																											
<b>PRELIMINARY DESIGN - FIELD SURVEY/MAPPING</b>						05-Dec-2013, PRELIMINARY DESIGN - FIELD SURVEY/MAPPING																																																											
BA1000	NOTIFICATION OF LANDOWNERS	30d	25-Apr-2013	24-May-2013	0d	NOTIFICATION OF LANDOWNERS																																																											
BA1020	BASE MAPPING/FIELD SURVEY	45d	25-Apr-2013	08-Jun-2013	0d	BASE MAPPING/FIELD SURVEY																																																											
BA1040	UTILITY DESIGNATIONS	30d	25-Apr-2013	24-May-2013	102d	UTILITY DESIGNATIONS																																																											
BA1060	UTILITY TEST PITS	30d	25-May-2013	23-Jun-2013	102d	UTILITY TEST PITS																																																											
BA1080	PREPARE ROW PLANS	90d	25-Apr-2013	23-Jul-2013	72d	PREPARE ROW PLANS																																																											
BA1100	VDOT REVIEW/COMMENT ROW PLANS	21d	24-Jul-2013	13-Aug-2013	72d	VDOT REVIEW/COMMENT ROW PLANS																																																											
BA1120	APPROVE ROW PLANS	0d	14-Aug-2013		72d	APPROVE ROW PLANS																																																											
BA1140	GEOTECHNICAL INVESTIGATION	90d	09-Jun-2013	06-Sep-2013	21d	GEOTECHNICAL INVESTIGATION																																																											
BA1160	VDOT REVIEWS GEOTECHNICAL REPORTS	90d	07-Sep-2013	05-Dec-2013	21d	VDOT REVIEWS GEOTECHNICAL REPORTS																																																											
<b>ROADWAY DESIGN</b>						17-Jan-2014, ROADWAY DESIGN																																																											
BB2000	PREPARE ROADWAY PLANS (1ST SUBMISSION)	110d	15-May-2013	01-Sep-2013	0d	PREPARE ROADWAY PLANS (1ST SUBMISSION)																																																											
BB2020	DESIGN QA/QC (1ST SUBMISSION)	5d	02-Sep-2013	06-Sep-2013	0d	DESIGN QA/QC (1ST SUBMISSION)																																																											
BB2040	SUBMIT ROADWAY PLANS (1ST SUBMISSION)	1d	07-Sep-2013	07-Sep-2013	0d	SUBMIT ROADWAY PLANS (1ST SUBMISSION)																																																											
BB2060	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (1ST SUBMISSION)	21d	08-Sep-2013	28-Sep-2013	0d	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (1ST SUBMISSION)																																																											
BB2080	PREPARE ROADWAY PLANS (2ND SUBMISSION)	43d	24-Sep-2013	05-Nov-2013	0d	PREPARE ROADWAY PLANS (2ND SUBMISSION)																																																											
BB2100	DESIGN QA/QC (2ND SUBMISSION)	5d	29-Sep-2013	03-Oct-2013	33d	DESIGN QA/QC (2ND SUBMISSION)																																																											
BB2120	SUBMIT ROADWAY PLANS (2ND SUBMISSION)	0d		05-Nov-2013	0d	SUBMIT ROADWAY PLANS (2ND SUBMISSION)																																																											
BB2140	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (2ND SUBMISSION)	21d	06-Nov-2013	26-Nov-2013	0d	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (2ND SUBMISSION)																																																											
BB2145	ADDITIONAL VDOT REVIEW TIME FOR FLOAT REQUIREMENT	5d	26-Nov-2013	06-Dec-2013	0d	ADDITIONAL VDOT REVIEW TIME FOR FLOAT REQUIREMENT																																																											
BB2160	PREPARE FINAL ROADWAY PLANS	30d	27-Nov-2013	26-Dec-2013	0d	PREPARE FINAL ROADWAY PLANS																																																											
BB2180	DESIGN FINAL QA/QC PLANS	5d	27-Nov-2013	01-Dec-2013	25d	DESIGN FINAL QA/QC PLANS																																																											
BB2200	SUBMIT FINAL ROADWAY PLANS	1d	27-Dec-2013	27-Dec-2013	0d	SUBMIT FINAL ROADWAY PLANS																																																											
BB2220	VDOT/FHWA REVIEW/COMMENT FINAL ROADWAY PLANS	21d	28-Dec-2013	17-Jan-2014	4d	VDOT/FHWA REVIEW/COMMENT FINAL ROADWAY PLANS																																																											
BB2240	FINAL ROADWAY PLANS APPROVED	0d		17-Jan-2014	4d	FINAL ROADWAY PLANS APPROVED																																																											
<b>BRIDGE DESIGN</b>						01-Nov-2015, BRIDGE DESIGN																																																											
BC3000	PERFORM REQ'D BRIDGE IN-DEPTH INSPECTION #1	14d	25-Apr-2013	08-May-2013	0d	PERFORM REQ'D BRIDGE IN-DEPTH INSPECTION #1																																																											
BC3002	DEVELOP RECOMMENDATIONS	30d	09-May-2013	07-Jun-2013	0d	DEVELOP RECOMMENDATIONS																																																											
BC3008	SUBMIT PRELIMINARY BRIDGE DESIGNS (TS&L)	0d	08-Jun-2013		0d	SUBMIT PRELIMINARY BRIDGE DESIGNS (TS&L)																																																											
BC3020	VDOT/FHWA REVIEW/COMMENT BRIDGE PRELIMINARY DESIGN	21d	08-Jun-2013	28-Jun-2013	0d	VDOT/FHWA REVIEW/COMMENT BRIDGE PRELIMINARY DESIGN																																																											
BC3040	PREPARE BRIDGE PLANS (1ST SUBMISSION)	120d	24-Jun-2013	21-Oct-2013	0d	PREPARE BRIDGE PLANS (1ST SUBMISSION)																																																											
BC3060	DESIGN QA/QC (1ST SUBMISSION)	5d	22-Oct-2013	26-Oct-2013	0d	DESIGN QA/QC (1ST SUBMISSION)																																																											
BC3080	SUBMIT BRIDGE PLANS (1ST SUBMISSION)	1d	27-Oct-2013	27-Oct-2013	0d	SUBMIT BRIDGE PLANS (1ST SUBMISSION)																																																											
BC3100	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (1ST SUBMISSION)	21d	28-Oct-2013	17-Nov-2013	0d	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (1ST SUBMISSION)																																																											
BC3120	PREPARE FINAL BRIDGE PLANS	45d	18-Nov-2013	01-Jan-2014	0d	PREPARE FINAL BRIDGE PLANS																																																											
BC3140	DESIGN QA/QC (FINAL SUBMISSION)	5d	02-Jan-2014	06-Jan-2014	0d	DESIGN QA/QC (FINAL SUBMISSION)																																																											
BC3160	SUBMIT FINAL BRIDGE PLANS	1d	07-Jan-2014	07-Jan-2014	0d	SUBMIT FINAL BRIDGE PLANS																																																											
BC3180	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (FINAL SUBMISSION)	21d	08-Jan-2014	28-Jan-2014	0d	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (FINAL SUBMISSION)																																																											

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
 Proposal Schedule A - HOV Ramp Project Only  
 Entire Schedule Network









Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016																							
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul																		
<b>SANGER BRIDGE NB B-685 SUBSTRUCTURE</b>						15-Jul-2014; SANGER BRIDGE NB B-685 SUBSTRUCTURE																																																											
H1C1000	SET MB11A BARRIER SERVICE	2d	07-Apr-2014	09-Apr-2014	11d	SET MB11A BARRIER SERVICE																																																											
H1C1010	SET SANGER AVENUE MOT	3d	09-Apr-2014	14-Apr-2014	11d	SET SANGER AVENUE MOT																																																											
H1C1015	SHORING FOR SUBSTRUCTURE	12d	14-Apr-2014	01-May-2014	11d	SHORING FOR SUBSTRUCTURE																																																											
H1C1030	EXCAVATE ABUTMENTS	10d	01-May-2014	15-May-2014	11d	EXCAVATE ABUTMENTS																																																											
H1C1040	ABUTMENT PILES	15d	13-May-2014	05-Jun-2014	11d	ABUTMENT PILES																																																											
H1C1050	FORM, POUR, STRIP ABUTMENT FTGS	16d	05-Jun-2014	27-Jun-2014	11d	FORM, POUR, STRIP ABUTMENT FTGS																																																											
H1C1060	FORM, POUR, STRIP ABUTMENT WALLS	20d	13-Jun-2014	15-Jul-2014	11d	FORM, POUR, STRIP ABUTMENT WALLS																																																											
<b>SANGER BRIDGE NB B-685 SUPERSTRUCTURE</b>						07-Nov-2014; SANGER BRIDGE NB B-685 SUPERSTRUCTURE																																																											
H1C2004	LEAD PAINT REMOVAL NEEDED FOR STEEL ERECTION	10d	27-Jun-2014	15-Jul-2014	16d	LEAD PAINT REMOVAL NEEDED FOR STEEL ERECTION																																																											
H1C2006	PERFORM SANGER BRIDGE RETROFITS AS REQUIRED	30d	30-May-2014	15-Jul-2014	16d	PERFORM SANGER BRIDGE RETROFITS AS REQUIRED																																																											
H1C2008	SET STRUCTURAL STEEL SANGER AVE WIDENING	5d	15-Jul-2014	22-Jul-2014	11d	SET STRUCTURAL STEEL SANGER AVE WIDENING																																																											
H1C2009	DEMO PARAPET AND DECK OVERHANG	15d	22-Jul-2014	12-Aug-2014	11d	DEMO PARAPET AND DECK OVERHANG																																																											
H1C2010	SET DECK PANS AND FORM OVERHANGS	8d	12-Aug-2014	22-Aug-2014	11d	SET DECK PANS AND FORM OVERHANGS																																																											
H1C2020	PLACE DECK REINFORCING STEEL	8d	22-Aug-2014	05-Sep-2014	11d	PLACE DECK REINFORCING STEEL																																																											
H1C2030	POUR AND CURE BRIDGE DECK CONCRETE	15d	05-Sep-2014	26-Sep-2014	11d	POUR AND CURE BRIDGE DECK CONCRETE																																																											
H1C2035	FORM, REBAR, POUR APPROACH SLABES	10d	26-Sep-2014	10-Oct-2014	40d	FORM, REBAR, POUR APPROACH SLABES																																																											
H1C2040	FORM, REBAR, POUR PARAPET	7d	10-Oct-2014	21-Oct-2014	40d	FORM, REBAR, POUR PARAPET																																																											
H1C2050	INSTALL BRIDGE MOUNTED SOUNDWALL POSTS	10d	26-Sep-2014	10-Oct-2014	11d	INSTALL BRIDGE MOUNTED SOUNDWALL POSTS																																																											
H1C2060	SET NOISEWALL PANELS	5d	10-Oct-2014	17-Oct-2014	11d	SET NOISEWALL PANELS																																																											
H1C2070	BRIDGE LOAD RATING - NB SANGER AVE (HOLD POINT)	15d	17-Oct-2014	07-Nov-2014	27d	BRIDGE LOAD RATING - NB SANGER AVE (HOLD POINT)																																																											
<b>SANGER SOUTHBOUND CONSTRUCTION FOR NOISEWALL</b>						27-Mar-2015; SANGER SOUTHBOUND CONSTRUCTION FOR NOISEWALL																																																											
H2C3000	SET MOT FOR SOUTHBOUND I-395	5d	26-Sep-2014	03-Oct-2014	149d	SET MOT FOR SOUTHBOUND I-395																																																											
H2C3015	SHORING FOR EXCAVATION	12d	03-Oct-2014	21-Oct-2014	149d	SHORING FOR EXCAVATION																																																											
H2C3020	EXCAVATE ABUTMENTS	10d	21-Oct-2014	04-Nov-2014	149d	EXCAVATE ABUTMENTS																																																											
H2C3030	ABUTMENT PILES	8d	31-Oct-2014	12-Nov-2014	149d	ABUTMENT PILES																																																											
H2C3040	FORM, POUR, STRIP ABUTMENT FTGS	8d	12-Nov-2014	24-Nov-2014	149d	FORM, POUR, STRIP ABUTMENT FTGS																																																											
H2C3060	FORM, POUR, STRIP ABUTMENT WALLS	20d	20-Nov-2014	29-Dec-2014	149d	FORM, POUR, STRIP ABUTMENT WALLS																																																											
H2C3070	START SANGER SOUTHBOUND SUPERSTRUCTURE	0d	29-Dec-2014		149d	START SANGER SOUTHBOUND SUPERSTRUCTURE																																																											
H2C3080	SET STRUCTURAL STEEL SANGER AVE WIDENING	5d	29-Dec-2014	07-Jan-2015	149d	SET STRUCTURAL STEEL SANGER AVE WIDENING																																																											
H2C3085	REMOVE PARAPET AND DECK PORTION	15d	07-Jan-2015	28-Jan-2015	149d	REMOVE PARAPET AND DECK PORTION																																																											
H2C3090	SET DECK PANS AND FORM OVERHANGS	5d	21-Jan-2015	28-Jan-2015	149d	SET DECK PANS AND FORM OVERHANGS																																																											
H2C3100	PLACE DECK REINFORCING STEEL	5d	28-Jan-2015	04-Feb-2015	149d	PLACE DECK REINFORCING STEEL																																																											
H2C3110	POUR AND CURE BRIDGE DECK CONCRETE	9d	04-Feb-2015	17-Feb-2015	149d	POUR AND CURE BRIDGE DECK CONCRETE																																																											
H2C3120	FORM, REBAR, POUR PARAPET	7d	25-Feb-2015	06-Mar-2015	149d	FORM, REBAR, POUR PARAPET																																																											
H2C3130	INSTALL BRIDGE MOUNTED SOUNDWALL POSTS	10d	17-Feb-2015	03-Mar-2015	152d	INSTALL BRIDGE MOUNTED SOUNDWALL POSTS																																																											
H2C3140	FORM, REBAR, POUR APPROACH SLABS	6d	17-Feb-2015	25-Feb-2015	149d	FORM, REBAR, POUR APPROACH SLABS																																																											
H2C3150	SET NOISE WALL PANELS	5d	06-Mar-2015	13-Mar-2015	149d	SET NOISE WALL PANELS																																																											
H2C3155	BRIDGE LOAD RATING - SOUTHBOUND SANGER AVE BRIDGE (HOLD POINT)	15d	06-Mar-2015	27-Mar-2015	149d	BRIDGE LOAD RATING - SOUTHBOUND SANGER AVE BRIDGE (HOLD POINT)																																																											
H2C3160	COMPLETE SANGER AVE BRIDGE	0d		27-Mar-2015	149d	COMPLETE SANGER AVE BRIDGE																																																											
<b>HOV RAMP BRIDGE B-687</b>						17-Sep-2015; HOV RAMP BRIDGE B-687																																																											
<b>BRIDGE B-687 SUBSTRUCTURE</b>						01-Jun-2015; BRIDGE B-687 SUBSTRUCTURE																																																											
<b>ABUTMENT A - APPROACH and SEAT</b>						28-Apr-2015; ABUTMENT A - APPROACH and SEAT																																																											
H2D1A1000	DRIVE PILES ABUTMENT A	8d	03-Feb-2015	12-Feb-2015	0d	DRIVE PILES ABUTMENT A																																																											
H2D1A1010	MSE WALL COMPLETION at ABUTMENT	10d	31-Mar-2015	14-Apr-2015	22d	MSE WALL COMPLETION at ABUTMENT																																																											
H2D1A1020	FORM, REBAR, POUR ABUTMENT SEAT	10d	15-Apr-2015	28-Apr-2015	22d	FORM, REBAR, POUR ABUTMENT SEAT																																																											
<b>PIER 1</b>						10-Apr-2015; PIER 1																																																											
H2D1B1000	DRIVE PILES FOR PIER	5d	13-Feb-2015	19-Feb-2015	0d	DRIVE PILES FOR PIER																																																											
H2D1B1010	FORM, REBAR, POUR PIER FTG	4d	20-Feb-2015	25-Feb-2015	0d	FORM, REBAR, POUR PIER FTG																																																											
H2D1B1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	26-Feb-2015	09-Mar-2015	0d	FORM, REBAR, POUR PIER STEM COLUMNS																																																											
H2D1B1030	FORM, REBAR POUR PIER CAP	20d	10-Mar-2015	07-Apr-2015	0d	FORM, REBAR POUR PIER CAP																																																											
H2D1B1040	POUR SEATS/SET BEARINGS	3d	08-Apr-2015	10-Apr-2015	34d	POUR SEATS/SET BEARINGS																																																											

■ Actual Work  
■ Remaining Work  
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◆ Milestone

I-395 HOV RAMP at SEMINARY ROAD  
 Proposal Schedule A - HOV Ramp Project Only  
 Entire Schedule Network



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016					
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
<b>PIER 2</b>		33d	20-Feb-2015	07-Apr-2015	39d																																										
H2D1C1000	DRIVE PILES FOR PIER	5d	20-Feb-2015	26-Feb-2015	19d																																										
H2D1C1010	FORM, REBAR, POUR PIER FTG	4d	27-Feb-2015	04-Mar-2015	37d																																										
H2D1C1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	05-Mar-2015	16-Mar-2015	37d																																										
H2D1C1030	FORM, REBAR POUR PIER CAP	12d	17-Mar-2015	01-Apr-2015	37d																																										
H2D1C1040	POUR SEATS/SET BEARINGS	3d	02-Apr-2015	07-Apr-2015	37d																																										
<b>PIER 3</b>		67d	27-Feb-2015	01-Jun-2015	0d																																										
H2D1D1000	DRIVE PILES FOR PIER	8d	27-Feb-2015	10-Mar-2015	19d																																										
H2D1D1010	FORM, REBAR, POUR PIER FTG	4d	08-Apr-2015	13-Apr-2015	0d																																										
H2D1D1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	14-Apr-2015	23-Apr-2015	0d																																										
H2D1D1030	FORM, REBAR POUR PIER CAP	22d	24-Apr-2015	27-May-2015	0d																																										
H2D1D1040	POUR SEATS/SET BEARINGS	3d	28-May-2015	01-Jun-2015	0d																																										
<b>PIER 4</b>		75d	26-Mar-2014	09-Jul-2014	186d																																										
H2D1E1002	DEMO GUARDRAIL / MEDIAN PREP AREA FOR BRIDGE	20d	26-Mar-2014	24-Apr-2014	65d																																										
H2D1E1008	DRIVE PILES FOR PIER	8d	24-Apr-2014	06-May-2014	65d																																										
H2D1E1010	FORM, REBAR, POUR PIER FTG	4d	06-May-2014	12-May-2014	65d																																										
H2D1E1020	FORM, REBAR, POUR PIER STEM COLUMNS	10d	12-May-2014	28-May-2014	65d																																										
H2D1E1030	FORM, REBAR POUR PIER CAP	25d	28-May-2014	02-Jul-2014	65d																																										
H2D1E1040	POUR SEATS/SET BEARINGS	3d	02-Jul-2014	09-Jul-2014	175d																																										
<b>PIER 5</b>		87d	06-May-2014	04-Sep-2014	145d																																										
H2D1F1000	DRIVE PILES FOR PIER	8d	06-May-2014	16-May-2014	96d																																										
H2D1F1010	FORM, REBAR, POUR PIER FTG	4d	02-Jul-2014	10-Jul-2014	65d																																										
H2D1F1020	FORM, REBAR, POUR PIER STEM COLUMNS	10d	10-Jul-2014	24-Jul-2014	65d																																										
H2D1F1030	FORM, REBAR POUR PIER CAP	25d	24-Jul-2014	28-Aug-2014	65d																																										
H2D1F1040	POUR SEATS/SET BEARINGS	3d	28-Aug-2014	04-Sep-2014	136d																																										
<b>PIER 6</b>		123d	16-May-2014	05-Nov-2014	101d																																										
H2D1G1000	DRIVE PILES FOR PIER	8d	16-May-2014	30-May-2014	127d																																										
H2D1G1010	FORM, REBAR, POUR PIER FTG	5d	28-Aug-2014	08-Sep-2014	65d																																										
H2D1G1020	FORM, REBAR, POUR PIER STEM COLUMNS	12d	08-Sep-2014	24-Sep-2014	65d																																										
H2D1G1030	FORM, REBAR POUR PIER CAP	25d	24-Sep-2014	29-Oct-2014	65d																																										
H2D1G1040	POUR SEATS/SET BEARINGS	5d	29-Oct-2014	05-Nov-2014	92d																																										
<b>PIER 7</b>		165d	30-May-2014	16-Jan-2015	86d																																										
H2D1H1000	DRIVE PILES FOR PIER	8d	30-May-2014	11-Jun-2014	161d																																										
H2D1H1010	FORM, REBAR, POUR PIER FTG	5d	29-Oct-2014	05-Nov-2014	65d																																										
H2D1H1020	FORM, REBAR, POUR PIER STEM COLUMNS	13d	05-Nov-2014	24-Nov-2014	65d																																										
H2D1H1030	FORM, REBAR POUR PIER CAP	25d	24-Nov-2014	09-Jan-2015	65d																																										
H2D1H1040	POUR SEATS/SET BEARINGS	5d	09-Jan-2015	16-Jan-2015	85d																																										
<b>PIER 8</b>		197d	11-Jun-2014	13-Mar-2015	68d																																										
H2D1I1000	DRIVE PILES FOR PIER	8d	11-Jun-2014	23-Jun-2014	196d																																										
H2D1I1010	FORM, REBAR, POUR PIER FTG	5d	09-Jan-2015	16-Jan-2015	65d																																										
H2D1I1020	FORM, REBAR, POUR PIER STEM COLUMNS	15d	16-Jan-2015	06-Feb-2015	65d																																										
H2D1I1030	FORM, REBAR POUR PIER CAP	20d	06-Feb-2015	06-Mar-2015	65d																																										
H2D1I1040	POUR SEATS/SET BEARINGS	5d	06-Mar-2015	13-Mar-2015	65d																																										
<b>BRIDGE B-687 SUPERSTRUCTURE</b>		226d	05-Nov-2014	17-Sep-2015	0d																																										
H2D2000	B-687 PARAPETS and LIGHT BLISTERS	30d	23-Jun-2015	04-Aug-2015	25d																																										
H2D2010	INSTALL LIGHT FIXTURES / SIGNAGE	5d	11-Sep-2015	17-Sep-2015	0d																																										
H2D2020	INSTALL STANDPIPE / FIRE PROTECTION SYSTEM	30d	23-Jun-2015	04-Aug-2015	25d																																										
H2D2030	BRIDGE LOAD RATING - HOV RAMP BRIDGE B-687 ( HOLD POINT)	15d	02-Jun-2015	23-Jun-2015	60d																																										
H2D2040	COMPLETE BRIDGE B-687- READY to OPEN TO TRAFFIC	0d		17-Sep-2015	0d																																										
<b>SPANS a,b,c</b>		73d	02-Jun-2015	10-Sep-2015	0d																																										
HDD2A1000	SET STRUCTURAL STEEL SPANS a,b,c	15d	02-Jun-2015	22-Jun-2015	0d																																										
HDD2A1010	FORM OVERHANG SET SCREED RAIL	20d	23-Jun-2015	21-Jul-2015	0d																																										

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
 Proposal Schedule A - HOV Ramp Project Only  
 Entire Schedule Network

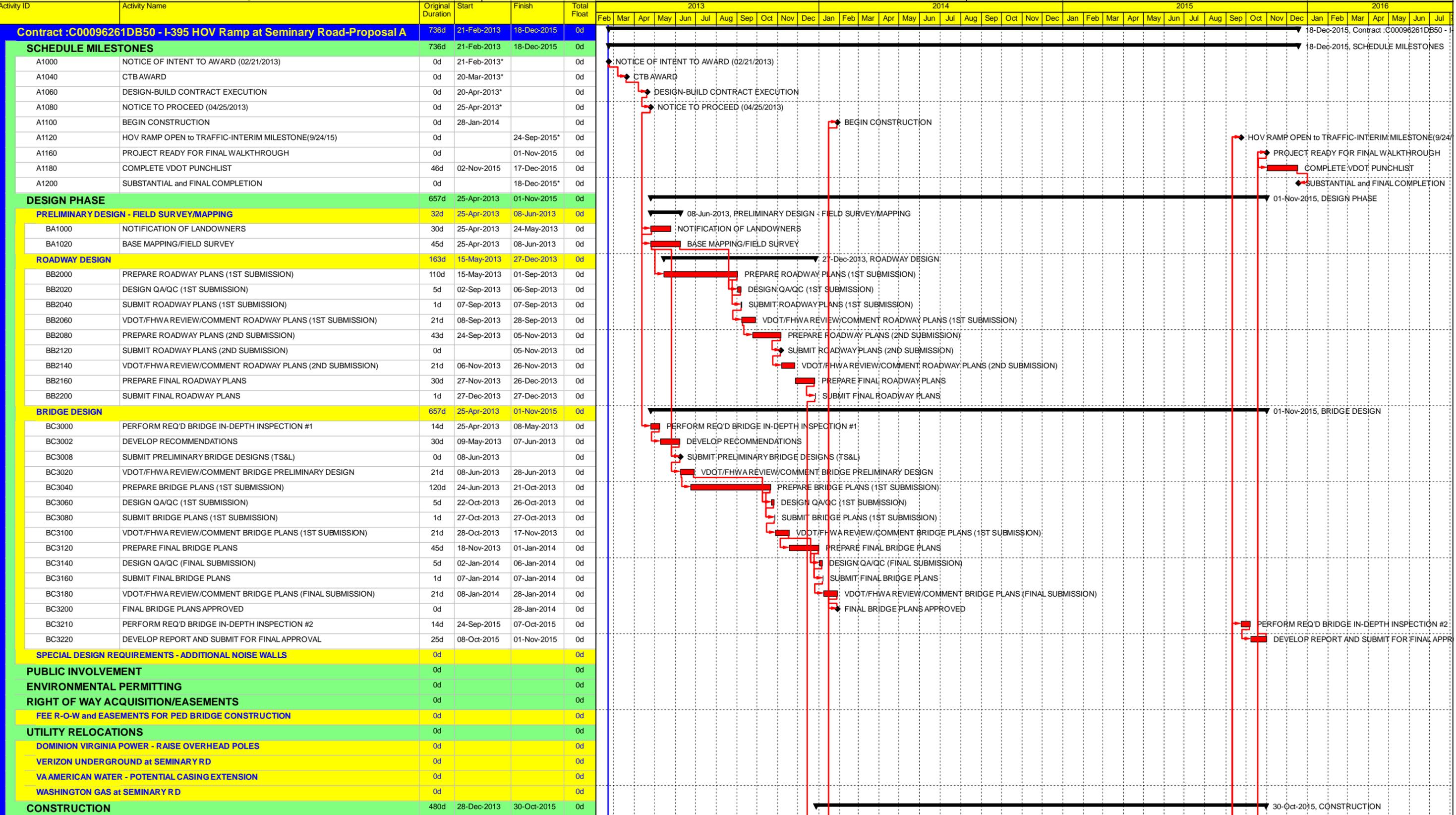












■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
**Proposal Schedule A - HOV Ramp Project Only**  
**Critical Path Only**



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016																							
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul																		
<b>PRE-CONSTRUCTION, SUBMITTALS and MATERIAL PROCUREMENT</b>						26-May-2014, PRE-CONSTRUCTION, SUBMITTALS and MATERIAL PROCUREMENT																																																											
H1A1030	RETAINING WALL / NOISE WALL SHOP DWGS	75d	28-Dec-2013	12-Mar-2014	0d	RETAINING WALL / NOISE WALL SHOP DWGS																																																											
H1A1040	REVIEW AND APPROVE RET/NOISE SHOP DWGS	25d	13-Mar-2014	06-Apr-2014	0d	REVIEW AND APPROVE RET/NOISE SHOP DWGS																																																											
H1A1050	FABRICATE RETAINING WALL / NOISE POSTS	50d	07-Apr-2014	26-May-2014	0d	FABRICATE RETAINING WALL / NOISE POSTS																																																											
<b>HOV RAMP PROJECT</b>						30-Oct-2015, HOV RAMP PROJECT																																																											
<b>I-395 WIDENING incl I-395 OFF-RAMP to SEMINARY</b>						30-Oct-2015, I-395 WIDENING incl I-395 OFF-RAMP																																																											
<b>PHASE I - INSIDE SHOULDER STRENGTHENING</b>						30-Oct-2015, PHASE I - INSIDE SHOULDER STRENGTHENING																																																											
<b>PHASE II - OUTSIDE PERMANENT CONSTRUCTION</b>						30-Oct-2015, PHASE II - OUTSIDE PERMANENT CONSTRUCTION																																																											
H1B2060	COMPLETE FILLS AND FINE GRADE	20d	08-Sep-2014	03-Oct-2014	0d	COMPLETE FILLS AND FINE GRADE																																																											
H1B2070	AGGREGATE BASE and UNDERDRAIN	21d	06-Oct-2014	03-Nov-2014	0d	AGGREGATE BASE and UNDERDRAIN																																																											
H1B2080	BASE and INTERMEDIATE ASPHALT	15d	04-Nov-2014	24-Nov-2014	0d	BASE and INTERMEDIATE ASPHALT																																																											
H1B2090	MEDIAN BARRIER AT WALLS	11d	25-Nov-2014	12-Dec-2014	0d	MEDIAN BARRIER AT WALLS																																																											
H1B2100	TEMP PAVEMENT MKGS	5d	15-Dec-2014	19-Dec-2014	0d	TEMP PAVEMENT MKGS																																																											
H1B2110	SWITCH TRAFFIC TO NEW OUTSIDE WIDENING	0d		19-Dec-2014	0d	SWITCH TRAFFIC TO NEW OUTSIDE WIDENING																																																											
H1B3090	FINAL MILL AND OVERLAY I-395 NBL	25d	28-Sep-2015	30-Oct-2015	0d	FINAL MILL AND OVERLAY I-395 NBL																																																											
<b>RETAINING/NOISE COMBO WALLS</b>						30-Jun-2014, RETAINING/NOISE COMBO WALLS																																																											
H1B2A1000	DRILL, SET, AND POUR POSTS	25d	27-May-2014	30-Jun-2014	0d	DRILL, SET, AND POUR POSTS																																																											
<b>GROUNDED MOUNTED NOISE WALLS</b>						05-Sep-2014, GROUNDED MOUNTED NOISE WALLS																																																											
H1B2B1000	DRILL SET and POUR POSTS	45d	01-Jul-2014	05-Sep-2014	0d	DRILL SET and POUR POSTS																																																											
<b>PHASE III - INSIDE PERMANENT CONSTRUCTION</b>						25-Sep-2015, PHASE III - INSIDE PERMANENT CONSTRUCTION																																																											
H1B3000	SET MOT for PHASE III INSIDE PERM CONSTRUCTION	5d	22-Dec-2014	05-Jan-2015	0d	SET MOT for PHASE III INSIDE PERM CONSTRUCTION																																																											
H1B3010	DEMOLISH and REMOVE OLD MEDIAN BARRIER	10d	06-Jan-2015	19-Jan-2015	0d	DEMOLISH and REMOVE OLD MEDIAN BARRIER																																																											
H1B3020	ROUGH GRADE for BRIDGE CONSTRUCTION	10d	20-Jan-2015	02-Feb-2015	0d	ROUGH GRADE for BRIDGE CONSTRUCTION																																																											
H1B3070	FINAL STRIPE BRIDGE B-687 and APPROACH	3d	18-Sep-2015	22-Sep-2015	0d	FINAL STRIPE BRIDGE B-687 and APPROACH																																																											
H1B3080	REMOVE MOT DEVICES-PUT LANES IN FINAL CONFIG	3d	23-Sep-2015	25-Sep-2015	0d	REMOVE MOT DEVICES-PUT LANES IN FINAL CONFIG																																																											
<b>SANGER AVE BRIDGE B-685</b>						17-Sep-2015, HOV RAMP BRIDGE B-687																																																											
<b>SANGER BRIDGE NB B-685 SUBSTRUCTURE</b>						01-Jun-2015, BRIDGE B-687 SUBSTRUCTURE																																																											
<b>SANGER BRIDGE NB B-685 SUPERSTRUCTURE</b>						12-Feb-2015, ABUTMENT A - APPROACH and SEAT																																																											
<b>SANGER SOUTHBOUND CONSTRUCTION FOR NOISEWALL</b>						07-Apr-2015, PIER 1																																																											
<b>HOV RAMP BRIDGE B-687</b>						01-Jun-2015, PIER 3																																																											
<b>BRIDGE B-687 SUBSTRUCTURE</b>						17-Sep-2015, BRIDGE B-687 SUPERSTRUCTURE																																																											
<b>ABUTMENT A - APPROACH and SEAT</b>						12-Feb-2015, ABUTMENT A - APPROACH and SEAT																																																											
H2D1A1000	DRIVE PILES ABUTMENT A	8d	03-Feb-2015	12-Feb-2015	0d	DRIVE PILES ABUTMENT A																																																											
<b>PIER 1</b>						07-Apr-2015, PIER 1																																																											
H2D1B1000	DRIVE PILES FOR PIER	5d	13-Feb-2015	19-Feb-2015	0d	DRIVE PILES FOR PIER																																																											
H2D1B1010	FORM, REBAR, POUR PIER FTG	4d	20-Feb-2015	25-Feb-2015	0d	FORM, REBAR, POUR PIER FTG																																																											
H2D1B1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	26-Feb-2015	09-Mar-2015	0d	FORM, REBAR, POUR PIER STEM COLUMNS																																																											
H2D1B1030	FORM, REBAR POUR PIER CAP	20d	10-Mar-2015	07-Apr-2015	0d	FORM, REBAR POUR PIER CAP																																																											
<b>PIER 2</b>						01-Jun-2015, PIER 3																																																											
<b>PIER 3</b>						01-Jun-2015, PIER 3																																																											
H2D1D1010	FORM, REBAR, POUR PIER FTG	4d	08-Apr-2015	13-Apr-2015	0d	FORM, REBAR, POUR PIER FTG																																																											
H2D1D1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	14-Apr-2015	23-Apr-2015	0d	FORM, REBAR, POUR PIER STEM COLUMNS																																																											
H2D1D1030	FORM, REBAR POUR PIER CAP	22d	24-Apr-2015	27-May-2015	0d	FORM, REBAR POUR PIER CAP																																																											
H2D1D1040	POUR SEATS/SET BEARINGS	3d	28-May-2015	01-Jun-2015	0d	POUR SEATS/SET BEARINGS																																																											
<b>PIER 4</b>						17-Sep-2015, BRIDGE B-687 SUPERSTRUCTURE																																																											
<b>PIER 5</b>						17-Sep-2015, BRIDGE B-687 SUPERSTRUCTURE																																																											
<b>PIER 6</b>						17-Sep-2015, BRIDGE B-687 SUPERSTRUCTURE																																																											
<b>PIER 7</b>						17-Sep-2015, BRIDGE B-687 SUPERSTRUCTURE																																																											
<b>PIER 8</b>						17-Sep-2015, BRIDGE B-687 SUPERSTRUCTURE																																																											
<b>BRIDGE B-687 SUPERSTRUCTURE</b>						17-Sep-2015, BRIDGE B-687 SUPERSTRUCTURE																																																											
H2D2010	INSTALL LIGHT FIXTURES / SIGNAGE	5d	11-Sep-2015	17-Sep-2015	0d	INSTALL LIGHT FIXTURES / SIGNAGE																																																											
H2D2040	COMPLETE BRIDGE B-687- READY to OPEN TO TRAFFIC	0d		17-Sep-2015	0d	COMPLETE BRIDGE B-687- READY to OPEN TO TRAFFIC																																																											

