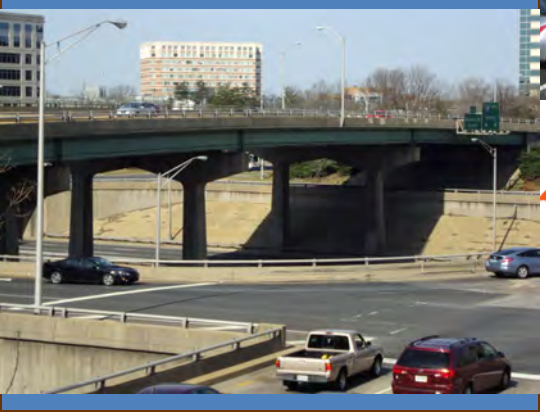


Original
Copy 1 of 10 Copies

Design-Build

I-395 HOV Ramp at Seminary Road

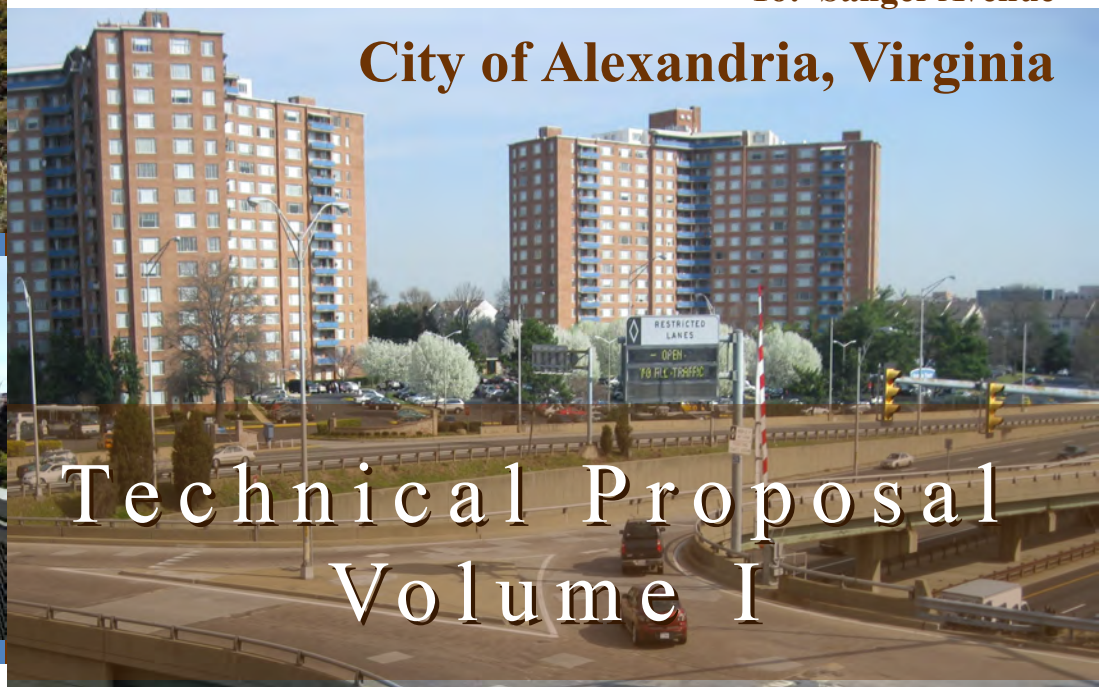
From: Sanger Avenue
To: Seminary Road

With

I-395 NB Auxiliary Lane Extension

From: Duke Street
To: Sanger Avenue

City of Alexandria, Virginia



Technical Proposal
Volume I

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

January 9, 2013

Prepared for :

VDOT
Virginia Department of Transportation

Submitted by:

CK CONSTRUCTORS
A Joint Venture between
Corman Construction Inc. &
Kiewit Infrastructure South Co.

PARSONS BRINCKERHOFF

VOLKERT

4.1 LETTER OF SUBMITTAL

CK
CONSTRUCTORS

A JOINT VENTURE

January 9, 2013
Mr. Bill Arel, PE
Virginia Department of Transportation
1221 East Broad Street, Main Building, 4th Floor
Richmond, VA 23219

RE: Design Build I-395 HOV Ramp at Seminary Road with I-395 NB Auxiliary Lane Extension State Project No.: 0395-100-722, 0395-100-736 / Fed. Project No.: IM-5A01(362), NH-5A01(363), *pending* / Contract ID No.: C00096261DB50

Dear Mr. Arel:
CK Constructors, A Joint Venture is pleased to submit 10 copies of our Technical Proposal, Volumes I and II, and one CD-ROM to provide design-build services for the above referenced project. The CK Team has examined the RFP, RFP Questions and Answers, Addendums 1 (11/5/12), 2 (12/14/12), and 3 (12/20/12), other information/data identified in the RFP, and attended the Pre-Proposal and Utility Scoping meetings.

POINT OF CONTACT: Louis Robbins, PE, DBIA, Vice President Design-Build
CK Constructors, A Joint Venture — Annapolis Junction, MD 20701
Corman Construction, Inc. — 703-772-8566-Cell / 301-953-0384-Fax
12001 Guilford Road — lrobbins@cormanconstruction.com

PRINCIPAL OFFICER OF THE LEGAL ENTITY: William G. Cox, President and Attorney-In-Fact
CK Constructors, A Joint Venture — Annapolis Junction, MD 20701
Corman Construction, Inc. — 410-792-9400 -Telephone
12001 Guilford Road

CK Constructors, A Joint Venture, hereby intends, if selected, to enter into a contract with VDOT for the Project in accordance with the RFP terms and hereby declares that the offer represented by the Technical and Price Proposals will remain in full force and effect for 120 days. The CK Team's Technical Proposal is fully compliant with the Design Criteria Table and all other RFP requirements.

Our Proposal indicates the following: Interim Milestone Date: 8/26/15, Substantial Completion Date: 11/9/15 and Final Completion Date: 12/9/15.

An executed Proposal Payment Agreement (Attachment 9.3.1), and signed Certification Regarding Debarment Forms (Attachments 11.8.6(a) and (b) are in the Appendices.

My signature below also certifies that the CK Team's proposed limits of construction include all stormwater management facilities are located within the right-of-way limits shown on the RFP plans, with the exception of permanent and temporary easements, and that our design concept does not require Design Exception and/or Design Waivers unless they are identified or included in the RFP or Addendum.

We present to you a Technical Proposal strategically aligned to meet and/or exceed the project priorities and successfully deliver the I-395 HOV Ramp at Seminary Road with I-395 NB Auxiliary Lane Extension Design-Build project.

Sincerely,

CK CONSTRUCTORS, A JOINT VENTURE

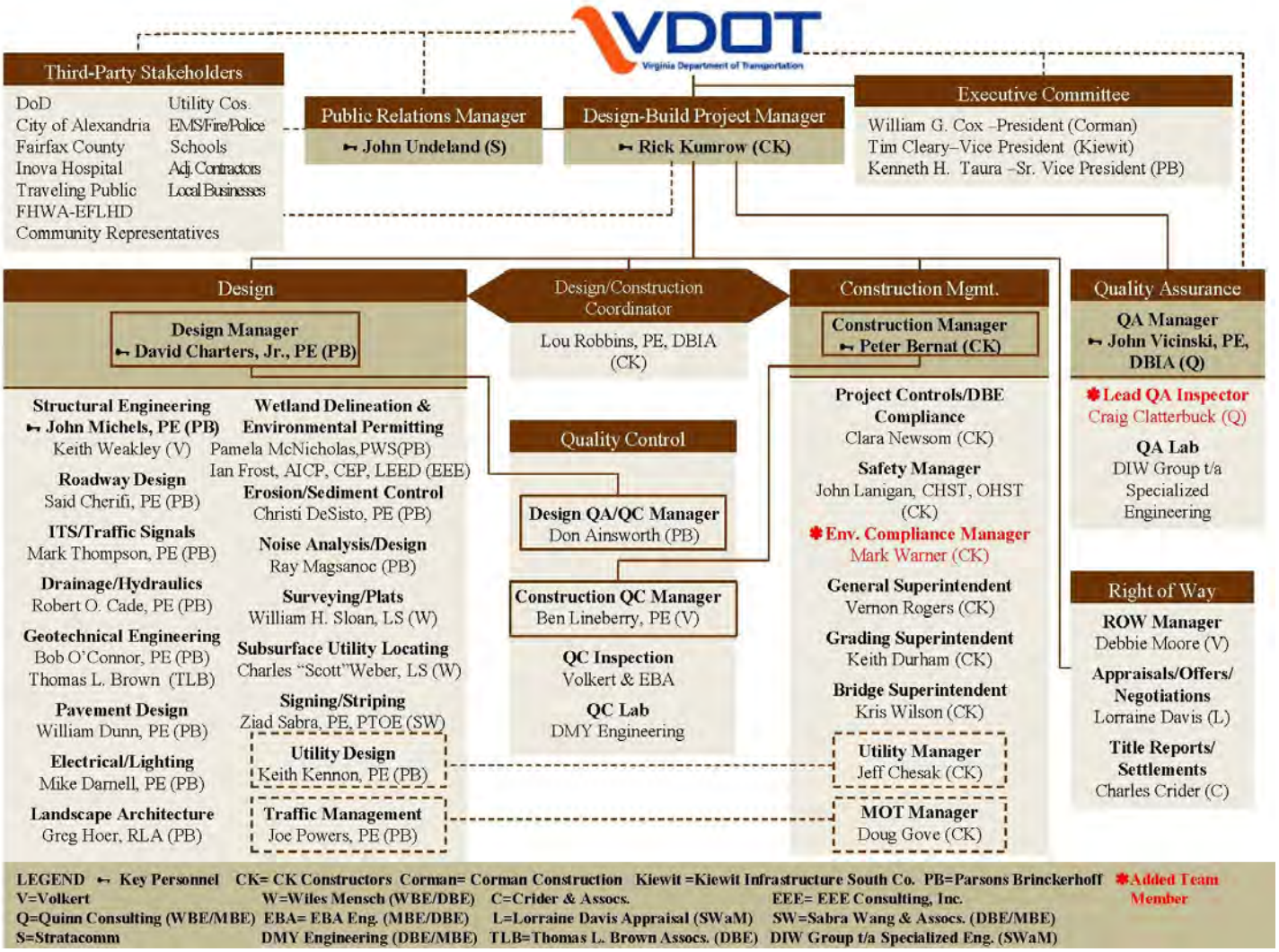
William G. Cox, President and Attorney-In-Fact

4.2 QUALIFICATIONS

4.2 QUALIFICATIONS

4.2.1 The information and statements made in our SOQ remain true and accurate. We updated our organizational chart to now include the required Lead QA Inspector and an Environmental Compliance Manager (ECM). With over 24 years experience in QA / QC duties, Craig Clatterbuck of Quinn Consulting will serve as the Lead QA Inspector. He will report to QAM John Vicinski, PE, be assigned to the project prior to the start of construction, and will be onsite full time for the duration of construction. He will observe construction as it is being performed to include all QC activities to ensure inspection and testing, and correction of any non-conformities of the work are being performed in accordance with contract requirements. Mark Warner will serve as ECM as he served in a similar capacity as the Erosion & Sediment Control Manager on VDOT's $236 Million Telegraph Road project in Alexandria, Virginia for CK Constructors. These are clearly depicted on our revised organizational chart below. All other names and positions remain applicable. Mark's responsibilities are described in 4.4 PROJECT APPROACH, TABLE 4: ENVIRONMENTAL ISSUE MITIGATION on Page 19.

4.2.2



4.3 DESIGN CONCEPTS

4.3 DESIGN CONCEPT

Roadway: The preliminary design depicted in the RFP documents was developed using VDOT's design standards, has been vetted through the environmental and public hearing processes, and addresses improvements in the Interchange Modification Report, including the need for an Auxiliary Lane on NB I-395 from the Duke Street Interchange to the Seminary Road Interchange, in addition to the new HOV Ramp connection to the upper level of Seminary Road.

The CK Team's design approach is to maintain the overall concept depicted by the RFP documents, utilize material that reduces future inspections and maintenance, and maximizes safety and functionality while optimizing the most constructible and cost-effective solutions. Our goal is to minimize impacts and their duration to the traveling public on the heavily-utilized Interstate that is a major commuter route into Washington, DC serving over 200,000 motorists daily.

The RFP Plans generally meet VDOT standards and design criteria. A design exception for the continuation of the existing substandard left shoulder width of 6 ft was previously requested and granted. However, The CK Team's design expands the wider shoulder width from 6' to 12' for almost half a mile, which meet the GS-5 standard for Urban Principal Arterial freeways and enhances the safety to this part of the corridor. ***Our Preliminary Design meets all RFP requirements, including the "Roadway Inventory and Minimum Design Criteria Tables" on Pages 34 and 35 of RFP Part 2, as well as applicable AASHTO and VDOT Standards. No additional design exceptions, waivers, or ROW are required by our concept design over those shown in the RFP.***

The proposed conceptual design is contained within the existing right-of-way limits, with the exception of a slight widening to accommodate the western approach to the proposed Pedestrian Bridge along Seminary Road. A Temporary Construction Easement will be required adjacent to the same area to gain access during construction. As provided in the RFP, right-of-way and easement requirements will be re-evaluated during final design; however, no additional changes to right-of-way from that shown in the RFP are anticipated at this time.

The CK Team updated the barrier and guardrail systems in the RFP Plans. Proposed barrier types and guardrail termini in our Conceptual Plans are to current safety standards. TL-5 barriers are proposed to protect the HOV Ramp and Pedestrian Bridge piers, as well as the existing Seminary Road Bridge piers with appropriate transitions to adjacent barriers. The existing bridge railing along NB and SB I-395 over Sanger Avenue will be replaced to meet current safety standards when the bridge is widened and the sound walls are constructed over the bridge. Existing deficient guardrail adjacent to work performed in this project shall be upgraded to meet current standards (i.e., double-sided guardrail between reversible HOV lanes and I-395 where shown on the attached Conceptual Plans).

RFP Addendum 1 required a 15 ft wide right shoulder along NB I-395 between the Duke Street ramp and NB ramp to Seminary Road. This shoulder width exceeds the minimum required and provides additional room for breakdowns, snowplow, staging, and enforcement.

Replacing the Seminary Road Bridge deck and relocating pedestrian access to a new Pedestrian Bridge makes Seminary Road wider and more functional. To compliment the wider bridge deck, the roadway approaches will also have minor modifications, including widening, curb replacement, and upgraded guardrail and barriers to improve operational ability and safety.

In accordance with RFP Addendum 1, a conceptual study, including traffic operations and safety analyses, will be performed to improve the overall traffic operations and safety along Seminary Road near Kenmore Avenue and Library Lane. A minimum of three alternatives will be compared to the no-build condition.

While maintaining the conceptual design intent, the CK Team maximizes VDOT funds through subtle adjustments in the design that reduce initial construction and/or long-term maintenance costs. Savings are achieved by reducing materials and using less expensive construction means and methods all without jeopardizing quality or future maintenance. The following are highlighted cost saving measures implemented into our proposed design:

1. Reduced HOV Ramp Bridge Length: This will mean fewer spans and piers. New pier locations are strategically sited to avoid relocating existing utilities and drainage systems. The profile does not exceed the 5% maximum grade and the MSE walls supporting the approach ramp has been lengthened towards the north. ***Benefits:*** Reducing the length of the bridge saves initial and long-term maintenance costs. Once detailed geotechnical investigation(s) are performed during final design, longer spans will be evaluated to further reduce the number of piers. Upon completion of the final Geotechnical Report and approval by VDOT, lightweight fill will also be considered to address potential settlement concerns.

The CK Team shortened the bridge portion of the HOV Ramp, reducing construction and future maintenance costs.

2. Relocated Sound Wall along NB I-395 Between Sanger Avenue and the NB Ramp to Seminary Road: This sound wall has been relocated to the top of the cut to more closely follow the preliminary noise study's alignment. The typical sections reflect these changes and show a "fan wall" concept to meet the sound wall required by the preliminary noise analysis. This "freestanding" modular panel fan wall arrangement requires a limited foundation, which reduces schedule, community impacts (noise) and cost. This configuration requires a flat area approximately 16 ft wide (for the 30 ft high sound wall) to accommodate its modular fanfold alignment. As shown in Figure 1, it presents an aesthetically-pleasing view to the residents along the east side of North Van Dorn Street. ***This photo was taken last spring on the Intercounty Connector in Maryland which was designed and constructed by a Corman Joint Venture.***

Figure 1: Intercounty Connector Fan Walls

We envision using fan walls adjacent to North Van Dorn Street (north of NB-I-395 Station 315+50 +/-) and a combination retaining wall and sound wall configuration, using a post and panel construction in the fill sections to the south of Station 315+50 +/-. Sound wall types will be confirmed after completing a final, more detailed post-bid noise study and geotechnical explorations / evaluations. Sound walls along I-395's west side will be post and panel construction. ***Benefits:*** Fan walls require a limited foundation which reduces schedule impacts and cost.

3. Modified Proposed NB Ramp to Seminary Road Profile: Modifying the NB Ramp to Seminary Road profile better meets existing grades along the east side near Van Dorn Street. This eliminates installing a new cut retaining wall immediately behind the existing retaining wall adjacent to Van Dorn Street, but about 20 ft below. ***Benefits:*** This area between Van Dorn Street and the NB Ramp has many underground utilities that would require relocation using the RFP Concept Plans that will now be avoided.

The CK Team's realignment of the NB Ramp to Seminary Road eliminated associated utility relocations and significantly reduced the height of the retaining wall.

Adjusting the NB Ramp profile successfully avoided costly relocations or adjustments of the natural gas and water lines that cross under I-395 at NB I-395 Station 336 +/-.

4. Profile Grade: The RFP profile grade line for NB I-395 required up to 8 inches of asphalt on top of the existing I-395 mainline pavement. There was no mention of any need for this in the Geotechnical Data Report /pavement recommendation provided with the RFP. The CK Team proposes a profile grade lines that more closely follows the existing pavement elevations while providing a smooth driving surface and desired milling and overlay. ***Benefits:*** Alleviates unnecessary costs and facilitates maintenance of traffic.

TABLE 1: RFP ROADWAY DESIGN ENHANCEMENTS showcases our enhancements over the RFP Concept Drawings:

Enhancement Key

$ Reduces Construction Costs | Facilitates MOT | Reduces Construction Duration | Minimizes Maintenance Costs | Improves Safety

TABLE 1: RFP ROADWAY DESIGN ENHANCEMENTS

Description	Location	Positive Impacts	Enhancements				
Shift NB I-395 alignment east to push overlap of HOV Ramp and I-395 left shoulder to the north.	NB I-395 Sta 314 to Sta 343	Increase MSE wall length at HOV Ramp approx. 200 ft; max height 26 ft. This enables std 12 ft left shoulder to be constructed between HOV lanes and NB I-395.	$				
Lower NB I-395 PGL to follow proposed baseline, using as much existing pavement as possible and minimizing additional asphalt to maintain cross slope.	NB I-395 Sta 314 to Sta 343	Reduces pavement overlay by as much as 8" above existing (at PGL line).	$				
Reduce milling where variable depth overlay from slope correction exceeds 2".	NB I-395 Sta 314 to Sta 343	Less milling and overlay. Same finished grade.	$				
Shift NB Ramp alignment and raise NB Ramp profile.	I-395 NB Ramp to Seminary Road	Avoids utility conflicts and relocations. Reduces amount of retaining wall and cut into slope up to Van Dorn St. Salvages more existing ramp pavement.	$				
Install fanwall-type sound wall where feasible in lieu of traditional post and panel wall.	NB I-395 Sta 315+50 to Sta 339+00	Faster installation. Less utility impacts. More aesthetic interest along N. Van Dorn St. in conjunction with landscaping.	$				
Replace MB7 and guardrail with TL-5 barrier (54 in.) to protect bridge piers.	Bridge Piers	Increases pier protection. Enhances roadside safety.					
Replace existing bridge-mounted signs with new sign structures.	Seminary Road Bridge	Meets current VDOT requirements for bridge maintenance and inspection.					
Minimize number of new drainage crossings of I-395 mainline to one.	Project-wide	Reduces: Cost MOT impacts	$				
Significantly reduced the height of retaining wall along NB shoulder.	NB Shoulder Various Locations	Reduces: Cost Duration Future Maintenance	$				

Stormwater Management Design Concept: The Team's goal was to utilize as many of the existing drainage conduits as possible (reduces cost and MOT impacts), utilize open ditches where possible in lieu of pipes (reduces cost, MOT, and increases the potential for quality improvements of the stormwater discharge), and improve or enhance the quality of the surrounding watercourses or ponds. Based on the SWM Methodology Statement in the RFP Information Package and preliminary calculations, Post-Construction Stormwater Management Facilities are not anticipated to be required. Technology-based method calculations confirmed the net new impervious area to each outfall is less than 16%. As a result, Stormwater Quality Best Management Practices (BMPs) are not required (VDOT IIM-LD-195.7).

There are seven outfalls conveying runoff from the disturbed area; all of which ultimately drain to Holmes Run under North Van Dorn Street. To avoid using existing inadequate systems and to reduce runoff to Winkler Pond, 7.0 acres is being diverted to the NB shoulder as part of our new drainage system along the east side of the project and joining Holmes Run near Van Dorn Street. This betterment will reduce the future phosphorus and nitrogen loading to Winkler Pond from the current condition.

The Ultimate Outfall at Holmes Run under North Van Dorn Street is adequate per VDOT's standards since the total drainage area contributing to these culverts is less than 1% of the total contributing drainage area from the project per VDOT IIM-LD 195.7.

Existing storm sewers were analyzed for hydraulic capacity using current drainage design criteria. Inadequate systems were not used to receive runoff with runoff diverted to new and/or sufficient existing storm sewer systems, culverts, and ditches. We will evaluate the condition of the facilities designated to be reused early in the final design to confirm which ones need to be upgraded, bypassed, or replaced.

Proposed storm inlets were designed for the 10-year storm event in the vicinity of I-395, and to the 4/6.5 inches per hour criteria on Seminary Road. Inlets at the low point of I-395 and any inlets overflowing to the low point were designed for the 50-year storm event. Proposed storm sewers on I-395 and the ramps were designed to the 25-year design storm event, except at the low point on I-395 which was designed to the 50-year storm event.

A Hydraulic Grade Line (HGL) analysis was performed on all systems to confirm they met VDOT criteria. All proposed ditches were designed for the 10-year storm event for capacity and the 2-year storm event for stability. The 50-year storm event was analyzed to ensure the ditch flow did not encroach onto the shoulder of I-395 and ramps. Existing ditches that received runoff were checked using the criteria mentioned above and were found to be adequate, or if not, proposed to be replaced.

Lighting Design Concept: The Roadway Lighting System will be designed per VDOT's Traffic Engineering Design Manual, Guides and Informational Instructions (IIM-LD-231), and the American National Standard Practice for Roadway Lighting (RP-8).

I-395 is currently lit by a series of lights along the outside shoulders and between the NB Ramp to Seminary Road and the NB I-395 shoulder. The existing reversible HOV lanes are not independently lighted. The existing NB I-395 roadway lighting system will be replaced with a new system from Duke Street to Seminary Road. The proposed HOV Ramp Bridge, overhead signs, and Pedestrian Bridge will be part of the new lighting system. The single existing light pole impacted by the proposed HOV Ramp on the mid-level rotary of Seminary Road will be replaced with an under deck-mounted Luminaire. The existing HOV lanes will remain unlit.

The proposed main roadway lighting is 400 watt HPS full cut off luminaries on 40 ft poles with spacing approximately 165 ft for the required illuminance and luminance level criteria in RP-8-00. Ramp lighting will be 250 watt HPS full cut off luminaires on 20 ft poles. ***Cutoff fixtures are proposed to reduce glare and***

spillover to the surrounding community. Preliminary lighting analysis utilizing the Roadway Optimizer portion of the AGI-32 lighting software determined the pole spacing requirement.

Having two luminaries on one pole not only eliminates the need for a second pole, it eliminates the foundation, conduit, conductors, and future maintenance that go along with it.

As a cost savings measure, twin arm poles mounted between the two roadways will be utilized where feasible to illuminate the HOV Ramp/ Bridge and NB I-395. Having two luminaries on one pole not only eliminates the need for a second pole, it eliminates the foundation, conduit, conductors, and future maintenance that go along with it. Median mounted poles can be difficult to access with a bucket truck; however, in our design, the bucket truck can easily get to the barrier-mounted lighting system from the controlled access HOV Ramp shoulder without impacting the mainline I-395 roadway. This reduces initial construction *and* future VDOT maintenance costs. ***The CK Team considered high mast lighting to reduce cost, but we discovered that even with shields, the light would spill over to the neighboring communities.***

Traffic signal poles will be designed to accommodate the roadway lights as part of the intersection lighting design to reduce maintenance, construction cost, and hazards in the clear zone. Roadway lighting will be wired separately and not share the same conduits or circuits with traffic signaling. Roadway lighting poles will be provided with a breakaway base if unprotected inside the clear zone. All conductor cables will be installed in conduit and junction boxes and no direct burial will be used per the RFP. The smallest wire size we will use for the feeder and branch circuits will be # 8 AWG. The roadway lighting system will be grounded in accordance with Article 250 of the National Electric Code.

The illumination level of the Pedestrian Bridge lighting system is based on ANSI/IESNA RP-8-00 that requires a maintained illuminance value of 1.0 ft candles and an average / minimum ratio of 4.0. The City of Alexandria lighting standards for a pedestrian walkway require a square down light fixture mounted on a 15-ft high pole with metal halide lamps. The lighting system will include 100 watt MH full cut off luminaires on the 15-ft high poles. Pole spacing will be approximately 80 ft for the required illuminance and luminance level criteria in RP-8-00.