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
**Proposal Schedule A - HOV Ramp Project Only**  
**Critical Path Only**



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016					
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
<b>SPANS a,b,c</b>		73d	02-Jun-2015	10-Sep-2015	0d																																										
HDD2A1000	SET STRUCTURAL STEEL SPANS a,b,c	15d	02-Jun-2015	22-Jun-2015	0d																																										
HDD2A1010	FORM OVERHANG SET SCREED RAIL	20d	23-Jun-2015	21-Jul-2015	0d																																										
HDD2A1020	INSTALL SIP DECK FORMS	18d	30-Jun-2015	24-Jul-2015	0d																																										
HDD2A1030	INSTALL REINFORCING STEEL / BULKHEADS	20d	15-Jul-2015	11-Aug-2015	0d																																										
HDD2A1040	TEST SCREED AND PREP FOR POUR	5d	12-Aug-2015	18-Aug-2015	0d																																										
HDD2A1050	POUR BRIDGE DECKS AND CURE	15d	19-Aug-2015	10-Sep-2015	0d																																										
<b>SPANS d,e,f</b>		0d			0d																																										
<b>SPAN g OVER ROTARY LEVEL</b>		0d			0d																																										
<b>SPAN h AND TIE-IN TO SEMINARY BRIDGE</b>		0d			0d																																										
<b>SEMINARY ROAD BRIDGE B-684 and APPROACHES</b>		431d	28-Jan-2014	23-Sep-2015	0d																																										
<b>SEMINARY BRIDGE PHASE 1</b>		170d	28-Jan-2014	23-Sep-2014	0d																																										
H1E1010	Install Temporary Crossings for Pedestrian Realignment	25d	28-Jan-2014	04-Mar-2014	0d																																										
H1E1020	Open Temporary Pedestrian Movement	5d	04-Mar-2014	11-Mar-2014	0d																																										
H1E1030	Demo of North Seminary Road Bridge Mounted Sidewalk	10d	11-Mar-2014	25-Mar-2014	0d																																										
H1E1040	Install Temporary MOT for Bridge Deck Demo	5d	25-Mar-2014	01-Apr-2014	0d																																										
H1E1050	Install Debris Shield for Bridge Deck Demo	15d	01-Apr-2014	23-Apr-2014	0d																																										
H1E1070	Remove Bridge Lightings, Deck Railing, and Parapet	5d	01-Apr-2014	08-Apr-2014	0d																																										
H1E1080	Demolish Bridge Deck Bridge Deck	20d	08-Apr-2014	07-May-2014	0d																																										
H1E1090	Remove and Install Replacement Laminated Bearings	15d	07-May-2014	30-May-2014	0d																																										
H1E1100	Remediate and / or Remove Bridge Joints	20d	30-May-2014	27-Jun-2014	0d																																										
H1E1120	Install Deck Pans	15d	11-Jun-2014	02-Jul-2014	0d																																										
H1E1140	Form Deck Overhang Edge and HOV Deck Joint	20d	18-Jun-2014	18-Jul-2014	0d																																										
H1E1150	Setup Screed	5d	18-Jul-2014	25-Jul-2014	0d																																										
H1E1160	Pour Bridge Deck Concrete	15d	25-Jul-2014	15-Aug-2014	0d																																										
H1E1170	Cure Deck	15d	01-Aug-2014	22-Aug-2014	0d																																										
H1E1180	Cast Bridge Deck Parapet, Light Blisters, Sign Pole Bases	15d	22-Aug-2014	16-Sep-2014	0d																																										
H1E1190	Install Lighting, Railing, and Fence	5d	16-Sep-2014	23-Sep-2014	0d																																										
H1E1200	SEMINARY BRIDGE PHASE I COMPLETE	0d		23-Sep-2014	0d																																										
<b>SEMINARY BRIDGE PHASE 2</b>		104d	23-Sep-2014	16-Feb-2015	0d																																										
H1E2000	Adjust MOT For Phase 2	5d	23-Sep-2014	30-Sep-2014	0d																																										
H1E2010	Demolish Median and Bridge Deck	20d	30-Sep-2014	28-Oct-2014	0d																																										
H1E2020	Remove and Install Replacement Laminated Bearings	20d	21-Oct-2014	18-Nov-2014	0d																																										
H1E2030	Remediate and / or Remove Bridge Joints	10d	18-Nov-2014	05-Dec-2014	0d																																										
H1E2040	Install Deck Pans	15d	05-Dec-2014	05-Jan-2015	0d																																										
H1E2050	Install Deck Reinforcing	15d	12-Dec-2014	12-Jan-2015	0d																																										
H1E2060	Setup Screed	5d	12-Jan-2015	19-Jan-2015	0d																																										
H1E2070	Pour Bridge Deck	15d	19-Jan-2015	09-Feb-2015	0d																																										
H1E2080	Cure Deck	15d	26-Jan-2015	16-Feb-2015	0d																																										
<b>SEMINARY BRIDGE PHASE 3</b>		157d	16-Feb-2015	23-Sep-2015	0d																																										
H1E3000	Adjust MOT For Phase 3	5d	16-Feb-2015	23-Feb-2015	0d																																										
H1E3010	Demolish Median and Bridge Deck	20d	23-Feb-2015	23-Mar-2015	0d																																										
H1E3020	Remove and Install Replacement Laminated Bearings	20d	16-Mar-2015	14-Apr-2015	0d																																										
H1E3030	Remediate and / or Remove Bridge Joints	15d	30-Mar-2015	21-Apr-2015	0d																																										
H1E3040	Install New Bridge Deck Diaphragms	5d	21-Apr-2015	28-Apr-2015	0d																																										
H1E3045	Form Deck Overhangs, Edge	17d	28-Apr-2015	21-May-2015	0d																																										
H1E3050	Install Deck Pans	12d	05-May-2015	21-May-2015	0d																																										
H1E3060	Install Deck Reinforcing	13d	12-May-2015	02-Jun-2015	0d																																										
H1E3070	Setup Screed	3d	02-Jun-2015	05-Jun-2015	0d																																										
H1E3080	Cast Bridge Deck	15d	05-Jun-2015	26-Jun-2015	0d																																										
H1E3120	SEMINARY ROAD PHASE III COMPLETE	0d		23-Sep-2015	0d																																										
<b>SEMINARY BRIDGE PHASE 3a and APPROACH ROADWAYS</b>		63d	26-Jun-2015	23-Sep-2015	0d																																										

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
**Proposal Schedule A - HOV Ramp Project Only**  
**Critical Path Only**





# Schedule Proposal B

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Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016																							
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul																		
<b>Contract :C00096261DB50 - I-395 HOV Ramp at Seminary Road-Proposal B</b>						18-Dec-2015, Contract :C00096261DB50 -																																																											
<b>SCHEDULE MILESTONES</b>						18-Dec-2015, SCHEDULE MILESTONES																																																											
A1000	NOTICE OF INTENT TO AWARD (02/21/2013)	0d	21-Feb-2013*		0d	NOTICE OF INTENT TO AWARD (02/21/2013)																																																											
A1040	CTB AWARD	0d	20-Mar-2013*		0d	CTB AWARD																																																											
A1060	DESIGN-BUILD CONTRACT EXECUTION	0d	22-Apr-2013*		0d	DESIGN-BUILD CONTRACT EXECUTION																																																											
A1080	NOTICE TO PROCEED (04/25/2013)	0d	25-Apr-2013*		0d	NOTICE TO PROCEED (04/25/2013)																																																											
A1100	BEGIN CONSTRUCTION	0d	28-Jan-2014		0d	BEGIN CONSTRUCTION																																																											
A1110	OPEN TRAFFIC TO PERMANENT OUTSIDE WIDENINGS	0d		19-Dec-2014	244d	OPEN TRAFFIC TO PERMANENT OUTSIDE WIDENINGS																																																											
A1120	HOV RAMP OPEN to TRAFFIC-INTERIM MILESTONE(9/24/15)	0d		24-Sep-2015*	0d	HOV RAMP OPEN to TRAFFIC-INTERIM MILESTONE(9/24/15)																																																											
A1160	PROJECT READY FOR FINAL WALKTHROUGH	0d		01-Nov-2015	0d	PROJECT READY FOR FINAL WALKTHROUGH																																																											
A1180	COMPLETE VDOT PUNCHLIST	46d	02-Nov-2015	17-Dec-2015	0d	COMPLETE VDOT PUNCHLIST																																																											
A1200	SUBSTANTIAL and FINAL COMPLETION	0d	18-Dec-2015	18-Dec-2015*	0d	SUBSTANTIAL and FINAL COMPLETION																																																											
A1220	SCOPE VALIDATION PERIOD (120 DAYS)	120d	25-Apr-2013	22-Aug-2013	152d	SCOPE VALIDATION PERIOD (120 DAYS)																																																											
<b>DESIGN PHASE</b>						01-Nov-2015, DESIGN PHASE																																																											
<b>PRELIMINARY DESIGN - FIELD SURVEY/MAPPING</b>						05-Dec-2013, PRELIMINARY DESIGN - FIELD SURVEY/MAPPING																																																											
BA1000	NOTIFICATION OF LANDOWNERS	30d	25-Apr-2013	24-May-2013	0d	NOTIFICATION OF LANDOWNERS																																																											
BA1020	BASE MAPPING/FIELD SURVEY	45d	25-Apr-2013	08-Jun-2013	0d	BASE MAPPING/FIELD SURVEY																																																											
BA1040	UTILITY DESIGNATIONS	30d	25-Apr-2013	24-May-2013	102d	UTILITY DESIGNATIONS																																																											
BA1060	UTILITY TEST PITS	30d	25-May-2013	23-Jun-2013	102d	UTILITY TEST PITS																																																											
BA1080	PREPARE ROW PLANS	90d	25-Apr-2013	23-Jul-2013	72d	PREPARE ROW PLANS																																																											
BA1100	VDOT REVIEW/COMMENT ROW PLANS	21d	24-Jul-2013	13-Aug-2013	72d	VDOT REVIEW/COMMENT ROW PLANS																																																											
BA1120	APPROVE ROW PLANS	0d	14-Aug-2013		72d	APPROVE ROW PLANS																																																											
BA1140	GEOTECHNICAL INVESTIGATION	90d	09-Jun-2013	06-Sep-2013	21d	GEOTECHNICAL INVESTIGATION																																																											
BA1160	VDOT REVIEWS GEOTECHNICAL REPORTS	90d	07-Sep-2013	05-Dec-2013	21d	VDOT REVIEWS GEOTECHNICAL REPORTS																																																											
<b>ROADWAY DESIGN</b>						17-Jan-2014, ROADWAY DESIGN																																																											
BB2000	PREPARE ROADWAY PLANS (1ST SUBMISSION)	110d	15-May-2013	01-Sep-2013	0d	PREPARE ROADWAY PLANS (1ST SUBMISSION)																																																											
BB2020	DESIGN QA/QC (1ST SUBMISSION)	5d	02-Sep-2013	06-Sep-2013	0d	DESIGN QA/QC (1ST SUBMISSION)																																																											
BB2040	SUBMIT ROADWAY PLANS (1ST SUBMISSION)	1d	07-Sep-2013	07-Sep-2013	0d	SUBMIT ROADWAY PLANS (1ST SUBMISSION)																																																											
BB2060	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (1ST SUBMISSION)	21d	08-Sep-2013	28-Sep-2013	0d	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (1ST SUBMISSION)																																																											
BB2080	PREPARE ROADWAY PLANS (2ND SUBMISSION)	43d	24-Sep-2013	05-Nov-2013	0d	PREPARE ROADWAY PLANS (2ND SUBMISSION)																																																											
BB2100	DESIGN QA/QC (2ND SUBMISSION)	5d	29-Sep-2013	03-Oct-2013	33d	DESIGN QA/QC (2ND SUBMISSION)																																																											
BB2120	SUBMIT ROADWAY PLANS (2ND SUBMISSION)	0d		05-Nov-2013	0d	SUBMIT ROADWAY PLANS (2ND SUBMISSION)																																																											
BB2140	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (2ND SUBMISSION)	21d	06-Nov-2013	26-Nov-2013	0d	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (2ND SUBMISSION)																																																											
BB2145	ADDITIONAL VDOT REVIEW TIME FOR FLOAT REQUIREMENT	5d	26-Nov-2013	06-Dec-2013	0d	ADDITIONAL VDOT REVIEW TIME FOR FLOAT REQUIREMENT																																																											
BB2160	PREPARE FINAL ROADWAY PLANS	30d	27-Nov-2013	26-Dec-2013	0d	PREPARE FINAL ROADWAY PLANS																																																											
BB2180	DESIGN FINAL QA/QC PLANS	5d	27-Nov-2013	01-Dec-2013	25d	DESIGN FINAL QA/QC PLANS																																																											
BB2200	SUBMIT FINAL ROADWAY PLANS	1d	27-Dec-2013	27-Dec-2013	0d	SUBMIT FINAL ROADWAY PLANS																																																											
BB2220	VDOT/FHWA REVIEW/COMMENT FINAL ROADWAY PLANS	21d	28-Dec-2013	17-Jan-2014	4d	VDOT/FHWA REVIEW/COMMENT FINAL ROADWAY PLANS																																																											
BB2240	FINAL ROADWAY PLANS APPROVED	0d		17-Jan-2014	4d	FINAL ROADWAY PLANS APPROVED																																																											
<b>BRIDGE DESIGN</b>						01-Nov-2015, BRIDGE DESIGN																																																											
BC3000	PERFORM REQ'D BRIDGE IN-DEPTH INSPECTION #1	14d	25-Apr-2013	08-May-2013	0d	PERFORM REQ'D BRIDGE IN-DEPTH INSPECTION #1																																																											
BC3002	DEVELOP RECOMMENDATIONS	30d	09-May-2013	07-Jun-2013	0d	DEVELOP RECOMMENDATIONS																																																											
BC3008	SUBMIT PRELIMINARY BRIDGE DESIGNS (TS&L)	0d	08-Jun-2013		0d	SUBMIT PRELIMINARY BRIDGE DESIGNS (TS&L)																																																											
BC3020	VDOT/FHWA REVIEW/COMMENT BRIDGE PRELIMINARY DESIGN	21d	08-Jun-2013	28-Jun-2013	0d	VDOT/FHWA REVIEW/COMMENT BRIDGE PRELIMINARY DESIGN																																																											
BC3040	PREPARE BRIDGE PLANS (1ST SUBMISSION)	120d	24-Jun-2013	21-Oct-2013	0d	PREPARE BRIDGE PLANS (1ST SUBMISSION)																																																											
BC3060	DESIGN QA/QC (1ST SUBMISSION)	5d	22-Oct-2013	26-Oct-2013	0d	DESIGN QA/QC (1ST SUBMISSION)																																																											
BC3080	SUBMIT BRIDGE PLANS (1ST SUBMISSION)	1d	27-Oct-2013	27-Oct-2013	0d	SUBMIT BRIDGE PLANS (1ST SUBMISSION)																																																											
BC3100	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (1ST SUBMISSION)	21d	28-Oct-2013	17-Nov-2013	0d	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (1ST SUBMISSION)																																																											
BC3120	PREPARE FINAL BRIDGE PLANS	45d	18-Nov-2013	01-Jan-2014	0d	PREPARE FINAL BRIDGE PLANS																																																											
BC3140	DESIGN QA/QC (FINAL SUBMISSION)	5d	02-Jan-2014	06-Jan-2014	0d	DESIGN QA/QC (FINAL SUBMISSION)																																																											
BC3160	SUBMIT FINAL BRIDGE PLANS	1d	07-Jan-2014	07-Jan-2014	0d	SUBMIT FINAL BRIDGE PLANS																																																											
BC3180	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (FINAL SUBMISSION)	21d	08-Jan-2014	28-Jan-2014	0d	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (FINAL SUBMISSION)																																																											

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
**Proposal Schedule B - HOV Ramp Project and Auxiliary Lane Extension Project**  
**Entire Schedule Network**









Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016																							
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul																		
<b>SANGER BRIDGE NB B-685 SUBSTRUCTURE</b>						15-Jul-2014; SANGER BRIDGE NB B-685 SUBSTRUCTURE																																																											
H1C1000	SET MB11A BARRIER SERVICE	2d	07-Apr-2014	09-Apr-2014	11d	SET MB11A BARRIER SERVICE																																																											
H1C1010	SET SANGER AVENUE MOT	3d	09-Apr-2014	14-Apr-2014	11d	SET SANGER AVENUE MOT																																																											
H1C1015	SHORING FOR SUBSTRUCTURE	12d	14-Apr-2014	01-May-2014	11d	SHORING FOR SUBSTRUCTURE																																																											
H1C1030	EXCAVATE ABUTMENTS	10d	01-May-2014	15-May-2014	11d	EXCAVATE ABUTMENTS																																																											
H1C1040	ABUTMENT PILES	15d	13-May-2014	05-Jun-2014	11d	ABUTMENT PILES																																																											
H1C1050	FORM, POUR, STRIP ABUTMENT FTGS	16d	05-Jun-2014	27-Jun-2014	11d	FORM, POUR, STRIP ABUTMENT FTGS																																																											
H1C1060	FORM, POUR, STRIP ABUTMENT WALLS	20d	13-Jun-2014	15-Jul-2014	11d	FORM, POUR, STRIP ABUTMENT WALLS																																																											
<b>SANGER BRIDGE NB B-685 SUPERSTRUCTURE</b>						07-Nov-2014; SANGER BRIDGE NB B-685 SUPERSTRUCTURE																																																											
H1C2004	LEAD PAINT REMOVAL NEEDED FOR STEEL ERECTION	10d	27-Jun-2014	15-Jul-2014	16d	LEAD PAINT REMOVAL NEEDED FOR STEEL ERECTION																																																											
H1C2006	PERFORM SANGER BRIDGE RETROFITS AS REQUIRED	30d	30-May-2014	15-Jul-2014	16d	PERFORM SANGER BRIDGE RETROFITS AS REQUIRED																																																											
H1C2008	SET STRUCTURAL STEEL SANGER AVE WIDENING	5d	15-Jul-2014	22-Jul-2014	11d	SET STRUCTURAL STEEL SANGER AVE WIDENING																																																											
H1C2009	DEMO PARAPET AND DECK OVERHANG	15d	22-Jul-2014	12-Aug-2014	11d	DEMO PARAPET AND DECK OVERHANG																																																											
H1C2010	SET DECK PANS AND FORM OVERHANGS	8d	12-Aug-2014	22-Aug-2014	11d	SET DECK PANS AND FORM OVERHANGS																																																											
H1C2020	PLACE DECK REINFORCING STEEL	8d	22-Aug-2014	05-Sep-2014	11d	PLACE DECK REINFORCING STEEL																																																											
H1C2030	POUR AND CURE BRIDGE DECK CONCRETE	15d	05-Sep-2014	26-Sep-2014	11d	POUR AND CURE BRIDGE DECK CONCRETE																																																											
H1C2035	FORM, REBAR, POUR APPROACH SLABES	10d	26-Sep-2014	10-Oct-2014	284d	FORM, REBAR, POUR APPROACH SLABES																																																											
H1C2040	FORM, REBAR, POUR PARAPET	7d	10-Oct-2014	21-Oct-2014	284d	FORM, REBAR, POUR PARAPET																																																											
H1C2050	INSTALL BRIDGE MOUNTED SOUNDWALL POSTS	10d	26-Sep-2014	10-Oct-2014	11d	INSTALL BRIDGE MOUNTED SOUNDWALL POSTS																																																											
H1C2060	SET NOISEWALL PANELS	5d	10-Oct-2014	17-Oct-2014	11d	SET NOISEWALL PANELS																																																											
H1C2070	BRIDGE LOAD RATING - NB SANGER AVE (HOLD POINT)	15d	17-Oct-2014	07-Nov-2014	27d	BRIDGE LOAD RATING - NB SANGER AVE (HOLD POINT)																																																											
<b>SANGER SOUTHBOUND CONSTRUCTION FOR NOISEWALL</b>						27-Mar-2015; SANGER SOUTHBOUND CONSTRUCTION FOR NOISEWALL																																																											
H2C3000	SET MOT FOR SOUTHBOUND I-395	5d	26-Sep-2014	03-Oct-2014	149d	SET MOT FOR SOUTHBOUND I-395																																																											
H2C3015	SHORING FOR EXCAVATION	12d	03-Oct-2014	21-Oct-2014	149d	SHORING FOR EXCAVATION																																																											
H2C3020	EXCAVATE ABUTMENTS	10d	21-Oct-2014	04-Nov-2014	149d	EXCAVATE ABUTMENTS																																																											
H2C3030	ABUTMENT PILES	8d	31-Oct-2014	12-Nov-2014	149d	ABUTMENT PILES																																																											
H2C3040	FORM, POUR, STRIP ABUTMENT FTGS	8d	12-Nov-2014	24-Nov-2014	149d	FORM, POUR, STRIP ABUTMENT FTGS																																																											
H2C3060	FORM, POUR, STRIP ABUTMENT WALLS	20d	20-Nov-2014	29-Dec-2014	149d	FORM, POUR, STRIP ABUTMENT WALLS																																																											
H2C3070	START SANGER SOUTHBOUND SUPERSTRUCTURE	0d	29-Dec-2014		149d	START SANGER SOUTHBOUND SUPERSTRUCTURE																																																											
H2C3080	SET STRUCTURAL STEEL SANGER AVE WIDENING	5d	29-Dec-2014	07-Jan-2015	149d	SET STRUCTURAL STEEL SANGER AVE WIDENING																																																											
H2C3085	REMOVE PARAPET AND DECK PORTION	15d	07-Jan-2015	28-Jan-2015	149d	REMOVE PARAPET AND DECK PORTION																																																											
H2C3090	SET DECK PANS AND FORM OVERHANGS	5d	21-Jan-2015	28-Jan-2015	149d	SET DECK PANS AND FORM OVERHANGS																																																											
H2C3100	PLACE DECK REINFORCING STEEL	5d	28-Jan-2015	04-Feb-2015	149d	PLACE DECK REINFORCING STEEL																																																											
H2C3110	POUR AND CURE BRIDGE DECK CONCRETE	9d	04-Feb-2015	17-Feb-2015	149d	POUR AND CURE BRIDGE DECK CONCRETE																																																											
H2C3120	FORM, REBAR, POUR PARAPET	7d	25-Feb-2015	06-Mar-2015	149d	FORM, REBAR, POUR PARAPET																																																											
H2C3130	INSTALL BRIDGE MOUNTED SOUNDWALL POSTS	10d	17-Feb-2015	03-Mar-2015	152d	INSTALL BRIDGE MOUNTED SOUNDWALL POSTS																																																											
H2C3140	FORM, REBAR, POUR APPROACH SLABS	6d	17-Feb-2015	25-Feb-2015	149d	FORM, REBAR, POUR APPROACH SLABS																																																											
H2C3150	SET NOISE WALL PANELS	5d	06-Mar-2015	13-Mar-2015	149d	SET NOISE WALL PANELS																																																											
H2C3155	BRIDGE LOAD RATING - SOUTHBOUND SANGER AVE BRIDGE (HOLD POINT)	15d	06-Mar-2015	27-Mar-2015	149d	BRIDGE LOAD RATING - SOUTHBOUND SANGER AVE BRIDGE (HOLD POINT)																																																											
H2C3160	COMPLETE SANGER AVE BRIDGE	0d		27-Mar-2015	149d	COMPLETE SANGER AVE BRIDGE																																																											
<b>HOV RAMP BRIDGE B-687</b>						17-Sep-2015; HOV RAMP BRIDGE B-687																																																											
<b>BRIDGE B-687 SUBSTRUCTURE</b>						01-Jun-2015; BRIDGE B-687 SUBSTRUCTURE																																																											
<b>ABUTMENT A - APPROACH and SEAT</b>						28-Apr-2015; ABUTMENT A - APPROACH and SEAT																																																											
H2D1A1000	DRIVE PILES ABUTMENT A	8d	03-Feb-2015	12-Feb-2015	0d	DRIVE PILES ABUTMENT A																																																											
H2D1A1010	MSE WALL COMPLETION at ABUTMENT	10d	31-Mar-2015	14-Apr-2015	22d	MSE WALL COMPLETION at ABUTMENT																																																											
H2D1A1020	FORM, REBAR, POUR ABUTMENT SEAT	10d	15-Apr-2015	28-Apr-2015	22d	FORM, REBAR, POUR ABUTMENT SEAT																																																											
<b>PIER 1</b>						10-Apr-2015; PIER 1																																																											
H2D1B1000	DRIVE PILES FOR PIER	5d	13-Feb-2015	19-Feb-2015	0d	DRIVE PILES FOR PIER																																																											
H2D1B1010	FORM, REBAR, POUR PIER FTG	4d	20-Feb-2015	25-Feb-2015	0d	FORM, REBAR, POUR PIER FTG																																																											
H2D1B1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	26-Feb-2015	09-Mar-2015	0d	FORM, REBAR, POUR PIER STEM COLUMNS																																																											
H2D1B1030	FORM, REBAR POUR PIER CAP	20d	10-Mar-2015	07-Apr-2015	0d	FORM, REBAR POUR PIER CAP																																																											
H2D1B1040	POUR SEATS/SET BEARINGS	3d	08-Apr-2015	10-Apr-2015	34d	POUR SEATS/SET BEARINGS																																																											

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
 Proposal Schedule B - HOV Ramp Project and Auxiliary Lane Extension Project  
 Entire Schedule Network



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016					
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
<b>PIER 2</b>		33d	20-Feb-2015	07-Apr-2015	39d																																										
H2D1C1000	DRIVE PILES FOR PIER	5d	20-Feb-2015	26-Feb-2015	19d																																										
H2D1C1010	FORM, REBAR, POUR PIER FTG	4d	27-Feb-2015	04-Mar-2015	37d																																										
H2D1C1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	05-Mar-2015	16-Mar-2015	37d																																										
H2D1C1030	FORM, REBAR POUR PIER CAP	12d	17-Mar-2015	01-Apr-2015	37d																																										
H2D1C1040	POUR SEATS/SET BEARINGS	3d	02-Apr-2015	07-Apr-2015	37d																																										
<b>PIER 3</b>		67d	27-Feb-2015	01-Jun-2015	0d																																										
H2D1D1000	DRIVE PILES FOR PIER	8d	27-Feb-2015	10-Mar-2015	19d																																										
H2D1D1010	FORM, REBAR, POUR PIER FTG	4d	08-Apr-2015	13-Apr-2015	0d																																										
H2D1D1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	14-Apr-2015	23-Apr-2015	0d																																										
H2D1D1030	FORM, REBAR POUR PIER CAP	22d	24-Apr-2015	27-May-2015	0d																																										
H2D1D1040	POUR SEATS/SET BEARINGS	3d	28-May-2015	01-Jun-2015	0d																																										
<b>PIER 4</b>		75d	26-Mar-2014	09-Jul-2014	186d																																										
H2D1E1002	DEMO GUARDRAIL / MEDIAN PREP AREA FOR BRIDGE	20d	26-Mar-2014	24-Apr-2014	65d																																										
H2D1E1008	DRIVE PILES FOR PIER	8d	24-Apr-2014	06-May-2014	65d																																										
H2D1E1010	FORM, REBAR, POUR PIER FTG	4d	06-May-2014	12-May-2014	65d																																										
H2D1E1020	FORM, REBAR, POUR PIER STEM COLUMNS	10d	12-May-2014	28-May-2014	65d																																										
H2D1E1030	FORM, REBAR POUR PIER CAP	25d	28-May-2014	02-Jul-2014	65d																																										
H2D1E1040	POUR SEATS/SET BEARINGS	3d	02-Jul-2014	09-Jul-2014	175d																																										
<b>PIER 5</b>		87d	06-May-2014	04-Sep-2014	145d																																										
H2D1F1000	DRIVE PILES FOR PIER	8d	06-May-2014	16-May-2014	96d																																										
H2D1F1010	FORM, REBAR, POUR PIER FTG	4d	02-Jul-2014	10-Jul-2014	65d																																										
H2D1F1020	FORM, REBAR, POUR PIER STEM COLUMNS	10d	10-Jul-2014	24-Jul-2014	65d																																										
H2D1F1030	FORM, REBAR POUR PIER CAP	25d	24-Jul-2014	28-Aug-2014	65d																																										
H2D1F1040	POUR SEATS/SET BEARINGS	3d	28-Aug-2014	04-Sep-2014	136d																																										
<b>PIER 6</b>		123d	16-May-2014	05-Nov-2014	101d																																										
H2D1G1000	DRIVE PILES FOR PIER	8d	16-May-2014	30-May-2014	127d																																										
H2D1G1010	FORM, REBAR, POUR PIER FTG	5d	28-Aug-2014	08-Sep-2014	65d																																										
H2D1G1020	FORM, REBAR, POUR PIER STEM COLUMNS	12d	08-Sep-2014	24-Sep-2014	65d																																										
H2D1G1030	FORM, REBAR POUR PIER CAP	25d	24-Sep-2014	29-Oct-2014	65d																																										
H2D1G1040	POUR SEATS/SET BEARINGS	5d	29-Oct-2014	05-Nov-2014	92d																																										
<b>PIER 7</b>		165d	30-May-2014	16-Jan-2015	86d																																										
H2D1H1000	DRIVE PILES FOR PIER	8d	30-May-2014	11-Jun-2014	161d																																										
H2D1H1010	FORM, REBAR, POUR PIER FTG	5d	29-Oct-2014	05-Nov-2014	65d																																										
H2D1H1020	FORM, REBAR, POUR PIER STEM COLUMNS	13d	05-Nov-2014	24-Nov-2014	65d																																										
H2D1H1030	FORM, REBAR POUR PIER CAP	25d	24-Nov-2014	09-Jan-2015	65d																																										
H2D1H1040	POUR SEATS/SET BEARINGS	5d	09-Jan-2015	16-Jan-2015	85d																																										
<b>PIER 8</b>		197d	11-Jun-2014	13-Mar-2015	68d																																										
H2D1I1000	DRIVE PILES FOR PIER	8d	11-Jun-2014	23-Jun-2014	196d																																										
H2D1I1010	FORM, REBAR, POUR PIER FTG	5d	09-Jan-2015	16-Jan-2015	65d																																										
H2D1I1020	FORM, REBAR, POUR PIER STEM COLUMNS	15d	16-Jan-2015	06-Feb-2015	65d																																										
H2D1I1030	FORM, REBAR POUR PIER CAP	20d	06-Feb-2015	06-Mar-2015	65d																																										
H2D1I1040	POUR SEATS/SET BEARINGS	5d	06-Mar-2015	13-Mar-2015	65d																																										
<b>BRIDGE B-687 SUPERSTRUCTURE</b>		226d	05-Nov-2014	17-Sep-2015	0d																																										
H2D2000	B-687 PARAPETS and LIGHT BLISTERS	30d	23-Jun-2015	04-Aug-2015	25d																																										
H2D2010	INSTALL LIGHT FIXTURES / SIGNAGE	5d	11-Sep-2015	17-Sep-2015	0d																																										
H2D2020	INSTALL STANDPIPE / FIRE PROTECTION SYSTEM	30d	23-Jun-2015	04-Aug-2015	25d																																										
H2D2030	BRIDGE LOAD RATING - HOV RAMP BRIDGE B-687 ( HOLD POINT)	15d	02-Jun-2015	23-Jun-2015	60d																																										
H2D2040	COMPLETE BRIDGE B-687- READY to OPEN TO TRAFFIC	0d		17-Sep-2015	0d																																										
<b>SPANS a,b,c</b>		73d	02-Jun-2015	10-Sep-2015	0d																																										
HDD2A1000	SET STRUCTURAL STEEL SPANS a,b,c	15d	02-Jun-2015	22-Jun-2015	0d																																										
HDD2A1010	FORM OVERHANG SET SCREED RAIL	20d	23-Jun-2015	21-Jul-2015	0d																																										

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
 Proposal Schedule B - HOV Ramp Project and Auxiliary Lane Extension Project  
 Entire Schedule Network











Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016											
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul						
<b>Contract :C00096261DB50 - I-395 HOV Ramp at Seminary Road-Proposal B</b>						18-Dec-2015, Contract :C00096261DB50 -																																															
<b>SCHEDULE MILESTONES</b>						18-Dec-2015, SCHEDULE MILESTONES																																															
A1000	NOTICE OF INTENT TO AWARD (02/21/2013)	0d	21-Feb-2013*		0d	NOTICE OF INTENT TO AWARD (02/21/2013)																																															
A1040	CTB AWARD	0d	20-Mar-2013*		0d	CTB AWARD																																															
A1060	DESIGN-BUILD CONTRACT EXECUTION	0d	22-Apr-2013*		0d	DESIGN-BUILD CONTRACT EXECUTION																																															
A1080	NOTICE TO PROCEED (04/25/2013)	0d	25-Apr-2013*		0d	NOTICE TO PROCEED (04/25/2013)																																															
A1100	BEGIN CONSTRUCTION	0d	28-Jan-2014		0d	BEGIN CONSTRUCTION																																															
A1120	HOV RAMP OPEN to TRAFFIC-INTERIM MILESTONE(9/24/15)	0d		24-Sep-2015*	0d	HOV RAMP OPEN to TRAFFIC-INTERIM MILESTONE(9/24/15)																																															
A1160	PROJECT READY FOR FINAL WALKTHROUGH	0d		01-Nov-2015	0d	PROJECT READY FOR FINAL WALKTHROUGH																																															
A1180	COMPLETE VDOT PUNCHLIST	46d	02-Nov-2015	17-Dec-2015	0d	COMPLETE VDOT PUNCHLIST																																															
A1200	SUBSTANTIAL and FINAL COMPLETION	0d	18-Dec-2015	18-Dec-2015*	0d	SUBSTANTIAL and FINAL COMPLETION																																															
<b>DESIGN PHASE</b>						01-Nov-2015, DESIGN PHASE																																															
<b>PRELIMINARY DESIGN - FIELD SURVEY/MAPPING</b>						08-Jun-2013, PRELIMINARY DESIGN - FIELD SURVEY/MAPPING																																															
BA1000	NOTIFICATION OF LANDOWNERS	30d	25-Apr-2013	24-May-2013	0d	NOTIFICATION OF LANDOWNERS																																															
BA1020	BASE MAPPING/FIELD SURVEY	45d	25-Apr-2013	08-Jun-2013	0d	BASE MAPPING/FIELD SURVEY																																															
<b>ROADWAY DESIGN</b>						27-Dec-2013, ROADWAY DESIGN																																															
BB2000	PREPARE ROADWAY PLANS (1ST SUBMISSION)	110d	15-May-2013	01-Sep-2013	0d	PREPARE ROADWAY PLANS (1ST SUBMISSION)																																															
BB2020	DESIGN QA/QC (1ST SUBMISSION)	5d	02-Sep-2013	06-Sep-2013	0d	DESIGN QA/QC (1ST SUBMISSION)																																															
BB2040	SUBMIT ROADWAY PLANS (1ST SUBMISSION)	1d	07-Sep-2013	07-Sep-2013	0d	SUBMIT ROADWAY PLANS (1ST SUBMISSION)																																															
BB2060	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (1ST SUBMISSION)	21d	08-Sep-2013	28-Sep-2013	0d	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (1ST SUBMISSION)																																															
BB2080	PREPARE ROADWAY PLANS (2ND SUBMISSION)	43d	24-Sep-2013	05-Nov-2013	0d	PREPARE ROADWAY PLANS (2ND SUBMISSION)																																															
BB2120	SUBMIT ROADWAY PLANS (2ND SUBMISSION)	0d		05-Nov-2013	0d	SUBMIT ROADWAY PLANS (2ND SUBMISSION)																																															
BB2140	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (2ND SUBMISSION)	21d	06-Nov-2013	26-Nov-2013	0d	VDOT/FHWA REVIEW/COMMENT ROADWAY PLANS (2ND SUBMISSION)																																															
BB2160	PREPARE FINAL ROADWAY PLANS	30d	27-Nov-2013	26-Dec-2013	0d	PREPARE FINAL ROADWAY PLANS																																															
BB2200	SUBMIT FINAL ROADWAY PLANS	1d	27-Dec-2013	27-Dec-2013	0d	SUBMIT FINAL ROADWAY PLANS																																															
<b>BRIDGE DESIGN</b>						01-Nov-2015, BRIDGE DESIGN																																															
BC3000	PERFORM REQ'D BRIDGE IN-DEPTH INSPECTION #1	14d	25-Apr-2013	08-May-2013	0d	PERFORM REQ'D BRIDGE IN-DEPTH INSPECTION #1																																															
BC3002	DEVELOP RECOMMENDATIONS	30d	09-May-2013	07-Jun-2013	0d	DEVELOP RECOMMENDATIONS																																															
BC3008	SUBMIT PRELIMINARY BRIDGE DESIGNS (TS&L)	0d	08-Jun-2013		0d	SUBMIT PRELIMINARY BRIDGE DESIGNS (TS&L)																																															
BC3020	VDOT/FHWA REVIEW/COMMENT BRIDGE PRELIMINARY DESIGN	21d	08-Jun-2013	28-Jun-2013	0d	VDOT/FHWA REVIEW/COMMENT BRIDGE PRELIMINARY DESIGN																																															
BC3040	PREPARE BRIDGE PLANS (1ST SUBMISSION)	120d	24-Jun-2013	21-Oct-2013	0d	PREPARE BRIDGE PLANS (1ST SUBMISSION)																																															
BC3060	DESIGN QA/QC (1ST SUBMISSION)	5d	22-Oct-2013	26-Oct-2013	0d	DESIGN QA/QC (1ST SUBMISSION)																																															
BC3080	SUBMIT BRIDGE PLANS (1ST SUBMISSION)	1d	27-Oct-2013	27-Oct-2013	0d	SUBMIT BRIDGE PLANS (1ST SUBMISSION)																																															
BC3100	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (1ST SUBMISSION)	21d	28-Oct-2013	17-Nov-2013	0d	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (1ST SUBMISSION)																																															
BC3120	PREPARE FINAL BRIDGE PLANS	45d	18-Nov-2013	01-Jan-2014	0d	PREPARE FINAL BRIDGE PLANS																																															
BC3140	DESIGN QA/QC (FINAL SUBMISSION)	5d	02-Jan-2014	06-Jan-2014	0d	DESIGN QA/QC (FINAL SUBMISSION)																																															
BC3160	SUBMIT FINAL BRIDGE PLANS	1d	07-Jan-2014	07-Jan-2014	0d	SUBMIT FINAL BRIDGE PLANS																																															
BC3180	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (FINAL SUBMISSION)	21d	08-Jan-2014	28-Jan-2014	0d	VDOT/FHWA REVIEW/COMMENT BRIDGE PLANS (FINAL SUBMISSION)																																															
BC3200	FINAL BRIDGE PLANS APPROVED	0d		28-Jan-2014	0d	FINAL BRIDGE PLANS APPROVED																																															
BC3210	PERFORM REQ'D BRIDGE IN-DEPTH INSPECTION #2	14d	24-Sep-2015	07-Oct-2015	0d	PERFORM REQ'D BRIDGE IN-DEPTH INSPECTION #2																																															
BC3220	DEVELOP REPORT AND SUBMIT FOR FINAL APPROVAL	25d	08-Oct-2015	01-Nov-2015	0d	DEVELOP REPORT AND SUBMIT FOR FINAL APPROVAL																																															
<b>SPECIAL DESIGN REQUIREMENTS - ADDITIONAL NOISE WALLS</b>						0d																																															
<b>PUBLIC INVOLVEMENT</b>						0d																																															
<b>ENVIRONMENTAL PERMITTING</b>						0d																																															
<b>RIGHT OF WAY ACQUISITION/EASEMENTS</b>						0d																																															
<b>FEE R-O-W and EASEMENTS FOR PED BRIDGE CONSTRUCTION</b>						0d																																															
<b>UTILITY RELOCATIONS</b>						0d																																															
<b>DOMINION VIRGINIA POWER - RAISE OVERHEAD POLES</b>						0d																																															
<b>VERIZON UNDERGROUND at SEMINARY RD</b>						0d																																															
<b>VA AMERICAN WATER - POTENTIAL CASING EXTENSION</b>						0d																																															
<b>WASHINGTON GAS at SEMINARY RD</b>						0d																																															
<b>CONSTRUCTION</b>						30-Oct-2015, CONSTRUCTION																																															

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
**Proposal Schedule B - HOV Ramp Project and Auxiliary Lane Extension Project**  
**Critical Path Only**



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016																							
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul																		
<b>PRE-CONSTRUCTION, SUBMITTALS and MATERIAL PROCUREMENT</b>						26-May-2014, PRE-CONSTRUCTION, SUBMITTALS and MATERIAL PROCUREMENT																																																											
H1A1030	RETAINING WALL / NOISE WALL SHOP DWGS	75d	28-Dec-2013	12-Mar-2014	0d	RETAINING WALL / NOISE WALL SHOP DWGS																																																											
H1A1040	REVIEW AND APPROVE RET/NOISE SHOP DWGS	25d	13-Mar-2014	06-Apr-2014	0d	REVIEW AND APPROVE RET/NOISE SHOP DWGS																																																											
H1A1050	FABRICATE RETAINING WALL / NOISE POSTS	50d	07-Apr-2014	26-May-2014	0d	FABRICATE RETAINING WALL / NOISE POSTS																																																											
<b>HOV RAMP PROJECT</b>						30-Oct-2015, HOV RAMP PROJECT																																																											
<b>I-395 WIDENING incl I-395 OFF-RAMP to SEMINARY</b>						30-Oct-2015, I-395 WIDENING incl I-395 OFF-RAMP																																																											
<b>PHASE I - INSIDE SHOULDER STRENGTHENING</b>						0d																																																											
<b>PHASE II - OUTSIDE PERMANENT CONSTRUCTION</b>						30-Oct-2015, PHASE II - OUTSIDE PERMANENT CO																																																											
H1B2060	COMPLETE FILLS AND FINE GRADE	20d	08-Sep-2014	03-Oct-2014	0d	COMPLETE FILLS AND FINE GRADE																																																											
H1B2070	AGGREGATE BASE and UNDERDRAIN	21d	06-Oct-2014	03-Nov-2014	0d	AGGREGATE BASE and UNDERDRAIN																																																											
H1B2080	BASE and INTERMEDIATE ASPHALT	15d	04-Nov-2014	24-Nov-2014	0d	BASE and INTERMEDIATE ASPHALT																																																											
H1B2090	MEDIAN BARRIER AT WALLS	11d	25-Nov-2014	12-Dec-2014	0d	MEDIAN BARRIER AT WALLS																																																											
H1B2100	TEMP PAVEMENT MKGS	5d	15-Dec-2014	19-Dec-2014	0d	TEMP PAVEMENT MKGS																																																											
H1B2110	SWITCH TRAFFIC TO NEW OUTSIDE WIDENING	0d		19-Dec-2014	0d	SWITCH TRAFFIC TO NEW OUTSIDE WIDENING																																																											
H1B3090	FINAL MILL AND OVERLAY I-395 NBL	25d	28-Sep-2015	30-Oct-2015	0d	FINAL MILL AND OVERLAY I-395 NBL																																																											
<b>RETAINING/NOISE COMBO WALLS</b>						30-Jun-2014, RETAINING/NOISE COMBO WALLS																																																											
H1B2A1000	DRILL, SET, AND POUR POSTS	25d	27-May-2014	30-Jun-2014	0d	DRILL, SET, AND POUR POSTS																																																											
<b>GROUNDED MOUNTED NOISE WALLS</b>						05-Sep-2014, GROUNDED MOUNTED NOISE WALLS																																																											
H1B2B1000	DRILL SET and POUR POSTS	45d	01-Jul-2014	05-Sep-2014	0d	DRILL SET and POUR POSTS																																																											
<b>PHASE III - INSIDE PERMANENT CONSTRUCTION</b>						25-Sep-2015, PHASE III - INSIDE PERMANENT CONSTRU																																																											
H1B3000	SET MOT for PHASE III INSIDE PERM CONSTRUCTION	5d	22-Dec-2014	05-Jan-2015	0d	SET MOT for PHASE III INSIDE PERM CONSTRUCTION																																																											
H1B3010	DEMOLISH and REMOVE OLD MEDIAN BARRIER	10d	06-Jan-2015	19-Jan-2015	0d	DEMOLISH and REMOVE OLD MEDIAN BARRIER																																																											
H1B3020	ROUGH GRADE for BRIDGE CONSTRUCTION	10d	20-Jan-2015	02-Feb-2015	0d	ROUGH GRADE for BRIDGE CONSTRUCTION																																																											
H1B3070	FINAL STRIPE BRIDGE B-687 and APPROACH	3d	18-Sep-2015	22-Sep-2015	0d	FINAL STRIPE BRIDGE B-687 and APPROACH																																																											
H1B3080	REMOVE MOT DEVICES-PUT LANES IN FINAL CONFIG	3d	23-Sep-2015	25-Sep-2015	0d	REMOVE MOT DEVICES-PUT LANES IN FINAL CONFIG																																																											
<b>SANGER AVE BRIDGE B-685</b>						0d																																																											
<b>SANGER BRIDGE NB B-685 SUBSTRUCTURE</b>						0d																																																											
<b>SANGER BRIDGE NB B-685 SUPERSTRUCTURE</b>						0d																																																											
<b>SANGER SOUTHBOUND CONSTRUCTION FOR NOISEWALL</b>						0d																																																											
<b>HOV RAMP BRIDGE B-687</b>						17-Sep-2015, HOV RAMP BRIDGE B-687																																																											
<b>BRIDGE B-687 SUBSTRUCTURE</b>						01-Jun-2015, BRIDGE B-687 SUBSTRUCTURE																																																											
<b>ABUTMENT A - APPROACH and SEAT</b>						12-Feb-2015, ABUTMENT A - APPROACH and SEAT																																																											
H2D1A1000	DRIVE PILES ABUTMENT A	8d	03-Feb-2015	12-Feb-2015	0d	DRIVE PILES ABUTMENT A																																																											
<b>PIER 1</b>						07-Apr-2015, PIER 1																																																											
H2D1B1000	DRIVE PILES FOR PIER	5d	13-Feb-2015	19-Feb-2015	0d	DRIVE PILES FOR PIER																																																											
H2D1B1010	FORM, REBAR, POUR PIER FTG	4d	20-Feb-2015	25-Feb-2015	0d	FORM, REBAR, POUR PIER FTG																																																											
H2D1B1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	26-Feb-2015	09-Mar-2015	0d	FORM, REBAR, POUR PIER STEM COLUMNS																																																											
H2D1B1030	FORM, REBAR POUR PIER CAP	20d	10-Mar-2015	07-Apr-2015	0d	FORM, REBAR POUR PIER CAP																																																											
<b>PIER 2</b>						0d																																																											
<b>PIER 3</b>						01-Jun-2015, PIER 3																																																											
H2D1D1010	FORM, REBAR, POUR PIER FTG	4d	08-Apr-2015	13-Apr-2015	0d	FORM, REBAR, POUR PIER FTG																																																											
H2D1D1020	FORM, REBAR, POUR PIER STEM COLUMNS	8d	14-Apr-2015	23-Apr-2015	0d	FORM, REBAR, POUR PIER STEM COLUMNS																																																											
H2D1D1030	FORM, REBAR POUR PIER CAP	22d	24-Apr-2015	27-May-2015	0d	FORM, REBAR POUR PIER CAP																																																											
H2D1D1040	POUR SEATS/SET BEARINGS	3d	28-May-2015	01-Jun-2015	0d	POUR SEATS/SET BEARINGS																																																											
<b>PIER 4</b>						0d																																																											
<b>PIER 5</b>						0d																																																											
<b>PIER 6</b>						0d																																																											
<b>PIER 7</b>						0d																																																											
<b>PIER 8</b>						0d																																																											
<b>BRIDGE B-687 SUPERSTRUCTURE</b>						17-Sep-2015, BRIDGE B-687 SUPERSTRUCTURE																																																											
H2D2010	INSTALL LIGHT FIXTURES / SIGNAGE	5d	11-Sep-2015	17-Sep-2015	0d	INSTALL LIGHT FIXTURES / SIGNAGE																																																											
H2D2040	COMPLETE BRIDGE B-687- READY TO OPEN TO TRAFFIC	0d		17-Sep-2015	0d	COMPLETE BRIDGE B-687- READY TO OPEN TO TRAFFIC																																																											

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
**Proposal Schedule B - HOV Ramp Project and Auxiliary Lane Extension Project**  
**Critical Path Only**



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2013												2014												2015												2016					
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Jan	Feb	Mar	Apr	May	Jun	Jul					
<b>SPANS a,b,c</b>		73d	02-Jun-2015	10-Sep-2015	0d																															10-Sep-2015, SPANS a,b,c											
HDD2A1000	SET STRUCTURAL STEEL SPANS a,b,c	15d	02-Jun-2015	22-Jun-2015	0d																															SET STRUCTURAL STEEL SPANS a,b,c											
HDD2A1010	FORM OVERHANG SET SCREED RAIL	20d	23-Jun-2015	21-Jul-2015	0d																															FORM OVERHANG SET SCREED RAIL											
HDD2A1020	INSTALL SIP DECK FORMS	18d	30-Jun-2015	24-Jul-2015	0d																															INSTALL SIP DECK FORMS											
HDD2A1030	INSTALL REINFORCING STEEL / BULKHEADS	20d	15-Jul-2015	11-Aug-2015	0d																															INSTALL REINFORCING STEEL / BULKHEADS											
HDD2A1040	TEST SCREED AND PREP FOR POUR	5d	12-Aug-2015	18-Aug-2015	0d																															TEST SCREED AND PREP FOR POUR											
HDD2A1050	POUR BRIDGE DECKS AND CURE	15d	19-Aug-2015	10-Sep-2015	0d																															POUR BRIDGE DECKS AND CURE											
<b>SPANS d,e,f</b>		0d			0d																																										
<b>SPAN g OVER ROTARY LEVEL</b>		0d			0d																																										
<b>SPAN h AND TIE-IN TO SEMINARY BRIDGE</b>		0d			0d																																										
<b>SEMINARY ROAD BRIDGE B-684 and APPROACHES</b>		431d	28-Jan-2014	23-Sep-2015	0d																															23-Sep-2015, SEMINARY ROAD BRIDGE B-684 and APPROACHES											
<b>SEMINARY BRIDGE PHASE 1</b>		170d	28-Jan-2014	23-Sep-2014	0d																															23-Sep-2014, SEMINARY BRIDGE PHASE 1											
H1E1010	Install Temporary Crossings for Pedestrian Realignment	25d	28-Jan-2014	04-Mar-2014	0d																															Install Temporary Crossings for Pedestrian Realignment											
H1E1020	Open Temporary Pedestrian Movement	5d	04-Mar-2014	11-Mar-2014	0d																															Open Temporary Pedestrian Movement											
H1E1030	Demo of North Seminary Road Bridge Mounted Sidewalk	10d	11-Mar-2014	25-Mar-2014	0d																															Demo of North Seminary Road Bridge Mounted Sidewalk											
H1E1040	Install Temporary MOT for Bridge Deck Demo	5d	25-Mar-2014	01-Apr-2014	0d																															Install Temporary MOT for Bridge Deck Demo											
H1E1050	Install Debris Shield for Bridge Deck Demo	15d	01-Apr-2014	23-Apr-2014	0d																															Install Debris Shield for Bridge Deck Demo											
H1E1070	Remove Bridge Lightings, Deck Railing, and Parapet	5d	01-Apr-2014	08-Apr-2014	0d																															Remove Bridge Lightings, Deck Railing, and Parapet											
H1E1080	Demolish Bridge Deck Bridge Deck	20d	08-Apr-2014	07-May-2014	0d																															Demolish Bridge Deck Bridge Deck											
H1E1090	Remove and Install Replacement Laminated Bearings	15d	07-May-2014	30-May-2014	0d																															Remove and Install Replacement Laminated Bearings											
H1E1100	Remediate and / or Remove Bridge Joints	20d	30-May-2014	27-Jun-2014	0d																															Remediate and / or Remove Bridge Joints											
H1E1120	Install Deck Pans	15d	11-Jun-2014	02-Jul-2014	0d																															Install Deck Pans											
H1E1140	Form Deck Overhang Edge and HOV Deck Joint	20d	18-Jun-2014	18-Jul-2014	0d																															Form Deck Overhang Edge and HOV Deck Joint											
H1E1150	Setup Screed	5d	18-Jul-2014	25-Jul-2014	0d																															Setup Screed											
H1E1160	Pour Bridge Deck Concrete	15d	25-Jul-2014	15-Aug-2014	0d																															Pour Bridge Deck Concrete											
H1E1170	Cure Deck	15d	01-Aug-2014	22-Aug-2014	0d																															Cure Deck											
H1E1180	Cast Bridge Deck Parapet, Light Blisters, Sign Pole Bases	15d	22-Aug-2014	16-Sep-2014	0d																															Cast Bridge Deck Parapet, Light Blisters, Sign Pole Bases											
H1E1190	Install Lighting, Railing, and Fence	5d	16-Sep-2014	23-Sep-2014	0d																															Install Lighting, Railing, and Fence											
H1E1200	SEMINARY BRIDGE PHASE I COMPLETE	0d		23-Sep-2014	0d																															SEMINARY BRIDGE PHASE I COMPLETE											
<b>SEMINARY BRIDGE PHASE 2</b>		104d	23-Sep-2014	16-Feb-2015	0d																															16-Feb-2015, SEMINARY BRIDGE PHASE 2											
H1E2000	Adjust MOT For Phase 2	5d	23-Sep-2014	30-Sep-2014	0d																															Adjust MOT For Phase 2											
H1E2010	Demolish Median and Bridge Deck	20d	30-Sep-2014	28-Oct-2014	0d																															Demolish Median and Bridge Deck											
H1E2020	Remove and Install Replacement Laminated Bearings	20d	21-Oct-2014	18-Nov-2014	0d																															Remove and Install Replacement Laminated Bearings											
H1E2030	Remediate and / or Remove Bridge Joints	10d	18-Nov-2014	05-Dec-2014	0d																															Remediate and / or Remove Bridge Joints											
H1E2040	Install Deck Pans	15d	05-Dec-2014	05-Jan-2015	0d																															Install Deck Pans											
H1E2050	Install Deck Reinforcing	15d	12-Dec-2014	12-Jan-2015	0d																															Install Deck Reinforcing											
H1E2060	Setup Screed	5d	12-Jan-2015	19-Jan-2015	0d																															Setup Screed											
H1E2070	Pour Bridge Deck	15d	19-Jan-2015	09-Feb-2015	0d																															Pour Bridge Deck											
H1E2080	Cure Deck	15d	26-Jan-2015	16-Feb-2015	0d																															Cure Deck											
<b>SEMINARY BRIDGE PHASE 3</b>		157d	16-Feb-2015	23-Sep-2015	0d																															23-Sep-2015, SEMINARY BRIDGE PHASE 3											
H1E3000	Adjust MOT For Phase 3	5d	16-Feb-2015	23-Feb-2015	0d																															Adjust MOT For Phase 3											
H1E3010	Demolish Median and Bridge Deck	20d	23-Feb-2015	23-Mar-2015	0d																															Demolish Median and Bridge Deck											
H1E3020	Remove and Install Replacement Laminated Bearings	20d	16-Mar-2015	14-Apr-2015	0d																															Remove and Install Replacement Laminated Bearings											
H1E3030	Remediate and / or Remove Bridge Joints	15d	30-Mar-2015	21-Apr-2015	0d																															Remediate and / or Remove Bridge Joints											
H1E3040	Install New Bridge Deck Diaphragms	5d	21-Apr-2015	28-Apr-2015	0d																															Install New Bridge Deck Diaphragms											
H1E3045	Form Deck Overhangs, Edge	17d	28-Apr-2015	21-May-2015	0d																															Form Deck Overhangs, Edge											
H1E3050	Install Deck Pans	12d	05-May-2015	21-May-2015	0d																															Install Deck Pans											
H1E3060	Install Deck Reinforcing	13d	12-May-2015	02-Jun-2015	0d																															Install Deck Reinforcing											
H1E3070	Setup Screed	3d	02-Jun-2015	05-Jun-2015	0d																															Setup Screed											
H1E3080	Cast Bridge Deck	15d	05-Jun-2015	26-Jun-2015	0d																															Cast Bridge Deck											
H1E3120	SEMINARY ROAD PHASE III COMPLETE	0d		23-Sep-2015	0d																															SEMINARY ROAD PHASE III COMPLETE											
<b>SEMINARY BRIDGE PHASE 3a and APPROACH ROADWAYS</b>		63d	26-Jun-2015	23-Sep-2015	0d																															23-Sep-2015, SEMINARY BRIDGE PHASE 3a and APPROACH ROADWAYS											

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**I-395 HOV RAMP at SEMINARY ROAD**  
**Proposal Schedule B - HOV Ramp Project and Auxiliary Lane Extension Project**  
**Critical Path Only**







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

**Project No.: 0395-100-722, 0395-100-736**

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

January 9, 2013

Date

President/CEO/Manager

Title

Shirley Contracting Company, LLC  
Name of Firm

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

**Project No.: 0395-100-722, 0395-100-736**

- 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.

<i>Dave Mahoney</i>	<i>11/30/12</i>	<i>Executive Vice President</i>
Signature	Date	Title
<i>Dewberry Consultants LLC</i>		
Name of Firm		

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

**Project No.: 0395-100-722, 0395-100-736**

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

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

	<u>11/30/12</u>	<u>Vice President</u>
Signature	Date	Title

AeroMetric, Inc.  
Name of Firm

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

**Project No.: 0395-100-722, 0395-100-736**

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



Signature

11/30/12

Date

President

Title

GeoConcepts Engineering, Inc.

Name of Firm

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

**Project No.: 0395-100-722, 0395-100-736**

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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.

<i>Molly Goldman</i>	<i>11-30-12</i>	<i>MANAGER</i>
Signature	Date	Title
<i>So-Deep, Inc.</i>		
Name of Firm		

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

**Project No.: 0395-100-722, 0395-100-736**

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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.

John W. [Signature]      11/30/2012      President & COO  
Signature                      Date                      Title

SKELLY AND LOY, Inc.  
Name of Firm

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

**Project No.: 0395-100-722, 0395-100-736**

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



Signature

Date

December 10, 2012

Title

President

Quinn Consulting Services, Inc.

Name of Firm

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

**Project No.: 0395-100-722, 0395-100-736**

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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.

      12-11-2012      PRESIDENT  
Signature                      Date                      Title

DIW GROUP, INC. DBA SPECIALIZED ENGINEERING  
Name of Firm

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

**Project No.: 0395-100-722, 0395-100-736**

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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.

RR Runkle                      11-28-12                      Settlement officer  
Signature                      Date                      Title

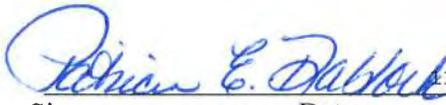
Old Dominion Settlements, Inc T/A Key Title  
Name of Firm

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

**Project No.: 0395-100-722, 0395-100-736**

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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.

	11/26/12	President
Signature	Date	Title

Diversified Property Services, Inc.  
Name of Firm

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

**Project No.: 0395-100-722, 0395-100-736**

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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.

John A. [Signature]      11/3/13  
Signature                      Date

PRINCIPAL/REGIONAL DIRECTOR  
Title

PULSAR ADVERTISING  
Name of Firm

RESPONSE TO REQUEST FOR PROPOSALS

# I-395 HOV Ramp at Seminary Road

*From: Sanger Avenue To: Seminary Road*

**with**

# I-395 NB Auxiliary Lane Extension

*From: Duke Street To: Sanger Avenue*

**A DESIGN-BUILD PROJECT**

City of Alexandria, Virginia

## *Volume II: Design Concept*



State Project No.: 0395-100-722, 0395-100-736  
Federal Project No.: IM-5A01(362), NH-5A01(363), pending  
Contract ID Number: C00096261DB50

SUBMITTED TO:



SUBMITTED BY:



IN ASSOCIATION WITH:



THIS PROJECT WAS DEVELOPED UTILIZING THE DEPARTMENT'S ENGINEERING DESIGN PACKAGE (GEOPAK).  
GEOPAK Computer Identification No. 96261 & 102437



COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION

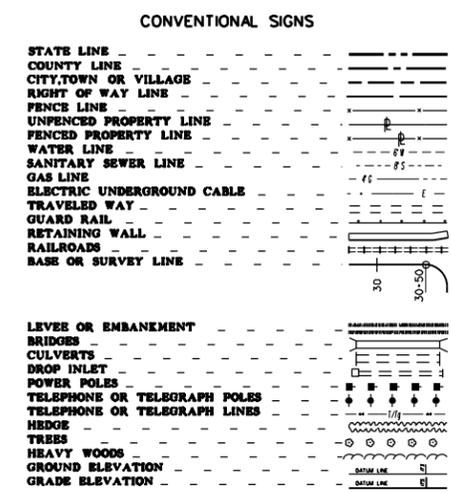
PLAN AND PROFILE OF PROPOSED  
STATE HIGHWAY  
DESIGN-BUILD PROJECT  
CITY OF ALEXANDRIA

I-395 HOV RAMP AT SEMINARY ROAD  
FROM: SANGER AVENUE  
TO: SEMINARY ROAD  
with  
I-395 NB AUXILIARY LANE EXTENSION  
FROM: DUKE STREET  
TO: SANGER AVENUE

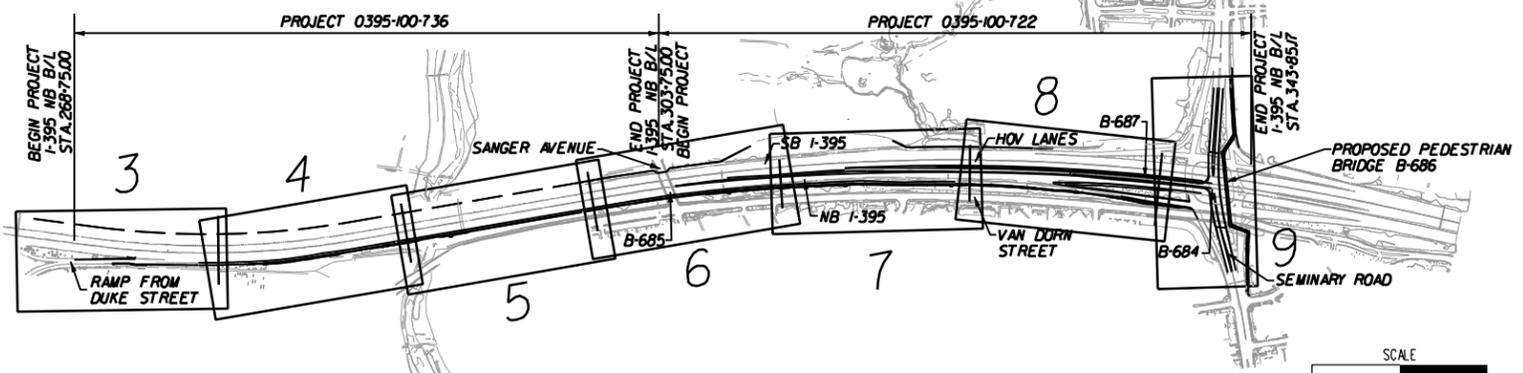
STATE	FEDERAL AID		STATE		SHEET NO.
	PROJECT	ROUTE	PROJECT		
VA.	NH-0005 (218)	395	(F010395-100-722) (F010395-100-736)	1	

FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA				
	I-395 NORTHBOUND	I-395 NB RAMP	I-395 HOV RAMP	SEMINARY ROAD
From:	Duke Street	0.02 Mi N Sanger Seminary Rd.	0.14 Mi N Sanger Seminary	Kenmore Avenue
To:	Seminary Road	Seminary Rd.	0.03 Mi S Seminary	Mark Center Drive
FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL	INTERCHANGE RAMP	INTERCHANGE RAMP	URBAN MINOR ARTERIAL
MIN. DESIGN SPEED	70	40	35	35
ADT (2009)	81000	11750		17000
ADT (2035)	88000	12700	14800	26100
DHV	6230	780	1230	1090
D (%) (design hour)				
T (%) (design hour)	3% / 2%	2%	<1%	2%
V (MPH)	70	40	35	35
TC STD.	TC-5.0IU	TC-5.0IU	TC-5.0IU	TC-5.0IU
GEOMETRIC STD.	GS-5	GS-R	GS-R	GS-6

DESIGN EXCEPTIONS		
Sta. to Sta.	Design Speed	Reason for Exception
303+75.00 to 343+85.17	70 Mph	6' Wide Inside Shoulder



- NOTES:
- DESIGN PROPOSED WILL MEET OR EXCEED ALL REQUIREMENTS LISTED IN THE RFP DESIGN CRITERIA TABLE.
  - LIMITS OF CONSTRUCTION ARE WITHIN THE EXISTING OR PROPOSED RIGHT-OF-WAY LIMITS SHOWN IN THE RFP PLANS (WITH THE EXCEPTION OF PERMANENT AND TEMPORARY EASEMENTS)
  - NO ADDITIONAL DESIGN EXCEPTIONS OR WAIVERS ARE REQUIRED BY THE PROPOSED DESIGN.



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

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT'S 2007 ROAD AND BRIDGE SPECIFICATIONS, 2008 ROAD AND BRIDGE STANDARDS, 2009 MUTCD, 2011 VIRGINIA SUPPLEMENT TO THE MUTCD, 2011 VIRGINIA WORK AREA PROTECTION MANUAL AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY.

ALL CURVES ARE TO BE SUPERELEVATED, TRANSITIONED AND WIDENED IN ACCORDANCE WITH STANDARD TC-5.0IU, EXCEPT WHERE OTHERWISE NOTED.

THE ORIGINAL APPROVED TITLE SHEET(S), INCLUDING ORIGINAL SIGNATURES, ARE FILED IN THE VDOT CENTRAL OFFICE PLAN LIBRARY. ANY MISUSE OF ELECTRONIC FILES, INCLUDING SCANNED SIGNATURES, IS ILLEGAL AND ENFORCED TO THE FULL EXTENT OF THE LAW.

City of Alexandria Population 139,966 (2010 Census)

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	EQUALITIES	LENGTH INCLUDING BRIDGE(S)		LENGTH EXCLUDING BRIDGE(S)		BRIDGE PROJECT NO.	TYPE PROJECT	DESCRIPTION
					FEET	FEET	MILES	FEET	MILES			
0100395-100-722	PE-101	NH-0005 (218)	PENG	96261		4010	0.7595	2898	0.5489		PREL. ENGR.	From: Sanger Avenue To: Seminary Road
	RW-201	NH-0005 (218)	ROWA	96261		4010	0.7595	2898	0.5489		R/W	
	C-501	NH-0005 (218)	1000	96261		4010	0.7595	2898	0.5489		CONSTR.	
	B-684	NH-0005 (218)	X771-SN	96261		520	0.0985			B-684	BRIDGE	Seminary Road Bridge over I-395
	B-685	NH-0005 (218)	X771-SN	96261		73.5	0.0139			B-685	BRIDGE	I-395 over Sanger Avenue
	B-686	NH-0005 (218)	X771-SN	96261		782	0.1581			B-686	BRIDGE	Pedestrian Bridge over I-395
	B-687	NH-0005 (218)	X771-SN	96261		962	0.1822			B-687	BRIDGE	I-395 HOV Ramp Bridge
0100395-100-736	P-101	NH-0005 (218)	PENG	102437				3300	0.6250		PREL. ENGR.	From: Duke Street To: Sanger Avenue
	R-201	NH-0005 (218)	ROWA	102437				3300	0.6250		R/W	
	C-501	NH-0005 (218)	1000	102437				3300	0.6250		CONSTR.	