ITS Design Concept: ITS is a key element in accessing the reversible lanes safely. Prior to beginning any construction and coordination with Northern Regional Operations (NRO), ITS implementation will be completed in these four phases:

Phase 1- Design: The CK Team activates the three "C's" to expedite construction:

1. ***CONFIRM*** existing conduct locations through a comprehensive field investigation at all ITS implementation locations;
2. ***COORDINATE*** specialty work, such as utility investigation / test pits, surveys and soil borings early to kick start schedule critical path elements, structures design and procurement faster;
3. ***COMPLETE*** design packages by device type so items with faster designs and procurement, such as relocating the communications backbone, detectors and cameras, can be approved, ordered, and built to keep the project moving and grant early access by the Northern Region Operations Transportation Management Center (NRO TMC).

ALL ITS equipment and/or interface protocols were specifically selected to be fully compatible with the existing ATMS platform operating in the Northern Virginia PSTOC. Integration will be a matter of database and communications configuration and no new software drivers are anticipated.

Phase 2- Submittals: Through the RFP process, the CK Team identified the major ITS work elements to be submitted and will prepare submittal package documents. Designs will be performed to allow VDOT adequate time for review and approval.

Phase 3- Integration and Testing: ITS elements will be installed and tested before connecting and integrating with the NRO TMC. A System Acceptance Test Plan for each major element will be developed and tested for independent operations. Once each device passes the *"stand-alone"* test, it will be connected to the communications backbone and tested in an integrated environment. Equipment was specifically selected for compatibility with existing VDOT ITS deployments for a seamless integration into the NRO Advanced Transportation Management System (ATMS) platform. A Network Addressing Plan for the ITS devices will be developed in coordination with VDOT so that the ATMS database and network gear can be configured to support full integration into the NRO TMC.

Phase 4- ITS Operations Continuity: The CK Team is committed to completing this project efficiently with limited disruption to VDOT and the traveling public. Our approach brings ITS devices online as we progress, allows VDOT beneficial early use of the devices, and permits the NRO TMC to exercise devices as they become available. This increases monitoring and control and provides detailed traffic information to the traveling public throughout the life of the project.

ITS Elements: Our solution is based on reviewing the RFP plans, performing field research, and formulating a design to implement ITS elements. Our Conceptual Plans in Volume II and proposed equipment is summarized in our TABLE 2: EQUIPMENT below. Equipment descriptions are chosen to match the existing hardware and software at the VDOT NROC; however, they may be modified during final design with approved equals to comply with current needs.

TABLE 2: EQUIPMENT

Equipment Cabinets	Type 1 and Type 2 cabinets per VDOT standards.
Microwave Vehicle Detection (MVD)	Mounted on 25 ft poles. Supplied by EIS and fully compatible with the NRO ATMS platform.
CCTV	COHU dome cameras mounted on 80 ft poles with lightning protection and lower mechanisms. Encodes from Optelecom and fully compatible with the NRO ATMS platform.
Ramp Metering	Maintain existing ramp metering to be consistent with VDOT standards and provided with a 170E controller, Type 1 cabinet and MVD detection.
Gate Control System	Implement gates consistent with RFP plans. Supplied by B&B Roadway operated by a 170E controller, Type 2 cabinet and run with VDOT supplied firmware making implementation fully compatible with the NRO ATMS platform. Integrate electronic message signs *"Do Not Enter"* and *"No Turns"* with traffic signalization for reversible ramp operations.

Table 2: Equipment (continued)

Dynamic Message Sign (DMS)	Per VDOT specifications and supported by NTCIP interface protocols.
ITS Fiber	Relocate existing fiber from under-active traffic lanes where necessary.

Structural Design Concept

General All Structures: Two new bridges (HOV Ramp and Pedestrian Bridges) and the widening / rehabilitation of two existing bridges (Seminary Road Bridge and Bridge over Sanger Avenue) comprise the major structures work. The new bridges will include pre-stressed concrete bulb-T (PCBT) girders with hammerhead piers, while the existing bridges widening / retrofits include new steel girders that will be integrated with the proposed bridge rehabilitation.

- The bridges will be designed to support utilities, including light poles, drainage piping and associated structural supports and/or hangers. None of the bridges call for a fire protection (standpipe) system since it is not required for bridges less than 1,000 ft long according to the City of Alexandria Fire Protection Engineer, and *NFPA 502 Standard for Road Tunnels, Bridges, and other Limited Access Highways*.
- The possibility of lead-based paint on the existing superstructures require Type B handling and disposal for hazardous materials. A hazardous materials inspection will confirm if hazardous materials, such as asbestos, exist on the bridges. Items that may contain asbestos include poured joint seals and fillers, bearing pads, fibrous paint, and expansion joint material.
- New CIP decks will be low-permeability concrete, utilize Corrosion Resistant Reinforcing Steel (CRRS), and require minimal future maintenance, thus reducing traffic impacts for lane closures.
- Seminary Road Bridge and the Bridge over Sanger Avenue substructure and superstructure repairs will be in accordance with the latest Biennial Bridge Inspection Reports.
- For the Seminary Road Bridge and Bridge over Sanger Avenue rehabilitations, RFP Addendum 2 requires the following:
    - All existing details, members and/or connections, susceptible to load-induced fatigue, be retrofitted where analysis indicates the Finite Life fatigue resistance, or Infinite Life fatigue resistance, is exceeded as applicable.
    - Seminary Road Bridge: All existing transverse diaphragms / cross frame connection plates on the existing exterior girders susceptible to distortion-induced fatigue will be retrofitted. All existing transverse diaphragms / cross frame connection plates on the existing interior girders susceptible to distortion-induced fatigue will be evaluated for retrofitting.
    - Bridge over Sanger Avenue: All existing transverse diaphragms / cross frame connection plates susceptible to distortion-induced fatigue will be retrofitted.

The results of the first in-depth inspection of each bridge will be used to help identify retrofit requirements. The retrofit is to provide a 75-year service life as clarified by VDOT in the RFP Questions and Answers appended 12/7/12. Fracture toughness testing is not anticipated at either bridge since the dead load stress of the rehabilitated structures is not to be increased. For instance, the new deck on Seminary Road Bridge will use lightweight concrete to improve the long-term performance of this existing structure.

The second in-depth inspection will take place after the re-decking is complete. If fatigue distress or damage is discovered where analysis indicated the fatigue resistance is adequate, then the CK Team will retrofit all

similar existing details, members, and/or connections. Cracking at locations identified by analysis as meeting the 75-year remaining fatigue life is not anticipated to be found during this second inspection.

The following table summarizes the findings of our preliminary fatigue analyses performed on the Seminary Road Bridge and Sanger Avenue Bridge during the pre-award phase:

TABLE 3: PRELIMINARY FATIGUE ANALYSES

Bridge	Fatigue Type	Detail	Evaluation Results	Retrofit
Seminary & Sanger	Load Induced	End of Transverse Stiffener to Web Weld - Near bottom flange	Infinite Life	None
Seminary	Load Induced	Intersection of Longitudinal and Transverse Stiffener Welds – Exterior Girders Only	Infinite Life	None
Sanger	Load Induced	Bottom Flange Cover Plate Transition Weld	Finite Life – Exterior Girder Finite Life– Interior Girder	UIT
Seminary	Distortion Induced	Transverse Stiffeners at Cross Frame Connections – Exterior Girders	N/A	Required by RFP. Install clip angle connecting stiffener to bottom flange.
Seminary	Distortion Induced	Transverse Stiffeners at Cross Frame Connections – Interior Girders	Evaluation requires strain gauge testing during final design	To be determined. If required, retrofit will be the same as for Exterior Girders
Sanger	Distortion Induced	Transverse Stiffeners at Diaphragm Connections – All Girders	N/A	Required by RFP. Install clip angle connecting stiffener to bottom flange.

Regarding the Ultrasonic Impact Treatment (UIT) identified at the Sanger Avenue Bridge's bottom flange cover plate, UIT can be accomplished with lightweight field equipment in conjunction with skilled, trained, and certified operators. There are a select number of firms that provide this service. Corman Construction currently has certified technicians performing similar work on a project in VDOT's Richmond District. These same certified technicians will be available to perform these services on the Sanger Avenue Bridge.

HOV Ramp Bridge, B-687: The proposed HOV Ramp construction provides a new connection from the reversible HOV lanes to the existing third level Seminary Road Bridge and consists of an approximately 715 ft long MSE supported approach embankment and an 843 ft long bridge.

The proposed bridge includes a six-span continuous unit (134 ft -128.83 ft-128.83 ft -128.83 ft -128.83 ft-134 ft) and a single 50 ft span at the north end with flared and cantilevered girders to accommodate the curved barrier layout at the intersection with the Seminary Road Bridge. The span arrangement was determined based on shortening the bridge portion of the ramp, maximizing the MSE fill section, avoiding existing utilities, not exceeding the structural limits of the Seminary Road rotary level bridge, and providing girder lengths per

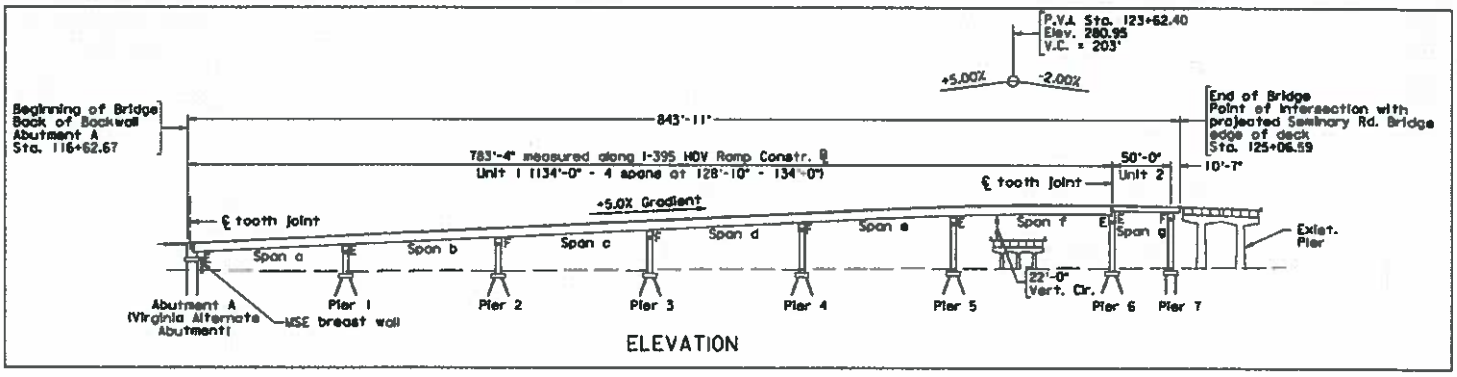


Figure 2: HOV Ramp Bridge Elevation

VDOT standards.

The north span girders extend beyond northernmost Pier 7 for continuity of the deck between the ramp and Seminary Road. The existing substructure for the Seminary Road Bridge in the vicinity of the interface with the north span of the HOV Ramp Bridge was analyzed. It was found to have insufficient capacity for the additional loads from the north span of the HOV Ramp Bridge if the ramp girders were directly supported by the Seminary Road Bridge. This eliminated the possibility of utilizing steel beams in the northern most span and supporting them directly on the existing exterior girders.

Deck joints were kept to a minimum as required by the RFP and the limitations for jointless bridges as described in VDOT Volume V – Part 2, Chapter 17. The Virginia Alternate Abutment (with a tooth joint) is proposed at the south abutment to separate the deck joint from the beam ends and bearing area. The deck joint at Pier 6 will be a tooth joint in accordance with RFP Addendum 1. As required in Addendum 1, there is no deck joint between the north span (Span g) and the Seminary Road Bridge. The influence of continuity of the bridge deck through the intersection of the HOV Ramp and Seminary Road will be carefully evaluated using a finite element analysis during final design. With the use of fixed bearings and no deck joint at Pier 2 of the Seminary Road Bridge located at this intersection, the bi-directional fixity of the bearings at Pier 7 of the HOV Ramp Bridge will be assessed as part of this finite element analysis.

VDOT Standard F-shape barriers will be adjacent to vehicular traffic on both sides of the bridge superstructure. A structural approach slab is provided at the south abutment. The proposed bridge plan, elevation, typical section and abutment section are included in the Conceptual Plans in Volume II. TL-5 pier protection barriers will be provided along the NB I-395 and HOV lanes as required by the RFP and Article 3.6.5 of the AASHTO LRFD Bridge Design Specifications.

The proposed girder type for the HOV Ramp is pre-stressed concrete bulb-T (PCBT) girders to minimize maintenance and reduce construction costs. Pre-stressed concrete girders are proposed for all ramp spans and are designed to be composite with the cast-in-place concrete deck. The Pier 6 cap will be stepped to accommodate the PCBT girder depth transition from 85" to 45" deep girders. Bearings will be laminated elastomeric bearings.

The north end span (Span g) beams are flared to accommodate the curved barrier layout at the intersection with the Seminary Road Bridge. As shown in the Conceptual Plans in Volume II, the top of deck between the straight deck edge and the back face of the curved barrier behind the barriers may be utilized for signal control cabinets or light poles. Fall protection, i.e., handrails, will be provided where appropriate.

The MSE wall and abutment location has been set as far north as possible so the abutment width does not encroach horizontally into the NB I-395 lanes. Clearances over the 12 ft wide full width shoulders north of the abutment, where the bridge piers overhang the existing NB I-395 shoulders and HOV lanes, are greater than the minimum 16'-6".

The Virginia Alternate Abutment is proposed at the south abutment per the VDOT jointless bridge guidelines and RFP Addendum 1. A tooth joint per the VDOT standard detail will accommodate the total movement at the abutment. The abutment will be supported on vertical piles to accommodate the wraparound MSE wall in front of the abutment. A preliminary geotechnical analysis estimated the settlement characteristics of the subsurface materials near the abutment. Our design will mitigate the potential settlement of the subsurface materials so the abutment piles can be installed with minimal effect from downdrag forces. Final design will be based on post-award geotechnical investigations and lab testing.

Piers 1through7 will be hammerhead type cast-in-place concrete with steel H-pile foundations. Pier 7's location was coordinated so its piles do not conflict with the existing piles for the adjacent Pier 2 at the Seminary Road Bridge.

Deck drainage along the ramp will be provided by scuppers along the face of the barrier on the east side of the deck and both sides of the deck at the tie-in point to the Seminary Road Bridge. Drainage will be piped along / under the bridge and down to grade, where it ties into the underground drainage system. The ramp typical section will have a 2% cross slope, except at the north span where the cross slope varies to coincide with the longitudinal grade of the Seminary Road Bridge.

Seminary Road (Route 420) Bridge Rehabilitation, B-684: Proposed improvements consist of a complete deck reconstruction and superstructure and substructure rehabilitation in accordance with the 2012 Biennial Inspection Report. The existing steel beams will be repaired, cleaned, and painted. If lead paint is found, safety and environmental measures will be taken. The new protective coating for the rehabilitated steel girders will be green, 595-24277, and applied after retrofit work is completed. The bridge deck will be widened by 1'-8" to provide 70'-0" curb-to-curb as shown in the RFP Conceptual Plans. Drainage on Seminary Road Bridge was analyzed for the proposed lane configuration and scuppers are not required. A VDOT Standard BR27C shape railing will be adjacent to vehicular traffic on both sides of the bridge. A new structural approach slab will be constructed at each end of the bridge. Pedestrian use will be eliminated from the new structure.

Preliminary load rating and analysis of the existing girders and piers assessed the effects of the wider deck and additional live load from the fifth lane and determined that unless measures were taken, such as utilizing lightweight concrete in the deck reconstruction, the existing superstructure, piers, and foundations would be overstressed. The CK Team resolved this concern by utilizing lightweight concrete in the deck to enhance long-term performance of the structure. The preliminary load rating of the existing girders with the deck modifications described above resulted in the HL93 inventory rating factor for the modified structure greater than 1.0 as required by the RFP.

Per RFP, Addendum 1, there will not be a deck joint at the intersection of the south side of the Seminary Road Bridge and the north end of the HOV Ramp Bridge. Superstructure details will be developed to structurally accommodate this deck connection as described in the HOV Ramp Bridge description above.

Eliminating the existing deck joints was investigated per the RFP requirements and as described in VDOT Volume V-Part 2, Chapter 32. Based on this investigation, all pier deck joints will be eliminated. Eliminating the joints at the abutments, by using semi-integral abutments or deck slab extensions, is not permissible per VDOT Volume V – Part 2, Chapter 17. As required by an analysis of the thermal movements of the

superstructure, the west abutment will be retrofitted to accept a standard VDOT strip seal expansion joint and the east abutment will be rehabilitated to accept a tooth joint.

Abutments, wing walls, and approach slabs will be reconstructed as necessary to accommodate the proposed additional roadway width.

New concrete pedestals and laminated elastomeric bearings replace the existing steel rocker bearings to minimize future maintenance. The existing bottom chord elevations and minimum vertical clearance of 16'-6" over the existing roadways will be maintained. Elastomeric bearing pads and bearing fixity will be designed to accommodate a continuous deck slab for a jointless bridge across the piers. A preliminary analysis of the capacity of the existing piers and foundations was performed due to changes to the bearing fixity. The initial preliminary analysis included fixed bearings at Piers 2 and 3, with expansion bearings at the abutments and Piers 1 and 4. This analysis showed that Pier 3 did not have the capacity to be changed to a fixed pier, so additional analyses were performed with Piers 1 and 2 having fixed bearings, while the abutments and Piers 3 and 4 have expansion bearings. This revised bearing fixity configuration worked and is shown in Volume II.

Continuous pedestrian access across I-395 north of Seminary Road will be maintained in accordance with the *2010 Americans with Disabilities Act (ADA) Standards for Accessible Design* (See the proposed temporary routing of pedestrians and the sequence of construction of the bridge deck in Volume II).

Bridge Over Sanger Avenue Rehabilitation, B-685: The proposed rehabilitation concept facilitates attaching structure-mounted sound walls on the east and west sides provides the widening on I-395 NB and SB, and maintains the 14'-6" minimum vertical clearance over Sanger Avenue. This was accomplished while minimizing future structure maintenance, which would be costly due to I-395's heavy traffic and lane restrictions.

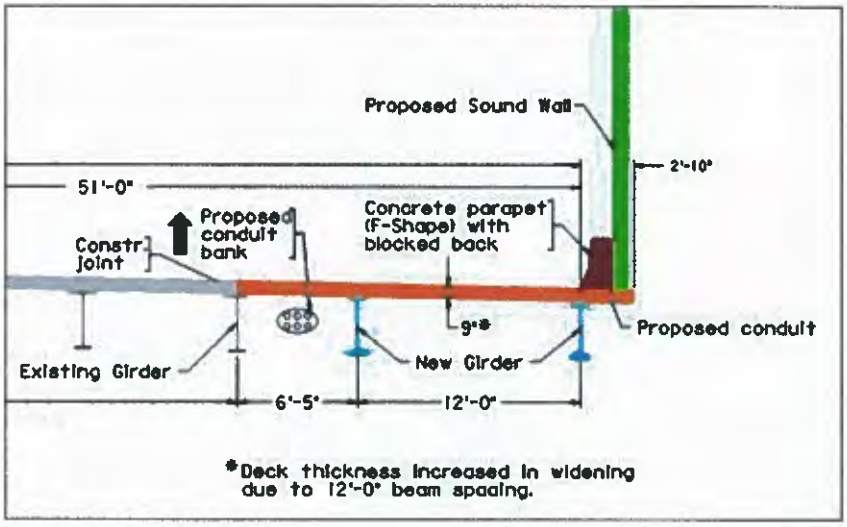


Figure 3: Northbound Bridge Over Sanger Avenue

The beam layout on the NB side of the bridge will be designed to accommodate the bridge widening, sound wall attachments, and utility duct bank. Cross frames will be designed to prevent torsional distortions from wind loading on the sound walls. Construction joints in the deck will be over the existing girder to minimize impact to the travel lanes on the I-395 roadway above and facilitates use of stay-in-place forms in all bays. ***Placing the new joints directly above the existing girder speeds up construction and minimizes traffic impacts on I-395 and Sanger Avenue.***

On the SB side of the bridge, existing beams will be utilized in addition to a new exterior beam to support the widening. A structural analysis confirmed that the existing exterior girder can be retained. ***This enhancement***

eliminates installing temporary falsework to support the existing deck and the need to temporarily reduce the number of lanes on SB I-395 if the existing exterior beam had to be replaced. A new deck overhang and a portion of the first interior bay will be constructed to accommodate the new F-Shape parapet and sound wall attachments. New diaphragm sections will be installed to stiffen the existing beams and accommodate the additional moment from wind loads on the sound wall. The sound wall attachments will be in compliance with *VDOT S&B Div. Manual Vol. V, Part 2, and Section 25.03-4.*

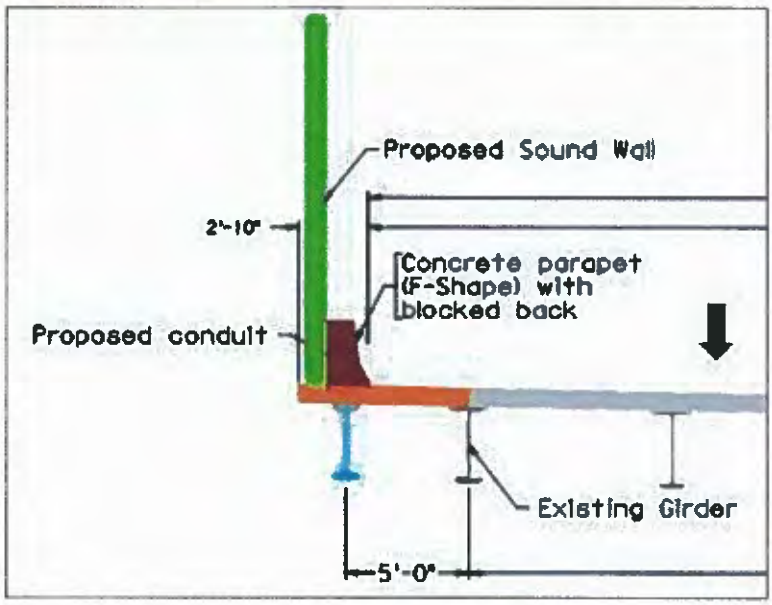


Figure 4: Southbound Bridge Over Sanger Avenue

Deck drains are not required due to the relatively short length of the structure and limited water spread on the deck.

Due to the high traffic volume and strategic importance of the I-395 corridor, approach slabs are required to mitigate potential settlement at the back of the abutments. For potential differential settlement between the existing approach slabs and newly constructed approach slabs, the new approach slabs will be designed independently (i.e., not tied into the existing slabs). This allows the potential settlement to occur without the restraint of the existing approach slabs.

Replacement bearings will be laminated neoprene pads which are low maintenance elements and eliminate potential corrosion. Spalls in the existing deck to be repaired will be patched per standard VDOT requirements. Deck joints will be resealed. Replacement stiffeners and bearing work in the 2011 Biennial Inspection Report will be performed. After completing the required retrofits, finish work on the beams, such as grinding out impact scars, cleaning, and painting, will be performed.

Relatively minor foundation settlement for the widened abutments on the NB side is anticipated based on a preliminary analysis. This differential settlement with respect to the existing abutments will be mitigated by using spread footings with a prescribed construction sequence for the abutment widening for the minor settlement expected before installing the wider deck. Additional test borings and soil testing in this area will definitively determine the foundation and construction sequence requirements and if using lightweight fill would be appropriate.

On the SB side of the abutments, a new abutment stem will be constructed on the existing footing to accommodate the widening. The existing wingwalls will be left in place to retain the fill, but partially removed for pavement and roadway construction. To minimize the increase in footing bearing pressure, the area between the two walls will be filled with lightweight Expanded Polystyrene (EPS), and then capped with a CIP slab supported by the existing and proposed stems which act as moment slab to support the parapet and sound wall. This also eliminates settlement and deformation of the EPS under traffic loads that may use the shoulder area.

A thorough analysis at proposal time eliminated all pier deck joints and provides a low-maintenance superstructure.

The widened and existing portions of the abutments adjacent to Sanger Avenue will meet the design collision requirements for structural resistance. A preliminary analysis of the existing abutments determined that they can resist the required 600 kip load; therefore, TL-5 barriers are not anticipated along Sanger Avenue.

Pedestrian Bridge, B-686: Alternative alignments for the Pedestrian Bridge were evaluated and determined the one least disruptive to traffic and pedestrians during construction includes a structure separate from the existing Seminary Road Bridge near the location shown in the RFP Plans. An alternative was evaluated that included the pedestrian walkway directly supported by the existing Seminary Road Bridge; however, unless significant strengthening of this existing bridge was undertaken, it was found that there was insufficient structural capacity in the piers and superstructure to support the proposed pedestrian walkway. This option, although desired, became prohibitive from a cost and schedule perspective.

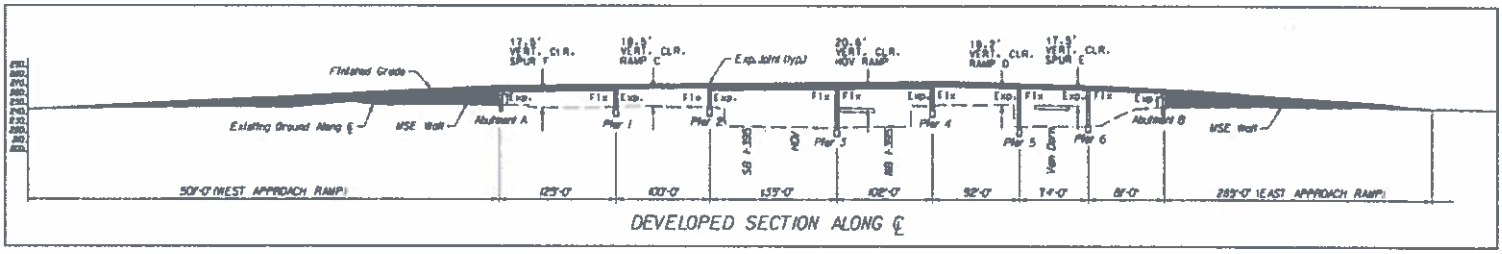


Figure 5a: Pedestrian Bridge

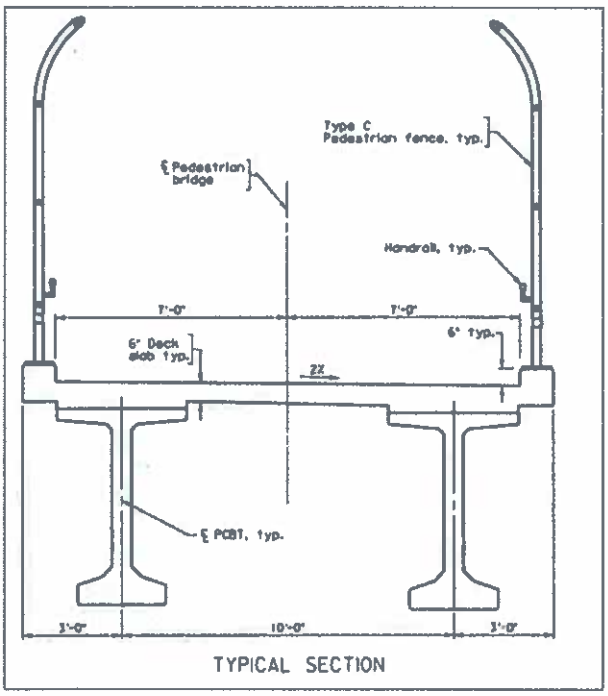


Figure 5b: Pedestrian Bridge

Our proposed bridge is 709 ft long with seven spans (125 ft-100 ft-135 ft-102 ft-92 ft-74 ft-81 ft), and abutments close to the locations in the RFP Plans as shown in Volume II and on the next page. The final alignment of the Pedestrian Bridge will be designed for maintenance vehicles to pass safely. Proposed turns at the piers were checked for proper turning radius and an Autoturn analysis confirmed that a light maintenance truck can clear the railings at the turns in the bridge without maintenance vehicles having to back up. The following are proposed CK Team Pedestrian Bridge alignment advantages vs. those in the RFP:

Advantage #1

Using PCBT girders below the deck as opposed to the steel through-truss above the deck are:

- Less maintenance (PCBT girders do not need painting and as such will be less disruptions to the traffic on I-395 below);
- Less visually-intrusive to the neighborhood;
- Users can look out to the surroundings with less obstruction and are more visible for safety and security; and
- Faster delivery time and shortened construction duration.

Advantage #2

Shorter spans mean faster girder erection with smaller equipment and decreases I-395 traffic impacts.

Advantage #3

Cost effective.

It is proposed that pedestrian access across I-395 is maintained by installing temporary crossing signals near each end of the Seminary Road Bridge. This facilitates using the north sidewalk on the existing Seminary Road Bridge while the existing pedestrian ramps and bridge sections are demolished and the new Pedestrian Bridge is constructed.

For adequate clearances over roadways below the bridge, the east ramp grade was increased to approximately 8% and landings were included per VDOT standards. This increased the elevation of the bridge over Spur E (controlling elevation), providing the required vertical clearance so the more economical PCBTs could be used in all spans.

Due to the skew in the proposed horizontal alignment of the bridge from pier to pier, integral, semi-integral, and slab extension abutment types are unsuitable. To keep pedestrians, bicyclists, and equestrians safe, it is proposed that conventional abutments with strip seal deck joints be installed rather than the Virginia Alternate Abutment with tooth joints. Approach ramps to each abutment are proposed to be MSE embankments.

The six bridge piers are proposed to include hammerhead piers supported on drilled shafts as shown in Volume II. Drilled shafts are proposed instead of a pile cap or spread footing to minimize construction impacts to the roadways adjacent to the pier locations. Abutments are supported on drilled shafts or pipe piles, depending on the outcome of the final geotechnical investigations. Pipe piles are being considered as an alternative at the abutments to shorten the construction durations at those locations. Approach walls, abutments and piers will include an aesthetic treatment, such as an ashlar stone finish, to be coordinated with VDOT and the City of Alexandria post-award.

A preliminary drainage design determined the requirements for deck drains. In accordance with VDOT's deck drainage criteria, it was found that deck drains are not required on the Pedestrian Bridge.

Retaining Walls and Sound Walls: Noise walls required per the RFP Supplemental Information are shown in Figure 6:

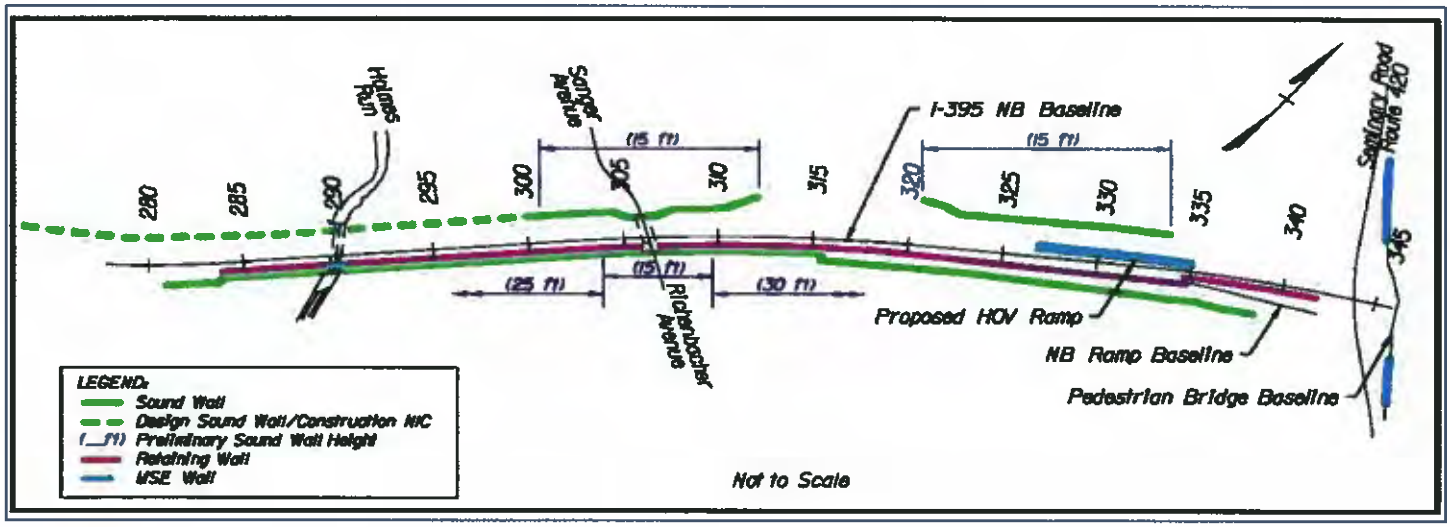


Figure 6: Retaining and Sound Walls

The Supplemental Information with the Draft Noise Analysis Technical Report for the I-395 Auxiliary Lane noted two additional sound walls south of Sanger Avenue and west of I 395, one approximately 3,900 ft long and 20 ft high, and one approximately 1,350 ft long and 30 ft high. Per RFP, Addendum 2, the CK Team will survey the area of these two walls, complete the Final Design Noise Analysis, and present the location and design of these proposed walls to the public. The actual construction cost of these two sound walls south of Sanger Avenue along SB I-395 will not be a part of the Price Proposal. If these two additional sounds walls need to be constructed, a Contract Change Directive will be processed.

As noted in the RFP documents, in many locations sound walls are coincident with the retaining wall locations. The retaining walls at the fill conditions with coincident sound walls, except in the vicinity of Holmes Run, will have combination walls with soldier piles and concrete panels in the wall's lower section to retain the fill, with alternate piles extending to the top of the sound wall to support the noise panels. Where the topography and other site constraints allow, the CK Team is using Fanwalls for the ground-mounted sound walls. At the other ground-mounted sound wall locations (west side), we will use post and panel sound walls.

Special attention needs to be given to the condition where the Auxiliary Lane is to be installed, along with the retaining and sound walls along the NB I-395 alignment over the existing Holmes Run Culvert and pedestrian tunnel. The existing culvert is a double concrete arch culvert, while the pedestrian tunnel is comprised of corrugated metal pipe. It is approximately 30 ft from the highway pavement down to the top of the higher culvert crown. Various alternatives were investigated for the walls. Our proposed alternative includes the 25-ft high sound wall supported on the concrete barrier / moment slab that rests on the reinforced earth zone of an MSE wall. This selected alternative has negligible effect on the underground culverts and pedestrian tunnel and only minimally impacts traffic on NB I-395 during construction. It is proposed that lightweight sound wall panels will be used to minimize the vertical load over the culverts and pedestrian tunnel.

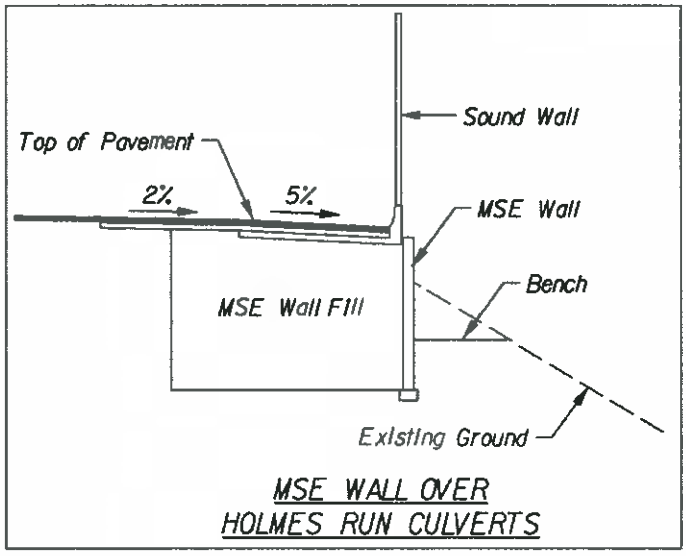


Figure 7: MSE Wall over Holmes Run

Along the east side of NB I-395, north of NB I-395 Station 315, a short wall will retain the cut slope leading up to the fan wall type sound wall and landscape area along North Van Dorn Street. A similar, but taller retaining wall will be between the NB Ramp to Seminary Road and NB I-395. Walls, such as VDOT's standard RW-3 combined with MB-7 barrier or other VDOT approved walls, will be used at these cut locations.

4.4 PROJECT APPROACH

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4.4.1 ENVIRONMENTAL MANAGEMENT: The CK Team will institute an effective environmental management approach that integrates key members who will effectively coordinate and communicate with VDOT, City of Alexandria, regulatory and resource agencies, and other public / private stakeholders. Although the I-395 HOV Ramp at Seminary Road Environmental Assessment (EA) / Finding of No Significant Impact (FONSI) and the Auxiliary Lane Categorical Exclusion (CE) did not identify significant environmental impacts, preliminary environmental commitments were made during the planning phase that our Environmental Management Team will implement and track throughout design and construction.

Our Environmental Management Team, led by Pamela McNicholas, PWS, will work closely with the Design Team during the design phase. She will remain involved during construction and actively coordinate with Construction Manager Peter Bernat, Grading Superintendent Keith Durham, and Environmental Compliance Manager Mark Warner.

This approach focuses on early and continuous awareness of environmental concerns, identifies schedule requirements, and communicates them to the Team and VDOT for seamless integration into the schedule. As design progresses and the scope and footprint are refined, the team is prepared to respond and assist VDOT to resolve unforeseen environmental concerns beyond what was in the NEPA documents.

Successful environmental risk management takes knowing the issues / concerns within the project footprint, developing strategies to avoid / minimize resource impacts during design and construction, and integrating environmental aspects into the schedule that keep the project moving. Should unexpected environmental concerns arise during design or construction, Pam will immediately contact our DBPM to formulate effective mitigation strategies to present to VDOT.

Our environmental management approach identified issues during the proposal stage so that sufficient time is built into the schedule for permit procurement and other required approvals prior to construction. We recognize the rewards of early and continuous identification and tracking environmental issues / concerns during design and construction as the scope and footprint are refined. We pledge 100% compliance with applicable federal and state environmental laws, regulations and permits, which is attainable through a knowledgeable team of environmental management staff working closely with engineering design experts, environmental-sensitive contractors, and coordinating with VDOT and resource / regulatory agencies.

We will track and adhere to those known commitments in the I-395 HOV Project's NEPA EA/FONSI, the I-395 NB Auxiliary Lane Extension Project Categorical Exclusion (CE), and the preliminary Environmental Certification/Commitments checklists for both projects. Additional commitments may be required through permit conditions not yet known, the final Document Re-evaluation for Right-of-Way Authorization, the final Document Re-evaluation for PS&E, and the final Environmental Certification/Commitments Checklists. These are prepared by VDOT prior to releasing the project for construction and our Team is responsible for compliance.

Our Environmental Management Team will identify and immediately address key environmental issues to meet the schedule. ***An Environmental Tracking Sheet will monitor environmental concerns and commitments during design and construction.*** Issues currently identified are in TABLE 4: ENVIRONMENTAL ISSUE MITIGATION on Pages 19-21, which highlights 15 preliminary environmental issues (real or potential), our understanding, and proposed mitigation to minimize VDOT's risk. During the design-build process, our team will continue to evaluate these and other potential environmental issues, implement effective mitigation strategies, and integrate them into the schedule.

TABLE 4: ENVIRONMENTAL ISSUE MITIGATION

Issue	Understanding	Mitigation
1. Identify / verify environmental issues / concerns early based on Final Design and Plans for Construction Access and Staging.	Expedite design plans after receiving NTP to ensure the package includes the appropriate limits of disturbance (including construction access and staging). If the scope or footprint changes, additional environmental studies and analyses may be required to identify the full extent of resources and assess or re-evaluate impacts within an expanded footprint (wetlands, streams, Section 4(f), cultural resources, vegetation). Final determination of resource extent, location, and sensitivity will determine permits/approvals or other requirements. *Potential Impacts: Time and cost.*	✓ Designate ECM Mark Warner to prioritize, address, and meet the environmental requirements and integrate into design and construction. ✓ Assemble a knowledgeable team of environmental professionals with the depth and expertise it takes to resolve areas of concern. ✓ Our Environmental Management Team will pinpoint the location, extent, and sensitivity of resources early on with the designers to integrate avoidance / minimization into the overall design. ✓ Engineering designers, construction experts and environmental / permitting specialists working together locally to resolve issues and keep permitting and construction on track. ✓ Apply extensive due diligence to achieve 100% compliance through communication, observations, procedures, checklists, follow-up, and documentation. ✓ Establish an Environmental Task Force comprised of the CK Team, VDOT and appropriate regulatory agencies and hold regular meetings. ✓ Environmental staff attendance and input at construction planning and schedule meetings to monitor environmental measures and resolve issues quickly.
2. Environmental Permitting	Though VDOT's preliminary permit determinations in the RFP indicate only one water quality permit is required (USACE Nationwide 6) for geotechnical drilling in Holmes Run (if needed), additional authorizations will be needed if the final design requires any other in-stream work in Holmes Run, other streams, or wetlands. See TABLE 5: ANTICIPATED ENVIRONMENTAL PERMITS on Pages 22-23. *Potential Impacts: Time and cost, particularly if mitigation is required, violations / fines, project shutdown or delays, and more expeditious permit reviews and timely issuance.*	✓ Integrate our Environmental Management Team led by ECM Mark Warner in the design and construction phases. ✓ Establish an Environmental Task Force comprised of the CK Team, VDOT and appropriate regulatory agencies and hold regular meetings to investigate and coordinate permit requirements by jurisdictional authorities early in design. ✓ Hold one-on-one or interagency permit scoping / pre-application meetings to discuss issues, preliminary impacts, avoidance / minimization measures, Schedules, and permit issuance timeframes. ✓ Initiate an Environmental Task Force to foster inter-agency meetings when multiple, potentially conflicting issues are at stake. ✓ Following application or amendment submissions, continue to coordinate with regulatory agencies to rapidly steer permits through reviews. ✓ Adhere to the applicable Special Provisions for Nationwide Permit 6.
3. Environmental Commitments and Compliance	Track / adhere to the five commitments in the I-395 HOV Project's preliminary Environmental Certification / Commitments checklist (tree removal / landscaping, stormwater management / erosion & sediment control, invasive plant species, noise mitigation, and construction noise) and the four commitments in the I-395 NB Auxiliary Lane Extension preliminary Environmental Certification / Commitments checklist (air, erosion / sedimentation control, noise analysis and abatement, and Nationwide Permit 6). Additional commitments may be required through permit conditions not yet known, the final Document Re-evaluations for Right-of-Way Authorization, the final Document Re-evaluations for PS&E, and the final Environmental Certification / Commitments Checklists. Many factors during design / construction can affect these preliminary commitments made during the NEPA phase. Additional commitments may warrant tracking through design and construction and will require compliance with all applicable state and federal environmental laws, regulations and permits. *Potential Impacts: Time, cost, violations / fines and project shutdowns or delays due to non-compliance.*	✓ Our ECM will coordinate with the design team, public involvement officer, and construction team to avoid / minimize impacts, adhere to final commitments, and maintain environmental compliance. ✓ Document review, plan review, team coordination, compliance tracking, and compliance monitoring. ✓ Coordinate and streamline efforts to interface with regulatory/resource agencies, the public, and the City of Alexandria.
4. Streams / Wetlands	Information / data presented from the NEPA EA and CE prepared for the I-395 HOV and NB Auxiliary Lane projects were based on readily available data (NWI mapping), with preliminary, and not field verified, results. A field Waters of the US /wetlands identification / delineation will be required to verify / identify exact location, extent, and function of these resources. Jurisdictional determination will be required.	✓ Environmental scientists will conduct a field delineation early in design to identity all Waters of the US / wetland resources within the limits of disturbance. ✓ Our Environmental Management Team will promptly schedule a jurisdictional determination field meeting with regulatory agencies for concurrence on the jurisdictional status of delineated resources. ✓ Communicate with design team to avoid / minimize jurisdictional resource impacts.

Table 4: Environmental Issue Mitigation (continued)

Issue	Understanding	Mitigation
Streams / Wetlands (continued)	If wetland impacts exceed 0.1 acre and/or stream impacts exceed 300 linear feet, compensatory mitigation will be required. *Potential Impacts: Time, cost, violations / fines and project shutdowns.*	✓ Devise avoidance / minimization design strategies, such as alignment shifts, steep slopes / geotechnical reinforcement, lengthened bridges, bifurcation, intersection relocation, stormwater innovations, utility relocation, access limitations during construction, high headwalls, innovative construction techniques / equipment, narrowed shoulder / safety grading, guardrails, retaining walls, utility relocation, and restoring temporary wetland impacts.
5. Stormwater Management / Erosion & Sediment Control	Stormwater management and erosion & sediment control will be implemented per VDOT's SWM and ESC program to prevent further degradation to surrounding water quality as a result of pollutant runoff. *Potential Impacts: Time and cost.*	✓ During final design, VDOT and VDEQ guidance will be adhered to identify and include appropriate stormwater management measures. ✓ Adhere to and employ strict erosion & sediment controls and work in the dry, when practical. ✓ Efforts will be taken to ensure construction material and debris, as well as any petroleum products from the equipment, does not enter the Holmes Run waterway. ✓ Properly collect and dispose any spoils from the borings at an approved upland site. ✓ Adhere to the other applicable Special Provisions for Nationwide Permit 6.
6. Noise Mitigation	Perform final feasibility and cost reasonableness criteria on the five sound walls identified by VDOT in the RFP as being potentially feasible and cost reasonable. *Potential Impacts: Time, cost, design and public involvement issues.*	✓ Develop acoustical profile to evaluate and confirm the preliminary feasible and reasonable noise mitigation measures in the RFP. ✓ Determine the final noise mitigation measures and finalize evaluation of feasibility and reasonableness in compliance with VA State Noise Abatement Policy and Highway Traffic Noise Impact Analysis Guidance Manual. Complete the Noise Abatement Design Report (NADR). ✓ Prepare a technical memorandum with final feasible and reasonable noise mitigation measures, and submit to the VDOT Noise Abatement Committee who will make recommendations to the VDOT Chief Engineer for approval. ✓ Submit the NADR along with the VDOT Chief Engineer's approval for FHWA review. ✓ Coordinate with the CK Team and local jurisdiction on the materials, engineering, aesthetics, and safety designs (access doors and fire hydrant hose access) of the proposed noise barriers. ✓ Coordinate with VDOT early during design for public outreach and input. ✓ Promptly prepare and distribute citizen survey letters to benefitted receptors to ascertain public desires. ✓ Determine final noise barrier location(s) and dimensions during final design. At 90% design submittal, prepare a technical memorandum documenting the final design plan noise barrier certification. Review the final design plans to ensure the noise barrier(s) dimensions and height identified in the NADR are reflected accurately. ✓ For the two additional noise barrier walls in the I-395 Auxiliary Lane Noise Analysis Technical Report, the CK Team will complete additional surveys to evaluate the location and design of the additional noise barriers. ✓ If the Final Design Noise Analysis and citizen survey indicates that the two additional noise barriers are to be constructed, VDOT will direct the CK Team to construct these walls via a Contract Change Directive.
7. Environmental Document (Re-evaluations for I-395 HOV and NB Auxiliary Lane Extension projects)	Coordination with VDOT to provide the additional technical environmental studies / analyses conducted, and the design plans for their preparation of NEPA document-re-evaluations of final design. *Potential Issues: Time and cost as the NEPA re-evaluations must be completed and approved prior to construction.*	✓ Early and frequent VDOT coordination and regular task force meetings regarding design changes and environmental impacts. ✓ Clearly identify and communicate environmental issues early on. ✓ Clearly communicate final design changes from what was studied during the NEPA phase. ✓ Establish protocols and standards to provide VDOT information, design, and data for document re-evaluation. ✓ Communicate with VDOT on environmental technical reporting requirements. ✓ Provide support documents demonstrating commitment compliance to VDOT's Project Manager.
8. Section 4(f)	Based on Design-Build RFP plans and NEPA documentation (EA and CE) prepared by VDOT, no right-of-way is required from any Section 4(f) resources. *Potential Impact: Time and cost.*	✓ If temporary or permanent impacts to a Section 4(f) resource are determined during final design or construction, immediately coordinate with design team and VDOT. ✓ If temporary or permanent impacts are unavoidable, work with VDOT to reach out to agencies with jurisdiction over these resources to discuss impacts / affects. ✓ Work with VDOT and the agencies with jurisdiction towards a *de minimis* finding – property not adversely affected. ✓ If Section 4(f) Evaluation is required, communicate schedule implications.

Table 4: Environmental Issue Mitigation (continued)

Issue	Understanding	Mitigation
9. Winkler Botanical Preserve	Although the Preserve is a privately-owned property and not a Section 4(f) resource, resource impacts are still not desired. Water quality and quantity become issues because the runoff, if not treated, can adversely impact the Preserve landscape and habitats, as well as the four streams within the study area currently impaired by existing runoff conditions. *Potential Impact: Public perception, time, and cost.*	✓ Communicate between Environmental and Design team to avoid / minimize impacts. ✓ Implement effective erosion & sediment controls. ✓ Have the Public Outreach Plan address considerations of sensitive Winkler Preserve even though not a regulated resource.
10.Cultural Resources (Section 106)	Comply with Section 106 – compare final design LOD to project's APE during preliminary/NEPA phase. *Potential Impact: Time and cost.*	✓ Coordinate early with VDOT, SHPO and VDHR for compliance. ✓ Coordinate / conduct required additional cultural resource studies early during design. ✓ Encourage avoidance / minimization of resources.
11.Threatened & Endangered Species Coordination	Comply with Section 7 Endangered Species Act (ESA) and similar state regulations regarding T&E species. New species added periodically. Scope and footprint changes will require re-coordination to obtain updated T&E approvals / clearance. *Potential Impact: Time and cost.*	✓ Review species lists early and often during design and construction to make sure no new species have been added. ✓ Re-coordinate with regulatory agencies (USFWS, VDGIF and VDCR) to ensure no impacts result from final design plans.
12. Air Quality	Adhere to VDEQ air pollution regulations during construction. *Potential Impacts: Time, cost, and violation / fine.*	✓ Early review of VDEQ requirements and communication to educate Team members and plans to address. ✓ Take precaution to limit emissions of VOC, NOx, and particulate matter. ✓ Adhere to VDEQ air pollution regulations during construction: 9V AC5-40-5600 etseq., Open Burning restrictions, 9V AC5-40-5490 etseq., Cutback Asphalt restrictions, and 9V AC5-50-60 etseq., Fugitive Dust precautions.
13.Tree Removal / Landscaping	Construction impacts to trees or vegetation will require developing re-vegetation landscape plans. Landscape plans shall provide screening and replacing trees impacted by the project. *Potential Impacts: Time to accommodate coordination with the City of Alexandria and the public, and more impacts and mitigation costs.*	✓ Encourage avoidance / minimization of impacts. ✓ Identify as early as possible during design quantification of impacts. ✓ Adhere to mitigation requirements for tree / vegetation replacement: ▪ Landscaped areas shall be planted with larger plant stock. Plant a 2 inch tree for every 6 inches in caliper of the tree that is removed; ▪ Shade trees should be 2 inches in caliper and spaced 20-30 ft on center; flowering trees 6-8 ft in height and spaced 10-15 ft on center, evergreen trees 7 ftt in height and spaced 15-25 ft on center, shrubs 2-4 ft in height and spaced 3-5 ft on center; ▪ For small or steep areas (slopes at or greater than 2:1), provide densely planted shrubs for adequate tree growth; ▪ Plant vines on noise walls and in areas too narrow for any other plants; ▪ Roadside development shall include native and low-growing grasses and groundcovers and not tall fescue. ✓ Coordinate with VDOT, City of Alexandria and the public regarding mitigation landscape plan. ✓ To replace impacted trees and vegetation, develop a re-vegetation landscape plan, including reforestation plantings on the I-395 side of the noise barrier, vine plantings on both sides of the noise barrier, and street tree plantings along Van Dorn Street to accommodate overhead and underground utilities, sidewalks, and bus stop areas.
14.Invasive Plant Species Control During Construction	In accordance with preliminary Commitments Checklist (I-395 HOV), potential for the introduction of invasive plant species during construction shall be controlled and minimized. *Potential Impacts: Cost and public perception.*	✓ Minimize the construction footprint limit of disturbance. ✓ Re-vegetate with desirable species immediately following disturbance. ✓ Prompt seeding per the Virginia Seed Law and VDOT specifications.
15.Construction Noise	Construction noise must be kept to minimum in accordance with VDOT specifications and the City of Alexandria's Noise Ordinance. *Potential Impacts: Public perception and fines.*	✓ Adhere to construction noise limits per VDOT's Road and Bridge Specifications (Section 107.16(b)(3)). ✓ Adhere to the City of Alexandria's Noise Control Code (Section 11-5) – hours, devices and equipment, pile driving, etc.