Project Lengths are based on the I-395 NB, HOV Ramp and Seminary Road Construction Baselines.

TIER 2 PROJECT

RECOMMENDED FOR APPROVAL FOR RIGHT OF WAY ACQUISITION	
DATE	PROGRAMMING DIVISION DIRECTOR
DATE	STATE LOCATION AND DESIGN ENGINEER
DATE	CHIEF OF PLANNING AND PROGRAMMING
DATE	CHIEF ENGINEER

APPROVED FOR RIGHT OF WAY ACQUISITION	
DATE	CHIEF OF POLICY AND ENVIRONMENT

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
DATE	PROGRAMMING DIVISION DIRECTOR
DATE	STATE LOCATION AND DESIGN ENGINEER
DATE	STATE STRUCTURE AND BRIDGE ENGINEER
DATE	CHIEF OF PLANNING AND PROGRAMMING

APPROVED FOR CONSTRUCTION	
DATE	CHIEF ENGINEER

APPROVED	
DATE	DIVISION ADMINISTRATOR FEDERAL HIGHWAY ADMINISTRATION U.S. DEPARTMENT OF TRANSPORTATION

PROJECT MANAGER: SID SIDDIQUEE (703) 259-2117  
DESIGNED BY DEWBERRY CONSULTANTS, LLC (703) 289-4796

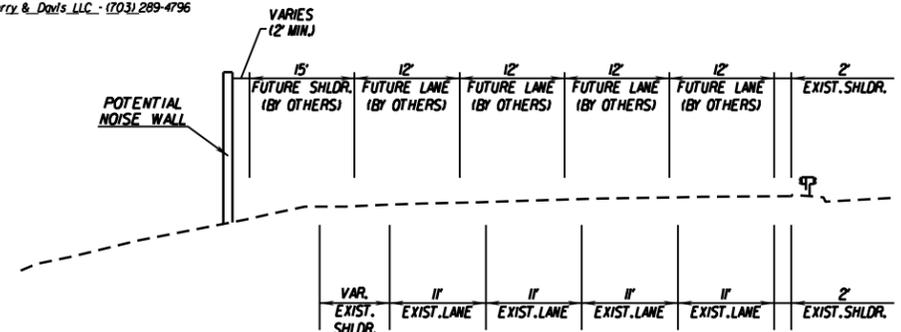
\$TIME\$TAMP\$

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY Dewberry & Davis, LLC - (703) 289-4796

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA		(FO) 0395-100-722 (FO) 0395-100-736	2A(1)

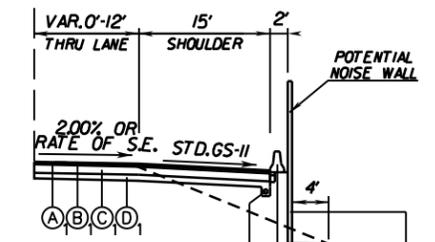
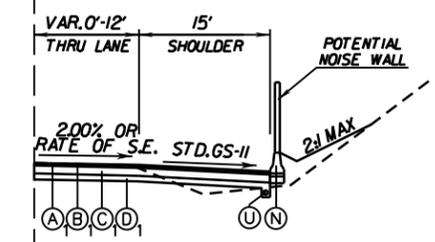
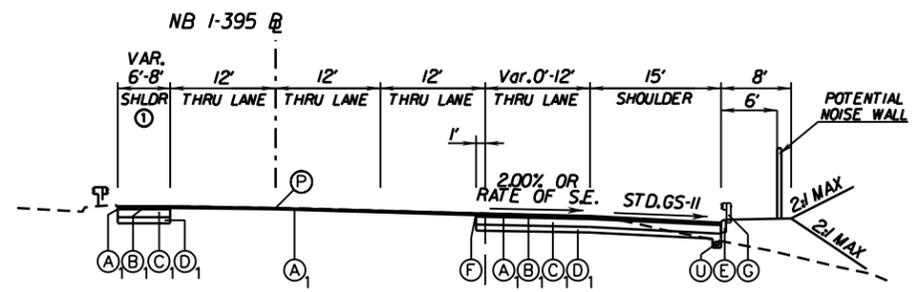
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



SOUTHBOUND I-395

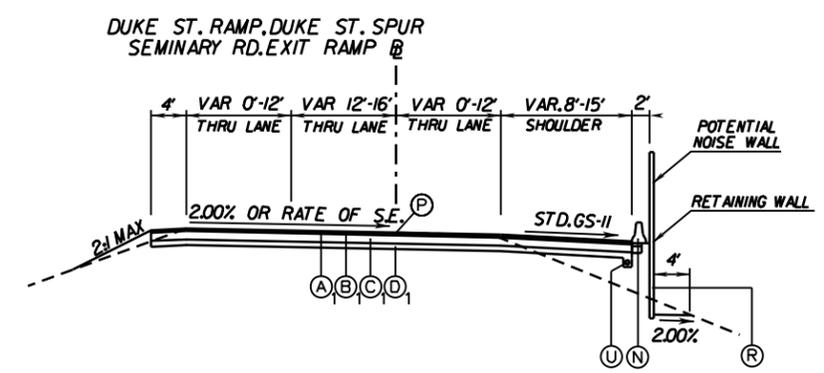
1" = 10'



(1) Full Depth Pavement Req'd.  
From Sta. 303+75.00 To Sta. 311+60.00

1" = 10'

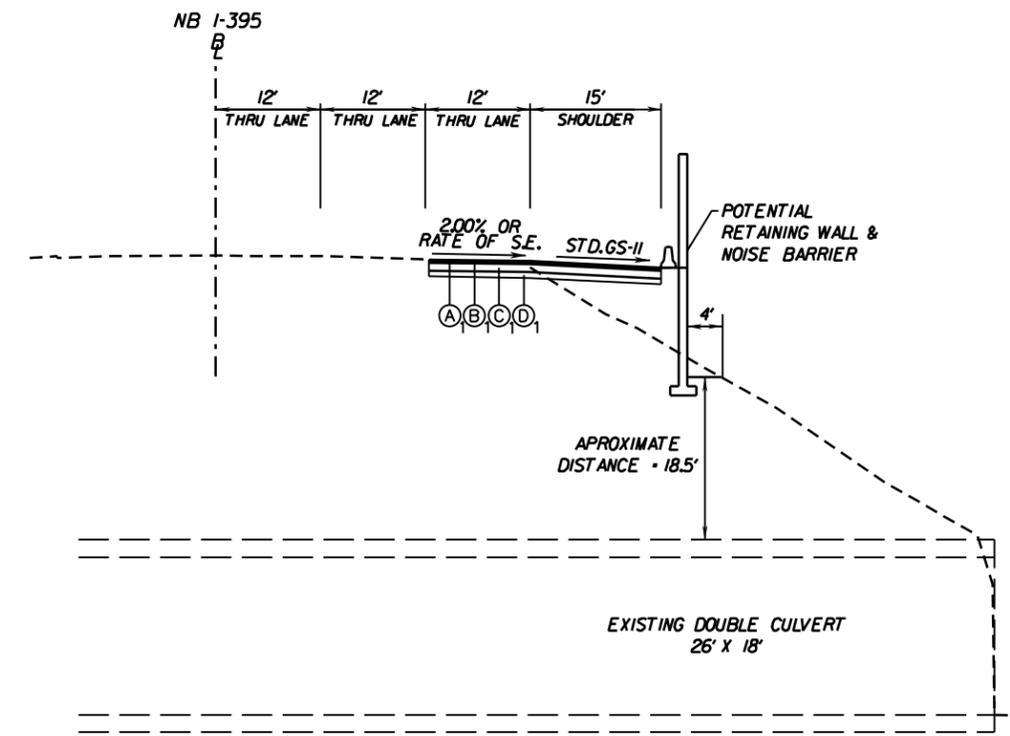
NORTHBOUND I-395  
STA. 268+75.00 TO 343+00.00



DUKE ST. RAMP, DUKE ST. SPUR  
SEMINARY RD. EXIT RAMP

DUKE ST. SPUR - STA. 10+00.00 TO 12+86.28  
DUKE ST. RAMP - STA. 10+00.00 TO 21+08.61  
SEMINARY RD. RAMP - STA. 400+00.00 TO 416+54.48

1" = 10'



EXISTING DOUBLE BOX CULVERT  
NORTHBOUND I-395

1" = 10'

LEGEND

- |  |                                |   |
|--|--------------------------------|---|
| (A) <sub>1</sub> Surface Course, Asphalt Concrete, Type SM-9.5D at 236 lbs./sy       | (E) 4" Curb, Std. CG-3         | (S) 4" Class A3 Hydraulic Cement Concrete Sidewalk placed on 4" Plain Aggregate Material, Type I, Size 21A or 21B |
| (A) <sub>2</sub> Surface Course, Asphalt Concrete, Type SM-9.5D at 178 lbs./sy       | (F) Full Depth Saw Cut         |   |
| (B) <sub>1</sub> Intermediate Course, Asphalt Concrete, Type IM-19.0D at 244 lbs./sy | (G) Guardrail, Std. GR-9       |   |
| (B) <sub>2</sub> Intermediate Course, Asphalt Concrete, Type IM-19.0D at 244 lbs./sy | (M) Median, Std. MS-1A         |   |
| (C) <sub>1</sub> Base Course, Asphalt Concrete, 11", Type BM-25.0A                   | (N) Median Barrier, Std. MB-7D |   |
| (C) <sub>2</sub> Base Course, Asphalt Concrete, 6", Type BM-25.0A                    | (P) Profile Grade Line         |   |
| (D) <sub>1</sub> Subbase Course, 8" Aggregate Base Material, Type 1, Size 21B        | (R) Retaining Wall             |   |
| (D) <sub>2</sub> Subbase Course, 6" Aggregate Base Material, Type 1, Size 21B        | (U) Underdrain, Std. UD-4      |   |

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	0395-100-722 0395-100-736		2A(1)

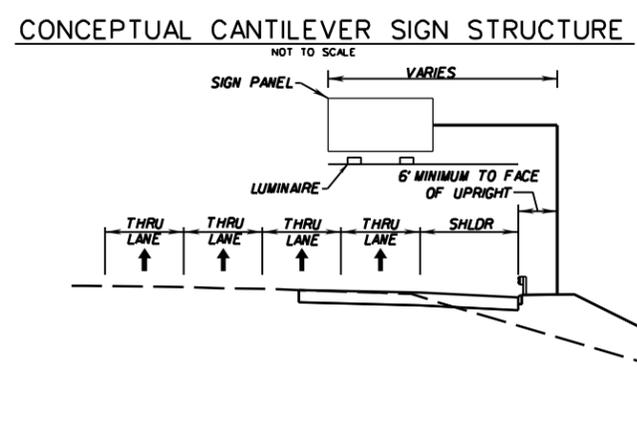
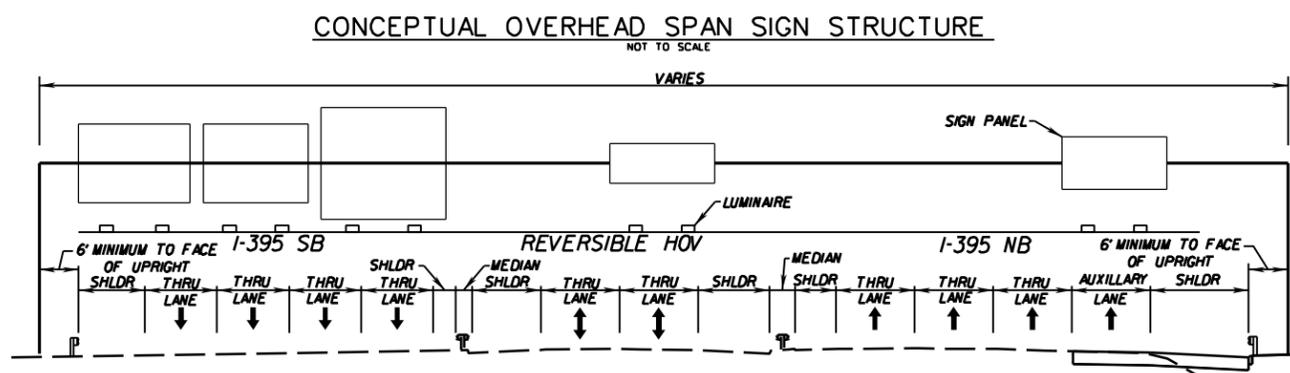
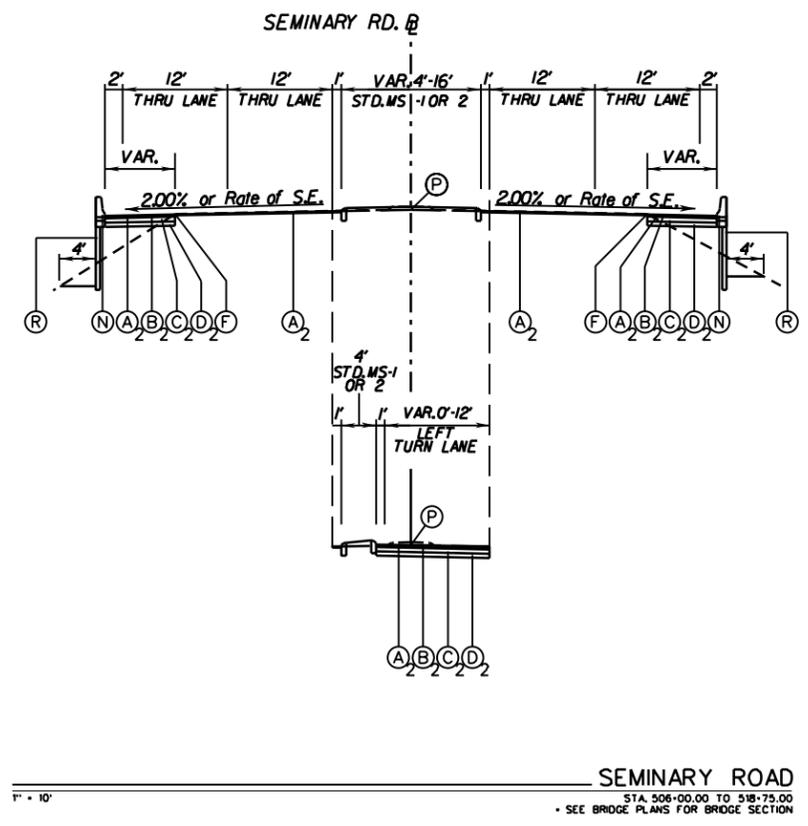
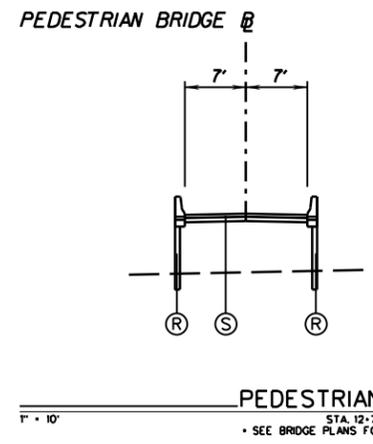
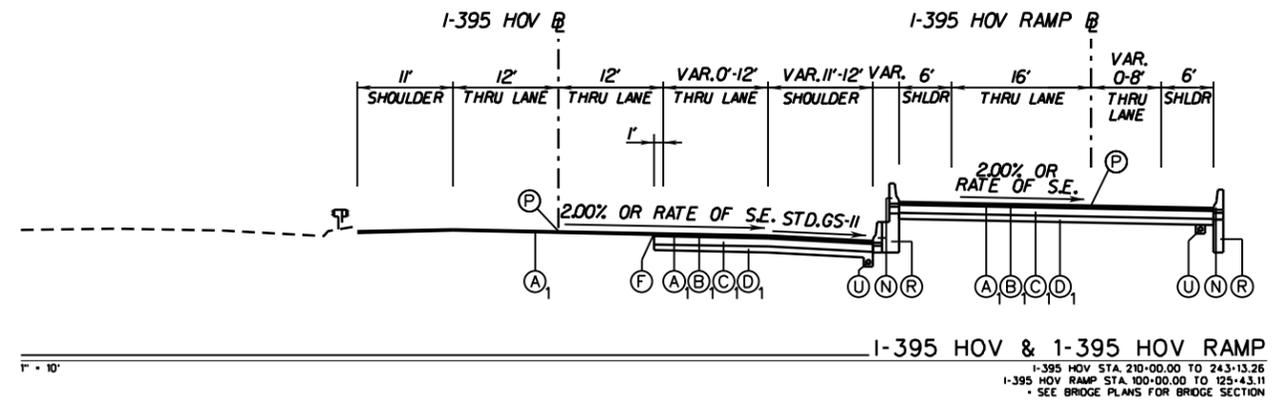
STAMP

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **Dewberry & Davis, LLC** - (703) 289-4796

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA		(FO) 0395-100-722 (FO) 0395-100-736	2A(2)

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



NOTE: SEE CONCEPTUAL ROADWAY PLANS FOR CONCEPTUAL OVERHEAD SIGN STRUCTURE LOCATIONS

- LEGEND**
- |  |                                |   |
|--|--------------------------------|---|
| (A) <sub>1</sub> Surface Course, Asphalt Concrete, Type SM-9.5D at 236 lbs./sy       | (E) 4" Curb, Std. CG-3         | (S) 4" Class A3 Hydraulic Cement Concrete Sidewalk placed on 4" Plain Aggregate Material, Type 1, Size 21A or 21B |
| (A) <sub>2</sub> Surface Course, Asphalt Concrete, Type SM-9.5D at 178 lbs./sy       | (F) Full Depth Saw Cut         |   |
| (B) <sub>1</sub> Intermediate Course, Asphalt Concrete, Type IM-19.0D at 244 lbs./sy | (G) Guardrail, Std. GR-9       |   |
| (B) <sub>2</sub> Intermediate Course, Asphalt Concrete, Type IM-19.0D at 244 lbs./sy | (M) Median, Std. MS-1A         |   |
| (C) <sub>1</sub> Base Course, Asphalt Concrete, 11", Type BM-25.0A                   | (N) Median Barrier, Std. MB-7D |   |
| (C) <sub>2</sub> Base Course, Asphalt Concrete, 6", Type BM-25.0A                    | (P) Profile Grade Line         |   |
| (D) <sub>1</sub> Subbase Course, 8" Aggregate Base Material, Type 1, Size 21B        | (R) Retaining Wall             |   |
| (D) <sub>2</sub> Subbase Course, 6" Aggregate Base Material, Type 1, Size 21B        | (U) Underdrain, Std. UD-4      |   |

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	0395-100-722 0395-100-736		2A(2)

#TIMESTAMP#

PROJECT MANAGER \_\_\_\_\_  
 SURVEYED BY \_\_\_\_\_  
 DESIGN SUPERVISED BY \_\_\_\_\_  
 DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA		(F0) 0395-100-736	3

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

Dewberry & Davis LLC  
 Fairfax, Virginia  
 ROADWAY ENGINEER

Dewberry & Davis LLC  
 Fairfax, Virginia  
 HYDRAULIC ENGINEER

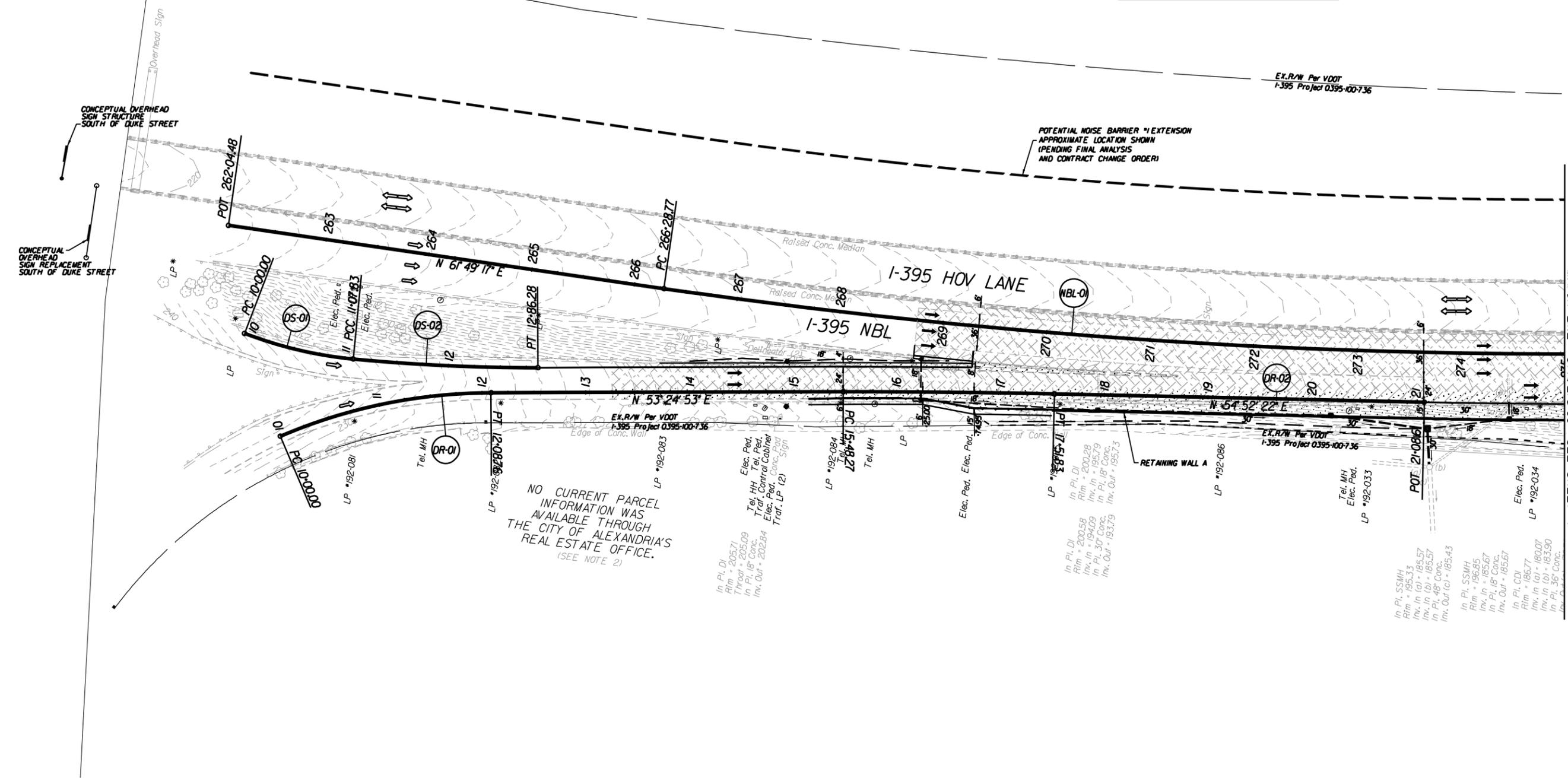
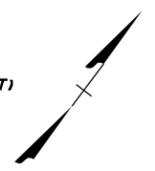
Curve DS-01  
 PI • 10-54.24  
 DELTA • 15° 22' 48.44" (LT)  
 D • 14' 15" 46"  
 T • 54.24'  
 L • 107.83'  
 R • 401.71'  
 PC • 10-00.00  
 PCC • 11-07.83

Curve DS-02  
 PI • 11-97.13  
 DELTA • 5° 43' 06.23" (LT)  
 D • 3' 12" 16"  
 T • 89.30'  
 L • 178.45'  
 R • 1788.00'  
 PCC • 11-07.83  
 PT • 12-86.28

Curve DR-01  
 PI • 11-05.79  
 DELTA • 22° 52' 44.79" (RT)  
 D • 10' 57" 33"  
 T • 105.79'  
 L • 208.76'  
 R • 522.80'  
 PC • 10-00.00  
 PT • 12-08.76

Curve NBL-01  
 PI • 275-44.08  
 DELTA • 17° 07' 40.73" (LT)  
 D • 0' 56" 34"  
 T • 915.30'  
 L • 1816.96'  
 R • 6078.00'  
 PC • 266-28.77  
 PT • 284-45.73

Curve DR-02  
 PI • 16-50.06  
 DELTA • 1° 27' 28.49" (RT)  
 D • 0' 42" 58"  
 T • 101.79'  
 L • 203.56'  
 R • 8000.00'  
 PC • 15-48.27  
 PT • 17-51.83



- Denotes Full Depth Pavement
- Denotes Demolition of Pavement
- Denotes Overlay Pavement
- Denotes Milling and Overlay
- Denotes PE-I, Type I

Denotes Construction Limits In Cuts  
 Denotes Construction Limits In Fills

SCALE  
 0 50' 100'

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	(F0) 0395-100-736	(F0) 0395-100-736	3

**THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY**



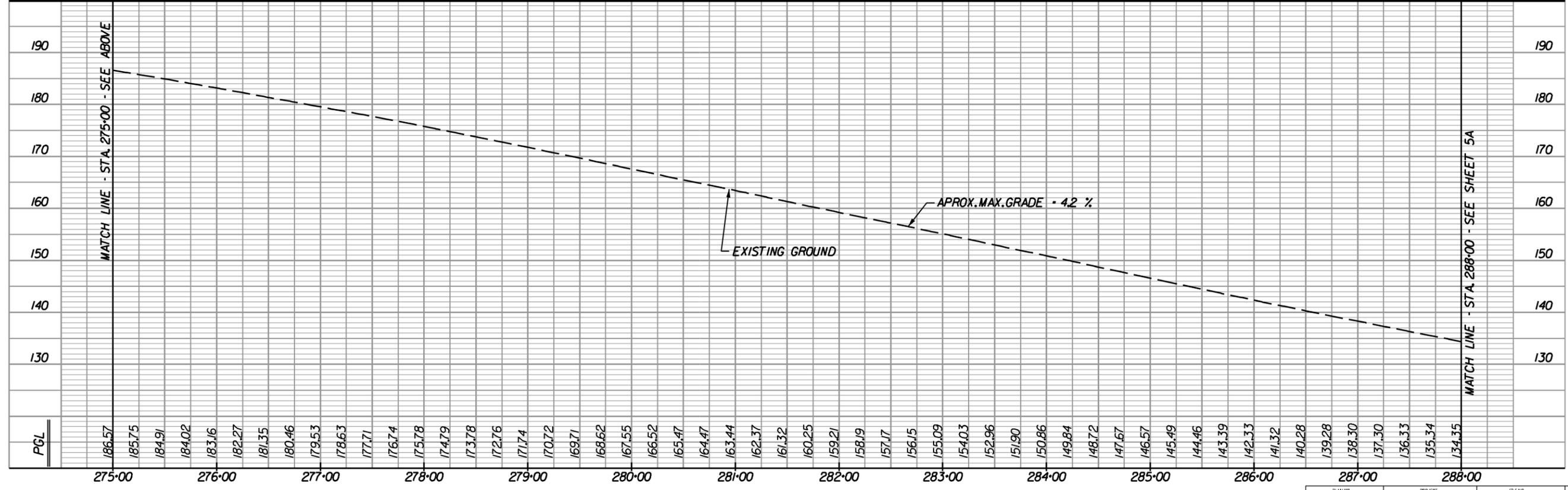
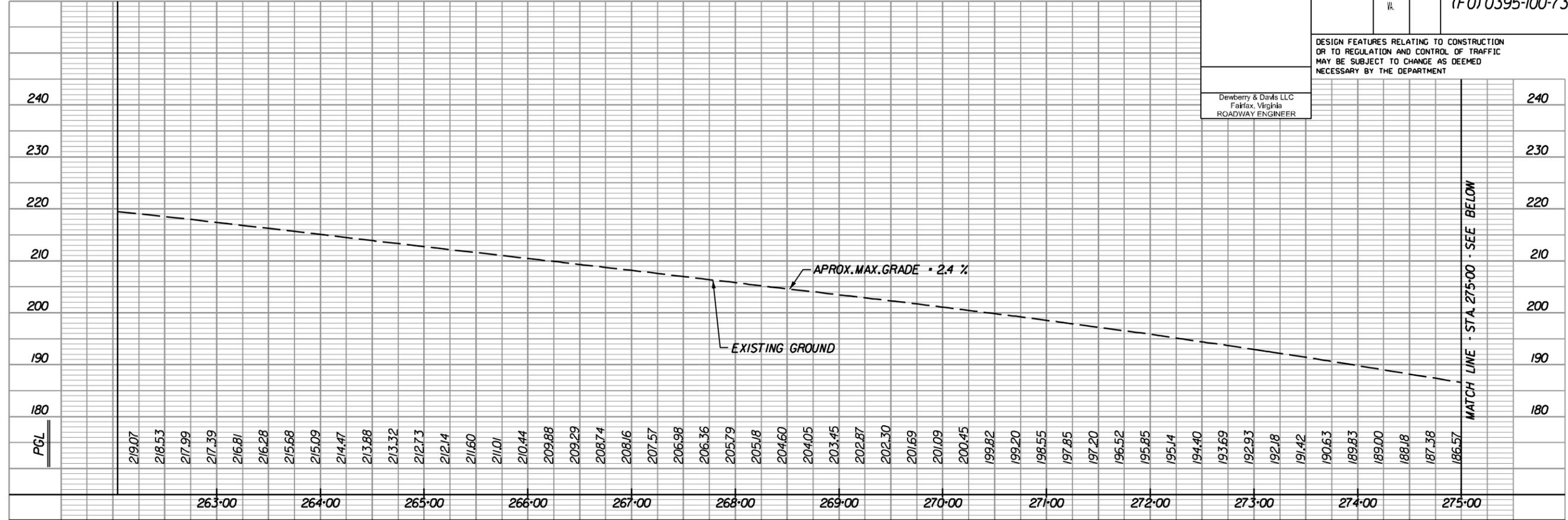
#TIME\$TAMPS

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISION	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(FO) 0395-100-736	3A

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



#TIME#AMP#

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC** - (703)289-4796

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA		(FO) 0395-100-736	4

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

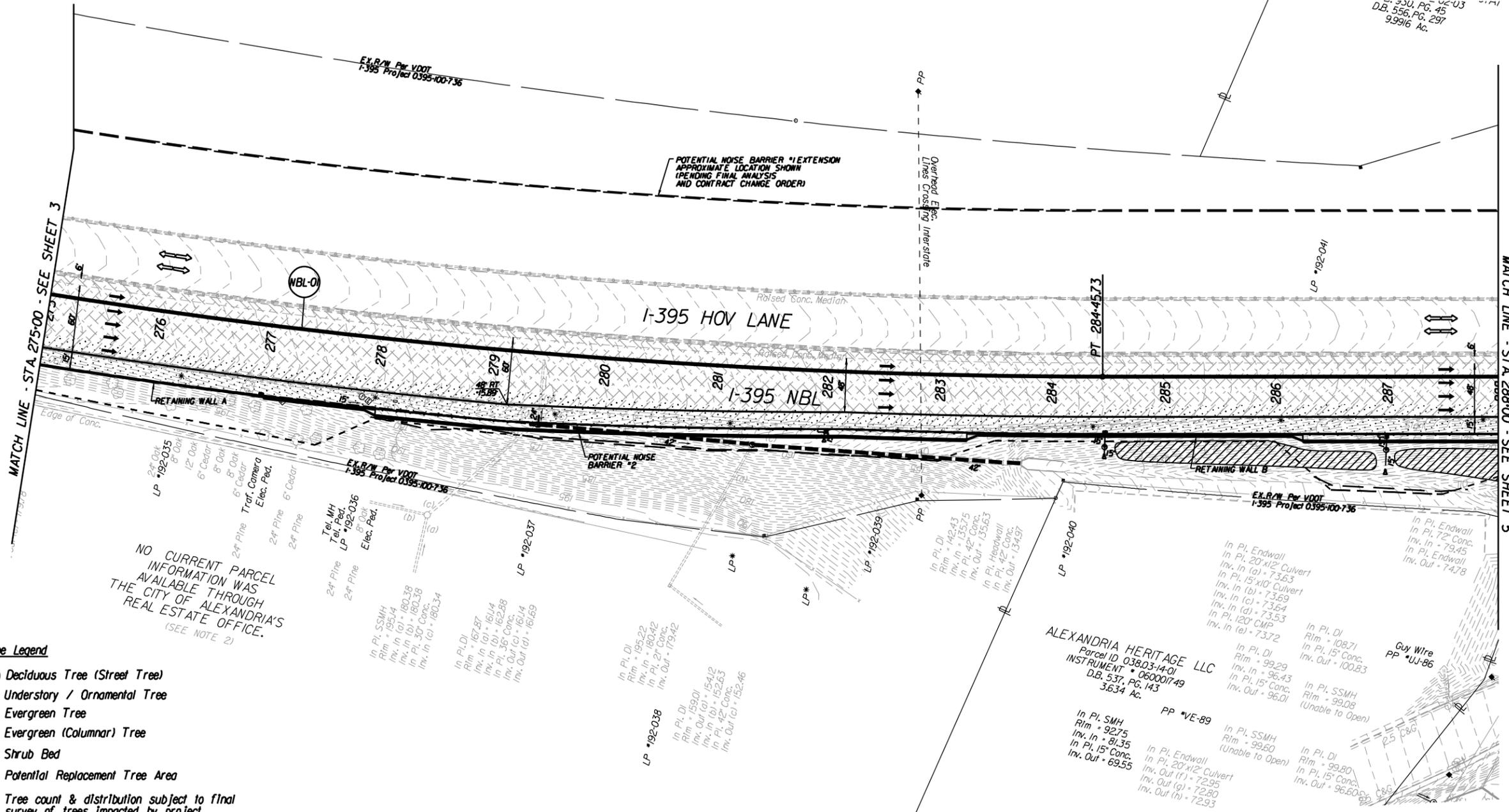
Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER

Dewberry & Davis LLC  
Fairfax, Virginia  
HYDRAULIC ENGINEER

Curve NBL-01  
PI • 275+44.08  
DELTA • 17° 07' 40.73" (LT)  
D • 0' 56' 34"  
T • 915.30'  
L • 1816.96'  
R • 6078.00'  
PC • 266+28.77  
PT • 284+45.73



33U, PG. 45  
DB, 556, PG. 297  
9.9916 Ac.