Environmental Permitting: The CK Team determined that permits may be required with multiple agencies and that coordination with key stakeholders may reveal additional required permits. TABLE 5: ANTICIPATED ENVIRONMENTAL PERMITS below identifies these required or anticipated permits.

Led by Pam McNicholas and Mark Warner, (ECM), we will appoint a Permitting Team to investigate and coordinate permit requirements by jurisdictional authorities early in design. One-on-one or agency-wide permit scoping / pre-application meetings will be held onsite with agency representatives to discuss issues, preliminary impacts, avoidance / minimization measures, schedules and permit issuance timeframes. These meetings will continue as necessary during the construction phase of the project.

Our permitting representatives will facilitate each discussion and lay out the permitting schedule for agency comment and response, then adjust as necessary. Conducting face-to-face, proactive meetings positions us to fully understand and address agency concerns / issues early on as design progresses. Our team will plan productive meetings with clearly-defined agendas and action items so they are kept to a minimum, recognizing limited agency staff resources. We will always call for interagency meetings when multiple, potentially conflicting, issues are at stake. During the entire process, we will minimize environmental risks to VDOT.

Our Team will request as many face-to-face agency meetings as necessary during design to avoid / minimize and prevent environmental issues arising during construction.

Productive Pre-application Agency Meetings lead to faster application regulator reviews because they know what to expect. And quicker reviews save time and money. Our team will procure the necessary permits prior to construction as shown in Table 5 below:

TABLE 5: ANTICIPATED ENVIRONMENTAL PERMITS

Permit/Approval	Jurisdictional/Approval Agency	Approximate Review Period	Comments
NW Permit 6 (if needed)	USACE	45 days	VDOT's permit determination (dated 5/24/12) indicates that a Nationwide Permit 6 is required for preliminary geotechnical drilling for survey activities in Holmes Run.
NW Permit 23 (if needed)	USACE	45 days	For construction of projects with stream and/or wetland impacts that have approved Categorical Exclusion (CE)
VGP-1 or Individual VMRC	VMRC	60 days	For work proposed within, under, or over Holmes Run or other regulated sub-aqueous bed
Virginia Stormwater Management Permit (VSMP)	DCR	2-3 weeks	For stormwater discharge from construction.
Erosion & Sediment Control Plan Approval	VDOT	3 weeks	For erosion & sediment control (ESC) approval and implementation per VDOT Standards / Specifications
Stormwater Management Plan	VDOT	3 weeks	For SWM Plan approval per VDOT Standards / Specifications

Table 5: Anticipated Environmental Permits (continued)

Permit/Approval	Jurisdictional/Approval Agency	Approximate Review Period	Comments
Landscape Plan Approval	VDOT in coordination with City of Alexandria and public.	Landscaping Plan to be developed during final design.	Coordination with the public and City of Alexandria

4.4.2 UTILITY COORDINATION APPROACH

Our Utility Team has longstanding relationships and frequently works with the utility companies anticipated on this project, including Virginia American Water Corporation, Dominion Virginia Power, Washington Gas, and the major fiber optic providers. As an added bonus, our team members were responsible for planning the major secure telecommunications routed along I-395 for the Pentagon and know the relocation impacts. Our utility coordination approach is a well-developed and effective four-stage process based upon previous experiences with VDOT and affected utilities on this project. Our most recent and relative experience is on the Telegraph Road project in Alexandria where the I-495 corridor has the same type of utilities present.

There was substantial progress during the pre-award phase in identifying potential utility conflicts and determining if they can be avoided, mitigated through design changes, or must be relocated. Contacts were made with all utilities / providers that currently have facilities within the work area. Meetings generated detailed discussions about their utilities, specific features, utility maps, as-built drawings, and relocation criteria, where applicable. TABLE 6: UTILITY MATRIX on Pages 25-28 reflects our research and anticipated actions.

Utility Coordination, Relocation, and Mitigation Strategy

Stage 1 – Initial Coordination during Proposal Phase

- Developed a Utility Matrix listing the known and potential utilities and utility providers within the Project limits of disturbance *(noting that there may be more than one provider for a particular utility in some cases);*
- Obtained drawings of the utility's facilities in the area of interest;
- Identified each utility point of contact(s);
- Held Technical Review Meeting with all utilities having facilities within the project limits;
- Obtained additional information; such as, as-built drawings with profiles, elevation data, materials, procedures for managing relocations from design through construction and acceptance.

The CK Team developed alternatives to resolve conflicts as shown in Table 5. If the conflict is unavoidable, the relocation scope is documented and costs are incorporated into the proposal pricing.

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

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

Team. It is expected that in some locations several utility relocations may be in close proximity to each other. The CK Team will manage scheduling, materials, traffic control, outages, and all other elements of the relocation to minimize public disruption in the work area;

- Within 45 days of Notice to Proceed, CK's Utility Team meets with VDOT's Regional Utilities Office to review what is required with each utility relocation submittal. Preparation for the meeting includes a thorough review of the concerns relative to the project to be addressed;
- Within 90 days of Notice to Proceed, a Preliminary Utility Status Report is submitted identifying utilities within the project limits, the conflicts and proposed resolutions, time impacts, cost responsibilities, and supporting documentation;
- Relocation plans, certified by CK, will be submitted to VDOT for review / approval prior to the start of the relocation.

Since the entire project is within the City of Alexandria, all utilities are considered to have *"Prior Rights."*

Stage 3 – Accomplish Relocations / Conflict Resolutions
The CK Team, utility companies, or both, will complete relocations per the approved design. ***Should the affected utility companies not be available to quickly relocate their utilities, the CK Team will, with the utilitie's approval, use our own forces to relocate and keep the project moving.***

Stage 4 – Final Completion
The CK Team certifies to VDOT that conflicts were resolved, relocations accomplished, and as-builts completed and submitted per VDOT and utility owner requirements.

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

As illustrated on our Organizational chart, Keith Kennon, PE will lead the utility efforts coordinating with Scott Weber, LS for field location service survey and our Construction Utility Manager, Jeff Chesak. Jeff and Keith will band together to mitigate utility impacts during design and construction. The team will utilize our Four-Stage Process above to get the job done.

During this pre-award phase, the CK Team has proactively met the utilities identified and made personal contact with ALL known utilities in the corridor, integrating data from these contacts into the CK's Team Conceptual Plans and schedule. These designs are refined with the hard data from the utility database and define conflicts and potential conflicts identified.

The next step is coordinating with the utility companies to resolve issues, eliminate uncertainty of possible conflicts, and develop relocation plans and schedules for confirmed conflicts. Relocation schedules are integrated into the Project Master Planning Program and CPM Schedule. Additional mitigation strategies include overtime work and overlapping relocation work of several utility companies, such as common excavation for utilities in the same location. This strategy would reduces schedule and traffic impacts.

A significant impact is discovering an unknown utility within the project limits. There is high confidence in the as-built information from the major public utilities for this location on one of the most important interstate

corridors in the state, i.e., water, sewers, gas, electric, and communications. However our focus will still be on finding unexpected conduits and/or ductbanks associated with the operations of I-395 within the right-of-way. CK's Utility Team will be on the hunt for unknown utilities through initial field walks. Telltale signs can be unmarked valves or pull boxes, cleared tree lines or long narrow strips of replaced asphalt. If any of this surface, additional research and exploration will be conducted prior to the plan submittal for this area.

If an unknown utility is found, such as a potentially secure DOD facility, the schedule reserves will present a resolution without impact on the final delivery. Our construction sequencing in Section 4.5 identifies possibilities for concurrent work and provides the advantage that unexpected utility conflicts discovered in one area will not affect progress in other priority areas.

Our construction sequencing in Section 4.5 identifies possibilities for concurrent work and provides the advantage that unexpected utility conflicts discovered in one area will not affect progress in other priority areas.

The CK Team will exercise extreme care during the initial stages of construction when it is most probable that such facilities could be encountered. If or when such an event happens, the CK Team will contact the VDOT Project Manager and NRO Transportation Operations Center (PSTOC), and if necessary cease operations until an impact assessment has been performed. Again, immediate action is required to integrate any additional relocations into the Master Scheduling Plan, using slack time and/or other acceleration process to mitigate adverse scheduling impact.

Anticipated Utility Relocations: Based on the preliminary design, anticipated utility relocations are identified in TABLE 6: UTILITY MATRIX.

TABLE 6: UTILITY MATRIX

Station	Utility	Utility Owners CK Team Previously Worked With	Utility Conflict?		Description	Mitigation
			Per VDOT RFP Plan	CK Team Design		
I-395 NB Sta 268+00 to Sta 341+00	Communication (copper and F.O.) Ductbank (under existing NB I-395 shoulder and across the Sanger Avenue Bridge)	VDOT Century Link	Yes	Yes	Pavement widening and Sanger Avenue Bridge widening	Relocate ductbank under new shoulder or east of I-395 and west of Van Dorn Street within existing VDOT ROW. Relocate ductbank on widened Sanger Avenue Bridge structure.

Table 6: Utility Matrix (continued)

Station	Utility	Utility Owners CK Team Previously Worked With	Utility Conflict?		Description	Mitigation
			Per VDOT RFP Plan	CK Team Design		
I-395 NB Sta 268+00 to Sta 341+00	Electrical service lines (under existing NB I-395 shoulder and across both sides of the Sanger Avenue Bridge)	VDOT and/or Dominion VA Power	Yes	Yes	Pavement widening and Sanger Avenue Bridge widening	Relocate conduits under new shoulder or east of I-395 in general vicinity as shown on conceptual and profile plans. Relocate conduits on widened Sanger Avenue Bridge structure.
I-395 NB Sta 282+80	Overhead electrical lines crossing over I-395	Dominion VA Power	Possible	No	Vertical clearance to sound wall and potential equipment interference during construction.	Verify clearance. De-energize during construction. Utilize alternate sound wall designs. (DVP is currently considering revising existing facilities to underground or higher poles overhead as a betterment).
West side of N Van Dorn (NB I-395 Sta 282+80-310+50)	O/H Elect pole line	Dominion VA Power	Possible	Possible	Construction access across/under and along.	Does not appear to be a conflict – will be confirmed during Final Design.
I-395 NB Sta 306+00	Underground electric lines	Dominion VA Power	Yes	Yes	Abutment widening at Sanger Avenue Bridge.	De-energize during construction. Temporarily support utility in excavation for abutment footing.
I-395 NB Sta 310+50	Overhead electrical lines crossing I-395	Dominion VA Power	Yes	No	Equipment conflict during sound wall / underground ductbank installation and/or proposed drainage construction.	De-energize during construction. Utilize alternate sound wall designs / construction method.
I-395 NB Sta 290+20	30" RCP Underground sanitary sewer	City of Alexandria	Unlikely	No	Sound wall footing could impact sewer line.	Design sound wall to avoid the sewer line.

Table 6: Utility Matrix (continued)

Station	Utility	Utility Owners CK Team Previously Worked With	Utility Conflict?		Description	Mitigation
			Per VDOT RFP Plan	CK Team Design		
I-395 NB Sta 290+20	30" RCP Underground sanitary sewer	Fairfax County	Unlikely	No	Sound wall footing could impact sewer line.	Design sound wall to avoid the sewer line.
I-395 NB Sta 336+00	Underground water main	Virginia American Water	Possible	No	Excavation for pier footings could impact utility. Roadway widening to east could require relocation.	Design bridge spans to avoid utility and revised NB ramp profile.
I-395 NB Sta 336+00	Medium pressure 12" gas main in 16" steel casing	Washington Gas	Possible	No	Excavation for pier footings could impact utility. Roadway widening to east could require relocation.	Design bridge spans to avoid utility and revised NB ramp profile.
I-395 NB Sta 336+00	Underground Electric Ductbank	Dominion VA Power	Possible	No	Excavation for pier footings could impact utility. Roadway widening to east could require relocation.	Design bridge spans to avoid utility and revised NB ramp profile.
I-395 NB Sta 336+00	Underground Communication Ductbank	Verizon, including AT&T	Possible	No	Excavation for pier footings could impact utility. Roadway widening to east could require relocation.	Design bridge spans to avoid utility and revised NB ramp profile.
I-395 NB Sta 339+10	Underground Electric Ductbank	VDOT	Possible	No	Excavation for pier footings could impact utility. Roadway widening to east could require relocation.	Design bridge spans to avoid utility and revised ramp profile.
I-395 NB Sta 339+25	Underground Electric Ductbank	VDOT	Possible	Unlikely	Utility profile data unavailable. Proposed I-395 and NB Ramp widening, cut, and retaining wall construction may impact.	Does not appear to be a conflict due to revised ramp profile – will be confirmed during Final Design.
I-395 NB Sta 341+00	Underground Communication Ductbank	VDOT	Possible	No	Excavation for pier footings could impact utility. Roadway widening to east may require relocation.	Design bridge spans to avoid utility and revised ramp profile.

Table 6: Utility Matrix (continued)

Station	Utility	Utility Owners CK Team Previously Worked With	Utility Conflict?		Description	Mitigation
			Per VDOT RFP Plan	CK Team Design		
I-395 NB Sta 345+00 to 346+00	Underground Communication and Electric Ductbanks	VDOT	Possible	No	Excavation for abutment and pier foundations for Pedestrian Bridge.	Design bridge spans to avoid utility.
I-395 NB Sta 346+00	2" gas line	Washington Gas	Possible	No	Excavation for east sign structure foundation and east MSE ramp walls for Pedestrian Bridge.	Design sign structure and Pedestrian Bridge ramp to avoid utility.

4.4.3 GEOTECHNICAL

The CK Team is comprised of professionals with many years experience in designing and constructing VDOT projects within the unique geologic setting of the I-395 HOV Ramp project. The primary subsurface conditions identified by the Geotechnical Engineering Data Reports (GDR) include existing embankment fill, Tertiary terrace deposits, Cretaceous sediments of the Potomac Formation, residual soils derived from the in-place weathering of schist, and to a lesser extent, limited alluvial deposition in the vicinity of the Holmes Run crossing.

Bridge Structures: The CK Team analyzed the data and developed these major geotechnical risk mitigations relative in Table 7 to constructing the HOV Ramp Bridge approach, Pedestrian Bridge approaches, and widening the existing bridge over Sanger Avenue:

TABLE 7: GEOTECHNICAL RISK MITIGATION

Risk	Location	Mitigation
Settlement	Widening of Bridge Over Sanger Avenue	Obtain additional test borings and soil tests to determine in-situ settlement characteristics of sub-grade at abutment widening to east. Spread footing at abutment widening to east – Utilize a construction sequence for settlement to occur prior to installing the deck. Spread footing at abutment widening to west – Utilize expanded polystyrene geofoam to minimize the additional load on the existing footing.
Settlement	HOV Ramp Embankment	Obtain additional test borings and soil tests to determine in-situ settlement characteristics of subgrade. Determine construction methodology to limit downdrag on abutment piles. Construction monitoring of settlement.

Table 7: Geotechnical Risk Mitigation (continued)

Risk	Location	Mitigation
Settlement	Pedestrian Bridge	Obtain additional test borings and soil tests to determine in-situ settlement characteristics of subgrade. Determine construction methodology to limit downdrag on abutment foundations. Construction monitoring of settlement.
Vibration	Seminary Road Bridge / HOV Ramp Bridge Interface	Utilize steel H-piles at the new HOV Ramp Bridge piers adjacent to Seminary Road Bridge. Construction monitoring of vibration during pile driving.
Heave Potential	Seminary Road Bridge / HOV Ramp Bridge Interface	Utilize low displacement steel H-piles at the new HOV Ramp Bridge piers adjacent to Seminary Road Bridge. Construction monitoring of movements during construction.

HOV Ramp Bridge: The team selected driven H-pile foundations at the HOV Ramp Bridge to minimize displacements leading to excessive vibration and heave at the adjacent Seminary Road Bridge. Even though the existing Seminary Road Bridge is founded on a combination of spread footings and driven piles, Pier 2, where the proposed HOV Ramp will tie-in to the existing structure, is founded on 12 inch, 35-ton octagonal pre-stressed concrete piles, spaced on 3 ft centers, with 3 on 12 batter piles extending longitudinal to the centerline of pier. Piles for the HOV Ramp pier will be designed to avoid conflicting with the existing battered pile tips at Pier 2 of the existing structure.

Construction monitoring will verify performance relative to heave and vibration effects upon existing structures located within 20 ft of new pile installations. Field monitoring will also verify MSE approach embankment settlement for the HOV Ramp. Friction pile foundations will be designed based upon an AASHTO LRFD resistance factor of 0.65, with associated field verification of capacity to include dynamic pile testing with a Pile Driving Analyzer (PDA) to assess the pile capacity at the end of the initial drive, set-up at beginning of re-strike, along with CAPWAP signal matching.

The approach embankment for the HOV Ramp Bridge will be retained by Mechanically Stabilized Earth (MSE) walls. The maximum height of the embankment and wall at the bridge abutment is approximately 26 ft. Due to the relatively narrow width of the ramp, the MSE wall will be a “wrap around” wall at the abutment wherein the soil reinforcement of the back-to-back walls overlap. The embankment is underlain by compressible sands and clays. Additional borings and laboratory testing will assess the long-term settlement and global stability of the embankment. However at this time, based upon the preliminary geotechnical information provided, we are confident we can design the MSE walls to mitigate this potential settlement.

Bridge Over Sanger Avenue: Abutments for the Bridge over Sanger Avenue will be widened approximately 17’-8” on the NB side and 3’-3” on the SB side. The existing abutments are founded on shallow spread footing foundations bearing at Elevation 107+/- and originally designed for a maximum allowable bearing pressure of 4,000 lbs. per square foot.

The foundation for the NB abutment widening and new wingwalls will approximately match the spread footing foundations for the existing bridge. However, recent borings obtained for the widening of the Bridge over Sanger Avenue identified the presence of potentially compressible soil materials within 10 to 12 ft of the bottom of footing (BOF). Using spread footing foundations for the abutment widening may result in settlement

of the new abutment relative to the existing abutment. Using driven piles to mitigate potential settlement of the widened structure was considered, but vibration during pile driving could also induce settlement of the existing structure. Therefore, spread footing foundations were selected. To mitigate settlement, abutment construction will be staged for settlement to occur before placing the bridge deck to eliminate the differential movement between the existing and widened decks.

The SB abutment will be widened 3'-3"using lightweight fill (Expanded Polystyrene (EPS) Geofoam) placed between the existing wingwall and the new proposed wingwall. The average bearing pressure acting on the footings for the widened south and north abutments is 3,800 and 4,000 lbs. per square foot, respectively. These bearing pressures are less than or equal to the allowable bearing pressure of 4,000 lbs. per square foot which the footings were initially designed to resist. Lightweight fill minimizes the increase in bearing pressure acting on the footings, thereby minimizing any additional settlement of the existing footings.

Pedestrian Bridge: The Pedestrian Bridge piers will be supported on drilled shaft foundations. The shaft tip elevations are estimated to range E1. 140 to E1. 195 depending on the pier location, shaft loads and diameters. Abutment foundations will be supported on either drilled shaft or driven pipe pile deep foundations. The load-carrying capacity of the foundations will be derived primarily through side resistance of the Terrace Deposit soil profile.

The approach embankment fills at the two abutments will be supported by MSE retaining walls. The maximum height of walls at the abutments will be approximately 20 ft above existing grade. The load imposed by the embankment fills will induce settlement of the soils underlying the embankment. Based on preliminary analyses, the magnitude of settlement could be in the 2-4 inch range. This magnitude will potentially induce downdrag loads on the pile or drilled shaft foundations. Construction methodologies, including staged or sequenced construction, will reduce the magnitude of settlement and downdrag load on the deep foundations. This additional load would be minimized if the deep foundations were constructed after the embankment was constructed and settlement was allowed to occur. Alternatively, the foundations could be constructed prior to embankment construction, and *"cans"* placed around the portion of the shafts or piles in the MSE wall fill zone. This would reduce, but not eliminate, the downdrag load on the foundation. The deep foundations will be designed to resist the expected imposed downdrag loads.

Roadway Sub-grade: Based on the available information, the proposed NB roadway widening is expected to be within the existing embankment or in cuts in natural soils, with the majority classified as sandy soil. ***Our Geotechnical Engineer, Bob O'Connor, PE will work closely with the Construction field staff to inspect pavement sub-grades and minor structure excavations just prior to placing aggregate base, sub-base, or bedding to identify unstable areas.*** Unstable clayey soils, or any high plasticity or organic classification soils (USCS – CH, MH, OH, OL) will be addressed during the final geotechnical evaluation. The moisture content of sandy soils that may be deemed unstable appears to be within a range suitable for aeration and re-compaction. In-situ stabilization with cement or quick lime is not anticipated because the soils consist of sand or low-plasticity clays that typically do not require treatment or special processing. Design staff will assist the construction staff to develop an excavation and earthwork plan.

Our Geotechnical Engineer, Bob O'Connor, PE, will work closely with the construction field staff to inspect pavement sub-grades and minor structure excavations just prior to placing aggregate base, sub-base, or bedding to identify unstable areas.

Mainline and Ramp Cut Slopes: There are two proposed side-hill cut slopes along the NB widening. The first, located

at the Duke Street Ramp between NB I-395 Stations 268+50 and 277+50 involves steepening an existing slope or man-made berm, with existing side slopes approximating 2.5(H):1(V) to 2(H):1(V). There is a possibility that the berm is not well-compacted and/or contains unsuitable materials for proper slope maintenance. This will be evaluated in the final design, however, with the entire cut section being above the apparent top of the Potomac Formation clays and maximum proposed slope heights under 20 ft, the planned 2(H):1(V) is a reasonable design assumption, notwithstanding the possible necessity for some re-grading of the steeper proposed slope face to improve surface stability.

The second cut area is between I-395 HOV Stations 215+00 and 236+50 along the east side of the roadway widening. Based on the results of the existing borings, the cuts here will typically be in terrace deposits (low plasticity clayey sands and sandy clays) or fill material derived from terrace deposits. Based on the results of stability analyses, slopes cut at 2(H): 1(V) slopes will be stable and meet the required factors of safety (FOS of 1.3 for non-critical slopes and FOS of 1.5 for critical slopes).

Mainline Fill Walls: With the exception of the Holmes Run crossing near NB I-395 Station 290+00, fill retaining walls approximately 7 ft high will be required for the NB roadway widening in side slope fill sections. South of NB I-395 Station 315, the retaining walls will consist of a combination of soldier pile and concrete panels with a post and panel sound wall above. The soil will be retained by concrete panels supported by soldier piles embedded in drilled shafts. The drilled shafts supporting the retaining walls will be spaced at 8 ft intervals. The post and panel sound wall will be supported on alternating drilled shafts spaced at 16 ft. The drilled shafts supporting the sound wall will also support the concrete panel retaining wall. The drilled shafts have been dimensioned to resist the lateral loads induced by the retained fill plus the lateral and vertical loads imposed by the sound wall so that the deflection of the sound wall does not exceed the allowable deflection of H/240 where H is the wall height.

At Holmes Run Crossing between approximate NB I-395 Station 288+75 and Station 290+50, the existing cross sections indicate that the side slope above the culverts and pedestrian tunnel headwall is at an approximate 1.5(H):1(V) inclination. Using soldier piles and post and panel sound walls is not feasible at this location due to the steepness of the slope and obstruction of the underlying culverts. In this area, the widened roadway over Holmes Run can be supported by Mechanically Stabilized Earth (MSE) walls without adversely affecting the existing culverts and pedestrian tunnel (See Figure 7 on Page 17). The 25 ft tall sound wall over Holmes Run will be mounted on a moment slab supported on the MSE wall fill. It is proposed to use lightweight sound wall panels to minimize the vertical load over the culverts and pedestrian tunnel. The existing slope will be benched in front of the MSE wall to develop the required bearing capacity and global stability for future maintenance. Global stability analyses indicate that a safety factor of 1.5 can be achieved using this configuration.

NB I-395 Ramp Fill Sections: North of about NB I-395 Station 334, the typical section will consist of a short retaining wall / barrier, such as VDOT's standard RW-3 cast-in-place concrete wall or other VDOT approved walls, will be placed at the edge of the shoulder to retain a 2(H):1(V) slope to existing ground.

NB I-395 Cut Sections: To facilitate the widening of NB I-395, north of about NB I-395 Station 315, there will be cut excavations into the existing embankment. Relatively low-height retaining walls will be required, such as VDOT's standard RW-3 cast-in-place concrete wall or other VDOT approved walls.

Ground-Mounted Sound Walls: Ground-mounted sound walls will be located near the top of the slope along the west side of the SB lanes to accommodate future widening of SB I-395. These sound walls will consist of post and panel walls supported by drilled shafts. They will also be along the east side of the NB lanes, north of about NB I-395 Station 315 and will be either post and panel walls supported by drilled shafts or Fanwalls.

The sound wall foundations will be designed to limit the wall deflections to be within the allowable limits. Landscaping is proposed along the sound walls as depicted on the Conceptual Plans.

4.4.4. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

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

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

Our QA/QC program will be in accordance with *VDOT's Minimum Requirements for Quality Assurance and Quality Control on Design Build and Public-Private Transportation Act Projects, January 2012.*

During our Partnering meeting, representatives from VDOT, Utilities, Local Jurisdictions, and other involved stakeholders will be invited to discuss and resolve *"rocks in the road"* to achieve quality goals. Including Quality in the Partnering meeting's agenda has proven successful on our past projects.