NO CURRENT PARCEL AVAILABLE THROUGH THE CITY OF ALEXANDRIA'S REAL ESTATE OFFICE. (SEE NOTE 2)

**Landscape Legend**

- Deciduous Tree (Street Tree)
- Understory / Ornamental Tree
- Evergreen Tree
- Evergreen (Columnar) Tree
- Shrub Bed
- Potential Replacement Tree Area

Tree count & distribution subject to final survey of trees impacted by project.

Note: The majority of plant material shall be native or indigenous to the area. Final landscape plans shall be developed in concert with input from the local community / municipality.

**THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY**



- Denotes Full Depth Pavement
- Denotes Demolition of Pavement
- Denotes Overlay Pavement
- Denotes Milling and Overlay
- Denotes PE-I, Type I

Denotes Construction Limits In Cuts  
 Denotes Construction Limits In Fills

SCALE		0	50'	100'
PLAN NO.	PROJECT	FILE NO.	SHEET NO.	
A	(FO) 0395-100-736	(FO) 0395-100-736	4	

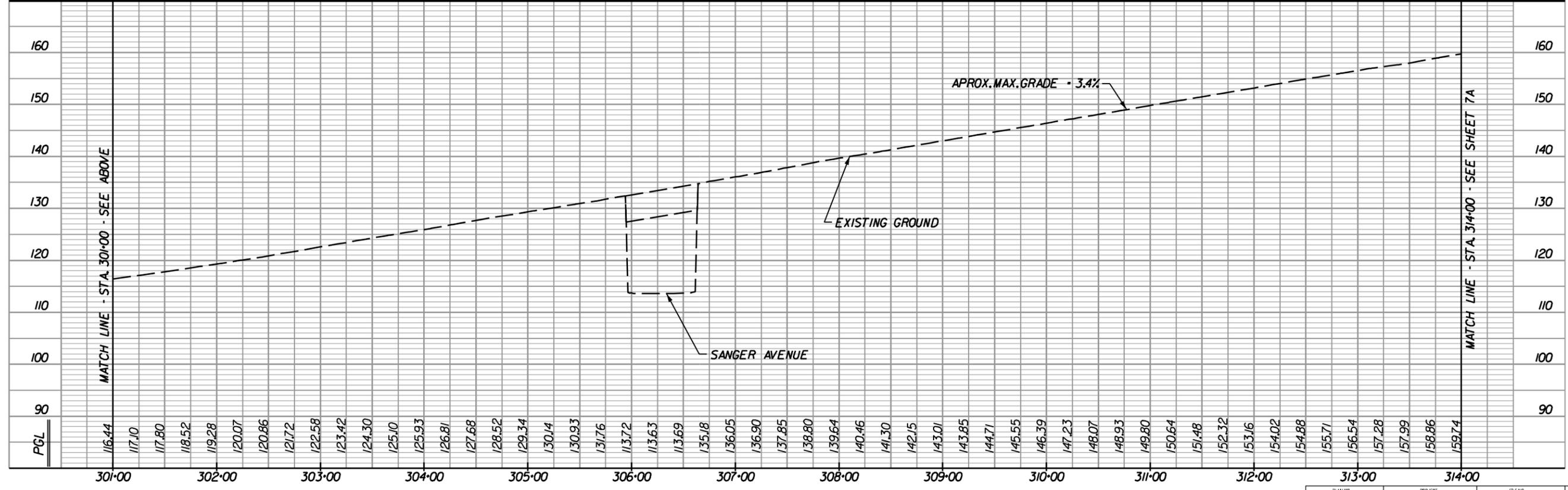
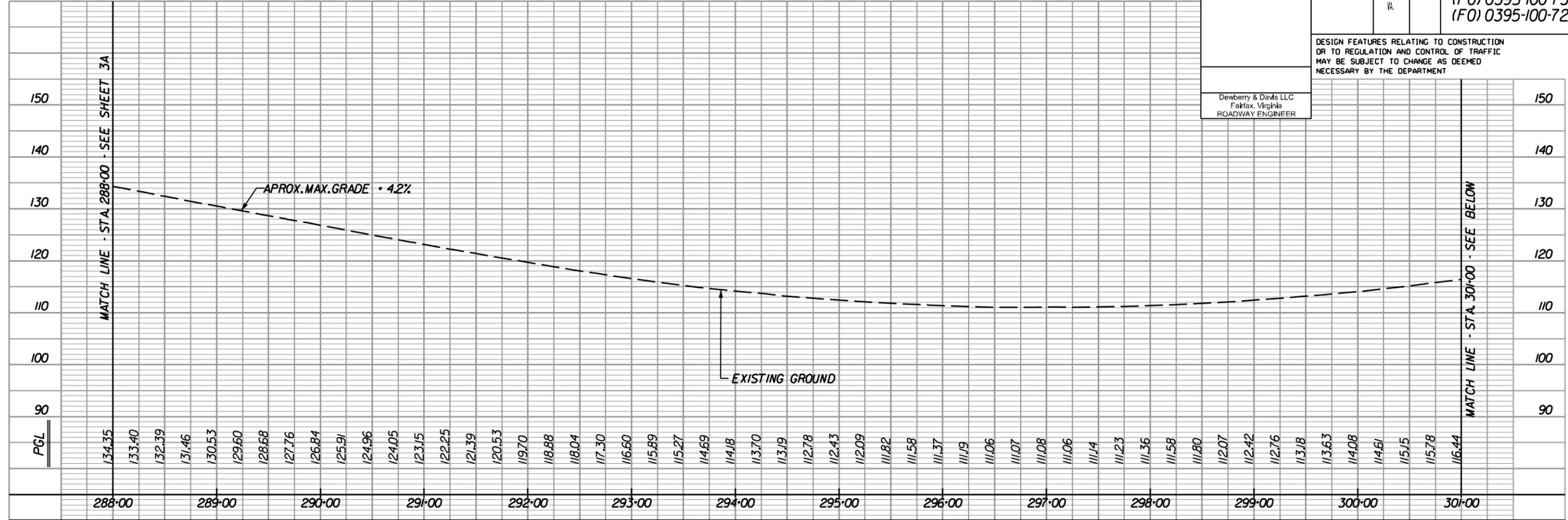


PROJECT MANAGER \_\_\_\_\_  
 SURVEYED BY \_\_\_\_\_  
 DESIGN SUPERVISED BY \_\_\_\_\_  
 DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISION	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(FO) 0395-100-736 (FO) 0395-100-722	5A

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

Dewberry & Davis LLC  
 Fairfax, Virginia  
 ROADWAY ENGINEER



#TIME\$TAMP\$

<b>NB I-395</b>		PLAN NO. A	PROJECT 0395-100-736 0395-100-722	FILE NO.	SHEET NO. 5A
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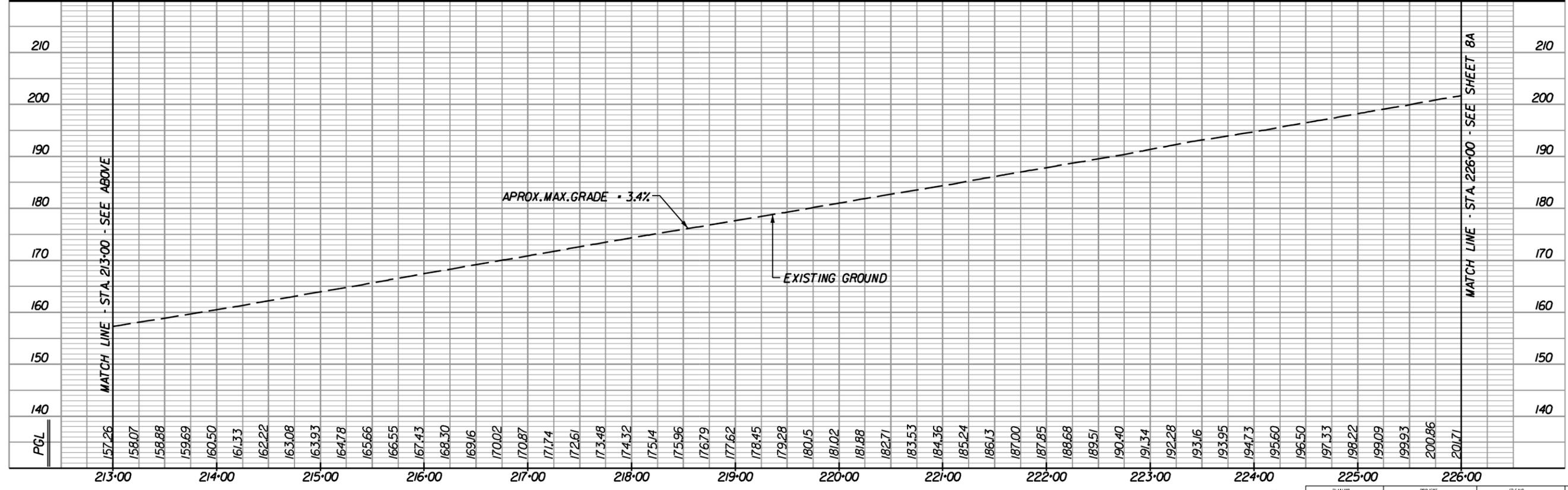
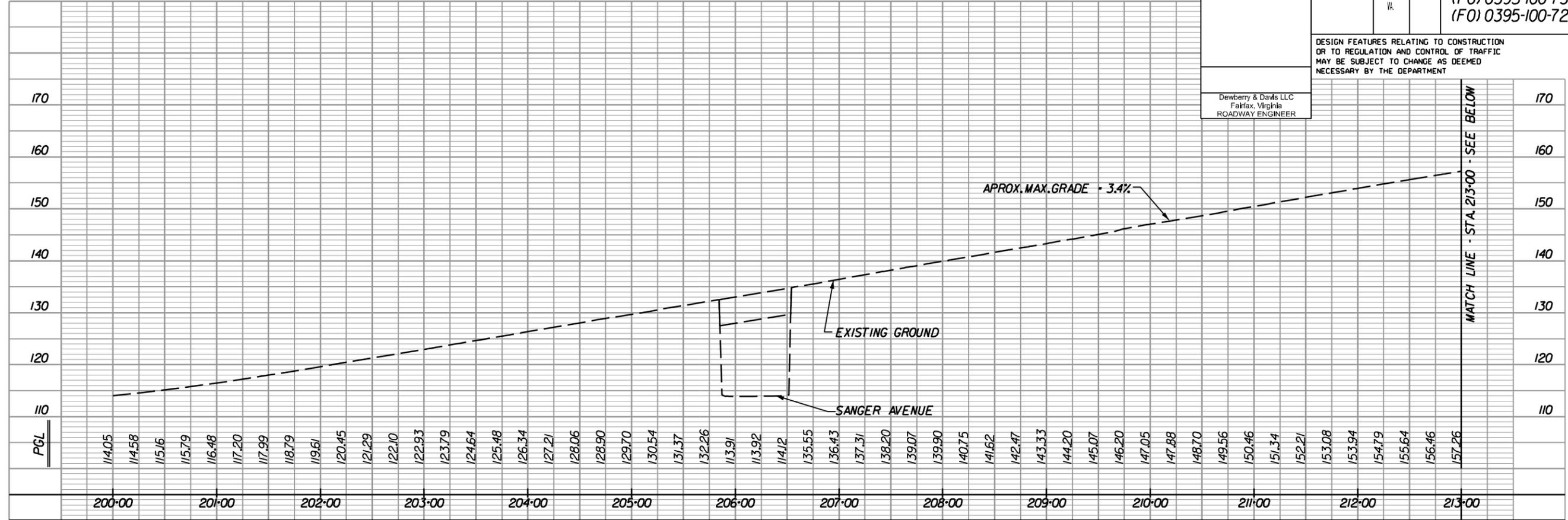


PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISION	STATE	ROUTE	PROJECT	SHEET NO.
	VA		(FO) 0395-100-736 (FO) 0395-100-722	6A

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



HOV	PLAN NO. A	PROJECT 0395-100-736 0395-100-722	FILE NO.	SHEET NO. 6A
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9TIME\$TAMP\$

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC** - (703)289-4796

REVISED	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(F0) 0395-100-722	7

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER

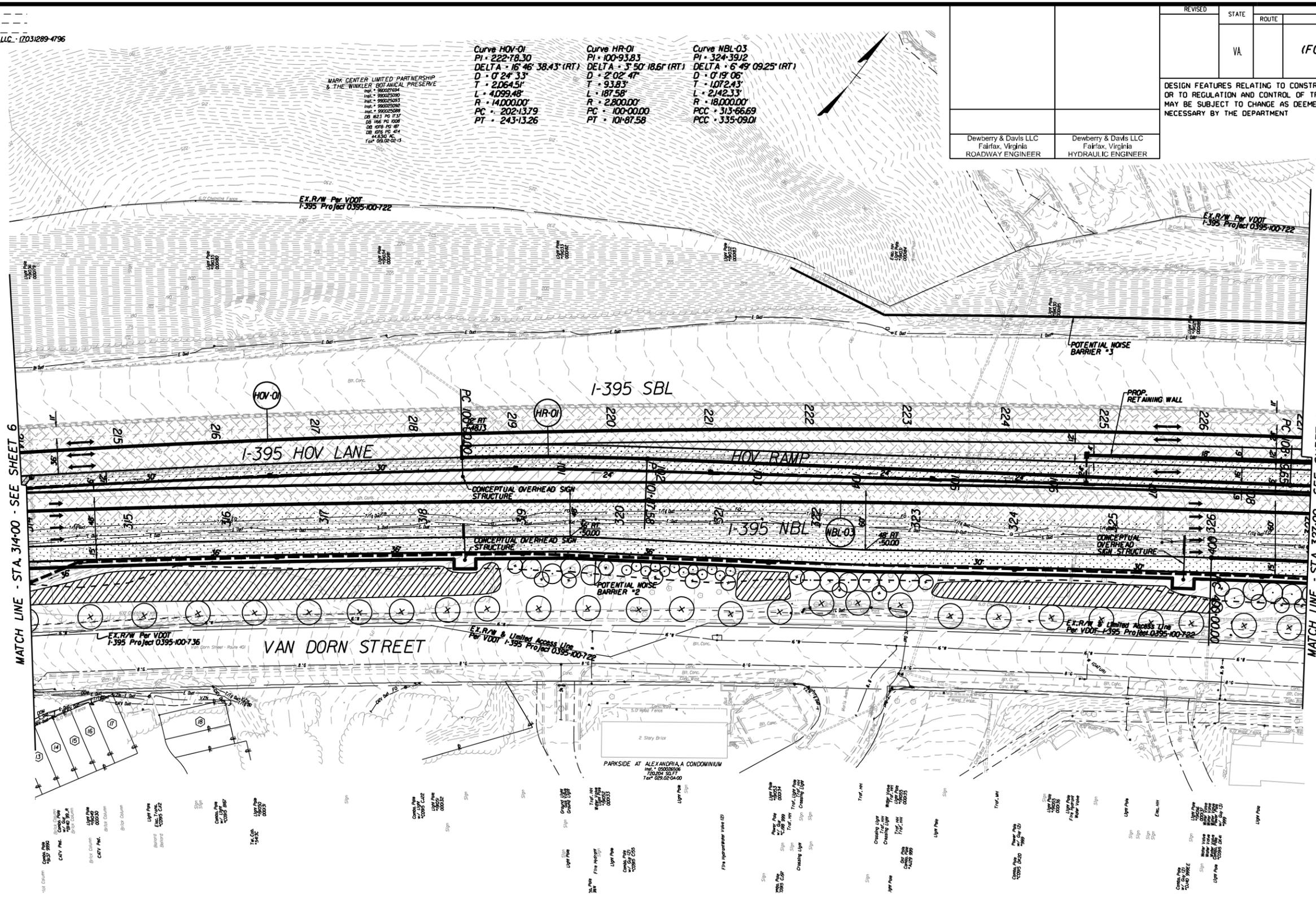
Dewberry & Davis LLC  
Fairfax, Virginia  
HYDRAULIC ENGINEER

Curve HOV-01  
PI - 222-78.30  
DELTA - 16° 46' 38.43" (RT)  
D - 0' 24' 33"  
T - 2,064.51'  
L - 4,099.48'  
R - 14,000.00'  
PC - 202-13.79  
PT - 243-13.26

Curve HR-01  
PI - 100-93.83  
DELTA - 3° 50' 18.61" (RT)  
D - 2' 02' 47"  
T - 93.83'  
L - 187.58'  
R - 2,800.00'  
PC - 100-00.00'  
PT - 101-87.58

Curve NBL-03  
PI - 324-39.12  
DELTA - 6° 49' 09.25" (RT)  
D - 0' 19' 06"  
T - 1,072.43'  
L - 2,142.33'  
R - 18,000.00'  
PC - 313-66.69  
PT - 335-09.01

MARK CENTER LIMITED PARTNERSHIP  
& THE WINKLER BOTANICAL PRESERVE  
Map # 980025090  
Map # 980025093  
Map # 980025098  
Map # 990025089  
DB 4821 PG 31,32  
DB 1668 PG 1009  
DB 4076 PG 487  
DB 4430 PG 474  
DB 4076 PG 474  
F04 08.06.02-13



MATCH LINE - STA. 314+00 - SEE SHEET 6

MATCH LINE - STA. 327+00 - SEE SHEET 8

- Denotes Full Depth Pavement
- Denotes Demolition of Pavement
- Denotes Overlay Pavement
- Denotes Milling and Overlay
- Denotes PE-I, Type I

Landscape Legend  
See Sheet 4 for Landscape Legend

Denotes Construction Limits in Cuts  
 Denotes Construction Limits in Fills

SCALE  
0 50' 100'

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	(F0) 0395-100-722	(F0) 0395-100-722	7

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY



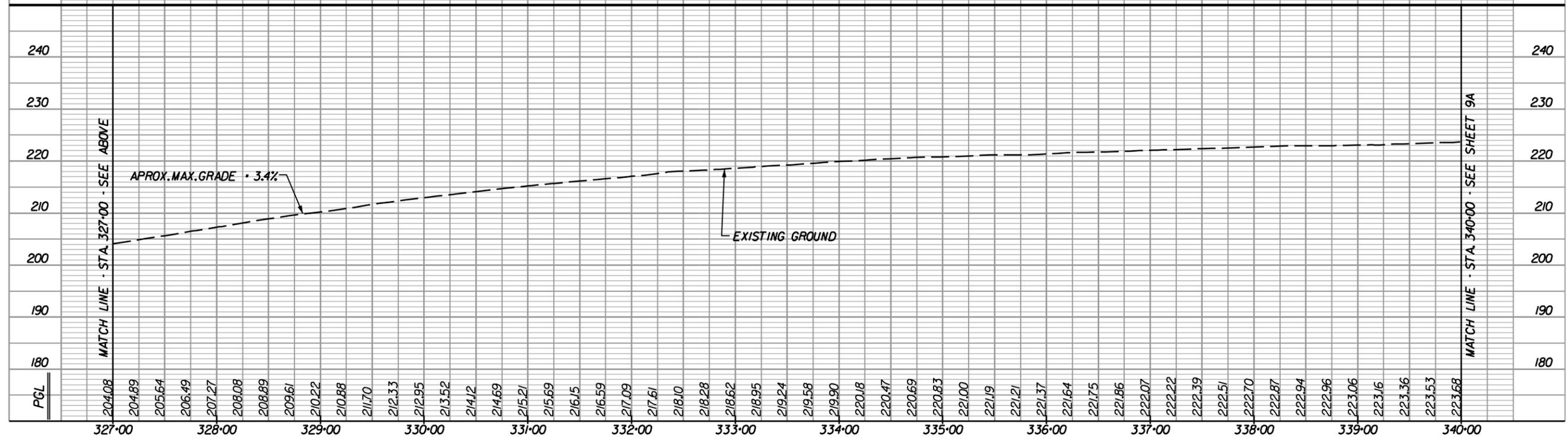
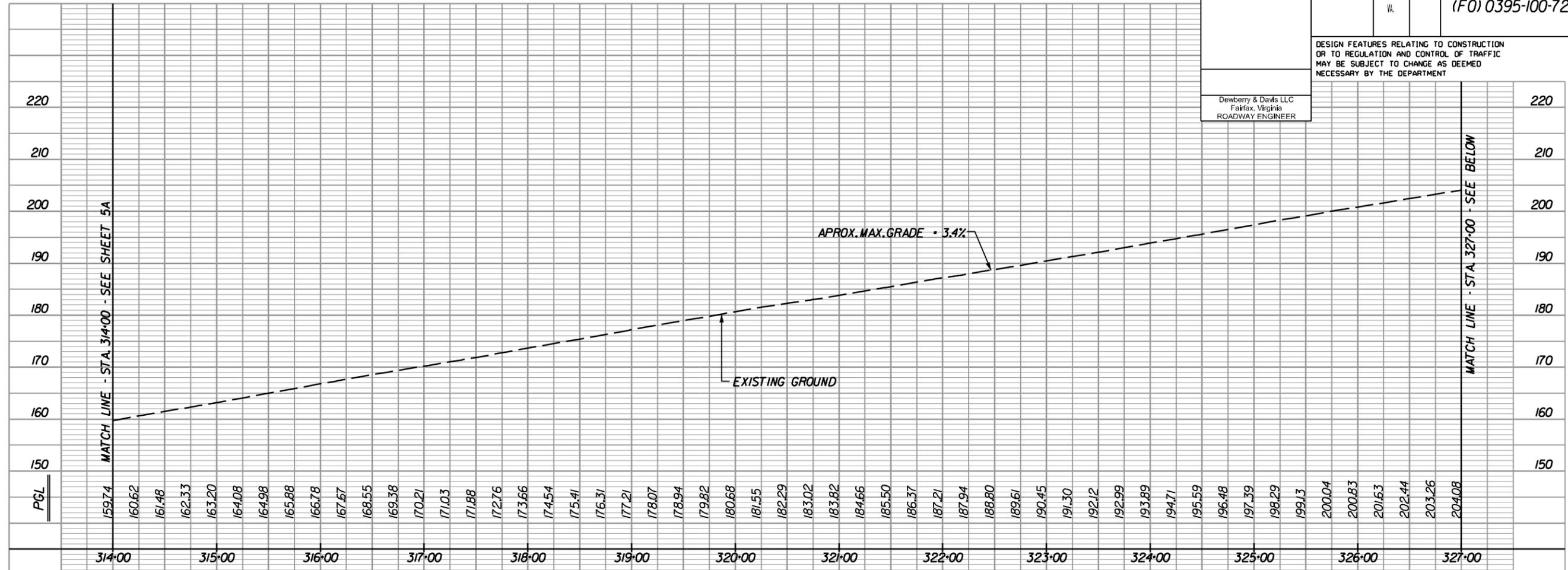
9TIME\$TAMPS

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISED	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(F0) 0395-100-722	7A

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



9TIME\$T.AMP\$

#DGN#  
#DGNLEV

#REF001  
#LEV001

#REF002  
#LEV002

#REF003  
#LEV003

#REF004  
#LEV004

#REF005  
#LEV005

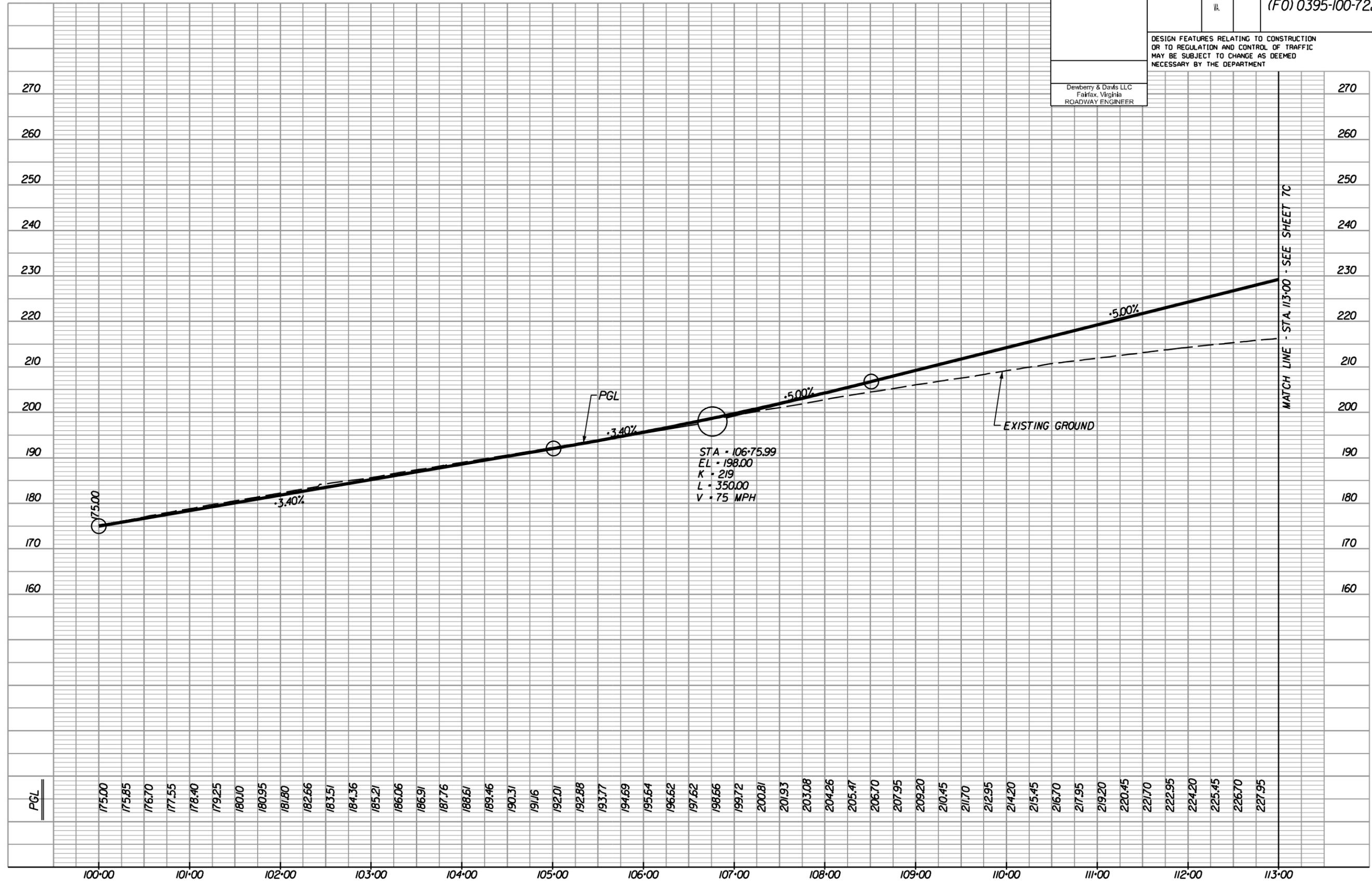
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#LEV006

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISED	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(F0) 0395-100-722	7B

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



PGL

175.00 175.85 176.70 177.55 178.40 179.25 180.10 180.95 181.80 182.66 183.51 184.36 185.21 186.06 186.91 187.76 188.61 189.46 190.31 191.16 192.01 192.88 193.77 194.69 195.54 196.62 197.62 198.66 199.72 200.81 201.93 203.08 204.26 205.47 206.70 207.95 209.20 210.45 211.70 212.95 214.20 215.45 216.70 217.95 219.20 220.45 221.70 222.95 224.20 225.45 226.70 227.95

HOV - RAMP

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	0395-100-722		7B

STATIONING

#DGN#  
#DGNLEV

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#LEV001

#REF002  
#LEV002

#REF003  
#LEV003

#REF004  
#LEV004

#REF005  
#LEV005

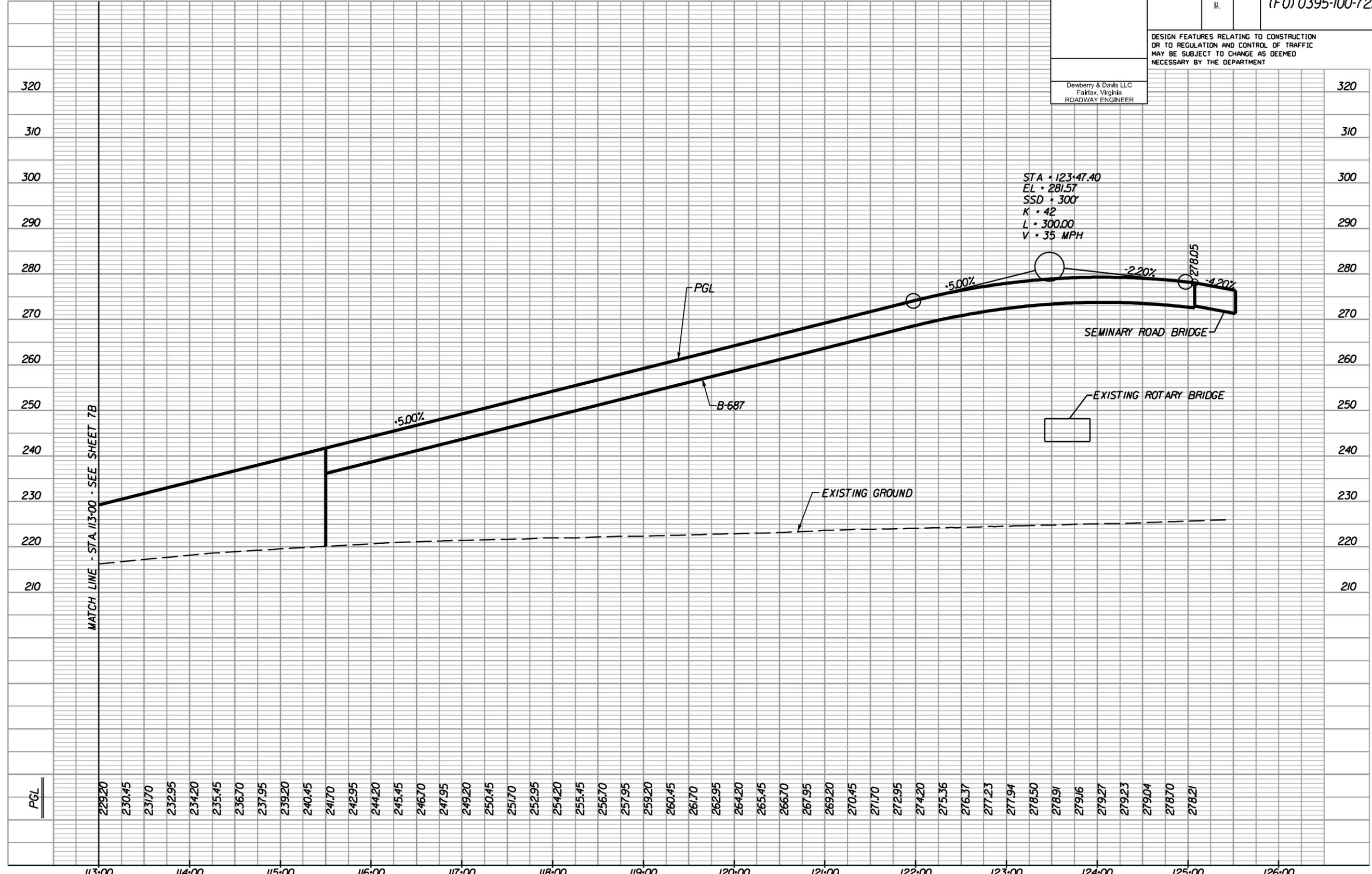
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#LEV006

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISION	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(FO) 0395-100-722	7C

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



PGL

229.20 230.45 231.70 232.95 234.20 235.45 236.70 237.95 239.20 240.45 241.70 242.95 244.20 245.45 246.70 247.95 249.20 250.45 251.70 252.95 254.20 255.45 256.70 257.95 259.20 260.45 261.70 262.95 264.20 265.45 266.70 267.95 269.20 270.45 271.70 272.95 274.20 275.36 276.37 277.23 277.94 278.50 278.91 279.16 279.27 279.23 279.04 278.70 278.21

113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00

HOV - RAMP

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	0395-100-722		7C

#TIME#AMP#

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISED	STATE	ROUTE	STATE PROJECT	SHEET NO.
	VA		(F0) 0395-100-722	8

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

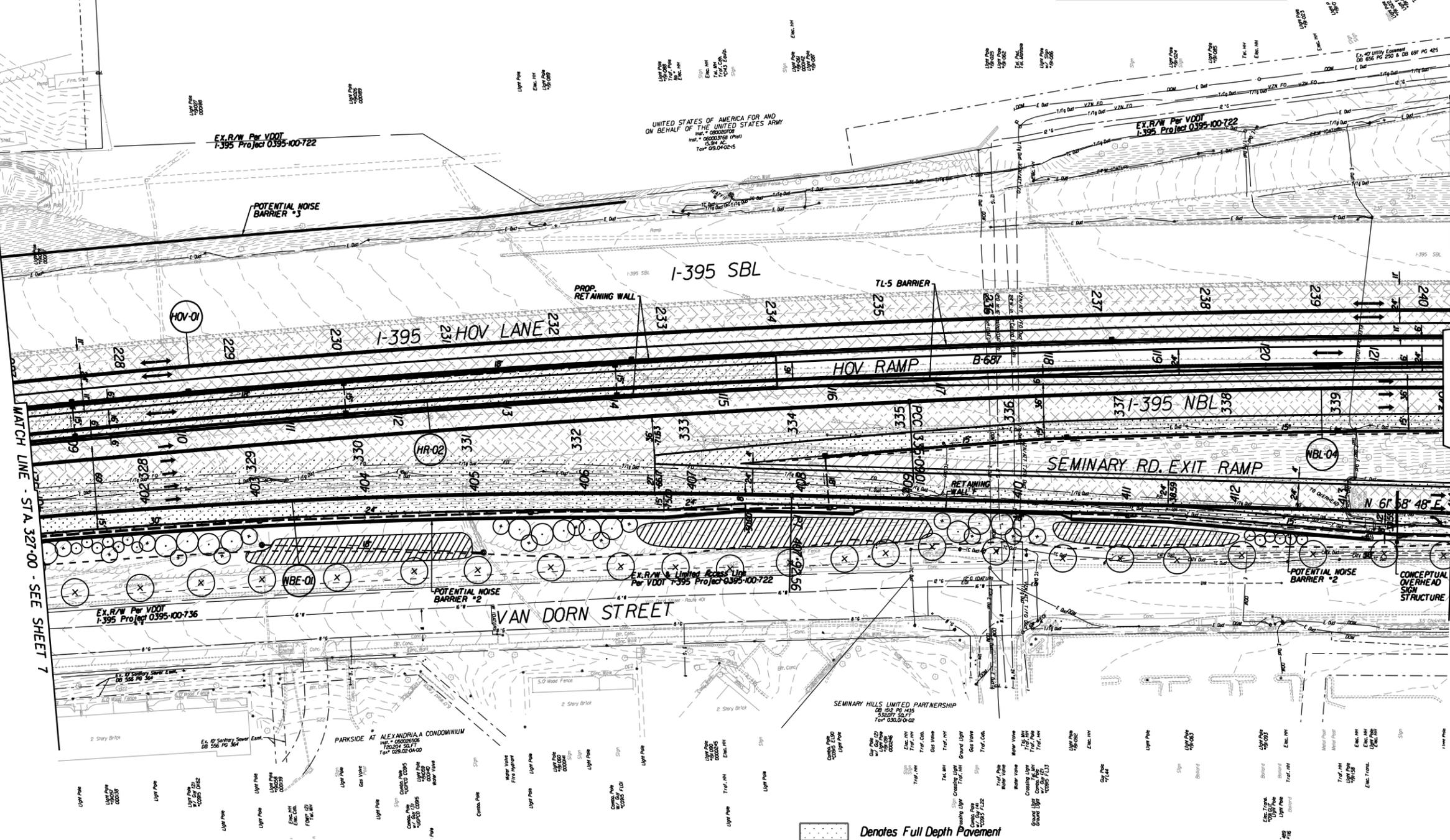
Dewberry & Davis LLC Fairfax, Virginia ROADWAY ENGINEER	Dewberry & Davis LLC Fairfax, Virginia HYDRAULIC ENGINEER
---	---

Curve HOV-01  
PI = 222-78.30  
DELTA = 16° 46' 38.43" (RT)  
D = 0' 24' 33"  
T = 206.45'  
L = 4093.48'  
R = 14000.00'  
PC = 202-13.79  
PT = 243+13.26

Curve HR-02  
PI = 116-05.65  
DELTA = 6° 17' 07.43" (RT)  
D = 0' 24' 38"  
T = 766.00'  
L = 1530.47'  
R = 13951.26'  
PC = 108-39.65  
PT = 123+70.11

Curve NBE-01  
PI = 403-96.80  
DELTA = 7° 13' 40.03" (RT)  
D = 0' 54' 43"  
T = 396.80'  
L = 792.56'  
R = 6282.72'  
PC = 400-00.00  
PT = 407-92.56

Curve NBL-04  
PI = 340-51.44  
DELTA = 5° 46' 28.31" (RT)  
D = 0' 31' 58"  
T = 542.43'  
L = 1083.94'  
R = 10755.00'  
PCC = 335-09.01  
PT = 345-92.95



MATCH LINE - STA 327+00 - SEE SHEET 7

MATCH LINE - STA 340+00 - SEE SHEET 9

- Denotes Full Depth Pavement
- Denotes Demolition of Pavement
- Denotes Overlay Pavement
- Denotes Milling and Overlay
- Denotes PE-1, Type 1

**Landscape Legend**  
See Sheet 4 for Landscape Legend

Denotes Construction Limits in Cuts  
 Denotes Construction Limits in Fills

SCALE 0 50' 100'			
PLAN NO. A	PROJECT (F0) 0395-100-722	FILE NO. (F0) 0395-100-722	SHEET NO. 8

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY



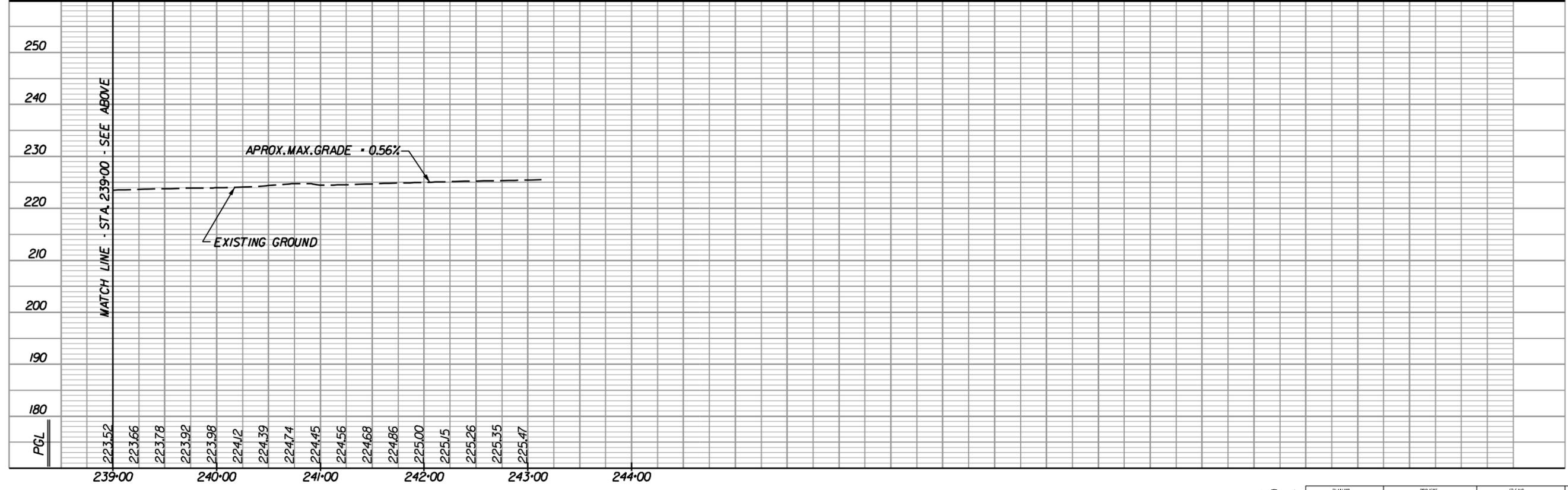
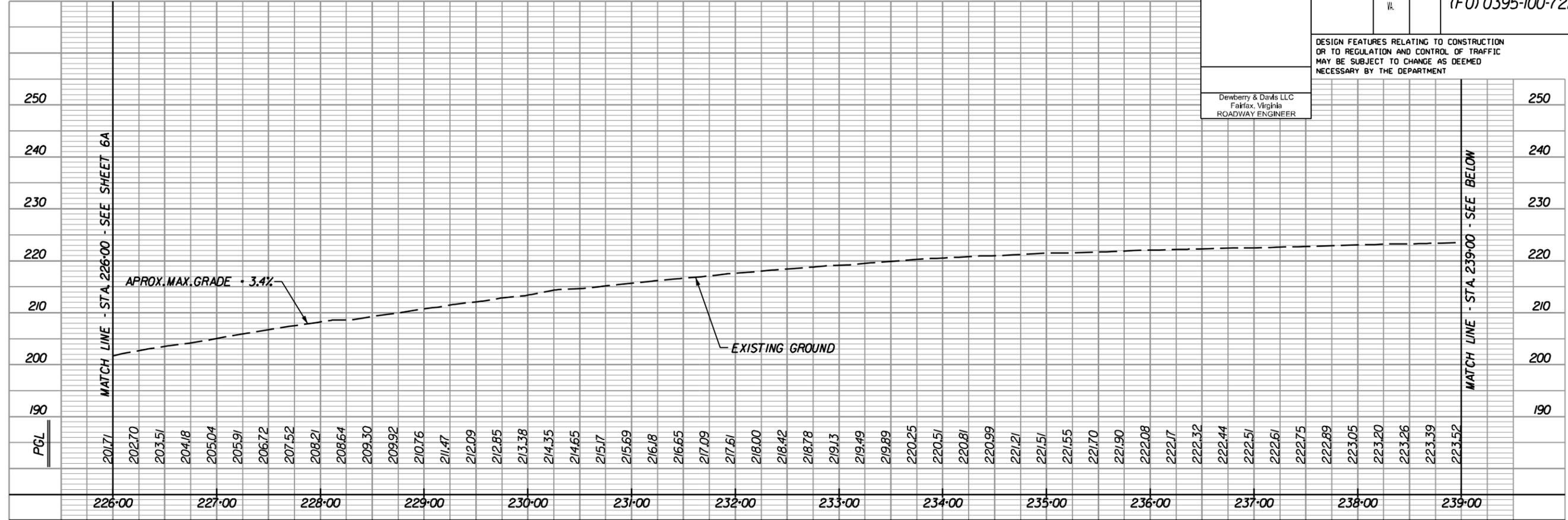
8TIMESTAMPS

PROJECT MANAGER \_\_\_\_\_  
 SURVEYED BY \_\_\_\_\_  
 DESIGN SUPERVISED BY \_\_\_\_\_  
 DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISION	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(F0) 0395-100-722	8A

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

Dewberry & Davis LLC  
 Fairfax, Virginia  
 ROADWAY ENGINEER



#TIME\$TAMP\$

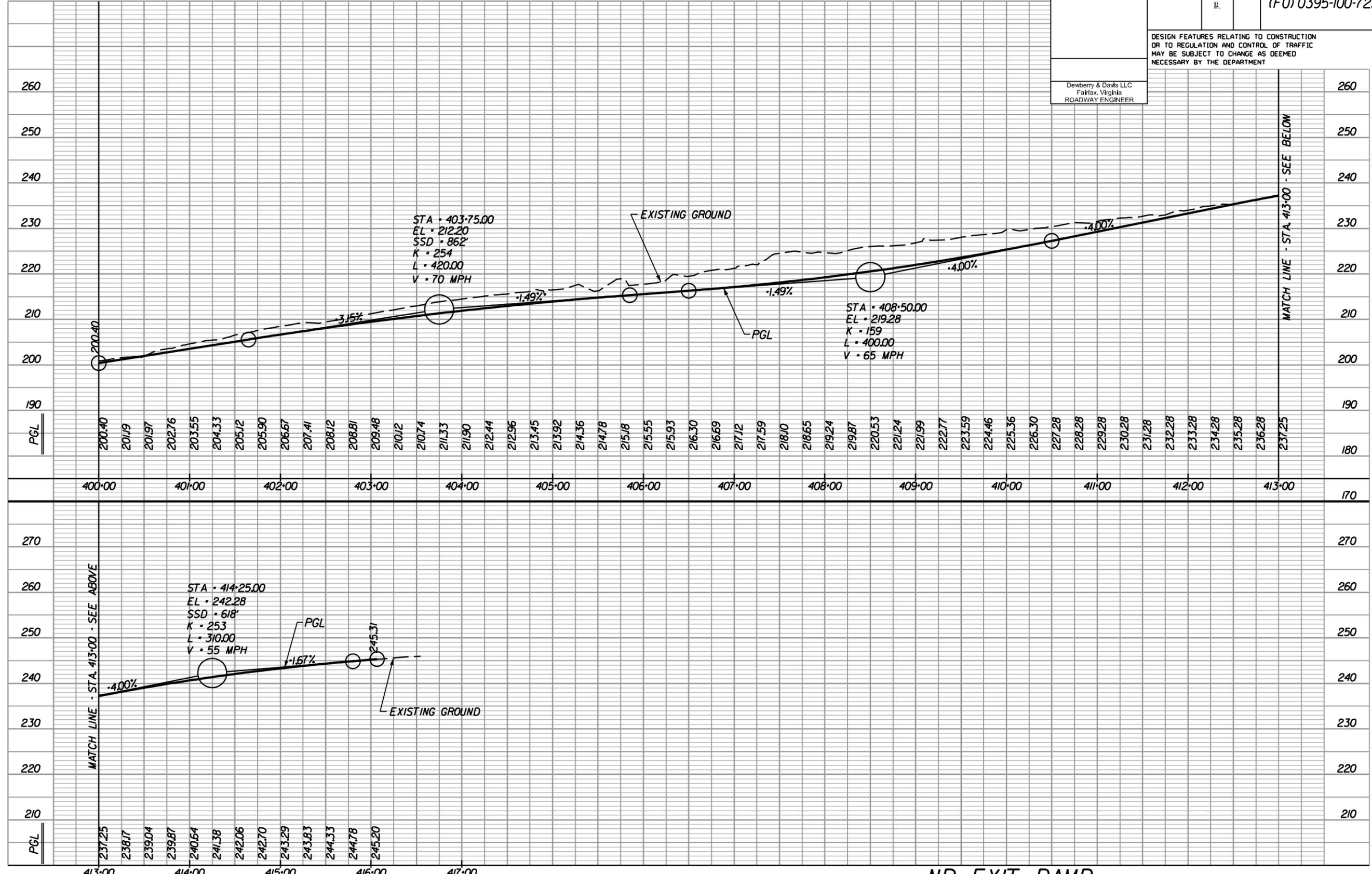
<b>HOV</b>	PLAN NO. A	PROJECT 0395-100-722	FILE NO.	SHEET NO. 8A
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PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISION	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(F0) 0395-100-722	8B

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



**NB EXIT RAMP  
TO SEMINARY ROAD**

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	0395-100-722		8B

#TIME#AMP#

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY DEWBERRY & DAVIS LLC - (703)289-4796

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA		(F0) 0395-100-722	9

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER

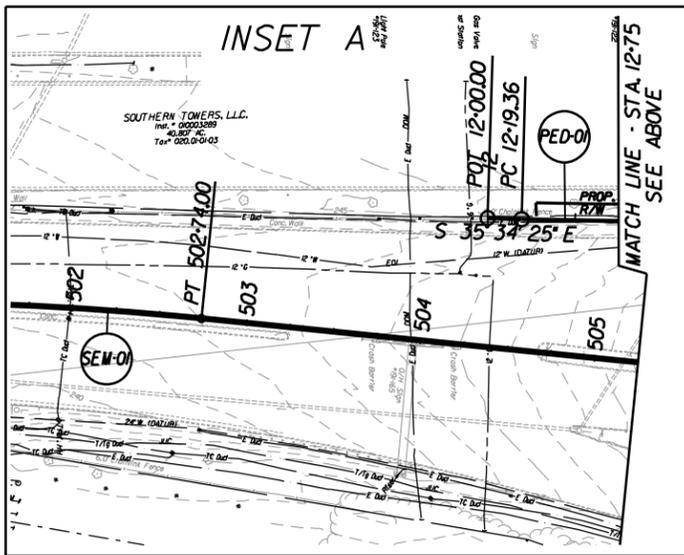
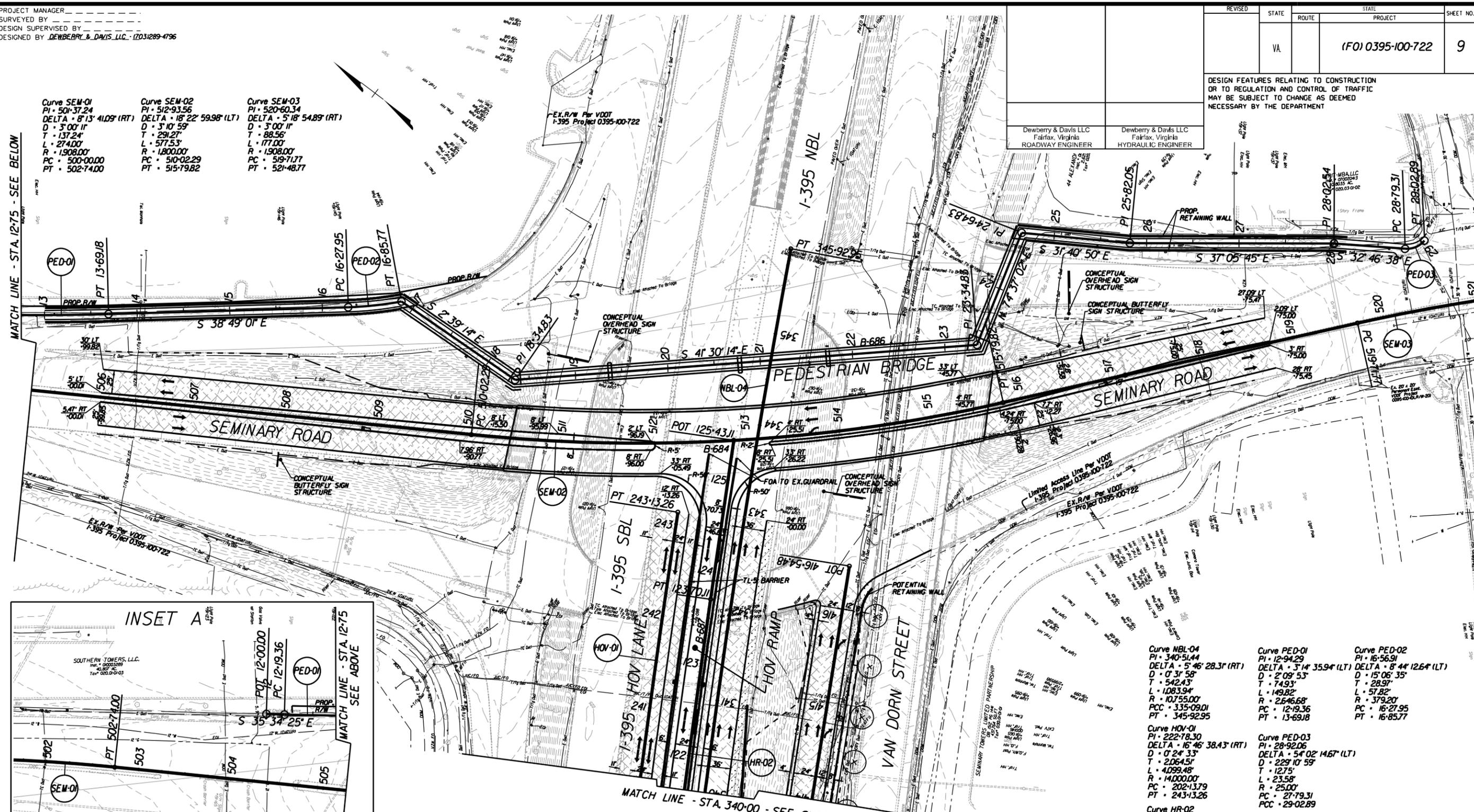
Dewberry & Davis LLC  
Fairfax, Virginia  
HYDRAULIC ENGINEER

Curve SEM-01  
PI - 501-37.24  
DELTA - 8°13'41.09" (RT)  
D - 3°00'11"  
T - 137.24'  
L - 274.00'  
R - 1,908.00'  
PC - 500-00.00  
PT - 502-74.00

Curve SEM-02  
PI - 512-93.56  
DELTA - 18°22'59.98" (LT)  
D - 3°10'59"  
T - 291.27'  
L - 577.53'  
R - 1,800.00'  
PC - 510-02.29  
PT - 515-79.82

Curve SEM-03  
PI - 520-60.34  
DELTA - 5°18'54.89" (RT)  
D - 3°00'11"  
T - 88.56'  
L - 177.00'  
R - 1,908.00'  
PC - 519-71.77  
PT - 521-48.77

MATCH LINE - STA. 12.75 - SEE BELOW



MATCH LINE - STA. 340.00 - SEE SHEET 8

Curve NBL-04  
PI - 340-51.44  
DELTA - 5°46'28.31" (RT)  
D - 0°31'58"  
T - 542.43'  
L - 1,083.94'  
R - 1,075.500'  
PCC - 335-09.01  
PT - 345-92.95

Curve PED-01  
PI - 16-56.91  
DELTA - 5°14'35.94" (LT)  
D - 2°09'53"  
T - 74.93'  
L - 149.82'  
R - 2,646.68'  
PC - 12-19.36  
PT - 13-69.18

Curve PED-02  
PI - 16-56.91  
DELTA - 8°44'12.64" (LT)  
D - 15°06'35"  
T - 28.97'  
L - 57.82'  
R - 379.20'  
PC - 16-27.95  
PT - 16-85.77

Curve HOV-01  
PI - 222-78.30  
DELTA - 16°46'38.43" (RT)  
D - 0°24'33"  
T - 206.45'  
L - 409.48'  
R - 14,000.00'  
PC - 202-13.79  
PT - 243-13.26

Curve PED-03  
PI - 28-92.06  
DELTA - 5°4'02'14.67" (LT)  
D - 229°10'59"  
T - 127.5'  
L - 23.58'  
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PC - 27-79.31  
PT - 29-02.89

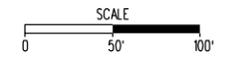
Curve HR-02  
PI - 116-05.65  
DELTA - 6°17'07.43" (RT)  
D - 0°24'38"  
T - 76.00'

- Denotes Full Depth Pavement
- Denotes Demolition of Pavement
- Denotes Overlay Pavement
- Denotes Milling and Overlay
- Denotes PE-I, Type I

Landscape Legend

See Sheet 4 for Landscape Legend

- Denotes Construction Limits In Cuts
- Denotes Construction Limits In Fills



PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	(F0) 0395-100-722		9

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY

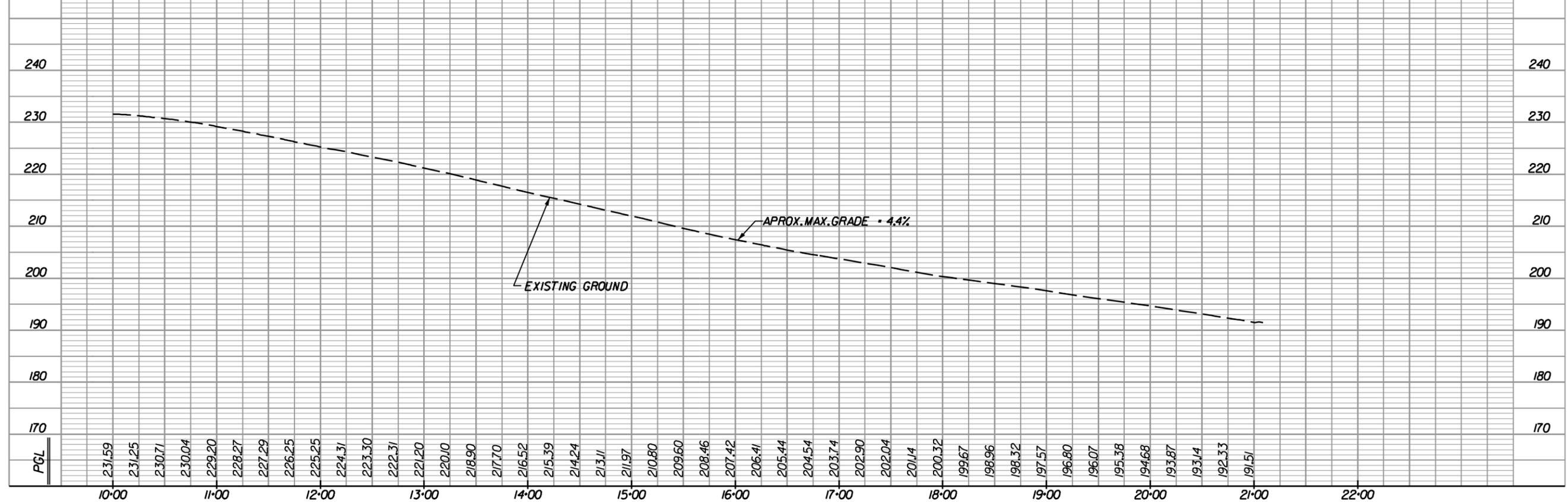
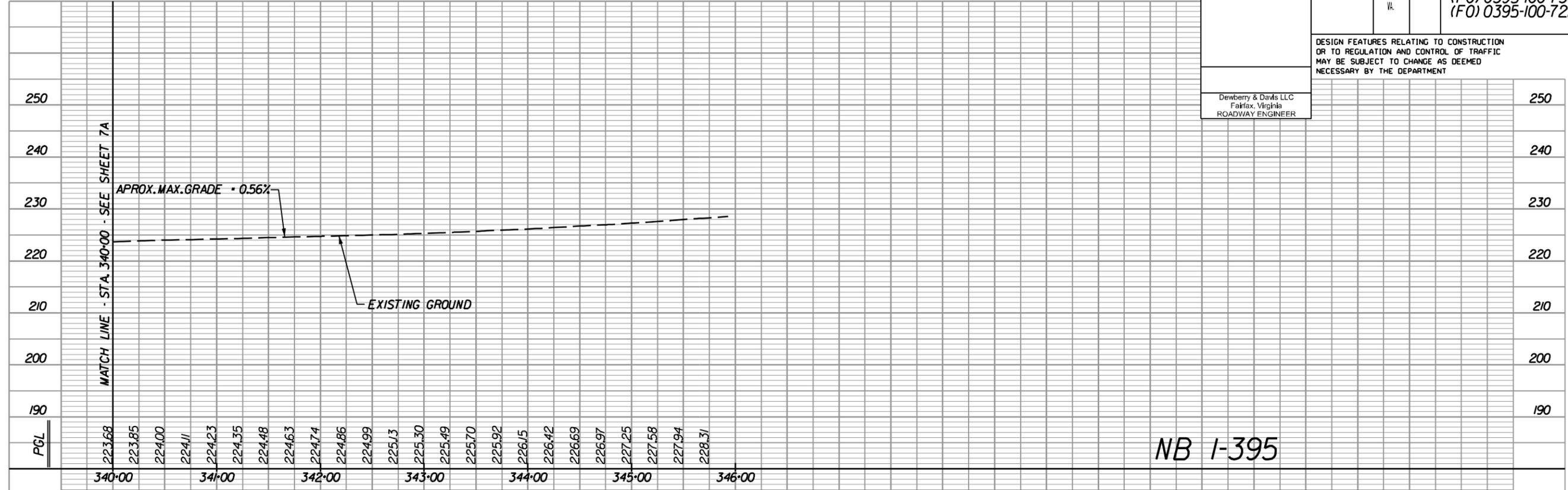


PROJECT MANAGER \_\_\_\_\_  
 SURVEYED BY \_\_\_\_\_  
 DESIGN SUPERVISED BY \_\_\_\_\_  
 DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISION	STATE	ROUTE	PROJECT	SHEET NO.
	VA		(FO) 0395-100-736 (FO) 0395-100-722	9A

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

Dewberry & Davis LLC  
 Fairfax, Virginia  
 ROADWAY ENGINEER



#TIME#AMP#

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	0395-100-736 0395-100-722		9A

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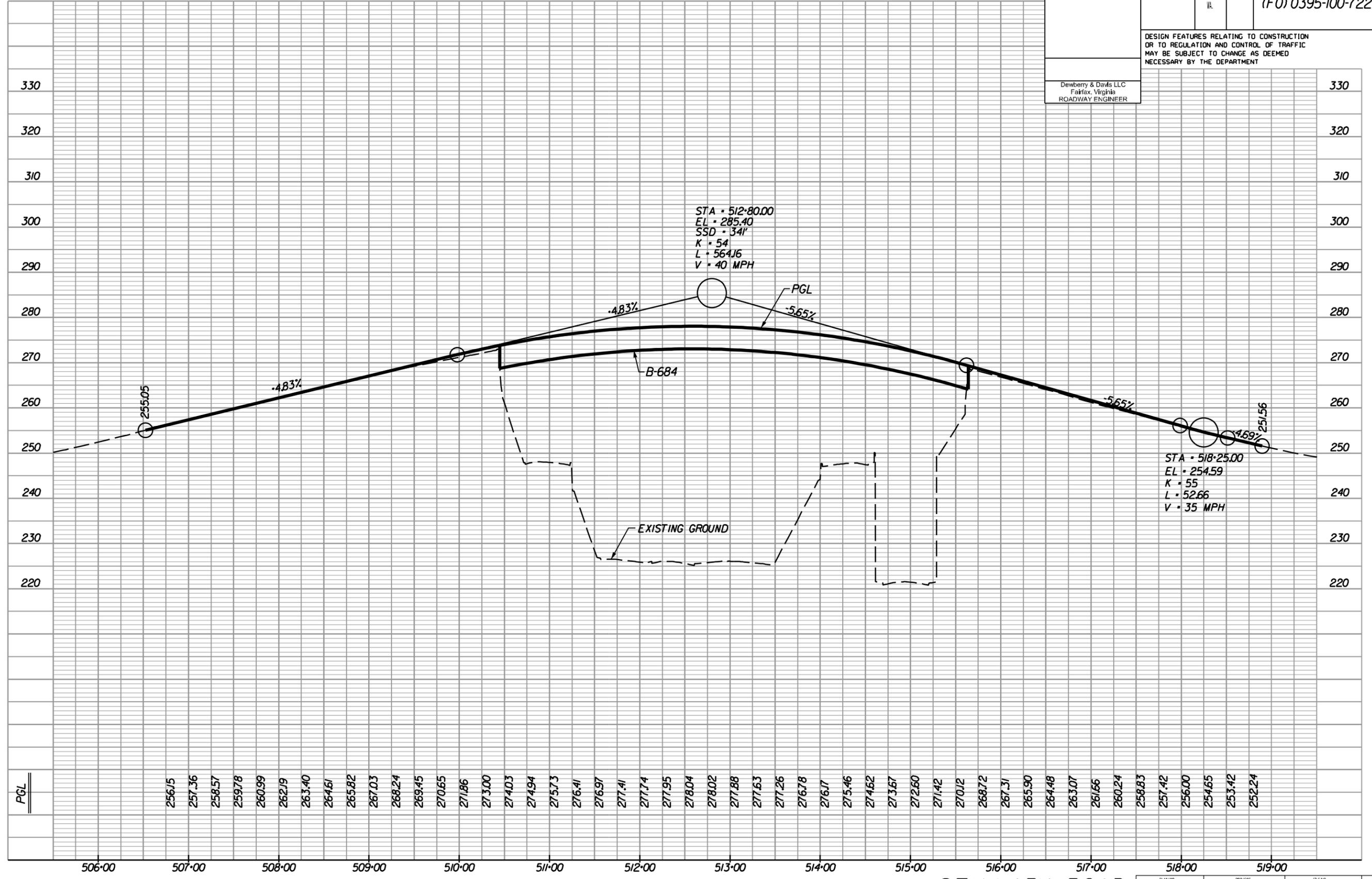
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#LEV006

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY **DEWBERRY & DAVIS LLC - (703)289-4796**

REVISION	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(F0) 0395-100-722	9B

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



PGL	256.15	257.36	258.57	259.78	260.99	262.19	263.40	264.61	265.82	267.03	268.24	269.45	270.65	271.86	273.00	274.03	274.94	275.73	276.41	276.97	277.41	277.74	277.95	278.04	278.02	277.88	277.63	277.26	276.78	276.17	275.46	274.62	273.67	272.60	271.42	270.12	268.72	267.31	265.90	264.48	263.07	261.66	260.24	258.83	257.42	256.00	254.65	253.42	252.24
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# SEMINARY ROAD

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	0395-100-722		9B

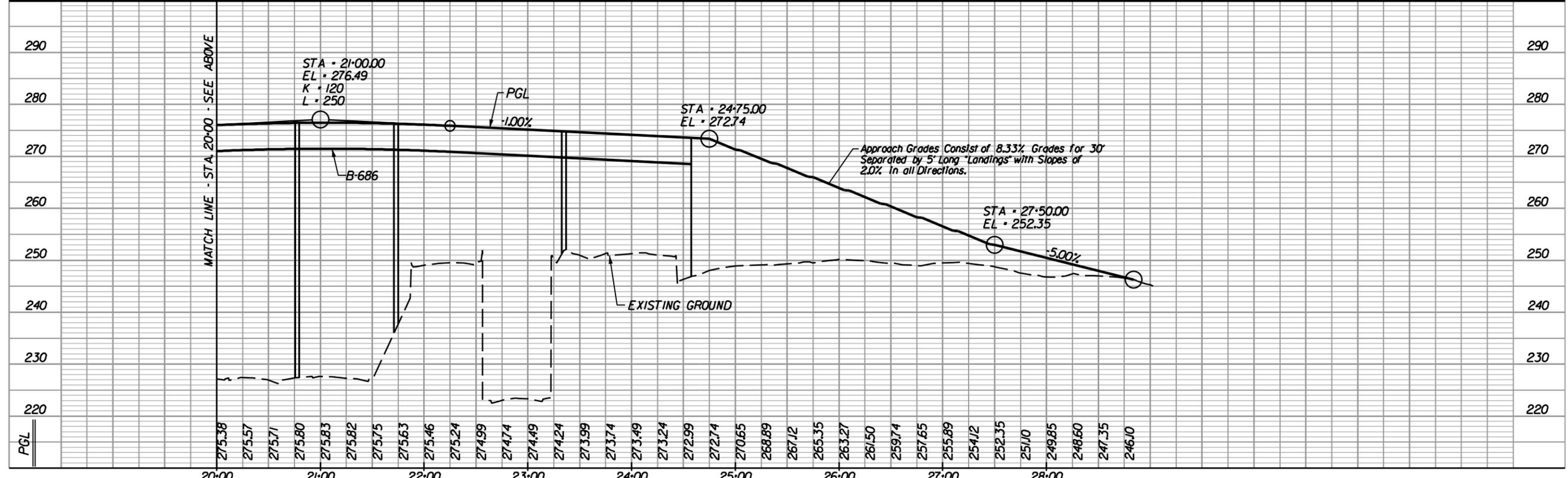
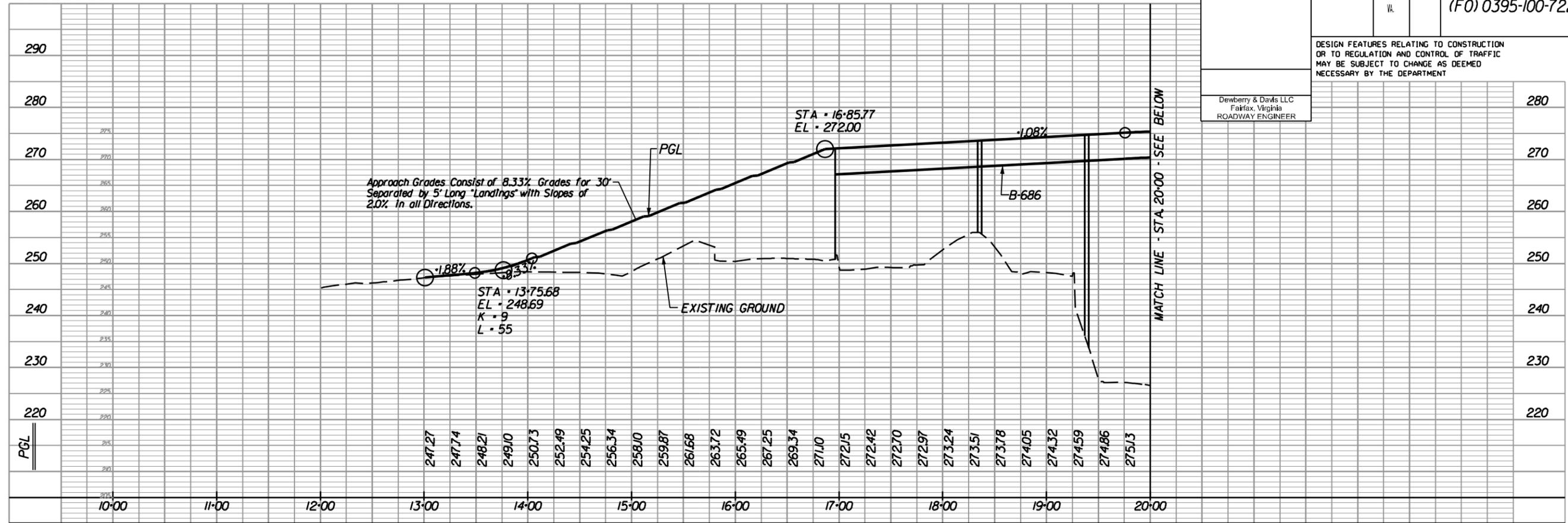
9TIME\$TAMP\$