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

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

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

QA/QC design procedures goals are:

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

A flow chart for the design QA/QC process described below is shown below right as figure 8.

Checking Design Deliverables: It is essential that the design deliverables show complete and clear fabrication and construction requirements / details. The Design QA & QC lead will develop a QA/QC Plan and is responsible for implementation. The processes / procedures defined in the Plan will be strictly enforced and thoroughly documented to minimize VDOT reviews.

Design Preparation: Design deliverables will be prepared under the Lead Discipline (Structural, Roadway, ITS, Drainage Geotechnical, etc) Engineers. Weekly meetings will be held throughout the design process, led by the Design Manager, and include the Lead Discipline Engineer, QC staff, the Construction Manager or their representative and representatives from key construction team members, such as the fabricator and erector. VDOT can also participate in these meetings at their discretion. These meetings reduce overall design and VDOT review time by facilitating coordination of design and construction requirements.

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

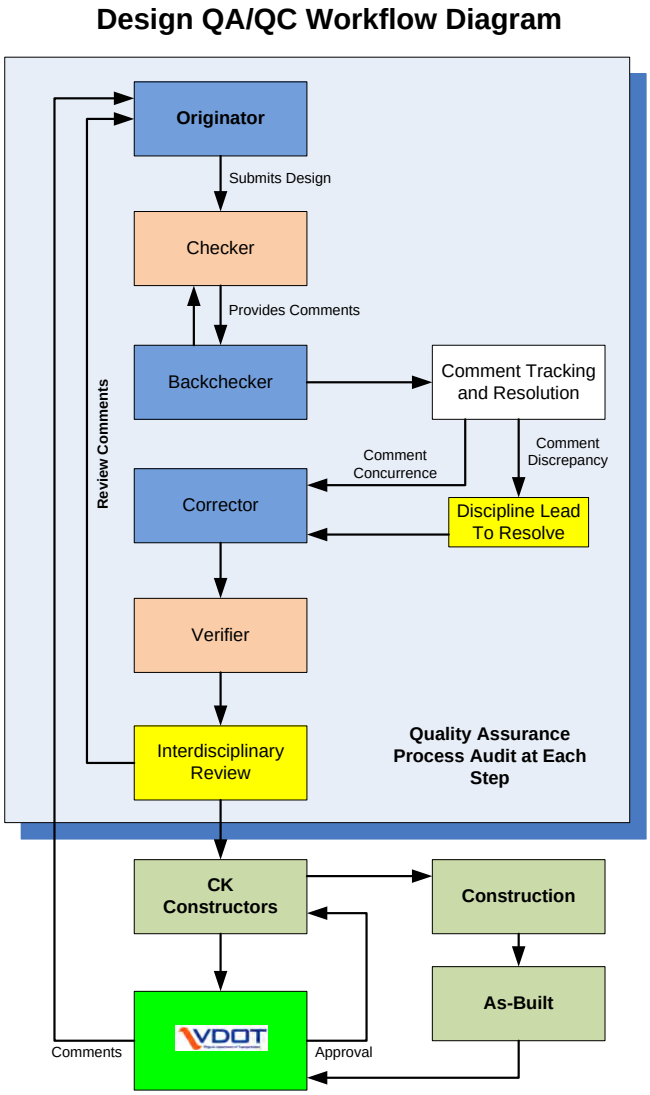


Figure 8: Design QA / QC Workflow

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

Checker – Independent of the originator and checks the deliverable. The checker reviews every aspect, including input required for design programs that are a part of the calculation set. The checker marks up the stamped deliverable set with comments and returns the set to the originator. The checker is a senior staff member with the experience to check the design.

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

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

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

Interdisciplinary Review – Once checking the design deliverable is completed, the Design Manager organizes all discipline leads (structures, roadway, drainage, utilities, ITS, etc.) to review the submittal. Concurrently, the Construction Manager and QC group reviews the submittal for constructability. If there are comments from the Interdisciplinary Review, the checking procedure starts from the beginning for the affected portions of the deliverable.

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

Contractor Review- As a final review, prior to submitting to VDOT, the contractor will again review for constructability and conformance to his anticipated means and methods.

Submit to VDOT – The Lead Discipline Engineer signs a form that all QA/QC efforts are in accordance with the required procedures and transmits it to the Design Manager. The Design Manager and Contractor sign off their acceptance. At this time, the deliverables are ready to be signed and sealed by the Lead Engineer as a Professional Engineer registered in the Commonwealth of Virginia and our Project Manager submits the completed and reviewed documents to VDOT for information and approval. VDOT reviews the design and submits any comments to the CK Team. If VDO has any comments, the Team addresses them into the final design, as appropriate, and resubmits the design for VDOT approval. The approved plans will be used to construct the I-395 project.

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

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

Our goal is to encourage "over the shoulder reviews" by VDOT during the design process and "doing it right the first time", thereby minimizing comments and reviews from VDOT and other reviewing agencies.

One Unique Design QA/QC Element: The team recognizes that the retrofit work on the Seminary Road Bridge is one of the most unique and critical design elements in the project. It includes the removal and replacement / widening of the bridge deck, as well as superstructure and substructure rehabilitation with structural repairs in accordance with the latest Biennial Inspection Reports, elimination of deck joints, girder retrofit at fatigue prone areas, and bearing replacement. In addition to meeting all structural design requirements of VDOT and AASHTO, details for this work must be closely coordinated with the MOT requirements of Seminary Road and the surrounding roadways. The retrofit details must also be coordinated with the design of the HOV Ramp Bridge that abuts the south side of the Seminary Road Bridge, since there will be a continuous deck between these two bridges. Checking the design deliverables described above will be used to check the drawings and calculations for the work on the Seminary Road Bridge. When completed, results will be relayed onto the design drawings to be used for construction. It is imperative that the information in the design calculations is accurately transposed to the drawings.

The engineer will design the deck replacement and bridge rehabilitation work per the RFP, Part 2, Technical Requirements; *the 2010 AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010; 2010 Interim Specifications; most current version of VDOT Modifications (IIM-S&B-80); and the Additional Substructure and Foundation Criteria attachment (Attachment 2.2.a).* Upon completiong design element, the designer starts the internal QC process as noted in *Figure 8: Design QA/QC Workflow Diagram* on Page 33.

Specific design calculations for the Seminary Road Bridge rehabilitation include fatigue analysis and design of fatigue retrofit details; finite element analysis at the interface with the HOV Ramp Bridge; analysis of existing piers due to bearing fixity changes, replacement bearings, and deck joint elimination; design of the deck joints at the abutments; and repair details for the superstructure and substructure in accordance with the latest Biennial Inspection Report. Preliminary calculations for many of these elements have been performed during the pre-award phase to determine the magnitude of the required rehabilitation, thus reducing VDOT's risk regarding the scope of the work to attain a 75-year design life for the bridge. The results of these preliminary calculations are described in Section 4.3, Design Concept. The design QA/QC process strives to deliver VDOT complete deliverables that minimizes their review efforts. All design deliverables will be processed through our thorough QA/QC program.

Construction QA/QC: No matter how accurate the design is, its implementation during construction will determine the projects ultimate success. Effective and aggressive Quality Control, positively supported by management will drive the project toward success from the contractor's profit perspective, as well as VDOT's and the community perspectives. Achieving this goal takes pre-planning and effective communication of that plan. Prior starting construction, while design is still in progress, the DBPM, CM, QC Manager and QAM will hold a lessons learned planning forum. ***Based upon their collective judgment, they will identify the 20% of work tasks that will cause 80% of the quality challenges.*** Specific inspection and testing plans (ITPs) will be developed for those critical items and distributed to the Foremen, QC Inspectors and QA staff to use as a guide

in performing and inspecting the work. Based upon past history and shared experiences, additional witness and hold points above those required by VDOT will be identified, and then enforced in the field by the DBPM, CM and QC Manager and their staff. Documents releasing work at each witness / hold point are identified on the ITPs and documented for review by the QAM or VDOT, as appropriate. Our goal is to perform work *"right the first time"* and if issues are identified, determine the root cause and then correct the overall underlying cause.

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

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

WE WILL NOT PERMIT:

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

Project Document Control and Maintenance: The QA and QC teams will follow VDOT's Design Build QA/QC Guide, VDOT's Construction Manual and Materials Manual, among others for document control. The QAM monitors the QC team in preparing and submitting records daily, including daily work, inspection and material test reports. A master set of QA documents (hard and electronic) with submittal, RFI, and photo logs, is maintained by the QAM at the field office to include Preparatory meeting minutes, completed QC and QA

inspection checklists / test reports, Materials Notebook entries and corresponding materials tests reports, invoices, and TL weigh sheets. A customized tracking log will monitor information.

One Unique Construction QC/QA Element: We evaluated the critical construction risks on the project identifying the 20% of the tasks that represent 80% of the risk. That analysis identified construction of the Ramp Bridge, MSE Ramp Wall Construction, Deck Replacement on the Seminary Ave Bridge, Utility Relocation and MOT as the most likely to cause the majority of the risk. After several internal discussions, we anticipate that the MOT on I-395 and Seminary Road will be the major risk factor on this 20% list having the most impact to VDOT if not performed properly. Not providing effective MOT could cause tie-ups and congestion south to Occoquan on I-95 or northwards into the District. The CK team has learned firsthand on the substantionally completed Telegraph Road (I-495 / I-95) project how to handle traffic control. On this new project, we will employ these lessons learned from that and other projects where we effectively managed high volumes of urban commuter traffic through tight, congested construction zones.

With the high volumes of traffic on I-395 and the associated ramps, our QA/QC team must verify that Contractor and Subcontractor personnel closely follow the approved Traffic Management Plan. All traffic controls are checked that they are set up in accordance with the applicable contractual versions of the *Manual of Uniform Traffic Devices (MUTCD)* and the *Virginia Work Area Protection Manual (VWAPM).* Failing to efficiently move vehicles through the construction zone will impact traffic in the entire Northern Virginia area, backing up morning traffic south on I-95, and in the afternoon back into Washington, DC. As part of the approved project-specific QA/QC Plan, a Preparatory Inspection Meeting will be held for Maintenance of Traffic. This preparatory meeting will be classified as a hold point in the schedule and representatives of the design-build contractor, subcontractor(s), quality control and quality assurance managers and inspectors will be required to attend. In addition, Department representatives and other stakeholders, such as EMS, police, and the City of Alexandria, will be invited and encouraged to participate, as these meetings are intended to facilitate a dialogue between all project stakeholders. Items up for discussion could include using Syncro, QUICKPLUS and other appropriate programs to evaluate adjustments to signal timing necessary on the second level ramp or adjacent local streets to minimize impacts from construction on Seminary Road or Sanger Avenue. It could also include signal pre-emption for transit, police or EMS vehicles.

For this project, our QA/QC approach to the unique construction element of maintenance of traffic on I-395 and associated ramps would start during the development of the project-wide TMP in the early stages of design. Our Construction MOT personnel will be reviewing the initial MOT Plan based upon their expertise on our past projects, such as Telegraph Road, where we streamlined the original 10 phases of MOT to six phases, and reduced our time on the road by months.

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

- Project Phasing;
- Temporary Traffic Control Plans;
- Motorist and Pedestrian Considerations;
- Daily Lane and Shoulder Closure Standards/Set Ups;
- Coordination with adjacent construction projects or special events;

- Coordination with other stakeholders, including EMS responders, Police, local schools & transit agencies;
- Equipment and Materials Storage;
- Temporary Signing, Marking, and Signals – including TCB and temporary pavement stripping;
- Public Communications;
- Incident Management.

QC Inspectors will regularly drive the work zone to confirm that the Temporary Traffic Control (TTC) devices are per plan and operating properly. These daily inspections will take place after any temporary MOT devices are set up for daily activities and at the end of each work day to make certain the work zone is safe and no unnecessary signage remains in place. In addition to reviewing the work zones for correct signage and devices, inspectors will also check that devices are clean and have the proper retro-reflectivity. Additional inspections will be performed when there are traffic pattern changes or severe weather can potentially impact the MOT devices and markings.

4.4.5 COORDINATION WITH THIRD PARTIES

Another key to project success is coordinating with the large host of third parties involved in this highly-visible project. Coordinating design and construction with these groups will head-off conflicts that could impact the schedule and public. Ongoing communication with third parties also facilitates better planning and positions our project to take full advantage of reversible lane closures that may be scheduled for other projects.

Key third parties include:

- City of Alexandria Council, Transportation and Environment Department; Parks and Recreation Department;
- City of Alexandria Police, Fire and EMS Departments;
- Virginia State Police;
- Inova Alexandria Hospital;
- Utilities;
- Virginia Megaprojects and Nearby VDOT and other projects:
  - I-495 Express Lanes (Fluor-Lane/Transurban);
  - I-95 Express Lanes (Fluor/Transurban/CH2M Hill);
  - I-95 HOV/HOT Ramp at Fort Belvoir North (Shirley);
  - Dept. of Rail and Public Transportation Transit Improvements;
  - VDOT Repair and Preventative Maintenance Contracts;
  - Short and Mid-Term Improvements at Seminary Road (Cherry Hill);
  - Eads St Ramp of I-395;
  - NRO I-395 Gate Control System (GCS) Upgrade;
  - Upgrade Overhead Guide Signs (UPC 102522).
- Hammond Middle School and other City of Alexandria schools;
- Neighboring Homeowners Associations;
- Major employers (Mark Center, etc.);
- Seminary & Southern Towers as well as other high-rise residential complexes;
- DOD;

- WMATA, Alexandria DASH;
- BRAC 133 Committee.

Because certain third parties are significant and/or sensitive, we recommend one-on-one coordination, as well as instituting a broad stakeholder information panel for less critical parties. With regard to the City of Alexandria government, other than police / fire / EMS, utilities and VDOT, we recommend monthly one-on-one coordination and meetings or as needed. Given the importance of smooth coordination with utilities, our team features Jeff Chesak, who is our liaison with utilities. We also recommend forming an Incident Management Team that includes State and City police, fire, and EMS and Inova Hospital that meets monthly or as needed.

Coordinating with the Virginia Megaprojects will occur through the preparation and release of information to the public and monthly meetings and teleconferences as needed. Other stakeholders will be invited to participate in a Stakeholder Information Group we envision meeting every quarter.

Our extensive Outreach Program is structured to reach critical stakeholder needs, plus any other affected party. Our program is predicated on proven techniques that were successful on other major transportation projects throughout the Commonwealth. Vital to the program is a close relationship between VDOT and the CK Team for a cooperative and steady stream of information to stakeholders. Principal activities include:

- **Weekly Project Updates** to VDOT's NOVA District Office of Public Affairs, VDOT's NROC and the City of Alexandria to post on VDOT and the city's websites. At a minimum, this includes proposed design, project overview, plan of work, schedule, potential traffic impacts on I-395 and adjoining roads, potential impacts to traveling public and adjacent / affected property owners, construction sequencing, crossroads or detour routes (i.e., temporary lane closures, bridge closings, milling or paving operations for the following two weeks), up-to-date progress photos, and emergency contact information;
- **Relationship Management:** Public Relations Manager John Undeland will be the link between VDOT and our Construction Manager for compliance with local ordinances and disseminating notification to affected stakeholders and property owners. He will also be the liaison with project stakeholders, media, and general public to facilitate communication during design and construction of the new facilities. Having him accessible through an 800 phone number creates an avenue for the public to request information and/or express concerns throughout the project;
- **Traffic Alerts** will notify the NOVA District Office of Public Affairs in the timeframes specified;
- **Bi-Weekly Meetings** will be held between the key stakeholders due to the project's high visibility and significance;
- **Regular Coordination Meetings** between the CK Team and adjacent construction contractors will discuss schedules with active adjacent projects;
- **Partnering Meetings** involving key stakeholders to discuss the schedule, lays issues on the table to be resolved, and maintains close coordination.

The CK Team will support VDOT in conducting Informational Meetings with interested third parties (in accordance with the Department's Policy Manual for Public Participation in Transportation Projects, updated 08/2011). Meetings will evolve around discussions of up-to-date maintenance of traffic plans, bridge closings, and detour routes to keep interested parties informed on the various design and construction phases**.** Visual graphics and other informative tools will be presented to describe impacts. Mailers and handout informational flyers, press releases announcing conditions and progress, local TV and/or radio ads, social media sites, and

websites, as partially described above, may be also be used to advertise the meetings, as approved by VDOT. These same tools will provide information to those individuals that cannot attend the meetings.

To minimize project and schedule impacts, the CK Team will develop a TMP that maintains a high level of mobility safely throughout the project limits. The plan's main features are outlined below in the TMP Section 4.5.2 and include traditional means in addition to websites and social media in response to the primary way the public currently seeks out information.

4.5 CONSTRUCTION

4.5 CONSTRUCTION OF THE PROJECT

4.5.1 SEQUENCE OF CONSTRUCTION

The CK Team's Sequence of Construction for Proposal A, I-395 HOV Ramp at Seminary Road (HOV Ramp), and Proposal B, Combined I-395 HOV Ramp at Seminary Road (HOV Ramp) and I-395 NB Auxiliary Lane Extension (Aux-Lane), are the same. The increased scope for the Aux-Lane in Proposal B is incorporated into the sequence discussed below. Both schedules result in the same milestone and completion dates due to the CK Team committing additional resources to concurrently perform the additional scope for the Aux-Lane.

Our early proposed August 26, 2015 Interim Milestone Date opens the HOV Ramp and rehabilitated Seminary Road and Pedestrian Bridges prior to the influx of traffic and pedestrians stemming from the new school year.

The CK Team's approach for the HOV Ramp Contract is six separate, independent work areas:

1. Pedestrian Bridge and associated approaches;
2. Seminary Road and Bridge;
3. Sanger Avenue Bridge;
4. HOV Ramp Bridge and Median of I-395 (Bridge, MSE Wall and all other associated work);
5. Roadway widening of I-395 to the east to accommodate the HOV Ramp and sound walls, and;
6. Sound walls along SB I-395.

The addition of the Aux-Lane Segment in the Combined Proposal B has not been designated as a separate work area and is incorporated in the above-mentioned work area for roadway widening of I-395.

Each work area in the HOV Ramp contract will be treated individually with its own permitting, utility relocation, ROW acquisition, geotechnical report and design. However, the TMP, QC Plan, Public Outreach Plan, etc. will cover all work areas. If an issue arises in one location, this sequencing allows design and construction to progress in the other work areas, keeping the project moving forward, and reducing overall risks.

Our Sequencing Graphic on Page 50 provides an overall understanding of our sequencing approach.

Design Sequencing: Once notified of Intent to Award, our first course of action is to start Seminary Road traffic counts, confirm existing pavement sections, and develop MOT Plans for early traffic shifts. Critical traffic functions will be putting NB I-395 closer to the inside shoulder and confirming number of lanes maintained on Seminary Road. Design will be started to confirm the only ROW impact is a construction easement required from South Towers at the western approach of the Pedestrian Bridge.

The following sequence is for major design efforts. Our design schedule clearly shows many concurrent designs; most are required to progress the overall schedule. This upper level priority structure facilitates common goals among the CK Team, VDOT Reviewers, and other reviewing agencies, such as the City of Alexandria:

1. Design / permitting the NB I-395 widening, including Sanger Avenue Bridge east widening and the Auxiliary Lane project (if included);
2. Finalize Pedestrian Bridge alignment to minimize ROW impacts;
3. Design Seminary Road Bridge Widening and Rehabilitation;

4. Design HOV Ramp and Bridge;
5. Select / Design Sound Walls, including the acoustical profile and public opinion meetings.

It is vital to describe design priorities as they directly tie to the construction sequence. Prioritizing the design this way identifies early action items for the broad areas requiring longer design / review frames to progress. Opening each independent work area early allows a more efficient construction duration that incorporates realistic weather impacts and provides schedule reserves for conditions, such as unforeseen utility conflicts. We incorporated 30%, 60%, 90% and RFC submittal and review cycles into the schedule for the major design packages.

Construction Sequencing: Several work areas for the HOV Ramp contract include multiple phases. For a general understanding of the work flow, Table 8 illustrates each major work area, the approximate start and finish dates, and number of phases.

TABLE 8: CONSTRUCTION SEQUENCING WORK FLOW CHART

	Start Date	Finish Date
1. Pedestrian Bridge (1 Phase)	**Mar. 2014**	**Aug. 2015**
2. Seminary Road & Bridge (4 Phases)	**Nov. 2013**	**Aug. 2015**
Phase 1	***Mar. 2014***	***July 2014***
Phase 2	***July 2014***	***Nov. 2014***
Phase 3	***Nov. 2014***	***Mar. 2015***
Phase 4	***Mar. 2015***	***Aug. 2015***
3. Sanger Avenue Bridge (1 Phase)	**Oct. 2013**	**Apr. 2015**
4. HOV Ramp Bridge and Median (1 Phase)	**Nov. 2013**	**Aug. 2015**
5. Roadway Widening of NB I-395 (4 Phases)	**Dec. 2013**	**July 2015**
Phase 1	***Dec. 2013***	***Dec. 2013***
Phase 2	***Dec. 2013***	***Feb. 2015***
Phase 3	***July 2014***	***Mar. 2015***
Phase 4	***Mar. 2015***	***July 2015***
6. Sound Walls along SB I-395 (1 Phase)	**Apr. 2014**	**Dec. 2014**
Aux-Lane (3 Phases)	**Oct. 2013**	**June 2015**
Phase 1:	***Oct. 2013***	***Mar. 2014***
Phase 2:	***Mar. 2014***	***May 2015***
Phase 3:	***May 2015***	***June 2015***

1. Pedestrian Bridge: Pedestrian Bridge construction is not a critical path item; however it is a critical activity in achieving the HOV Ramp Interim Milestone. To allow concurrent construction, we eliminated schedule risk by temporarily re-routing pedestrians across the newly constructed Phase 3 Seminary Road Bridge deck. Therefore, the geotechnical investigation for the Pedestrian Bridge and approaches is a schedule priority.

The TMP is more specific in addressing access to the piers along I-395, phasing I-395 to set the beams, and

managing pedestrians along Seminary Road. These will all be accomplished methodically through detailed planning with our Public Relations Team eliminating negative public impacts. Since construction of this bridge could impact I-395 and Seminary Road motorists, the Public Information Group will gain firsthand knowledge of the work through their involvement in our Weekly Schedule Meetings to effectively convey construction planning to the public and mitigate any adverse reactions.

2. Seminary Road Bridge Re-Decking, Approach Slabs, and other Structural Repairs: Seminary Road Bridge work, running concurrently with the I-395 and the HOV Ramp Bridge work, will be completed approximately 30 days later than the HOV Ramp Bridge. Consequently, the Seminary Road re-decking is the critical path for the project. Sequencing Seminary Road Bridge rehabilitation is based on the CK Team's traffic analysis confirming that three traffic lanes or less can be safely maintained through the work zone. Seminary Road construction sequence is based on maintaining three lanes, resulting in a multi-phase re-decking operation, starting on the south side and progressing north in four phases. Several activities will be performed prior to re-decking the bridge: bearing replacements, substructure repairs, and structural steels retrofits. The structure will be tested for lead paint and partial de-leading will take place ahead of the bearing and steel repairs. Final de-leading and painting will be after the re-decking.

One critical concept of the Seminary Road Bridge work is the continuous pedestrian access during construction. For the first three phases of the bridge deck replacement, pedestrians will stay in their existing alignment along the dedicated sidewalk on the north side of the bridge. In Phase 4, pedestrians will be re-routed along the north side of the bridge approaches, cross the new bridge along the interim north edge of the new bridge deck newly constructed in Phase 3, and cross the ramps at the flat grade at the bottom of the approaches where they will be directed by temporary pedestrian crossing signals. These movements will be clearly outlined in the TMP to meet all VDOT requirements.

3. Sanger Avenue Bridge: The Sanger Avenue Bridge requires NB and SB widening. NB work is incorporated into Phase 2 of the I-395 widening work area while the SB widening is concurrent with the SB noise wall work. The NB work has been scheduled to accommodate a differential settlement period between the new and existing structure by pre-loading the substructure period for approximately three weeks. This will be confirmed in the field by our Geotechnical Engineer before follow-on work can progress.

4. / 5. HOV Reversible Ramp Bridge and Median of I-395 and NB I-395 Widening: This work is scheduled in four phases with portions of work overlapping in Phases 2 and 3 for efficient scheduling. Typical sections showing our proposed sequencing can be found in our TMP section on Page 45.

Phase 1: NB I-395's inside shoulder will be improved approximately 5 ft wide at night under single lane closures for Phase 2's shifting of three 12 ft lanes approximately 5 ft to the west. This phase also utilizes the west HOV shoulder to accept traffic. Traffic will shift to the west to accommodate additional working room between the median area and reversible HOV lanes. Barrier wall will be set along the east edge line of the relocated reversible lanes.

Phase 2: Once NB I-395 traffic is shifted towards the median, a concrete barrier wall will be set along the outside edge of NB I-395 to efficiently construct the NB outside widening and required utility relocation. After erosion controls are in place, the road widening, drainage, utilities, retaining, sound and barrier walls, guardrail, lighting, signage and landscaping commences. Once the western 18 ft of the variable width NB widening is complete, the barrier will be relocated to the east for HOV Ramp construction. The remainder of the NB widening will occur concurrently during Phase 3 with the HOV Ramp construction.

One major work item along the NB shoulder is relocating the existing VDOT ductbank. The CK Team will

construct the new ductbank while leaving the existing ductbank operational beneath the new pavement. Once the partial 18 ft widening is complete, the I-395 traffic is shifted eastward above the operational ductbank. This sequencing allows the HOV Ramp construction to begin and takes the HOV Ramp and remaining NB I-395 work off the critical path. Permanent NB I-395 lighting will be installed with the partial roadway widening in conjunction with temporary lighting as needed.

Phase 3: Once the partial I-395 NB widening is performed, the barrier wall will be set along the new edge of pavement, the road restriped, and traffic shifted to the east through lane closures at night. Once traffic is shifted, the barrier wall will be set along the inside edge line to delineate the work area in the median. This allows two work areas along NB I-395 while keeping efficient traffic flow.