PROJECT MANAGER \_\_\_\_\_  
SURVEYED BY \_\_\_\_\_  
DESIGN SUPERVISED BY \_\_\_\_\_  
DESIGNED BY DEWBERRY & DAVIS LLC - (703)289-4796

REVISION	STATE	ROUTE	STATE	PROJECT	SHEET NO.
	VA			(F0) 0395-100-722	9C

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

Dewberry & Davis LLC  
Fairfax, Virginia  
ROADWAY ENGINEER



# PEDESTRIAN BRIDGE

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	0395-100-722		9C

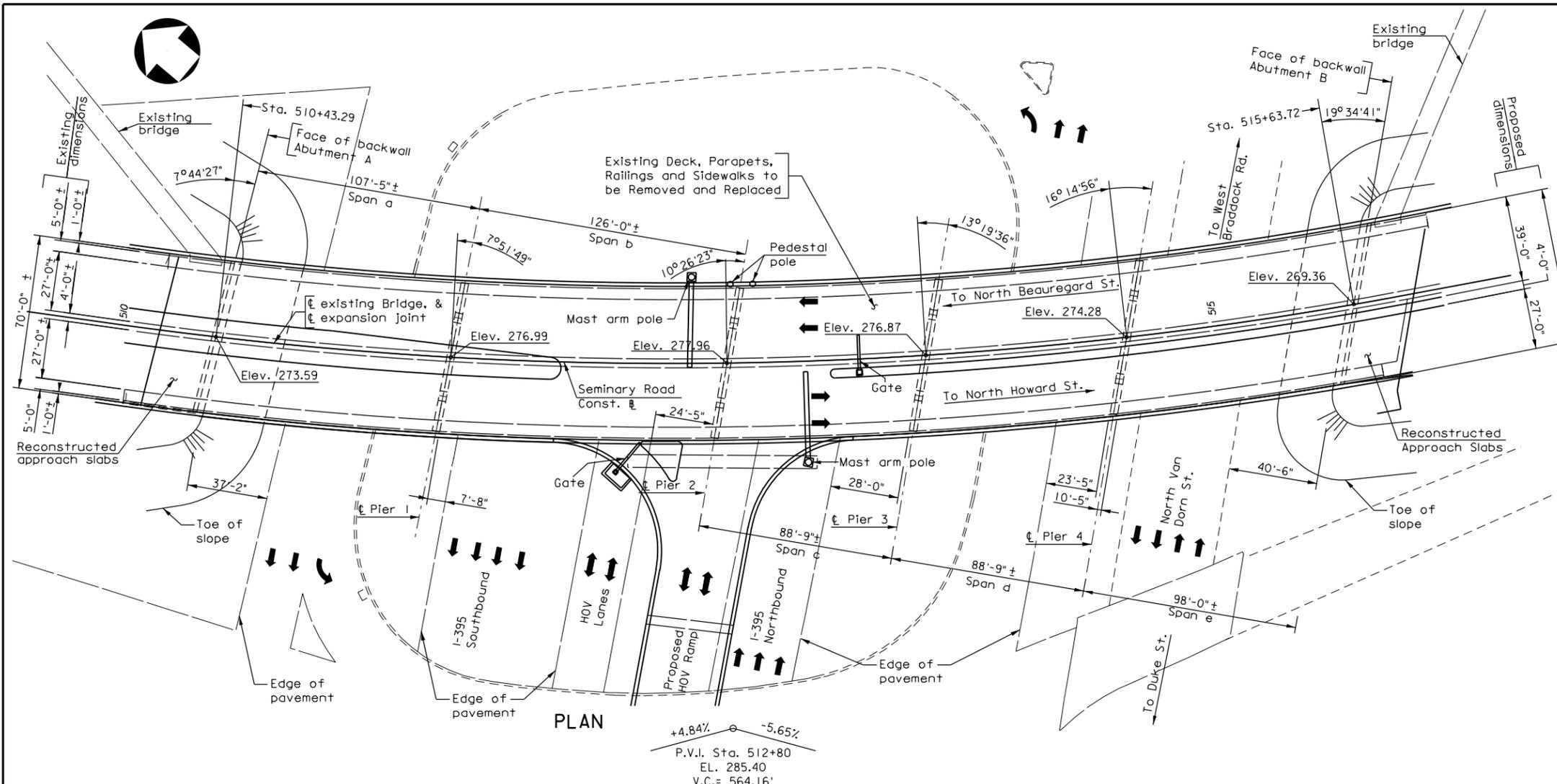
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STATE	ROUTE	FEDERAL AID PROJECT	STATE ROUTE	PROJECT	SHEET NO.
VA.	395	NH-0005(218)	395	095-100-722, B684	1
NBIS Number:			UPC No.		
Federal Oversight Code:			FHWA Construction and Scour Code: X281-SN		

**DESIGN EXCEPTION(S):**  
None

**GENERAL NOTES:**  
Width: 27'-0" face-to-face of curbs -Westbound.  
27'-0" face-to-face of curbs -Eastbound.  
Span layout: 107'-4" - 126'-0" - 90'-8" - 91'-9" - 104'-7"  
Capacity: HL-93 loading.  
Specifications:  
Construction: Virginia Department of Transportation Road and Bridge Specifications, 2007.  
Design: AASHTO LRFD Bridge Design Specifications, 5th Edition, including 2010 Interim Specifications; and VDOT Modifications.  
Standards: Virginia Department of Transportation Road and Bridge Standards, 2008.

These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.  
The existing structure is designated a Type B structure in accordance with Sec. 411.



+4.84% -5.65%  
P.V.I. Sta. 512+80  
EL. 285.40  
V.C.= 564.16'

**CONCEPTUAL PLANS**  
THESE PLANS NOT TO BE USED FOR CONSTRUCTION OF BRIDGE



COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
PROPOSED BRIDGE ON  
SEMINARY ROAD OVER I-395  
CITY OF ALEXANDRIA - 0.1 MI. N. SANGER AVE.  
PROJ. 0095-100-722, B684

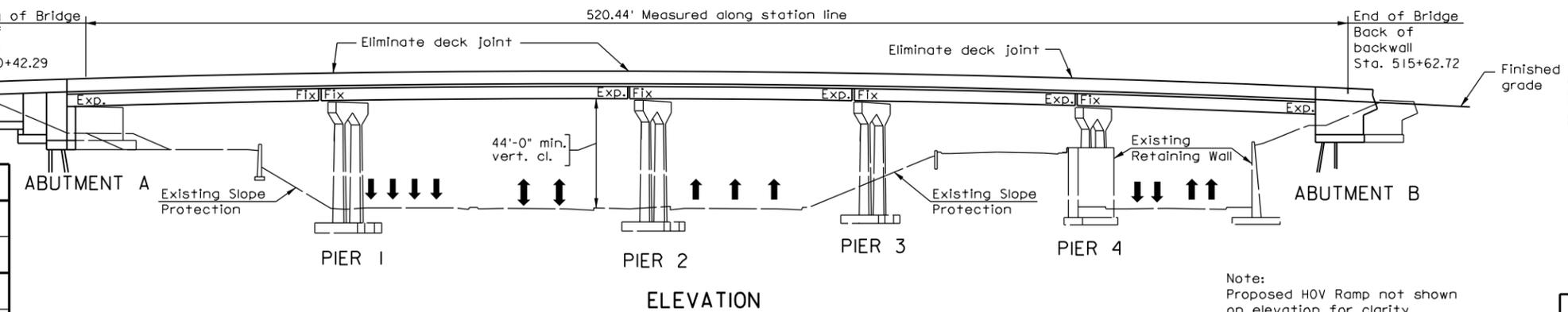
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION

VDOT PROJECT MANAGER

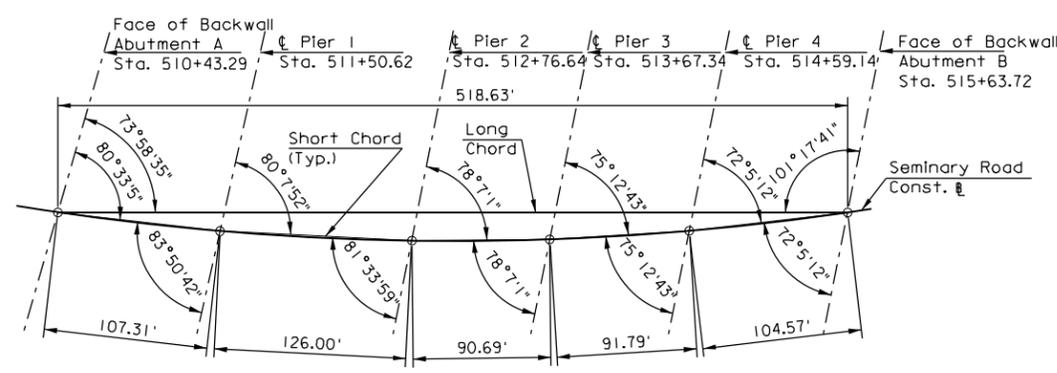
DISTRICT CONSTRUCTION MANAGER

VDOT S&B DIVISION RICHMOND, VA STRUCTURAL ENGINEER

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



Note:  
Proposed HOV Ramp not shown on elevation for clarity.



BRIDGE LAYOUT

Scale 1" = 30'

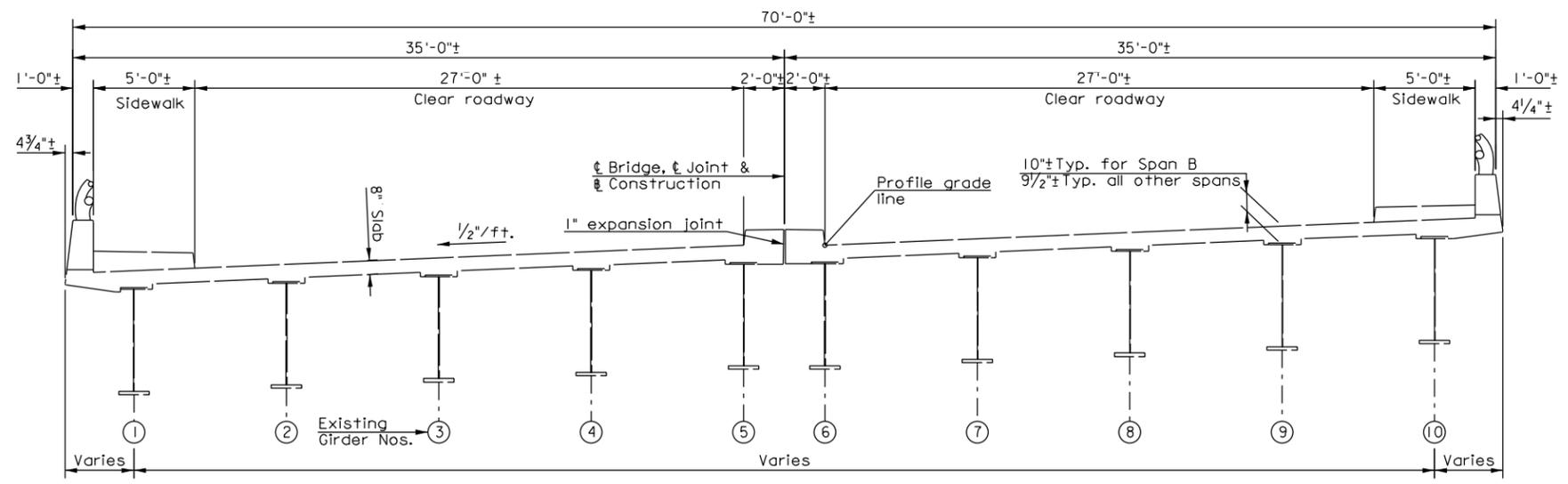
No.	Description	Date
REVISIONS		
For Table of Revisions, see Sheet 2.		

Recommended for Approval: \_\_\_\_\_ Date \_\_\_\_\_  
(Developer's Designee)

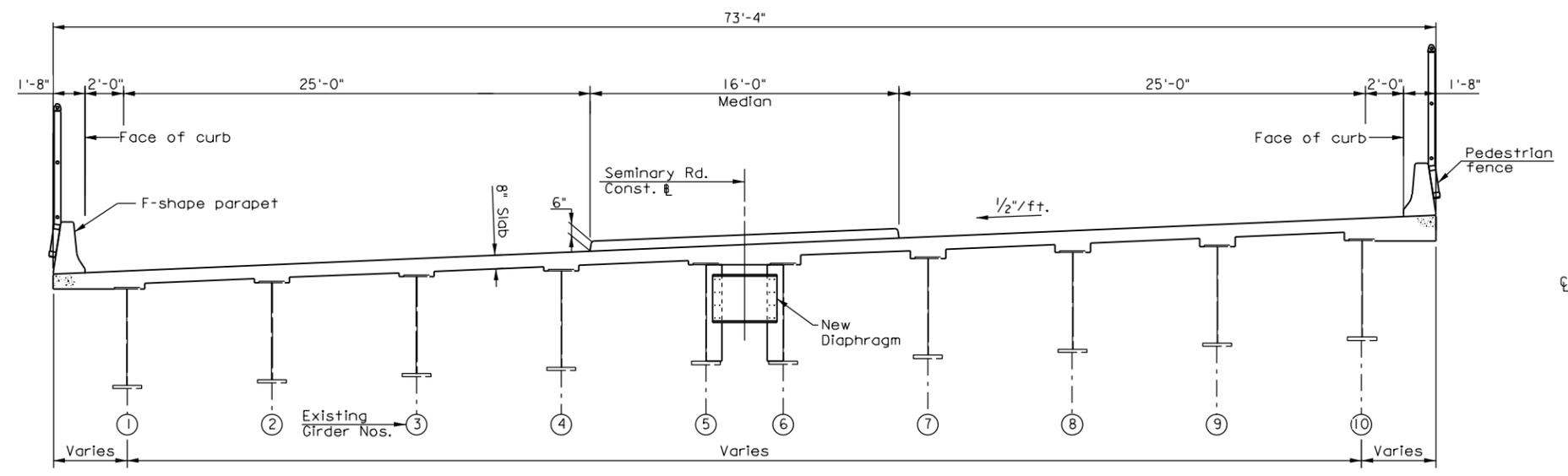
Approved: \_\_\_\_\_ Date \_\_\_\_\_  
Chief Engineer

Date: Jan. 2013 © 2013, Commonwealth of Virginia Sheet 1 of 2

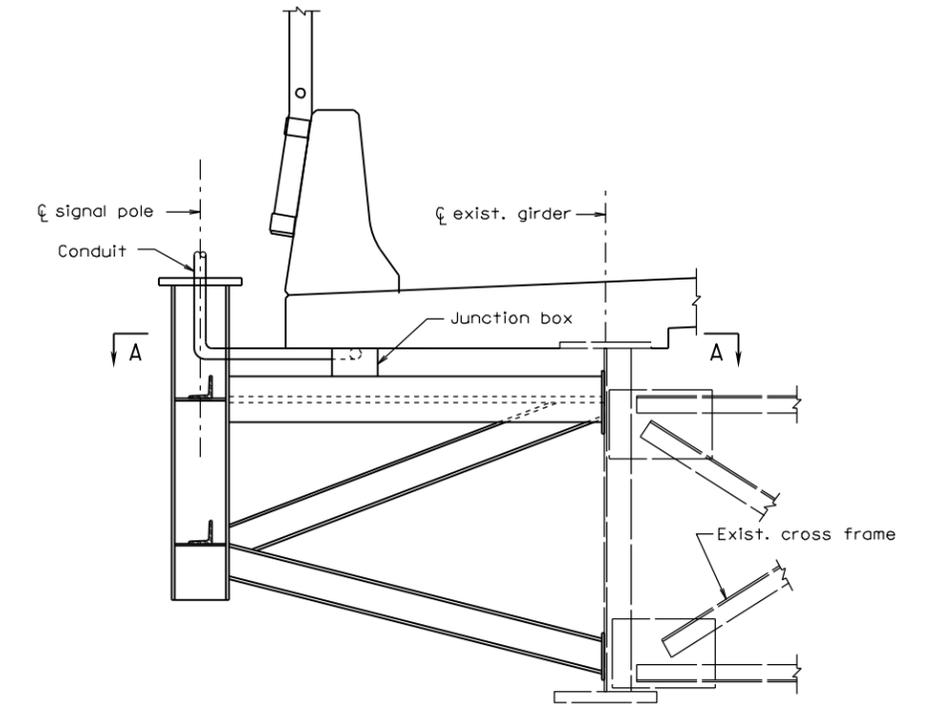
STATE	FEDERAL AID	STATE	SHEET
ROUTE	PROJECT	ROUTE	NO.
VA.			2



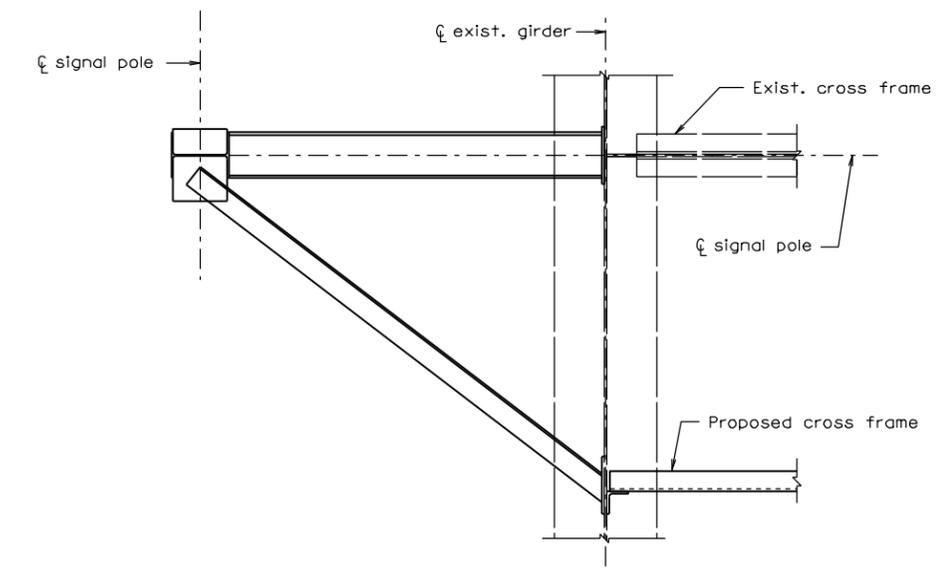
EXISTING TYPICAL SECTION



PROPOSED TYPICAL SECTION



SIGNAL POLE SUPPORT  
Scale: 3/4" = 1'-0"



SECTION A-A  
Scale: 3/4" = 1'-0"

CONCEPTUAL PLANS  
THESE PLANS NOT TO BE USED  
FOR CONSTRUCTION OF BRIDGE



Scale 1/4" = 1'-0" unless otherwise shown © 2013, Commonwealth of Virginia

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION STRUCTURE AND BRIDGE DIVISION					
TRANSVERSE SECTIONS					
No.	Description	Date	Designed: .....	Date	Plan No.
			Drawn: .....	Jan. 2013	
			Checked: .....		2
Revisions					

Seminary Rd SECTIONS.dgn

VDOT S&B DIVISION  
RICHMOND, VA  
STRUCTURAL ENGINEER

STATE	FEDERAL AID		STATE		SHEET
ROUTE	PROJECT		ROUTE	PROJECT	NO.
VA.			395	095-100-722, B685	1
NBIS Number:			UPC No. 99580		
Federal Oversight Code:			FHWA Construction and Scour Code:		

DESIGN EXCEPTION(S):

GENERAL NOTES:

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

Width: 69'-0" face-to-face of curb NBL.  
54'-7" face-to-face of curb SBL.

Span layout: 69'-10 1/2" steel beam simple span

Capacity: HS20-44 loading and alternate military loading - original design.  
HL-93 loading - widening.

Specifications:

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

Design: AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010; 2010 Interim Specifications; and VDOT Modifications.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2008.

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

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

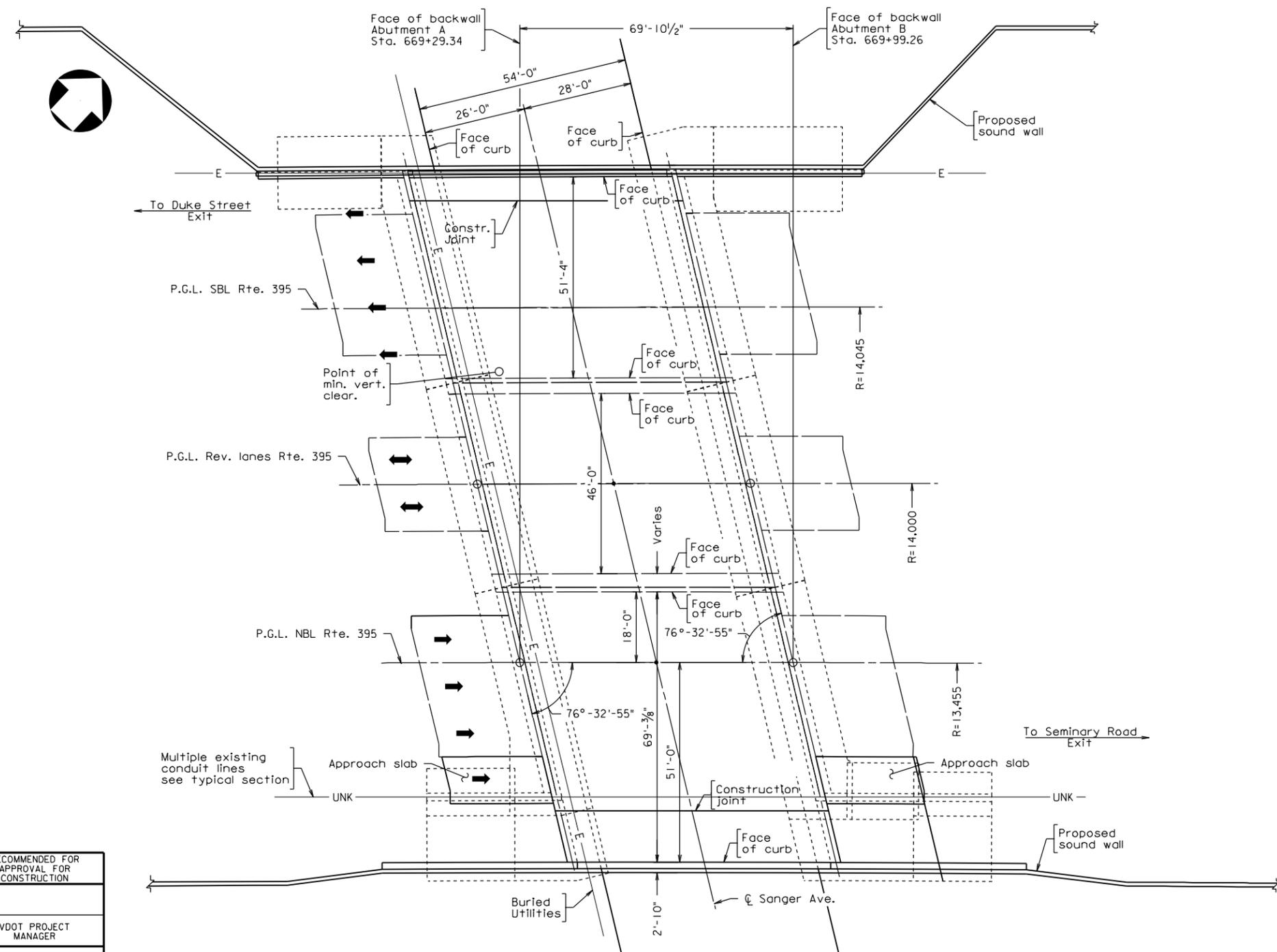
Bridge No. of existing bridge is 2805. Plan No. is 200-05.



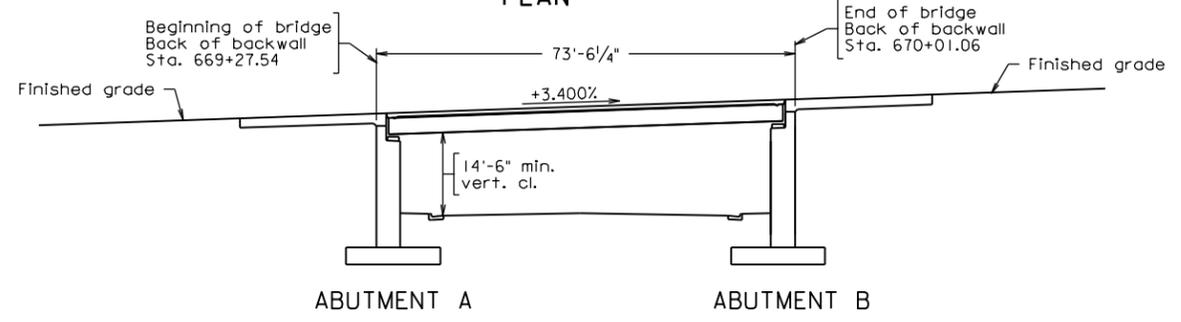
COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
PROPOSED WIDENING OF  
NBL RTE. 395  
(HENRY G. SHIRLEY MEMORIAL HIGHWAY)  
OVER SANGER AVE.  
CITY OF ALEXANDRIA 1.6 MI. S. OF N.C.L. ALEXANDRIA  
PROJ. 0095-100-722, B685

Recommended for Approval: \_\_\_\_\_ Date \_\_\_\_\_  
(Developer's Designee)

Approved: \_\_\_\_\_ Date \_\_\_\_\_  
Chief Engineer



PLAN



DEVELOPED SECTION ALONG P.G.L. NBL RTE. 395

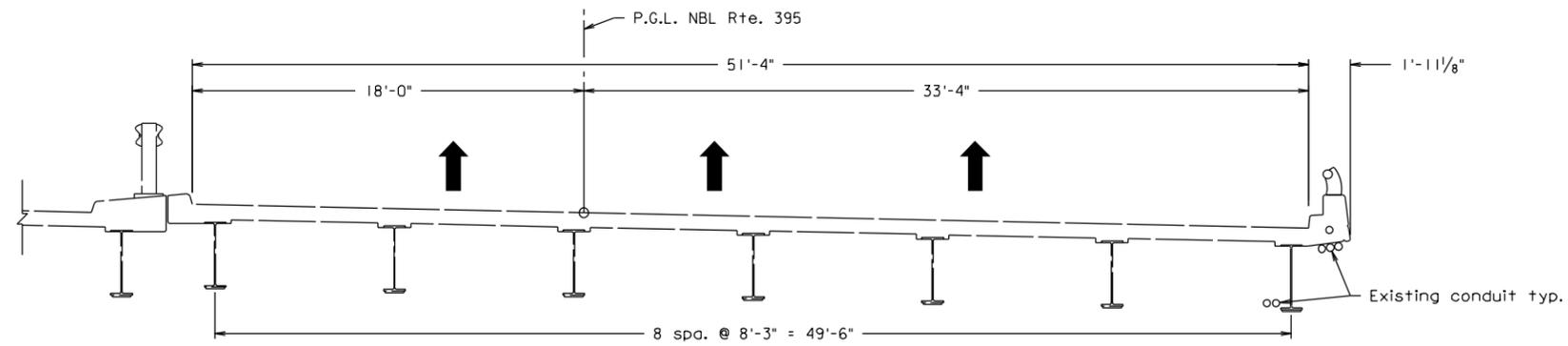
CONCEPTUAL PLANS  
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

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

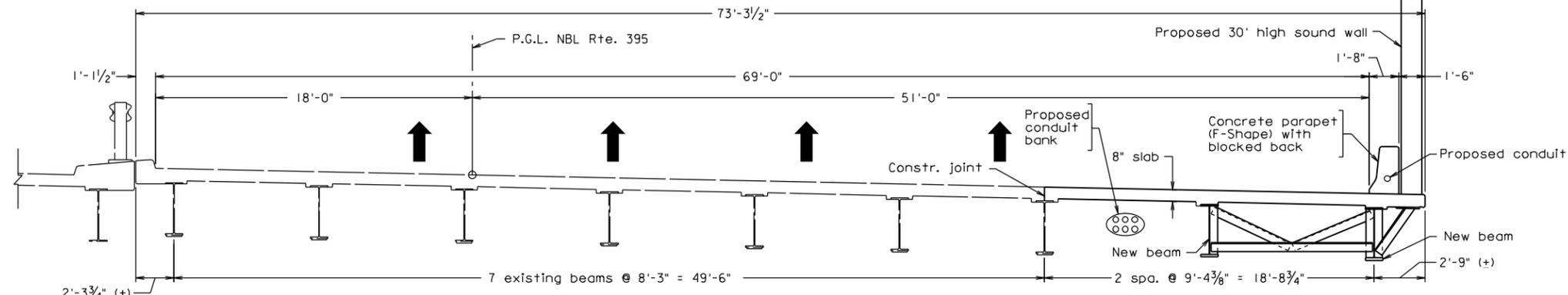
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
VDOT PROJECT MANAGER
DISTRICT CONSTRUCTION MANAGER

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

STATE	FEDERAL AID	STATE	SHEET
ROUTE	PROJECT	ROUTE	NO.
VA.		395	2
		0095-100-722	

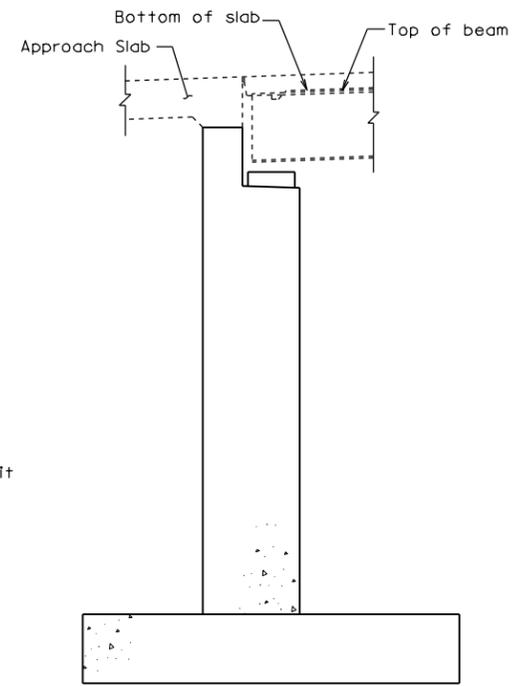


EXISTING N.B.L. TRANSVERSE SECTION

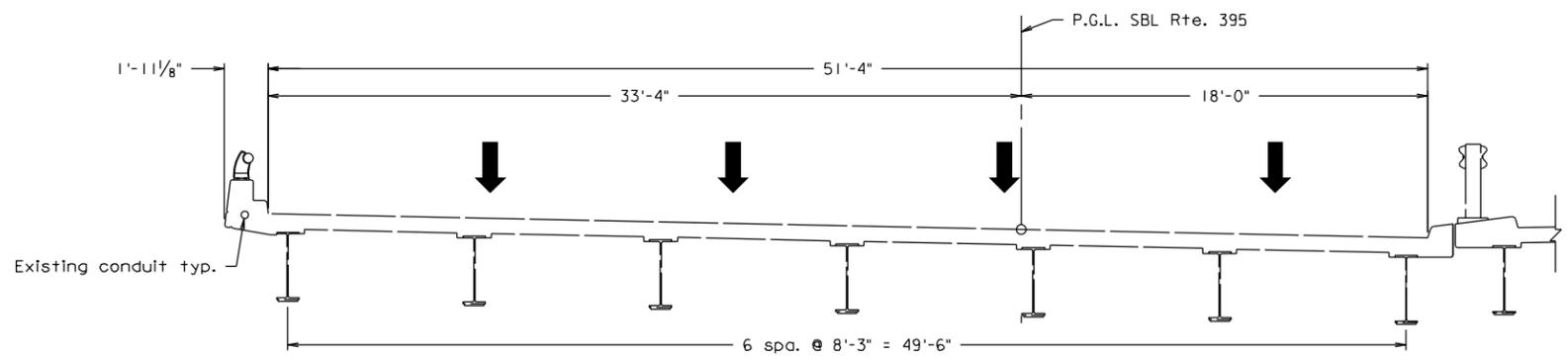


N.B.L. FINAL CONDITION

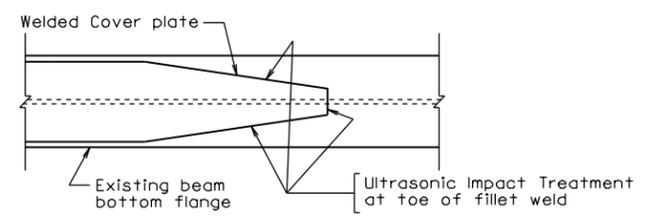
TYP. SUPPORTING TRUSS UNDER NBL SOUND WALL POST



ABUTMENT SECTION



EXISTING S.B.L. TRANSVERSE SECTION

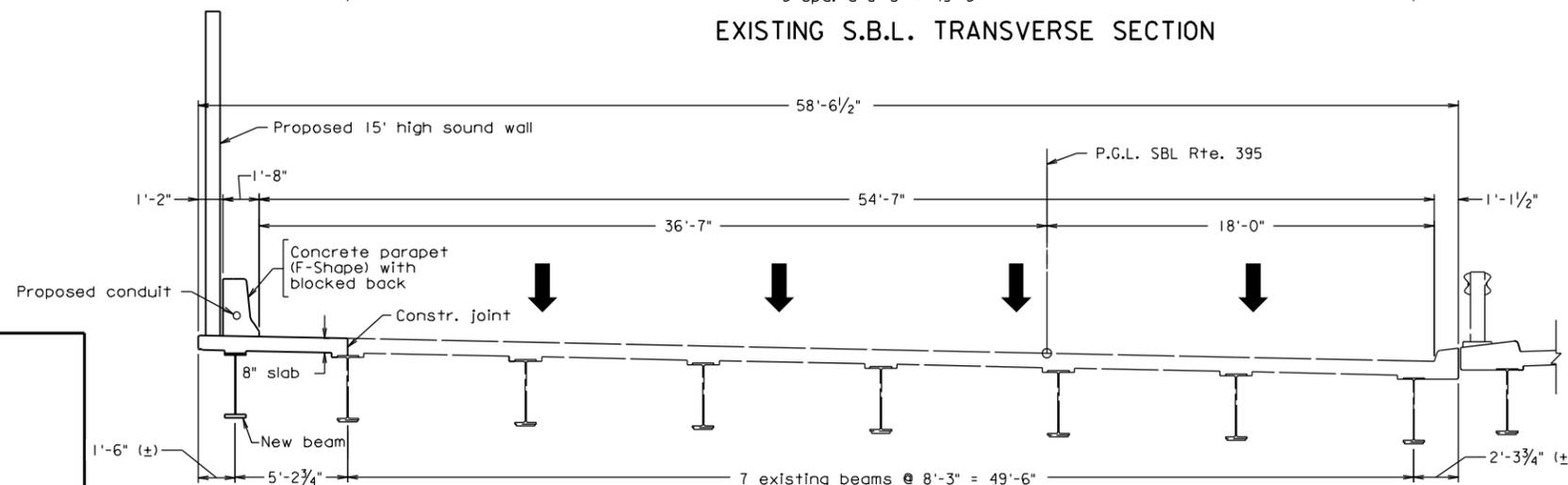


FATIGUE RETROFIT OF COVER PLATE END WELDS BY ULTRASONIC IMPACT TREATMENT

(Looking up under the beam)

Scale: 1" = 1'-0"

Note: Exact limits of Ultrasonic Impact Treatment to be determined in final design



S.B.L. FINAL CONDITION

CONCEPTUAL PLANS  
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

Scale: 1/4" = 1'-0", unless noted otherwise

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COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION		STRUCTURE AND BRIDGE DIVISION	
TRANSVERSE SECTIONS			
No.	Description	Date	Designed: .....
			Drawn: .....
			Checked: .....
			Date
			Jan. 2013
			Plan No.
			Sheet No.
			2 of 2

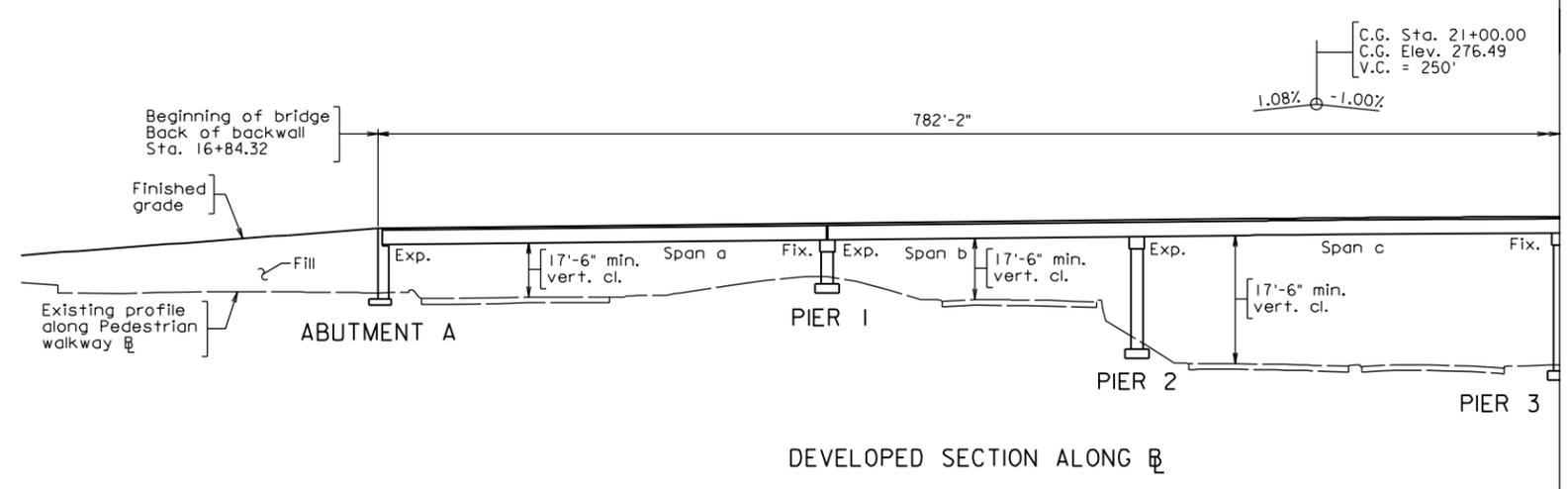
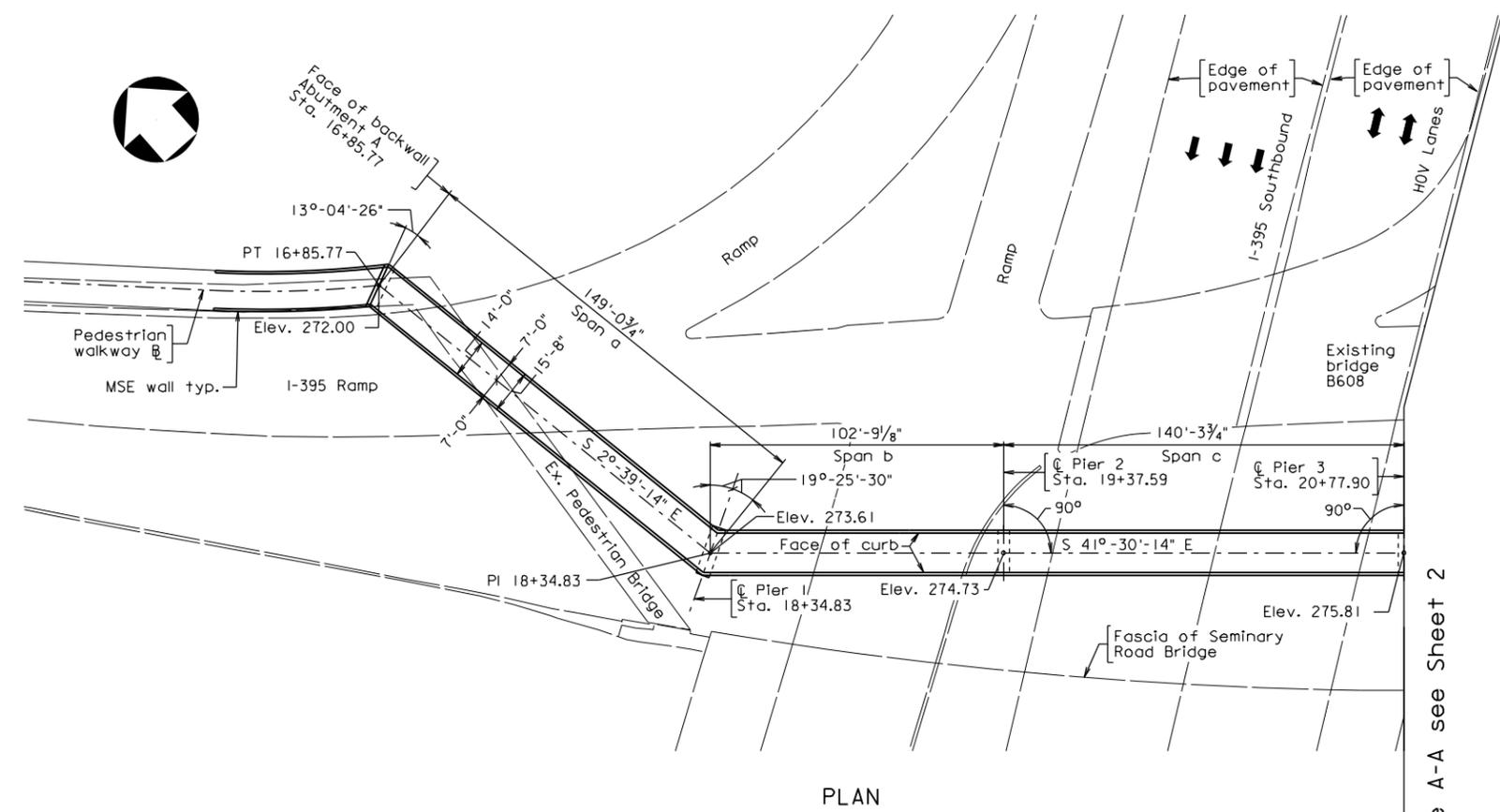
STATE	FEDERAL AID	STATE	SHEET NO.
VA.	395	095-100-722 B686	1
PROJECT		PROJECT	
NH-0005(218)		095-100-722 B686	
NBIS Number:		UPC No.	
Federal Oversight Code:		FHWA Construction and Scour Code: X281-SN	

**DESIGN EXCEPTION(S):**

None

**GENERAL NOTES:**

Width: 14'-0" face-to-face of curb.  
 Span layout: 149'-0<sup>3</sup>/<sub>4</sub>" - 102'-9<sup>1</sup>/<sub>8</sub>" - 140'-3<sup>3</sup>/<sub>4</sub>" - 95'-3<sup>3</sup>/<sub>4</sub>" - 161'-7<sup>3</sup>/<sub>8</sub>" - 130'-0" partially continuous steel plate girder spans.  
 Specifications:  
 Construction: Virginia Department of Transportation Road and Bridge Specifications, 2007.  
 Design: AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010; 2010 Interim Specifications; and VDOT Modifications.  
 Standards: Virginia Department of Transportation Road and Bridge Standards, 2008.  
 These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.



CONCEPTUAL PLANS  
 THESE PLANS NOT TO BE USED FOR CONSTRUCTION OF BRIDGE



COMMONWEALTH OF VIRGINIA  
 DEPARTMENT OF TRANSPORTATION  
 PROPOSED PEDESTRIAN BRIDGE ON  
 SEMINARY ROAD  
 CITY OF ALEXANDRIA - 0.1 MI. N. SANGER AVE.  
 PROJ. 0095-100-722, B686

Ped.GP&E - I.dgn

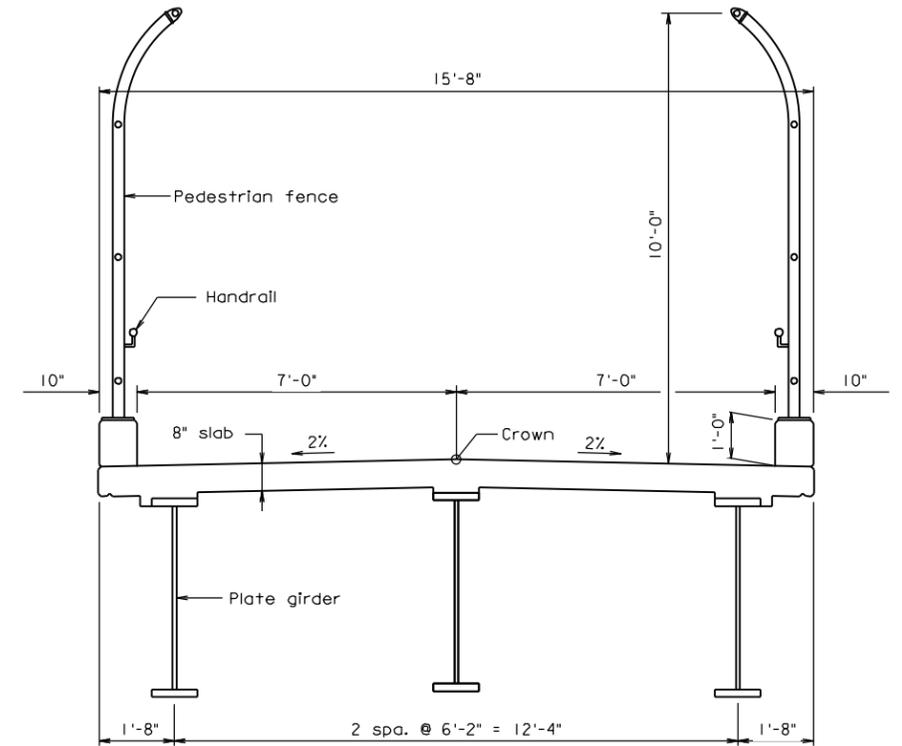
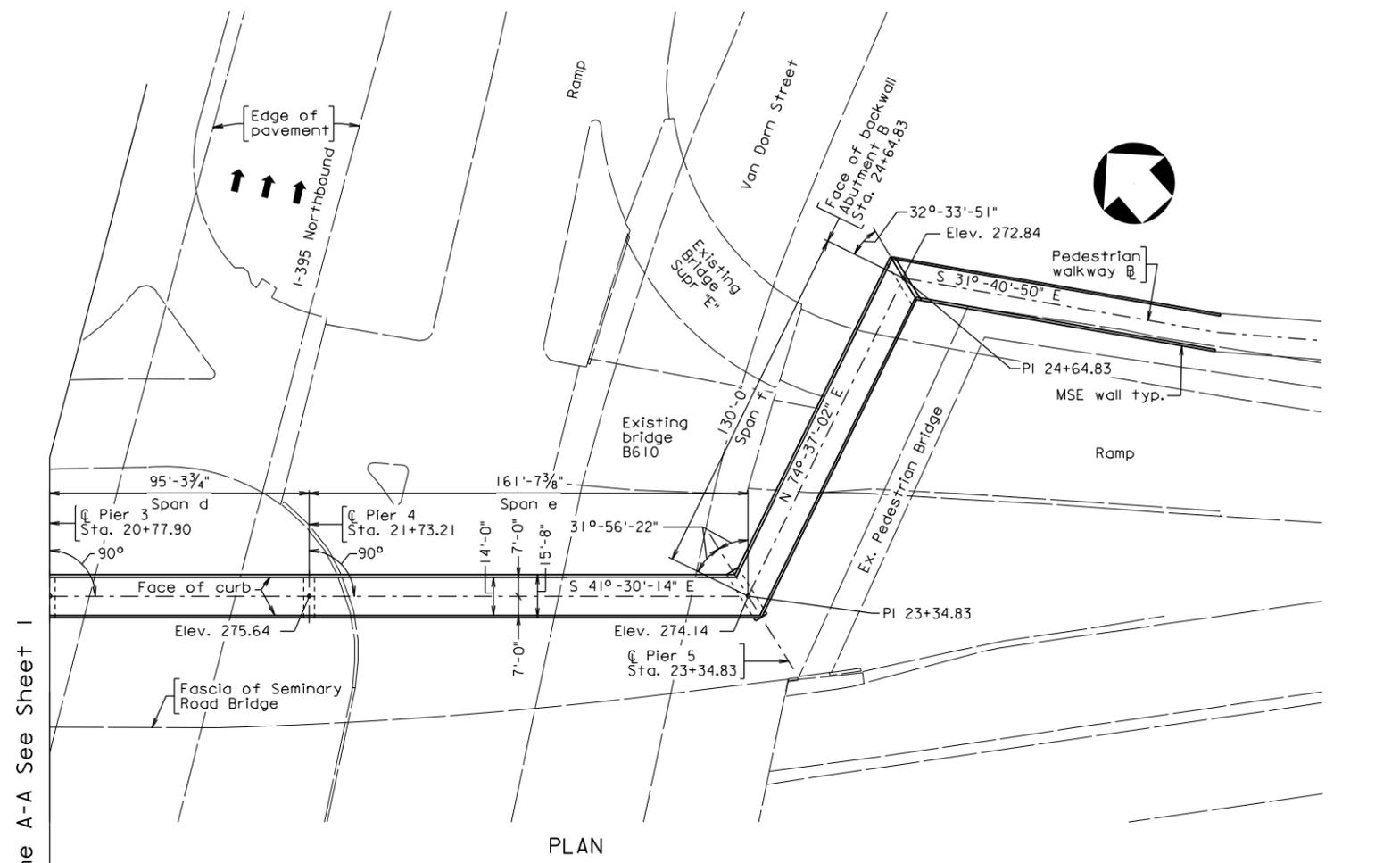
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
VDOT PROJECT MANAGER
DISTRICT CONSTRUCTION MANAGER
VDOT S&B DIVISION RICHMOND, VA STRUCTURAL ENGINEER
PLANS BY:
COORDINATED:
SUPERVISED:
DESIGNED:
DRAWN:
CHECKED:

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

Recommended for Approval: \_\_\_\_\_ Date \_\_\_\_\_  
 (Developer's Designee)  
 Approved: \_\_\_\_\_ Date \_\_\_\_\_  
 Chief Engineer

Date: January 2013 © 2013, Commonwealth of Virginia Sheet 1 of 2

STATE	FEDERAL AID	STATE	SHEET NO.
ROUTE	PROJECT	ROUTE	PROJECT
VA.	395	395	095-100-722 B686



CONCEPTUAL PLANS  
 THESE PLANS NOT TO BE USED  
 FOR CONSTRUCTION OF BRIDGE



COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION				
STRUCTURE AND BRIDGE DIVISION				
GENERAL PLAN AND DEVELOPED SECTION				
No.	Description	Date	Designed: .....	Date
			Drawn: .....	Jan. 2013
			Checked: .....	
Revisions			Plan No.	Sheet No.
				2

Scale 1" = 30', unless noted otherwise © 2013, Commonwealth of Virginia

Ped. CP&E - 2.dgn

VDOT S&B DIVISION  
 RICHMOND, VA  
 STRUCTURAL ENGINEER



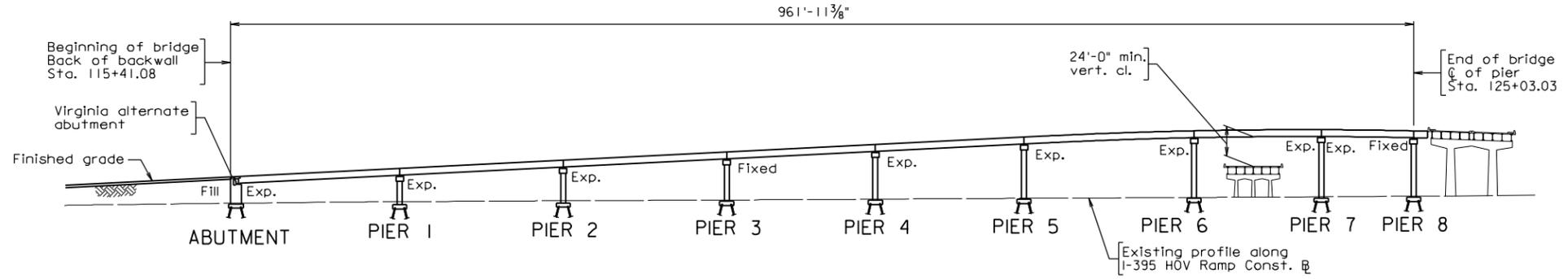
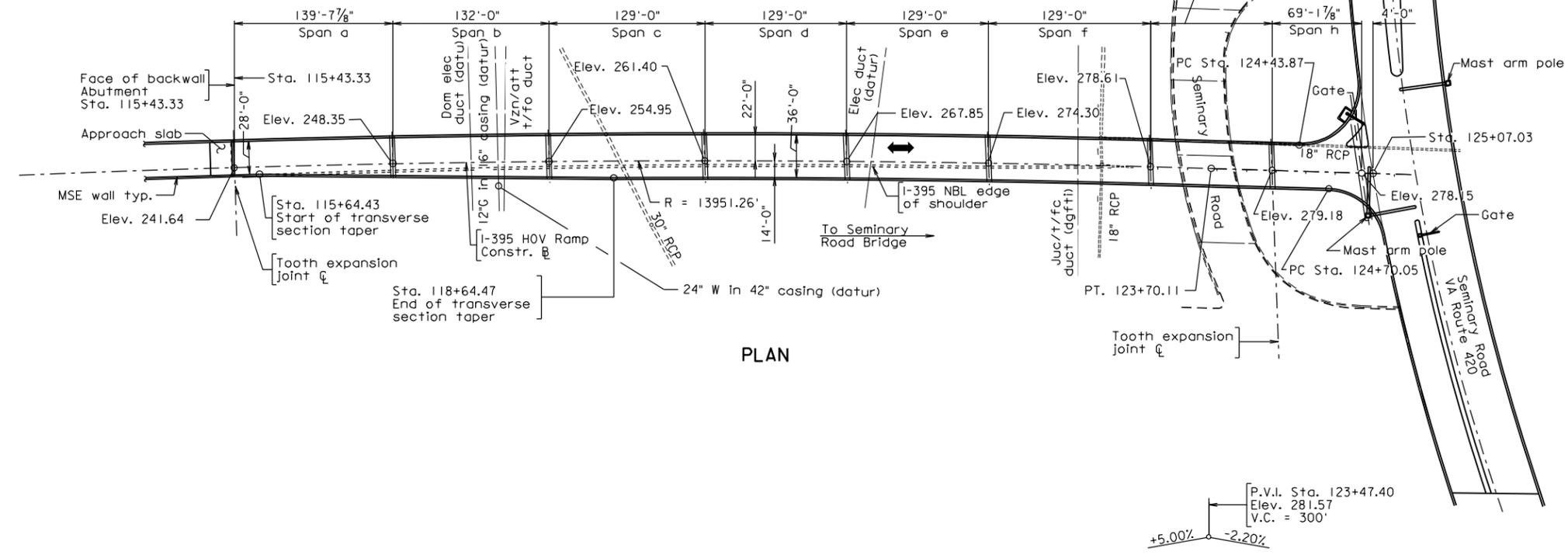
STATE	FEDERAL AID		STATE		SHEET NO.
ROUTE	PROJECT		ROUTE	PROJECT	
VA. 395	NH-0005(218)		395	095-100-722, B687	1
NBIS Number:			UPC No.		
Federal Oversight Code:			FHWA Construction and Scour Code: X281-SN		

**DESIGN EXCEPTION(S):**

None

**GENERAL NOTES:**

Width: 28'-0" face-to-face of curbs (Sta. 114+60 to Sta. 115+64).  
 Transitions from 28'-0" to 36'-0" face-to-face of curbs (Sta. 115+64 to Sta. 118+64).  
 36'-0" face-to-face of curbs (Sta. 118+64 to Sta. 124+43).  
 Span layout: Span a = 139'-7<sup>7</sup>/<sub>8</sub>", Span b = 132'-0", Spans c-f = 129'-0", Span g = 102'-10<sup>5</sup>/<sub>8</sub>", Span h = 69'-1<sup>7</sup>/<sub>8</sub>"  
 Capacity: HL-93 loading.  
 Specifications:  
 Construction: Virginia Department of Transportation Road and Bridge Specifications, 2007.  
 Design: AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010; 2010 Interim Specifications; and VDOT Modifications.  
 Standards: Virginia Department of Transportation Road and Bridge Standards, 2008.  
 These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions Included in the contract documents.



**CONCEPTUAL PLANS**  
 THESE PLANS NOT TO BE USED FOR CONSTRUCTION OF BRIDGE



COMMONWEALTH OF VIRGINIA  
 DEPARTMENT OF TRANSPORTATION  
 PROPOSED BRIDGE ON  
 I-395 HOV RAMP OVER SEMINARY ROAD  
 CITY OF ALEXANDRIA - 0.1 MI. N. SANGER AVE.  
 PROJ. 0095-100-722, B687

HOV Ramp CP&E.dgn

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
VDOT PROJECT MANAGER
DISTRICT CONSTRUCTION MANAGER
VDOT S&B DIVISION RICHMOND, VA STRUCTURAL ENGINEER
PLANS BY:
COORDINATED:
SUPERVISED:
DESIGNED:
DRAWN:
CHECKED:

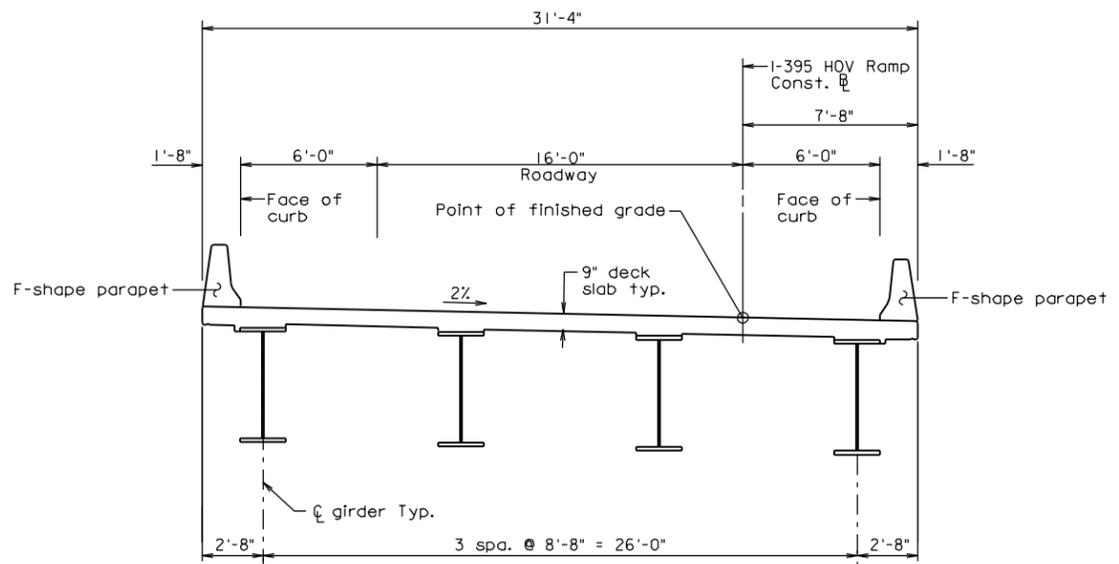
No.	Description	Date
REVISIONS		
For Table of Revisions, see Sheet 2.		

Recommended for Approval: \_\_\_\_\_ Date \_\_\_\_\_  
 (Developer's Designee)

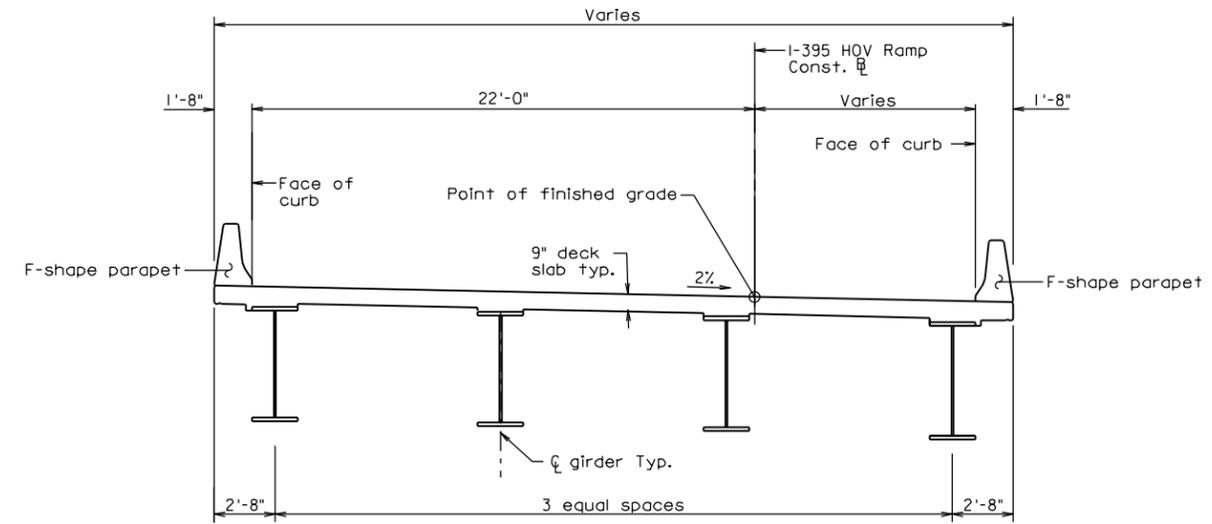
Approved: \_\_\_\_\_ Date \_\_\_\_\_  
 Chief Engineer

Scale 1" = 60'

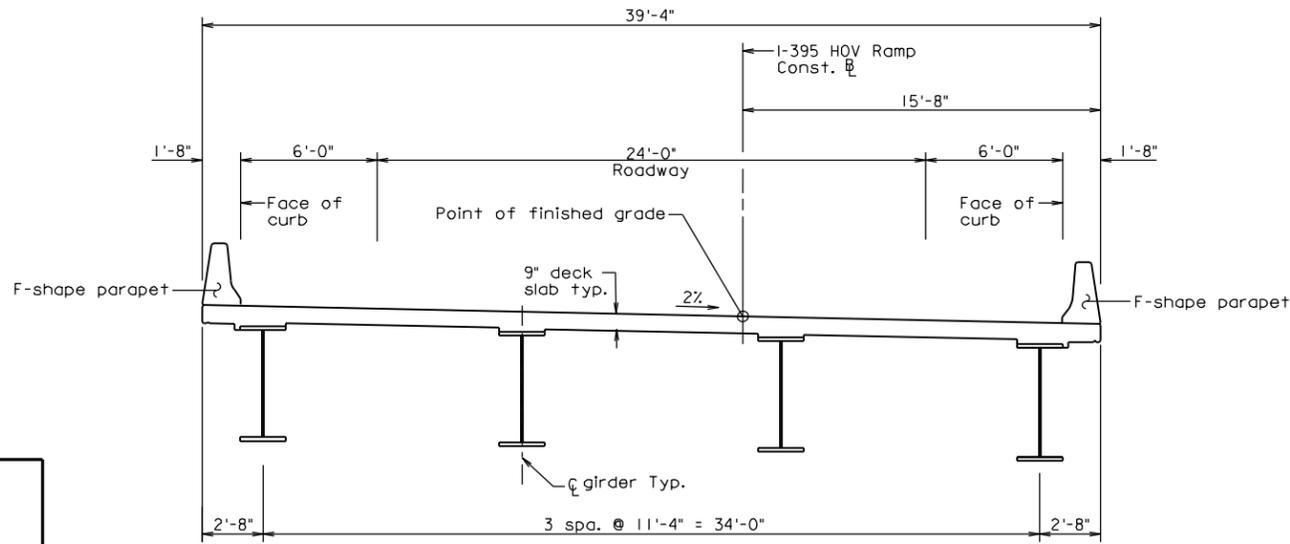
STATE	FEDERAL AID	STATE	SHEET NO.
ROUTE	PROJECT	ROUTE	PROJECT
VA. 395		395	095-100-722 B687
			4



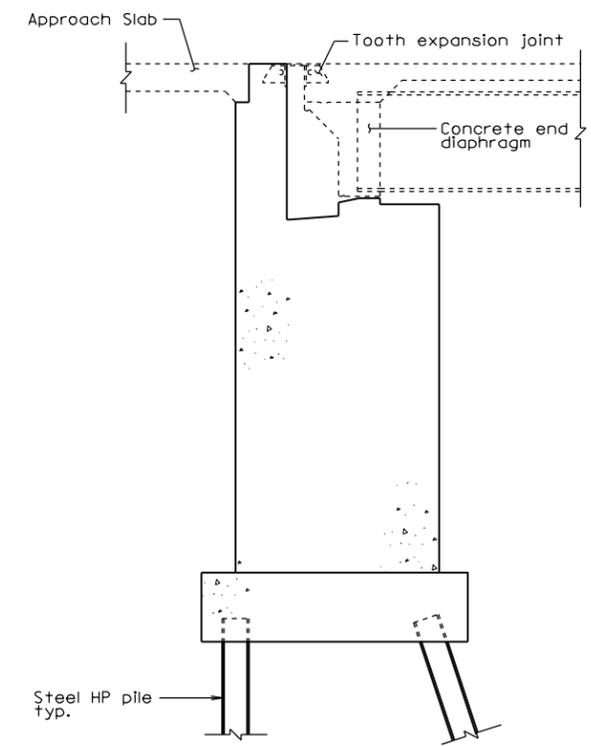
TRANSVERSE SECTION  
(Before Sta. 115+64.43)



TRANSVERSE SECTION  
(Between Sta. 115+64.43 and Sta. 118+64.47)



TRANSVERSE SECTION  
(After Sta. 118+64.47)



ABUTMENT SECTION

CONCEPTUAL PLANS  
THESE PLANS NOT TO BE USED  
FOR CONSTRUCTION OF BRIDGE



Scale 1/4" = 1'-0" © 2013, Commonwealth of Virginia

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION			
STRUCTURE AND BRIDGE DIVISION			
I-395 HOV RAMP TRANSVERSE SECTION			
68			
No.	Description	Date	Sheet No.
			2
Designed: .....		Date	Plan No.
Drawn: .....		Jan. 2013	
Checked: .....			
Revisions			

HOV Ramp SECTIONS.dgn

VDOT S&B DIVISION  
RICHMOND, VA  
STRUCTURAL ENGINEER