Both the HOV Ramp and remaining eastside widening can be constructed concurrently during this phase. All HOV Ramp work will be available for construction at this time and attacked in three areas simultaneously: the roadway / barrier wall to the south of the MSE wall approach, the MSE wall, and the bridge structure. The majority of work will be performed with minimal lane closures. Specific items, such as large deliveries of beams, pier cap forms and deck placement operations that may require a lane closure for staging, will be analyzed, thoroughly planned, and executed for optimal public safety. Operations such as these will be coordinated through our Public Relations Manager. Lane closures will be in accordance with RFP restrictions and our TMP.

Phase 4: Upon completing the HOV Reversible Ramp, the barrier walls on the NB inside shoulder and reversible lanes will be removed. The reversible HOV lanes will then be milled / resurfaced and striped to their final configuration. Once the Seminary Road and Pedestrian Bridges are complete, traffic will be opened up to the third level of the Seminary Road Interchange. Concurrently, the NB outside shoulder will be complete, the barrier wall removed, and the NB lanes opened up to the proposed final configuration.

6. Sound Walls along SB I-395: Sound walls along SB I-395 will be constructed concurrently with the NB walls. Walls mounted on the Sanger Avenue Bridge widening will follow the bridge widening and installation of the ground mounted section. This work includes coordination by the Public Relations Manager in finalizing the sound wall design by scheduling and leading Public Information Meetings.

Staging: The corridor along I-395 and Seminary Road has limited available space for laydown of materials and staging large deliveries. The CK Team will utilize a local yard for storage where materials will be brought into the work area when needed. This keeps the work area clean, efficient, and frees up space. Large deliveries, such as girders, will be staged off site and brought onsite when scheduled for erection, which will take place predominately at night to avoid traffic congestion and keep motorists safe. Noise readings will monitor compliance within the noise ordinance and any non-compliance will be addressed immediately.

Permanent / temporary material deliveries, construction equipment, and the project team make up the majority of construction traffic coming in and out of the site. Safety measures include scheduling deliveries around non-peak traffic hours and transporting craft personnel onsite in groups. To separate construction traffic from motorists, site access and egress will be carefully selected, designed, and routinely checked for effectiveness.

Scheduling and Coordination: As with any Design-Build project, it is vital to understand and communicate the schedule clearly and effectively to the entire team, including stakeholders. The CK Team is proficient in updating and reviewing schedules to develop strategies, stay ahead of the curve, and even beat the CPM schedule. Led by our Construction Manager, Daily Coordination Meetings, Weekly Schedule Meetings, 30, 60, and 90-day look ahead Schedule Meetings, and Schedule Review Meetings will be conducted with field supervision and QC / QA staff present. These regimented forums plan the following work day, week, and

month and ensures critical schedule items are followed. It also gives us ample time, if needed, to fine tune or add resources to keep the job progressing. As with our experience at Telegraph Road, it is critical to coordinate with adjacent projects to avoid schedule delays and communicate plans clearly to the public.

With this sequencing of construction, The CK Team proposes a new Interim Milestone date of August 26, 2015 (one month early), a Substantial Completion date of November 9, 2015, and a Final Completion date of December 9, 2015. ***This completes all work on the new Pedestrian Bridge and local streets prior to the opening of school in 2015!***

4.5.2 TRANSPORTATION MANAGEMENT PLAN (TMP)

Maintaining a high level of mobility safely throughout the project limits is the CK Team's primary objective in the Transportation Management Plan for this Type B Category III project. Proactive media outreach to inform motorists along the I-395 corridor will be paramount to success of this project. TMP strategies will be coordinated with the I-95 Express Lanes project and be consistent with the VA Megaprojects Regional Transportation Management Plan (regional TMP). The CK Team is extremely familiar with successful implementation of this type of TMP within this region, having substantially completed the Telegraph Road / I-495 Interchange construction as part of the Woodrow Wilson Bridge project this past September – ahead of schedule!

The CK Team will coordinate the construction schedule with the Virginia Megaprojects Office (VMO), who will provide public outreach relating to MOT and coordinate the CK Team's requests for Virginia State Police. We will coordinate with the City of Alexandria and obtain approvals for lane closures for city maintained streets. Portable changeable message signs will be deployed on I-395 and Seminary Road as required or outlined in the RFP and coordinate with the Traffic Operations Center for remote operations. Our TMP will address safety and efficiency of adjacent public transportation facilities and roadways and shall be fully coordinated with ongoing projects, including Work Zone Speed restrictions, temporary detours (if required), pedestrian accommodation to include Seminary Road, Van Dorn Street, and Sanger Avenue, required flagging, and temporary lighting.

The CK Team's sequence of construction will be well coordinated with a detailed plan to maintain traffic through the project limits. Allowable work hours depicted in the RFP and VMP Lane Closure Policies and Procedures will be followed, unless alternatives are otherwise approved by the Department.

Below are descriptions of our MOT phases for NB I-395 which correspond to the proposed stage construction described above. Detailed staging plans for the Seminary Road Bridge construction are shown in the concept plans included in Volume II.

NB I- 395

MOT Phase 1: During allowable lane closures, the left shoulder and left lane of NB I-395 will be closed to traffic and traffic maintained in two right lanes. Due to the restricted hours when these closures are allowed, limited work can be performed at one time. Therefore, the longitudinal length of these closures

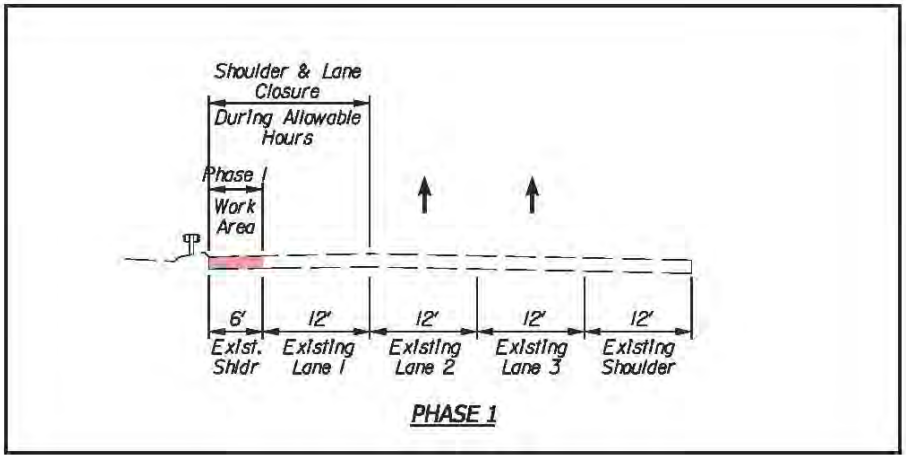


Figure 9: MOT Phase 1

will also be limited – typically at night.

Phase 1 Anticipated Activities: Supplemental survey, geotechnical borings and pavement cores, utility test holes, guardrail inspection, refurbishing the left shoulder to support traffic to meet project specifications.

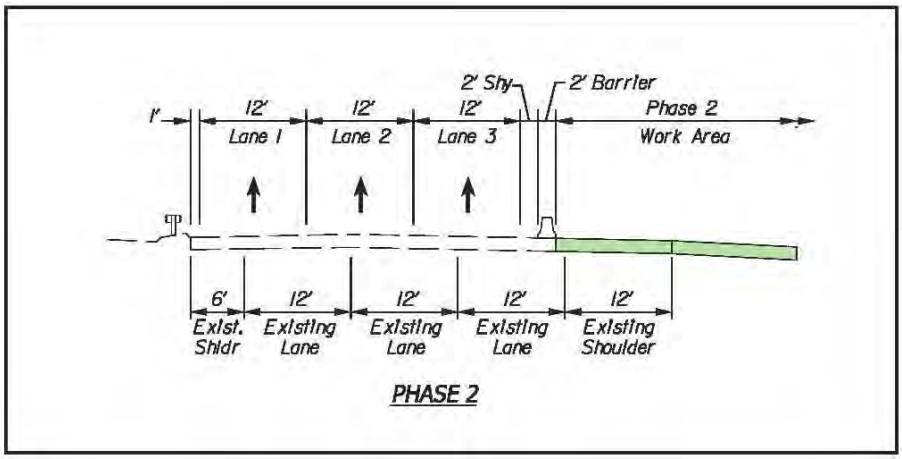


Figure 10: MOT Phase 2

MOT Phase 2: Shift three lanes of NB I-395 to the left. Existing pavement markings will be eradicated and three 12 ft lanes of NB I-395 restriped, beginning 1 ft off left edge of pavement / face of curb. Concrete barrier, Std MB-11A, will be set 2 ft off the right lane to delineate and protect the work zone for the NB I-395 widening, including the auxiliary lane.

Phase 2 Anticipated Activities: Utility relocations, retaining walls along NB Seminary Road ramp, drainage, barrier, pavement construction, signing, sound walls, retaining walls and lighting.

MOT Phase 3: Shift three lanes of NB I-395 to the right onto newly constructed and marked 12 ft lanes for concurrent work on the HOV Ramp and right shoulder of I-395 NB. Set concrete barrier, Std. MB-11A, 2 ft off the left lane to delineate and protect the work zone between NB I-395 and the reversible HOV lanes.

Depending on the construction taking place, additional lane shifts and/or shoulder closures may be required on the reversible HOV lanes. MOT Phase 3 will not be required south of Sanger Avenue.

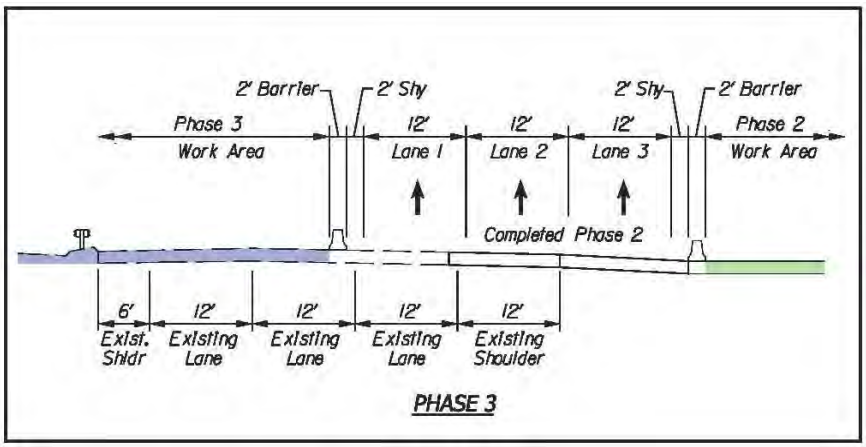


Figure 11: MOT Phase 3

Phase 3 Anticipated Activities: Demolition of existing median, guardrail and pavement, HOV Ramp construction, including MSE wall and bridge construction, and walls, drainage, barriers, signs, lighting, etc. along the east side of NB I-395.

MOT Phase 4: Upon completing Phases 2 and 3, traffic will be re-routed to the ultimate lanes. There will be interim lane closures to complete final surfacing and pavement markings / marker installation.

Public Outreach to Project Stakeholders: The I-395 HOV Ramp / Auxiliary Lane Extension project comes with these set of circumstances mandating a highly-effective public outreach program:

- I- 395 is the most heavily-traveled highway in the greater Washington, DC region with this stretch carrying over 200,000 vehicles per day;
- A recent ranking of local congestion hotspots identified a portion of I-395 just to the north, as *the* single most congested segment of the area's highway network, which is in a region ranked as having the nation's worst congestion in 2011;
- The proximity of other major transportation projects adds to recurrent and episodic congestion;
- The Seminary Road corridor is heavily traveled, including major pedestrian traffic going to and from Hammond Middle School, Inova Alexandria Hospital, and other nearby destinations;
- The recent controversy regarding transportation to serve the 6,000 employees at the Mark Center – the primary reason VDOT is undertaking this project – ensures *this* project will be under intense scrutiny from commuters, neighbors, elected officials, media, and other stakeholders.

While VDOT is limiting lane closures during construction, combined with periodically setting barriers and taking shoulders, is a surefire way to impact traffic flow. Furthermore, the closely confined work on Seminary Road is certain to complicate traffic conditions. Finally, the close proximity of hundreds of residences along the parallel Van Dorn Street stages the project for *"living room inspectors"* to inquire or raise objections when or if impacting / problematic construction takes place. Our Public Outreach Program will be tailored to the local community with an understanding of their current negativity on the siting of the new DOD Mark Center facilities in their mist without adequate public transportation options.

As demonstrated by Stratacomm (our Public Outreach subcontractor), CK, and Parsons Brinckerhoff on the Woodrow Wilson Bridge project and other heavily-traveled and densely-developed local transportation projects, success means early and frequent communication with key stakeholders. Keeping abreast on upcoming construction and knowing how it may affect commuters and residents, Stratacomm is a proven force when it comes to sending messages that resonate with the public and using the right tools to inform and get the public ready before they feel the brunt of any impacts.

Then there is tempering public expectations. As demonstrated on the Woodrow Wilson Bridge reconstruction, 14th Street Bridge rehabilitation, and New York Avenue improvement projects, quantifying anticipated traffic impacts can be enormously persuasive when motivating motorists to steer clear from construction-constricted areas.

For example, on several occasions, bridge and roadway construction on CK Constructors' Telegraph Road project reduced the Capital Beltway to a single lane. Armed with traffic modeling that predicated 14-mile backups, our team effectively used the media to convince drivers to avoid the area. As a result, traffic backups never exceeded three miles.

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

Meetings and outreach will be in accordance with VDOT's Policy Manual for Public Transportation projects. The following outreach activities are recommended to proactively reach key constituencies and will be implemented in conjunction with VDOT's review and approval:

Coordinating with Other Projects: Regular public outreach meetings and calls with upstream and

downstream projects (See Pages 38-39) is essential to staying coordinated and keeping cumulative public impacts to a minimum. In addition to other existing relationships the team has with VDOT and consultants working on neighboring projects, Stratacomm has solid relationships with VDOT Public Relations Director Joan Morris, Megaprojects Communications Director Steve Titunik, and CH2M Hill Public Information Consultant Alex Lee. Furthermore, the Transurban Public Information Manager for the I-95 Express Lanes is a former Stratacomm employee who worked on the Woodrow Wilson Bridge Project. The CK and Stratacomm Team recently utilized these relationships effectively for the benefit of the substantially-completed Telegraph Road Interchange project.

Reaching Out to Elected Officials: Keeping local elected officials and staff abreast of project developments and upcoming work is vital when building and maintaining support. Such influential individuals can either be ambassadors or antagonists. We will assist VDOT by supplying background information in advance when upcoming plans go public and plug them in with their constituents. Often, these elected officials search for content for their websites and newsletters, providing VDOT another tool to positively communicate with affected members of the public.

Being a Good Neighbor: With a multitude of Alexandria residents facing or are near the construction corridor, a proactive outreach campaign is essential. Tools include public meetings at nearby Hammond Middle School and having a presence at homeowner and civic association meetings. Door hangers prior to any particularly impactful work can be considered.

Searching the Web and Social Media: Google and other internet search engines are the primary means when the public seeks information about any given transportation project. We will create and provide clear, current, frequent, and accessible content, including visuals, images and key milestones to the VDOT project webpage. We will also research search engine optimization to ensure the page is a headliner on search lists. With VDOT's concurrence, we will search for positive project news placements in the local Del Ray and West End Patch Web publications.

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

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

Our goal is to provide the public with reliable, up-to-the-minute information to plan their trips—on the Interstate and on adjacent impacted local roads.

In support of VDOT and acting in a capacity deemed preferable, Stratacomm comes to this project with a close relationship with the *Washington Post's* Dr. Gridlock (Reporter Bob Thomson) and Transportation Beat Reporter Ashley Halsey. They also worked extensively with *WAMU's* Martin DiCaro and Adam Tuss, the long-time *WTOP* "Sprawl and Crawl" reporter who recently went to *NBC-4*. They also worked with David Alpert, editor of greatergreaterwashington.com, a highly-respected transportation and land-use blog, as well as the *Alexandria Times* and *Gazette-Packet*.

Regular contact and periodic briefings for traffic reporters at Metro Networks and WTOP generates positive and

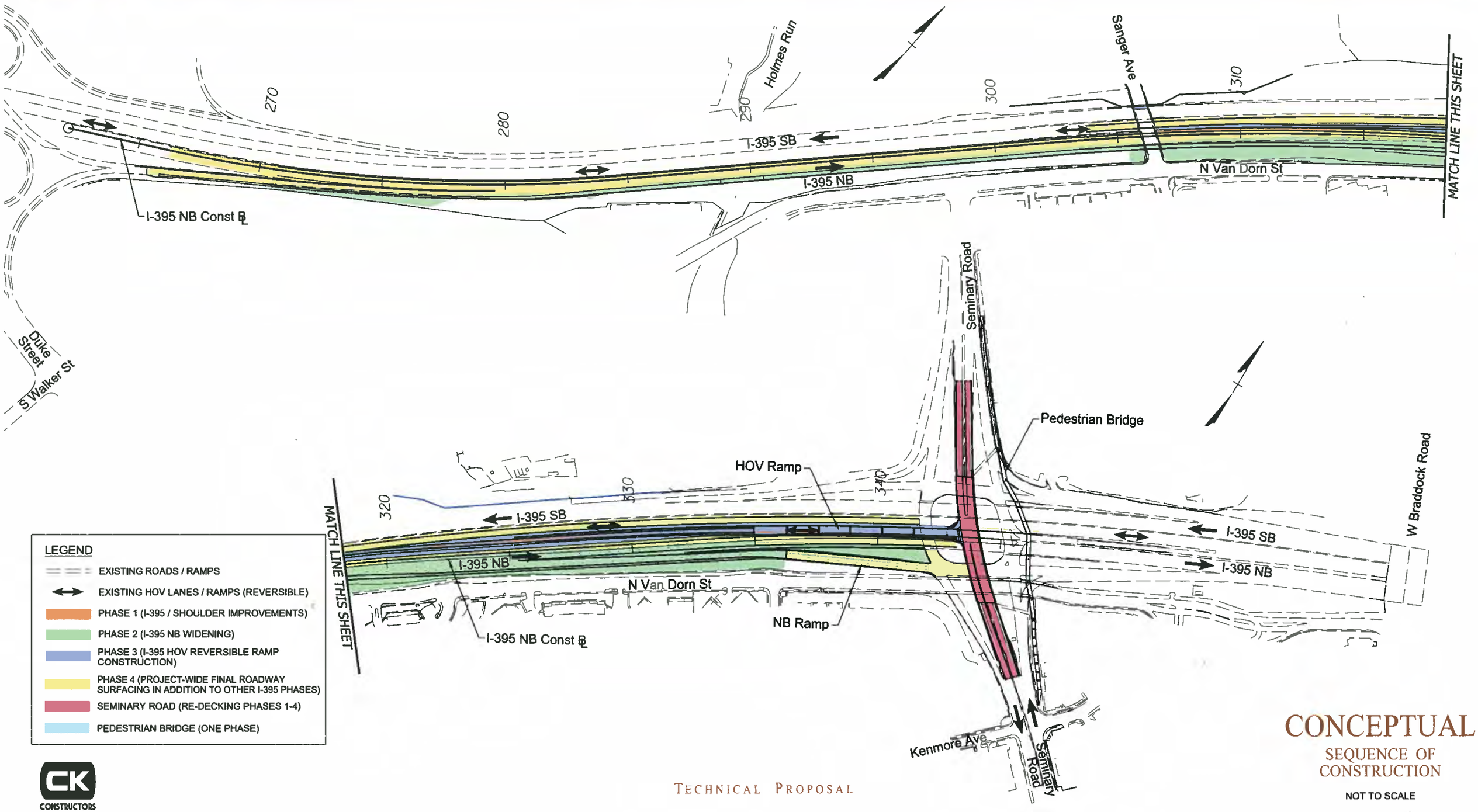
accurate traffic reporting, a resource highly sought after by the public due to the region's chronic traffic woes.

Cultivating Third Parties: Cultivating influential and widely-quoted transportation advocacy groups can aid in enlisting them as allies, amplifying and providing credibility to messages from VDOT. These include the Northern Virginia Transportation Alliance, AAA, and the Greater Washington Board of Trade. A former AAA staffer himself, Public Relations Manager John Undeland has solid business relationships with these group leaders.

Other noteworthy interest groups are the Washington Area Bicyclist Association, Sierra Club and other environmental groups. WABA is a particularly active, organized and vocal group, which will likely be supportive of the wider new bicycle-friendly pedestrian bridge. Environmental groups, which are typically opposed to highway projects, may be supportive of the HOV Ramp addition. Such groups can carry our messages to their members through their blogs, newsletters, or other forms of communication.

Coordinating with First Responders: Coordinating closely with the State Police, Alexandria and Fairfax Police and Fire Departments, and Inova Hospital (which is less than ½ mile from the project) is critical for efficient, effective MOT. We recommend forming an Incident Management Team that meets monthly and as needed. Connecting with these stakeholders and others can elicit suggestions that enhance MOT plans.

Emergency Communications: A Project Personnel Contact List will be updated quarterly to reach key personnel 24 / 7 / 365 in case of an emergency and an 800 Telephone line open around-the-clock will be established and maintained.



CONSTRUCTORS

CONCEPTUAL
SEQUENCE OF CONSTRUCTION
NOT TO SCALE

4.7 DBE

4.7 DISADVANTAGED BUSINESS ENTERPRISES

The CK Team is committed to achieving a 20% DBE participation goal for the entire value of the contract. The following summary of our DBE Subcontractor Participation Plan narrates how we will achieve this goal during design and construction:

Strategies to Meet/Exceed the Goal: Our DB Team encompasses highly-regarded DBE members, including Wiles & Mensch, EBA, Thomas L. Brown, Quinn Consulting Services, Sabra Wang & Associates, and DMY Engineering. Although they were selected based on their premium work and abilities, they will also assist the CK Team in achieving the 20% DBE participation goal through their designated project roles. In addition, we have two SWaM firms, DIW Group & Lorraine Davis Appraisals. During the design and/or construction process, they firms will assist with survey, utility and geotechnical engineering, ROW acquisition, quality assurance, ITS/traffic and electrical/lighting design, and quality control.

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

As we did on the Telegraph Road Project, the CK Team will modify Corman's standard Local DBE Subcontracting Plan to meet the requirements and challenges of the 20% participation goal. The following checklist specifies ways we solicit DBE firms during pre-construction:

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

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

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

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

The CK Team commits to achieving a 20% DBE participation goal for the entire value of the contract.

APPENDICES

APPENDICES

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.

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Technical Proposal Checklist and Contents	Attachment 4.0.1.1	Section 4.0.1.1	no	Appendix 76-78
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Appendix 79
Letter of Submittal	NA	Sections 4.1		1
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	1
Offeror's official representative information	NA	Section 4.1.1	yes	1
Authorized representative's original signature	NA	Section 4.1.1	yes	1
Declaration of intent	NA	Section 4.1.2	yes	1
120 day declaration	NA	Section 4.1.3	yes	1
Principal Officer information	NA	Section 4.1.4	yes	1
Final Completion Date	NA	Section 4.1.5	yes	1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.6	no	Appendix 136-139
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.7	no	Appendix 140-155
Offeror's Qualifications	NA	Section 4.2		2
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any	NA	Section 4.2.1	yes	2

ATTACHMENT 4.0.1.1

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

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
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	2
Revised narrative when organizational chart includes updates since the SOQ submittal, to include Lead QA Inspector	NA	Section 4.2.2	yes	2
Design Concept	NA	Section 4.3		3-17 & Vol II 52-75
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	3-9 Vol II 52-75
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	9-17 Vol II 52-75
Project Approach	NA	Section 4.4		18-40
Environmental Management	NA	Section 4.4.1	yes	18-23
Utilities	NA	Section 4.4.2	yes	23-28
Geotechnical	NA	Section 4.4.3	yes	28-32
Quality Assurance / Quality Control	NA	Section 4.4.4		32-38
Coordination with Third Parties	NA	Section 4.4.5		38-40
Construction of Project	NA	Section 4.5		41-50
Sequence of Construction	NA	Section 4.5.1	yes	41-45 & 50

ATTACHMENT 4.0.1.1

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

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Transportation Management Plan	NA	Section 4.5.2	yes	45-49
Proposal Schedule	NA	Section 4.6		Appendix 80-122
Proposal Schedule	NA	Section 4.6	no	A 80-93 B 106-122
Proposal Schedule Narrative	NA	Section 4.6	no	A 94-105 B 123-135
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.6	no	CD-ROM
Disadvantaged Business Enterprises (DBE)	NA	Section 4.7		51
Written statement of percent DBE participation	NA	Section 4.7	yes	51
DBE subcontracting narrative	NA	Section 4.7	yes	51

Form C-78-RFP

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

1-3-2013
DATE

William G. Cox, President and Attorney-In-Fact
PRINTED NAME AND TITLE

4.6 PROPOSAL SCHEDULE

PROPOSAL SCHEDULE

PROPOSAL A

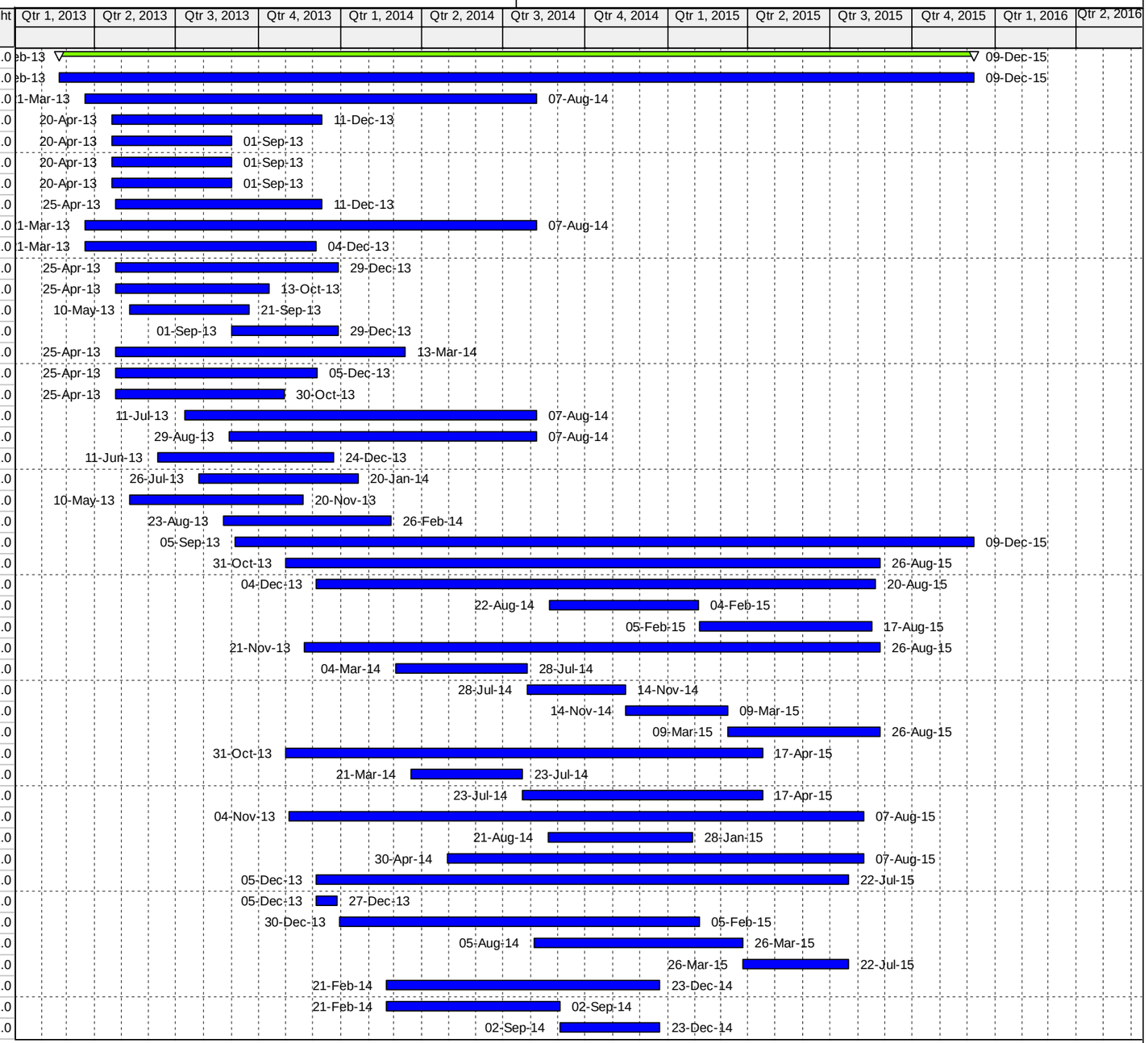
I-395 HOV Ramp at Seminary Road

Proposal A Schedule

WBS with Schedule

04-Jan-13 18:32

WBS Code	WBS Name	Total Activities	Est Weight	Start	Finish
SMRD00.1-3	I-395 HOV Ramp at Seminary Road - Proposal	426	1.0	eb-13	09-Dec-15
SMRD00.1-3.1	Project Overview	15	1.0	eb-13	09-Dec-15
SMRD00.1-3.2	DESIGN	186	1.0	1-Mar-13	07-Aug-14
SMRD00.1-3.2.1	Environmental Permit	38	1.0	20-Apr-13	11-Dec-13
SMRD00.1-3.2.1.1	Median Work	7	1.0	20-Apr-13	01-Sep-13
SMRD00.1-3.2.1.2	Widening Work	7	1.0	20-Apr-13	01-Sep-13
SMRD00.1-3.2.1.3	Westside Work	7	1.0	20-Apr-13	01-Sep-13
SMRD00.1-3.2.1.4	Hazardous Material	10	1.0	25-Apr-13	11-Dec-13
SMRD00.1-3.2.2	Design Plans	148	1.0	1-Mar-13	07-Aug-14
SMRD00.1-3.2.2.1	Roadway / Civil Design / HOV Ramp	21	1.0	1-Mar-13	04-Dec-13
SMRD00.1-3.2.2.2	Traffic Management Plan	27	1.0	25-Apr-13	29-Dec-13
SMRD00.1-3.2.2.2.1	I-395 / Pedestrian Bridge MOT Plan	9	1.0	25-Apr-13	13-Oct-13
SMRD00.1-3.2.2.2.2	Seminary MOT Plan	9	1.0	10-May-13	21-Sep-13
SMRD00.1-3.2.2.2.3	Sanger Ave MOT Plan	9	1.0	01-Sep-13	29-Dec-13
SMRD00.1-3.2.2.3	Soundwall / Retaining Wall Design HOV	13	1.0	25-Apr-13	13-Mar-14
SMRD00.1-3.2.2.4	Utility Relocation / New Facilities	12	1.0	25-Apr-13	05-Dec-13
SMRD00.1-3.2.2.5	Seminary Road Bridge	13	1.0	25-Apr-13	30-Oct-13
SMRD00.1-3.2.2.6	ROW / Easement Plan	13	1.0	11-Jul-13	07-Aug-14
SMRD00.1-3.2.2.6.1	ROW Easement Acquisition	9	1.0	29-Aug-13	07-Aug-14
SMRD00.1-3.2.2.7	Pedestrian Bridge	13	1.0	11-Jun-13	24-Dec-13
SMRD00.1-3.2.2.8	HOV Bridge	12	1.0	26-Jul-13	20-Jan-14
SMRD00.1-3.2.2.9	Sanger Ave Bridge	13	1.0	10-May-13	20-Nov-13
SMRD00.1-3.2.2.10	ITS/Lighting/Signals	11	1.0	23-Aug-13	26-Feb-14
SMRD00.1-3.3	CONSTRUCTION	225	1.0	05-Sep-13	09-Dec-15
SMRD00.1-3.3.1	Ramp Segment	220	1.0	31-Oct-13	26-Aug-15
SMRD00.1-3.3.1.1	Pedestrian Bridge	20	1.0	04-Dec-13	20-Aug-15
SMRD00.1-3.3.1.1.1	Foundations & Substructure	6	1.0	22-Aug-14	04-Feb-15
SMRD00.1-3.3.1.1.2	Superstructure & Finishes	7	1.0	05-Feb-15	17-Aug-15
SMRD00.1-3.3.1.2	Seminary Bridge	68	1.0	21-Nov-13	26-Aug-15
SMRD00.1-3.3.1.2.1	Phase 1	22	1.0	04-Mar-14	28-Jul-14
SMRD00.1-3.3.1.2.2	Phase 2	7	1.0	28-Jul-14	14-Nov-14
SMRD00.1-3.3.1.2.4	Phase 3	7	1.0	14-Nov-14	09-Mar-15
SMRD00.1-3.3.1.2.3	Phase 4	23	1.0	09-Mar-15	26-Aug-15
SMRD00.1-3.3.1.3	Sanger Ave Bridge	29	1.0	31-Oct-13	17-Apr-15
SMRD00.1-3.3.1.3.1	Modify Exist Steel	5	1.0	21-Mar-14	23-Jul-14
SMRD00.1-3.3.1.3.2	Widening Existing Bridge (NB,SB)	17	1.0	23-Jul-14	17-Apr-15
SMRD00.1-3.3.1.4	HOV Ramp Bridge	28	1.0	04-Nov-13	07-Aug-15
SMRD00.1-3.3.1.4.1	Piling & Substructure	5	1.0	21-Aug-14	28-Jan-15
SMRD00.1-3.3.1.4.2	Superstructure & Finishes	13	1.0	30-Apr-14	07-Aug-15
SMRD00.1-3.3.1.5	Roadway	52	1.0	05-Dec-13	22-Jul-15
SMRD00.1-3.3.1.5.4	Phase 1	3	1.0	05-Dec-13	27-Dec-13
SMRD00.1-3.3.1.5.2	Phase 2	24	1.0	30-Dec-13	05-Feb-15
SMRD00.1-3.3.1.5.1	Phase 3	14	1.0	05-Aug-14	26-Mar-15
SMRD00.1-3.3.1.5.3	Phase 4	7	1.0	26-Mar-15	22-Jul-15
SMRD00.1-3.3.1.6	Southbound Soundwall	21	1.0	21-Feb-14	23-Dec-14
SMRD00.1-3.3.1.6.1	Soundwall from approx Sta 621 to 634	11	1.0	21-Feb-14	02-Sep-14
SMRD00.1-3.3.1.6.2	Soundwall from approx Sta 600 to 612+50	10	1.0	02-Sep-14	23-Dec-14



All Projects
WBS Elements below Project
Summary

CK CONSTRUCTORS

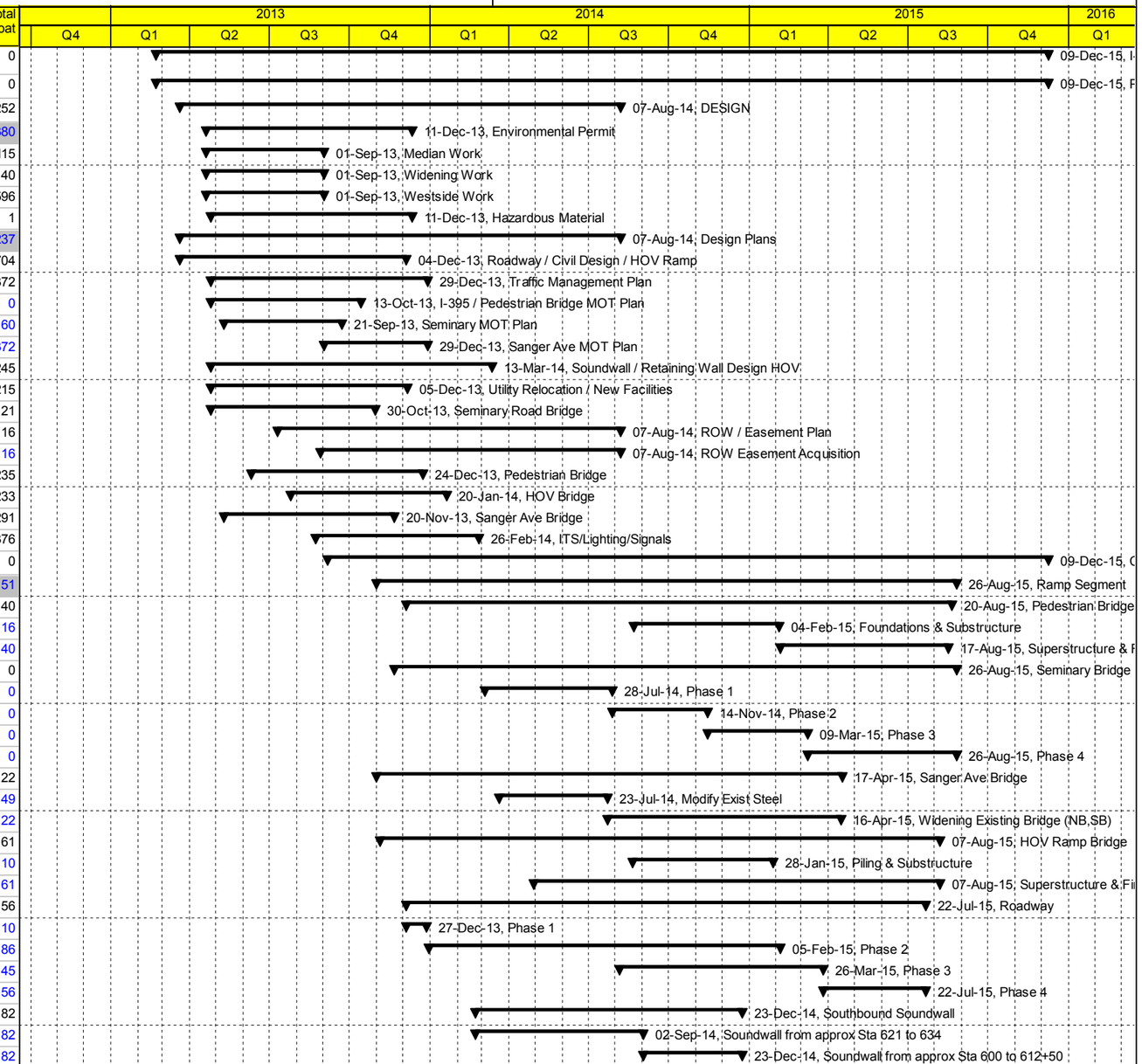
I-395 HOV Ramp at Seminary Road

Proposal A Schedule

CK CONSTRUCTORS

08-Jan-13 10:36

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
	I-395 HOV Ramp at Seminary Road - Proposal Schedul	533	21-Feb-13	09-Dec-15	0
	Project Overview	533	21-Feb-13	09-Dec-15	0
	DESIGN	266	21-Mar-13	07-Aug-14	252
	Environmental Permit	121	20-Apr-13	11-Dec-13	380
	Median Work	135	20-Apr-13	01-Sep-13	115
	Widening Work	135	20-Apr-13	01-Sep-13	140
	Westside Work	135	20-Apr-13	01-Sep-13	596
	Hazardous Material	118	25-Apr-13	11-Dec-13	1
	Design Plans	266	21-Mar-13	07-Aug-14	237
	Roadway / Civil Design / HOV Ramp	259	21-Mar-13	04-Dec-13	704
	Traffic Management Plan	249	25-Apr-13	29-Dec-13	372
	I-395 / Pedestrian Bridge MOT Plan	172	25-Apr-13	13-Oct-13	0
	Seminary MOT Plan	135	10-May-13	21-Sep-13	60
	Sanger Ave MOT Plan	120	01-Sep-13	29-Dec-13	372
	Soundwall / Retaining Wall Design HOV	323	25-Apr-13	13-Mar-14	245
	Utility Relocation / New Facilities	225	25-Apr-13	05-Dec-13	215
	Seminary Road Bridge	189	25-Apr-13	30-Oct-13	21
	ROW / Easement Plan	206	11-Jul-13	07-Aug-14	16
	ROW Easement Acquisition	179	29-Aug-13	07-Aug-14	16
	Pedestrian Bridge	197	11-Jun-13	24-Dec-13	235
	HOV Bridge	179	26-Jul-13	20-Jan-14	233
	Sanger Ave Bridge	195	10-May-13	20-Nov-13	291
	ITS/Lighting/Signals	188	23-Aug-13	26-Feb-14	376
	CONSTRUCTION	430	05-Sep-13	09-Dec-15	0
	Ramp Segment	349	31-Oct-13	26-Aug-15	51
	Pedestrian Bridge	330	04-Dec-13	20-Aug-15	40
	Foundations & Substructure	84	22-Aug-14	04-Feb-15	16
	Superstructure & Finishes	105	05-Feb-15	17-Aug-15	40
	Seminary Bridge	338	21-Nov-13	26-Aug-15	0
	Phase 1	78	04-Mar-14	28-Jul-14	0
	Phase 2	58	28-Jul-14	14-Nov-14	0
	Phase 3	58	14-Nov-14	09-Mar-15	0
	Phase 4	93	09-Mar-15	26-Aug-15	0
	Sanger Ave Bridge	278	31-Oct-13	17-Apr-15	122
	Modify Exist Steel	66	21-Mar-14	23-Jul-14	149
	Widening Existing Bridge (NB,SB)	140	23-Jul-14	16-Apr-15	122
	HOV Ramp Bridge	338	04-Nov-13	07-Aug-15	61
	Piling & Substructure	82	21-Aug-14	28-Jan-15	10
	Superstructure & Finishes	244	30-Apr-14	07-Aug-15	61
	Roadway	313	05-Dec-13	22-Jul-15	56
	Phase 1	12	05-Dec-13	27-Dec-13	10
	Phase 2	212	30-Dec-13	05-Feb-15	86
	Phase 3	121	05-Aug-14	26-Mar-15	45
	Phase 4	62	26-Mar-15	22-Jul-15	56
	Southbound Soundwall	160	21-Feb-14	23-Dec-14	182
	Soundwall from approx Sta 621 to 634	102	21-Feb-14	02-Sep-14	182
	Soundwall from approx Sta 600 to 612+50	59	02-Sep-14	23-Dec-14	182



Summary

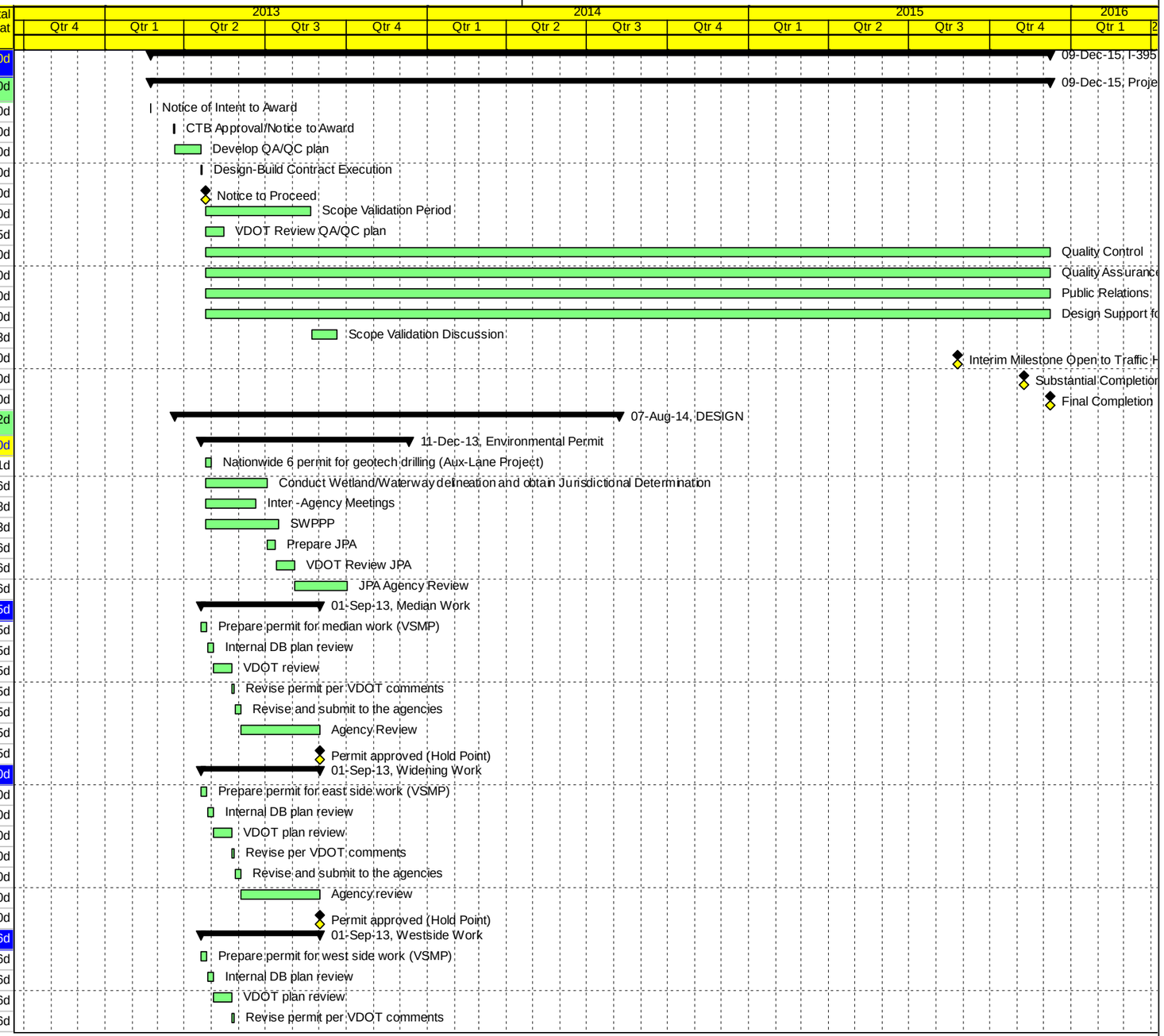
I-395 HOV Ramp at Seminary Road

Proposal A Schedule

CK CONSTRUCTORS

05-Jan-13 14:10

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
I-395 HOV Ramp at Seminary Road - Proposal Sch		533d	21-Feb-13	09-Dec-15	0d
Project Overview		533d	21-Feb-13	09-Dec-15	0d
GEN00ADM010	Notice of Intent to Award	1d	21-Feb-13*	21-Feb-13	0d
GEN00ADM020	CTB Approval/Notice to Award	1d	20-Mar-13*	20-Mar-13	0d
DGN00ADM30	Develop QA/QC plan	30d	21-Mar-13	19-Apr-13	50d
GEN00ADM030	Design-Build Contract Execution	1d	20-Apr-13*	20-Apr-13	0d
GEN00ADM040	Notice to Proceed	0d	25-Apr-13		0d
GEN00ADM050	Scope Validation Period	120d	25-Apr-13	22-Aug-13*	0d
DGN00ADM40	VDOT Review QA/QC plan	21d	25-Apr-13	15-May-13	45d
CON00MSN040	Quality Control	498d	25-Apr-13	08-Dec-15	0d
CON00MSN050	Quality Assurance	498d	25-Apr-13	08-Dec-15	0d
CON00MSN060	Public Relations	498d	25-Apr-13	08-Dec-15	0d
GEN00DGN010	Design Support for Construction	498d	25-Apr-13	08-Dec-15	0d
GEN00ADM060	Scope Validation Discussion	30d	23-Aug-13	21-Sep-13	53d
CON00MSN010	Interim Milestone Open to Traffic HOV Ram	0d		26-Aug-15*	0d
CON00MSN020	Substantial Completion	0d		09-Nov-15	0d
CON00MSN030	Final Completion	0d		09-Dec-15*	0d
DESIGN		266d	21-Mar-13	07-Aug-14	252d
Environmental Permit		121d	20-Apr-13	11-Dec-13	380d
PEM00ADM020	Nationwide 6 permit for geotech drilling (Au:	7d	25-Apr-13	01-May-13	21d
PEM00ADM050	Conduct Wetland/Waterway delineation an(	70d	25-Apr-13	03-Jul-13	106d
PEM00ADM060	Inter -Agency Meetings	30d	25-Apr-13	21-Jun-13	468d
PEM00ADM070	SWPPP	45d	25-Apr-13	17-Jul-13	453d
PEM00ADM030	Prepare JPA	10d	04-Jul-13	13-Jul-13	106d
PEM00ADM040	VDOT Review JPA	21d	14-Jul-13	03-Aug-13	106d
PEM00ADM080	JPA Agency Review	60d	04-Aug-13	02-Oct-13	106d
Median Work		135d	20-Apr-13	01-Sep-13	115d
PEM01WTR010	Prepare permit for median work (VSMP)	7d	20-Apr-13	26-Apr-13	115d
PEM01WTR020	Internal DB plan review	7d	27-Apr-13	03-May-13	115d
PEM01WTR030	VDOT review	21d	04-May-13	24-May-13	115d
PEM01WTR040	Revise permit per VDOT comments	3d	25-May-13	27-May-13	115d
PEM01WTR060	Revise and submit to the agencies	7d	28-May-13	03-Jun-13	115d
PEM01WTR070	Agency Review	90d	04-Jun-13	01-Sep-13	115d
PEM01WTR080	Permit approved (Hold Point)	0d		01-Sep-13	115d
Widening Work		135d	20-Apr-13	01-Sep-13	140d
PEM02WTR010	Prepare permit for east side work (VSMP)	7d	20-Apr-13	26-Apr-13	140d
PEM02WTR030	Internal DB plan review	7d	27-Apr-13	03-May-13	140d
PEM02WTR040	VDOT plan review	21d	04-May-13	24-May-13	140d
PEM02WTR050	Revise per VDOT comments	3d	25-May-13	27-May-13	140d
PEM02WTR070	Revise and submit to the agencies	7d	28-May-13	03-Jun-13	140d
PEM02WTR080	Agency review	90d	04-Jun-13	01-Sep-13	140d
PEM02WTR120	Permit approved (Hold Point)	0d		01-Sep-13	140d
Westside Work		135d	20-Apr-13	01-Sep-13	596d
PEM03WTR010	Prepare permit for west side work (VSMP)	7d	20-Apr-13	26-Apr-13	596d
PEM03WTR030	Internal DB plan review	7d	27-Apr-13	03-May-13	596d
PEM03WTR040	VDOT plan review	21d	04-May-13	24-May-13	596d
PEM03WTR050	Revise permit per VDOT comments	3d	25-May-13	27-May-13	596d



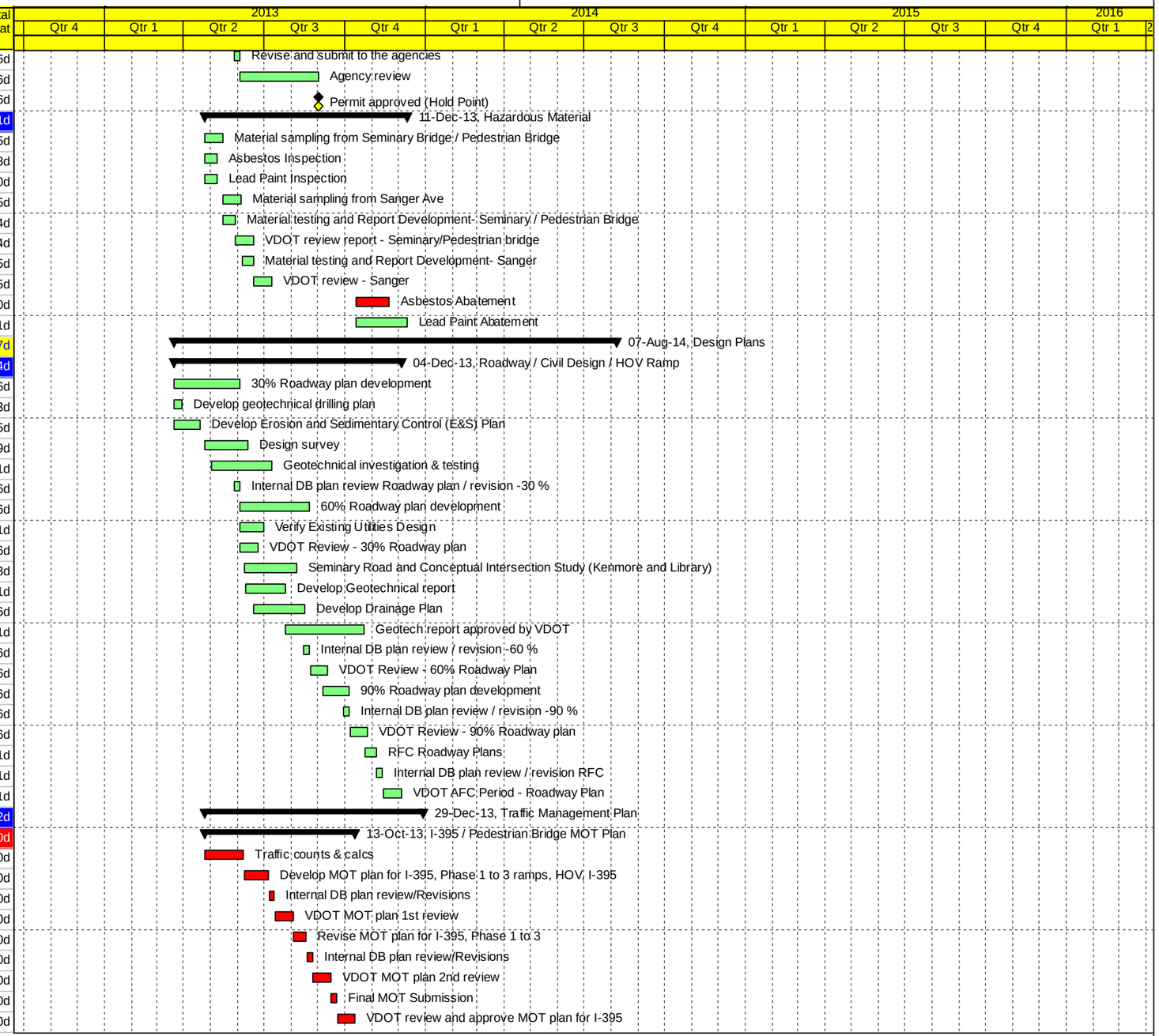
Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

I-395 HOV Ramp at Seminary Road

Proposal A Schedule

CK CONSTRUCTORS

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
PEM03WTR070	Revise and submit to the agencies	7d	28-May-13	03-Jun-13	596d
PEM03WTR080	Agency review	90d	04-Jun-13	01-Sep-13	596d
PEM03WTR120	Permit approved (Hold Point)	0d		01-Sep-13	596d
Hazardous Material		118d	25-Apr-13	11-Dec-13	1d
PEM04HAZ010	Material sampling from Seminary Bridge / P	21d	25-Apr-13	15-May-13	95d
PEM04HAZ100	Asbestos Inspection	14d	25-Apr-13	08-May-13	158d
PEM04HAZ130	Lead Paint Inspection	14d	25-Apr-13	08-May-13	160d
PEM04HAZ020	Material sampling from Sanger Ave	21d	16-May-13	05-Jun-13	95d
PEM04HAZ040	Material testing and Report Development- S	14d	16-May-13	29-May-13	154d
PEM04HAZ045	VDOT review report - Seminary/Pedestrian	21d	30-May-13	19-Jun-13	154d
PEM04HAZ050	Material testing and Report Development- S	14d	06-Jun-13	19-Jun-13	95d
PEM04HAZ055	VDOT review - Sanger	21d	20-Jun-13	10-Jul-13	95d
PEM04HAZ120	Asbestos Abatement	21d	14-Oct-13	20-Nov-13	0d
PEM04HAZ150	Lead Paint Abatement	30d	14-Oct-13	11-Dec-13	1d
Design Plans		266d	21-Mar-13	07-Aug-14	237d
Roadway / Civil Design / HOV Ramp		259d	21-Mar-13	04-Dec-13	704d
DGN01PLN010	30% Roadway plan development	75d	21-Mar-13	03-Jun-13	26d
DGN01PLN060	Develop geotechnical drilling plan	10d	21-Mar-13	30-Mar-13	53d
DGN01PLN170	Develop Erosion and Sedimentary Control (	30d	21-Mar-13	19-Apr-13	115d
DGN01PLN110	Design survey	50d	25-Apr-13	13-Jun-13	89d
DGN01PLN070	Geotechnical investigation & testing	70d	02-May-13	10-Jul-13	21d
DGN01PLN020	Internal DB plan review Roadway plan / rev	7d	28-May-13	03-Jun-13	26d
DGN01PLN030	60% Roadway plan development	80d	04-Jun-13	22-Aug-13	26d
DGN01PLN100	Verify Existing Utilities Design	28d	04-Jun-13	01-Jul-13	71d
DGN01VDT010	VDOT Review - 30% Roadway plan	21d	04-Jun-13	24-Jun-13	26d
DGN01PLN180	Seminary Road and Conceptual Intersectio	60d	09-Jun-13	07-Aug-13	823d
DGN01PLN080	Develop Geotechnical report	45d	11-Jun-13	25-Jul-13	21d
DGN01PLN040	Develop Drainage Plan	60d	19-Jun-13	17-Aug-13	76d
DGN01VDT040	Geotech report approved by VDOT	90d	26-Jul-13	23-Oct-13	21d
DGN01PLN050	Internal DB plan review / revision -60 %	7d	16-Aug-13	22-Aug-13	26d
DGN01VDT020	VDOT Review - 60% Roadway Plan	21d	23-Aug-13	12-Sep-13	26d
DGN01PLN120	90% Roadway plan development	30d	07-Sep-13	06-Oct-13	26d
DGN01PLN130	Internal DB plan review / revision -90 %	7d	30-Sep-13	06-Oct-13	26d
DGN01VDT050	VDOT Review - 90% Roadway plan	21d	07-Oct-13	27-Oct-13	26d
DGN01PLN140	RFC Roadway Plans	14d	24-Oct-13	06-Nov-13	21d
DGN01PLN150	Internal DB plan review / revision RFC	7d	07-Nov-13	13-Nov-13	21d
DGN01VDT060	VDOT AFC Period - Roadway Plan	21d	14-Nov-13	04-Dec-13	21d
Traffic Management Plan		249d	25-Apr-13	29-Dec-13	372d
I-395 / Pedestrian Bridge MOT Plan		172d	25-Apr-13	13-Oct-13	0d
DGN02PLN160	Traffic counts & calcs	45d	25-Apr-13	08-Jun-13	0d
DGN02PLN010	Develop MOT plan for I-395, Phase 1 to 3 r	28d	09-Jun-13	06-Jul-13	0d
DGN02PLN020	Internal DB plan review/Revisions	7d	07-Jul-13	13-Jul-13	0d
DGN02VDT010	VDOT MOT plan 1st review	21d	14-Jul-13	03-Aug-13	0d
DGN02PLN030	Revise MOT plan for I-395, Phase 1 to 3	15d	04-Aug-13	18-Aug-13	0d
DGN02PLN040	Internal DB plan review/Revisions	7d	19-Aug-13	25-Aug-13	0d
DGN02VDT020	VDOT MOT plan 2nd review	21d	26-Aug-13	15-Sep-13	0d
DGN02PLN050	Final MOT Submission	7d	16-Sep-13	22-Sep-13	0d
DGN02VDT030	VDOT review and approve MOT plan for I-	21d	23-Sep-13	13-Oct-13	0d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

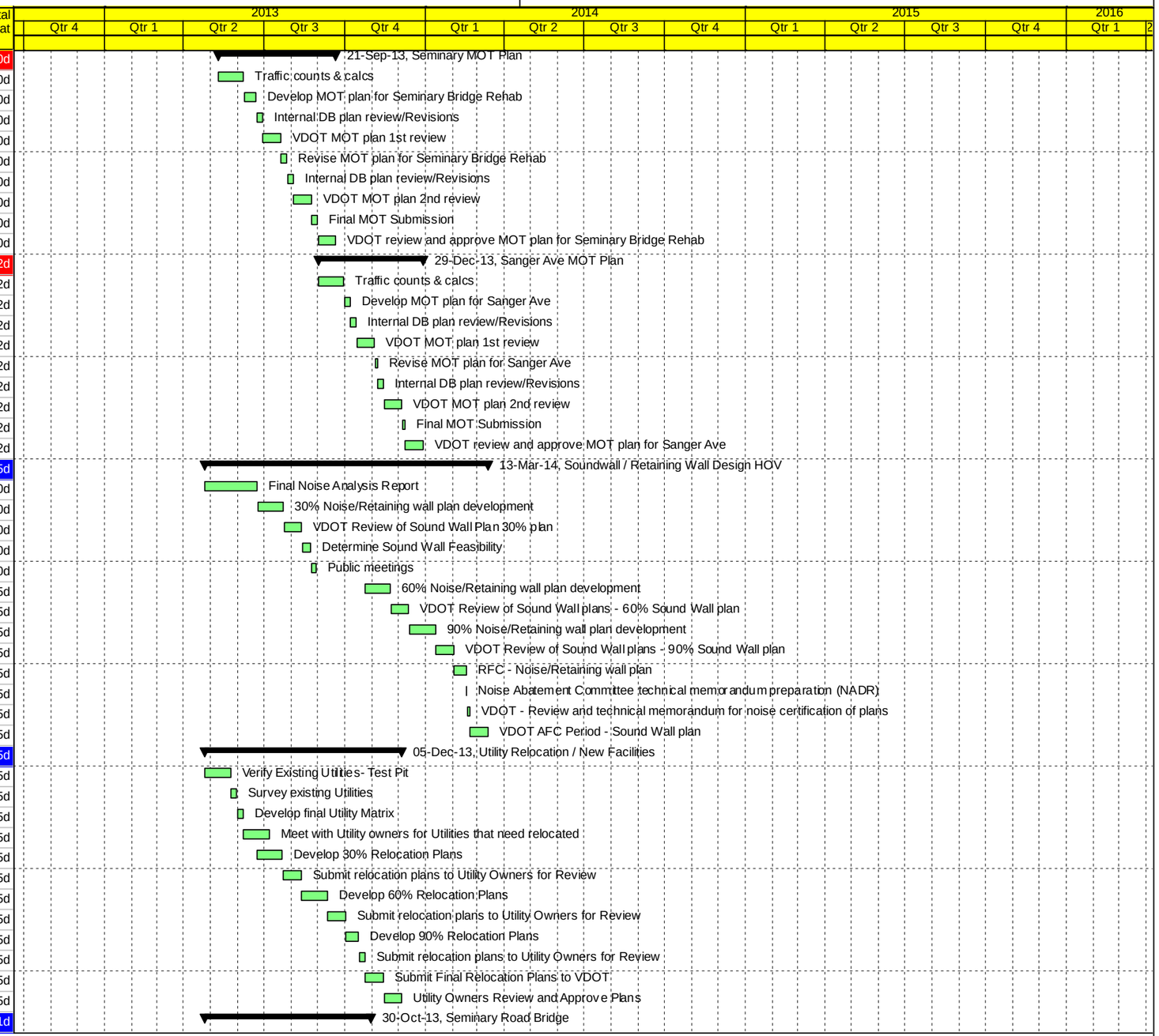
I-395 HOV Ramp at Seminary Road

Proposal A Schedule

CK CONSTRUCTORS

05-Jan-13 14:10

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
Seminary MOT Plan		135d	10-May-13	21-Sep-13	60d
DGN02PLN170	Traffic counts & calcs	30d	10-May-13	08-Jun-13	60d
DGN02PLN060	Develop MOT plan for Seminary Bridge Rel	14d	09-Jun-13	22-Jun-13	60d
DGN02PLN070	Internal DB plan review/Revisions	7d	23-Jun-13	29-Jun-13	60d
DGN02VDT040	VDOT MOT plan 1st review	21d	30-Jun-13	20-Jul-13	60d
DGN02PLN080	Revise MOT plan for Seminary Bridge Reh	7d	21-Jul-13	27-Jul-13	60d
DGN02PLN090	Internal DB plan review/Revisions	7d	28-Jul-13	03-Aug-13	60d
DGN02VDT050	VDOT MOT plan 2nd review	21d	04-Aug-13	24-Aug-13	60d
DGN02PLN100	Final MOT Submission	7d	25-Aug-13	31-Aug-13	60d
DGN02VDT060	VDOT review and approve MOT plan for S	21d	01-Sep-13	21-Sep-13	60d
Sanger Ave MOT Plan		120d	01-Sep-13	29-Dec-13	372d
DGN02PLN180	Traffic counts & calcs	30d	01-Sep-13	30-Sep-13	372d
DGN02PLN110	Develop MOT plan for Sanger Ave	7d	01-Oct-13	07-Oct-13	372d
DGN02PLN120	Internal DB plan review/Revisions	7d	08-Oct-13	14-Oct-13	372d
DGN02VDT070	VDOT MOT plan 1st review	21d	15-Oct-13	04-Nov-13	372d
DGN02PLN130	Revise MOT plan for Sanger Ave	3d	05-Nov-13	07-Nov-13	372d
DGN02PLN140	Internal DB plan review/Revisions	7d	08-Nov-13	14-Nov-13	372d
DGN02VDT080	VDOT MOT plan 2nd review	21d	15-Nov-13	05-Dec-13	372d
DGN02PLN150	Final MOT Submission	3d	06-Dec-13	08-Dec-13	372d
DGN02VDT090	VDOT review and approve MOT plan for S	21d	09-Dec-13	29-Dec-13	372d
Soundwall / Retaining Wall Design HOV		323d	25-Apr-13	13-Mar-14	245d
DGN03PLN010	Final Noise Analysis Report	60d	25-Apr-13	23-Jun-13	300d
DGN03PLN80	30% Noise/Retaining wall plan development	30d	24-Jun-13	23-Jul-13	300d
DGN03PLN90	VDOT Review of Sound Wall Plan 30% plar	21d	24-Jul-13	13-Aug-13	300d
DGN03PLN040	Determine Sound Wall Feasibility	10d	14-Aug-13	23-Aug-13	300d
DGN03VDT010	Public meetings	6d	24-Aug-13	29-Aug-13	300d
DGN03PLN050	60% Noise/Retaining wall plan development	30d	24-Oct-13	22-Nov-13	245d
DGN03VDT020	VDOT Review of Sound Wall plans - 60% S	21d	23-Nov-13	13-Dec-13	245d
DGN03PLN060	90% Noise/Retaining wall plan development	30d	14-Dec-13	12-Jan-14	245d
DGN03VDT030	VDOT Review of Sound Wall plans - 90% S	21d	13-Jan-14	02-Feb-14	245d
DGN03PLN070	RFC - Noise/Retaining wall plan	14d	03-Feb-14	16-Feb-14	245d
DGN03PLN080	Noise Abatement Committee technical mem	1d	17-Feb-14	17-Feb-14	245d
DGN03VDT050	VDOT - Review and technical memorandur	3d	18-Feb-14	20-Feb-14	245d
DGN03VDT040	VDOT AFC Period - Sound Wall plan	21d	21-Feb-14	13-Mar-14	245d
Utility Relocation / New Facilities		225d	25-Apr-13	05-Dec-13	215d
DGN04PLN010	Verify Existing Utilities- Test Pit	30d	25-Apr-13	24-May-13	215d
DGN04PLN020	Survey existing Utilities	7d	25-May-13	31-May-13	215d
DGN04PLN030	Develop final Utility Matrix	7d	01-Jun-13	07-Jun-13	215d
DGN04PLN040	Meet with Utility owners for Utilities that nee	30d	08-Jun-13	07-Jul-13	215d
DGN04PLN050	Develop 30% Relocation Plans	30d	23-Jun-13	22-Jul-13	215d
DGN04RVW010	Submit relocation plans to Utility Owners for	21d	23-Jul-13	12-Aug-13	215d
DGN04PLN060	Develop 60% Relocation Plans	30d	13-Aug-13	11-Sep-13	215d
DGN04RVW020	Submit relocation plans to Utility Owners for	21d	12-Sep-13	02-Oct-13	215d
DGN04PLN070	Develop 90% Relocation Plans	15d	03-Oct-13	17-Oct-13	215d
DGN04RVW030	Submit relocation plans to Utility Owners for	7d	18-Oct-13	24-Oct-13	215d
DGN04PLN080	Submit Final Relocation Plans to VDOT	21d	25-Oct-13	14-Nov-13	215d
DGN04RVW040	Utility Owners Review and Approve Plans	21d	15-Nov-13	05-Dec-13	215d
Seminary Road Bridge		189d	25-Apr-13	30-Oct-13	21d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

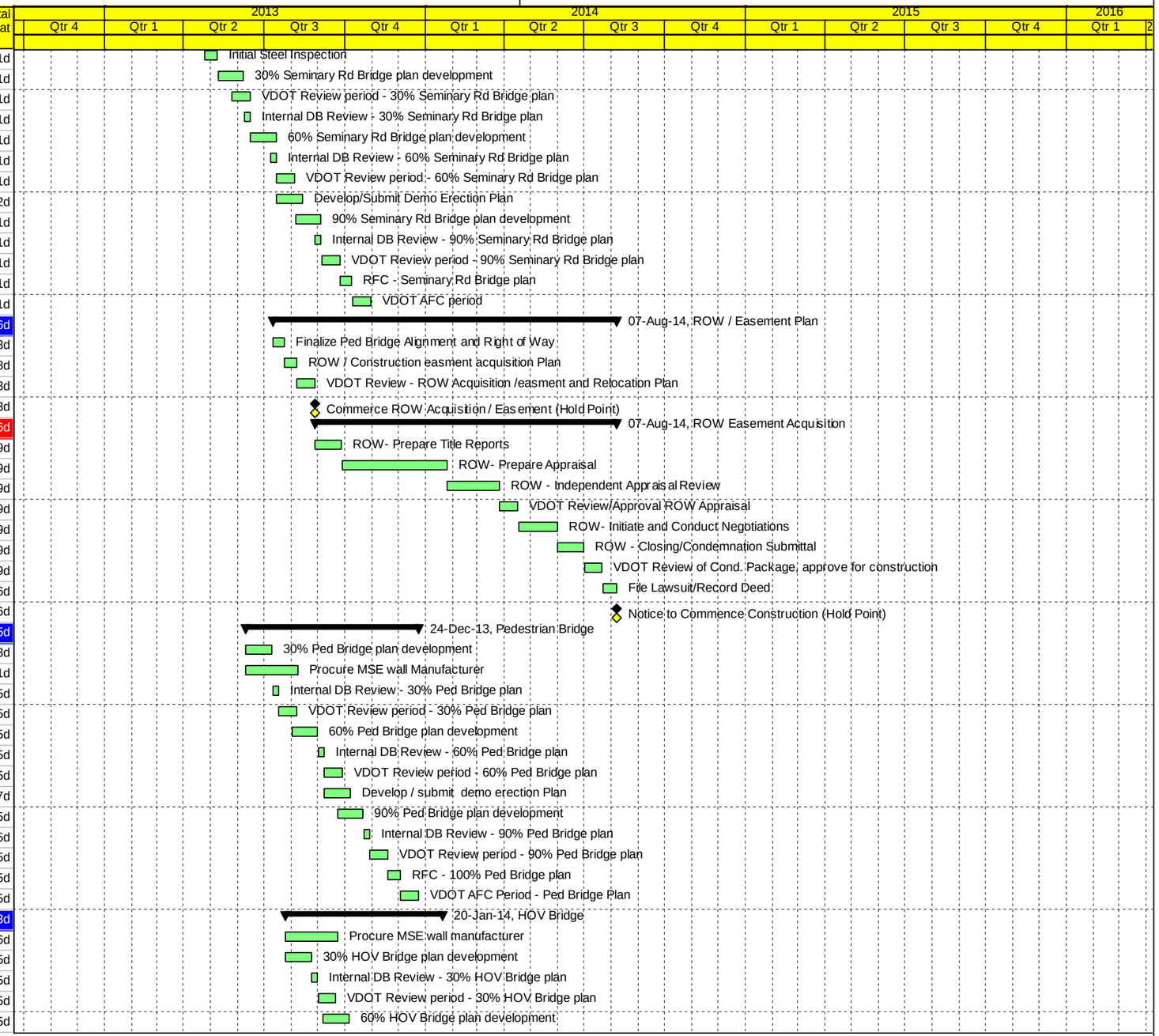
I-395 HOV Ramp at Seminary Road

Proposal A Schedule

CK CONSTRUCTORS

05-Jan-13 14:10

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
DGN05PLN70	Initial Steel Inspection	15d	25-Apr-13	09-May-13	21d
DGN05PLN020	30% Seminary Rd Bridge plan development	30d	10-May-13	08-Jun-13	21d
DGN05VDT010	VDOT Review period - 30% Seminary Rd E	21d	26-May-13	15-Jun-13	21d
DGN05PLN025	Internal DB Review - 30% Seminary Rd Bri	7d	09-Jun-13	15-Jun-13	21d
DGN05PLN030	60% Seminary Rd Bridge plan development	30d	16-Jun-13	15-Jul-13	21d
DGN05PLN035	Internal DB Review - 60% Seminary Rd Bri	7d	09-Jul-13	15-Jul-13	21d
DGN05VDT020	VDOT Review period - 60% Seminary Rd E	21d	16-Jul-13	05-Aug-13	21d
RMP02MSN20	Develop/Submit Demo Erection Plan	30d	16-Jul-13	14-Aug-13	42d
DGN05PLN040	90% Seminary Rd Bridge plan development	30d	06-Aug-13	04-Sep-13	21d
DGN05PLN045	Internal DB Review - 90% Seminary Rd Bri	7d	29-Aug-13	04-Sep-13	21d
DGN05VDT030	VDOT Review period - 90% Seminary Rd E	21d	05-Sep-13	25-Sep-13	21d
DGN05PLN050	RFC - Seminary Rd Bridge plan	14d	26-Sep-13	09-Oct-13	21d
DGN05VDT040	VDOT AFC period	21d	10-Oct-13	30-Oct-13	21d
ROW / Easement Plan		206d	11-Jul-13	07-Aug-14	16d
DGN05PLN060	Finalize Ped Bridge Alignment and Right of \	14d	11-Jul-13	24-Jul-13	28d
DGN05PLN070	ROW / Construction easment acquisition P	14d	25-Jul-13	07-Aug-13	28d
DGN05VDT050	VDOT Review - ROW Acquisition /easmen	21d	08-Aug-13	28-Aug-13	28d
DGN05VDT060	Commerce ROW Acquisition / Easement (I	0d		28-Aug-13	13d
ROW Easement Acquisition		179d	29-Aug-13	07-Aug-14	16d
ROW01PRC010	ROW- Prepare Title Reports	30d	29-Aug-13	27-Sep-13	29d
ROW01PRC020	ROW- Prepare Appraisal	120d	28-Sep-13	25-Jan-14	29d
ROW01PRC030	ROW - Independent Appraisal Review	60d	26-Jan-14	26-Mar-14	29d
ROW01VDT010	VDOT Review/Approval ROW Appraisal	21d	27-Mar-14	16-Apr-14	29d
ROW01PRC040	ROW- Initiate and Conduct Negotiations	45d	17-Apr-14	31-May-14	29d
ROW01PRC050	ROW - Closing/Condemnation Submittal	30d	01-Jun-14	30-Jun-14	29d
ROW01VDT020	VDOT Review of Cond. Package, approve	21d	01-Jul-14	21-Jul-14	29d
ROW01VDT040	File Lawsuit/Record Deed	10d	23-Jul-14	07-Aug-14	16d
ROW01VDT030	Notice to Commence Construction (Hold Pi	0d		07-Aug-14	16d
Pedestrian Bridge		197d	11-Jun-13	24-Dec-13	235d
DGN06PLN030	30% Ped Bridge plan development	30d	11-Jun-13	10-Jul-13	28d
DGN06PLN60	Procure MSE wall Manufacturer	60d	11-Jun-13	09-Aug-13	351d
DGN06ADM010	Internal DB Review - 30% Ped Bridge plan	7d	11-Jul-13	17-Jul-13	235d
DGN06VDT010	VDOT Review period - 30% Ped Bridge pla	21d	18-Jul-13	07-Aug-13	235d
DGN06PLN040	60% Ped Bridge plan development	30d	02-Aug-13	31-Aug-13	235d
DGN06ADM020	Internal DB Review - 60% Ped Bridge plan	7d	01-Sep-13	07-Sep-13	235d
DGN06VDT020	VDOT Review period - 60% Ped Bridge pla	21d	08-Sep-13	28-Sep-13	235d
DGN06ADM30	Develop / submit demo erection Plan	30d	08-Sep-13	07-Oct-13	257d
DGN06PLN050	90% Ped Bridge plan development	30d	23-Sep-13	22-Oct-13	235d
DGN06ADM030	Internal DB Review - 90% Ped Bridge plan	7d	23-Oct-13	29-Oct-13	235d
DGN06VDT030	VDOT Review period - 90% Ped Bridge pla	21d	30-Oct-13	19-Nov-13	235d
DGN06PLN060	RFC - 100% Ped Bridge plan	14d	20-Nov-13	03-Dec-13	235d
DGN06VDT040	VDOT AFC Period - Ped Bridge Plan	21d	04-Dec-13	24-Dec-13	235d
HOV Bridge		179d	26-Jul-13	20-Jan-14	233d
00PRC010	Procure MSE wall manufacturer	60d	26-Jul-13	23-Sep-13	106d
DGN07PLN030	30% HOV Bridge plan development	30d	26-Jul-13	24-Aug-13	65d
DGN07ADM010	Internal DB Review - 30% HOV Bridge plan	7d	25-Aug-13	31-Aug-13	65d
DGN07VDT010	VDOT Review period - 30% HOV Bridge pl	21d	01-Sep-13	21-Sep-13	65d
DGN07PLN040	60% HOV Bridge plan development	30d	07-Sep-13	06-Oct-13	65d



Actual Work | Critical Remaining Work | Milestone
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I-395 HOV Ramp at Seminary Road

Proposal A Schedule

CK CONSTRUCTORS

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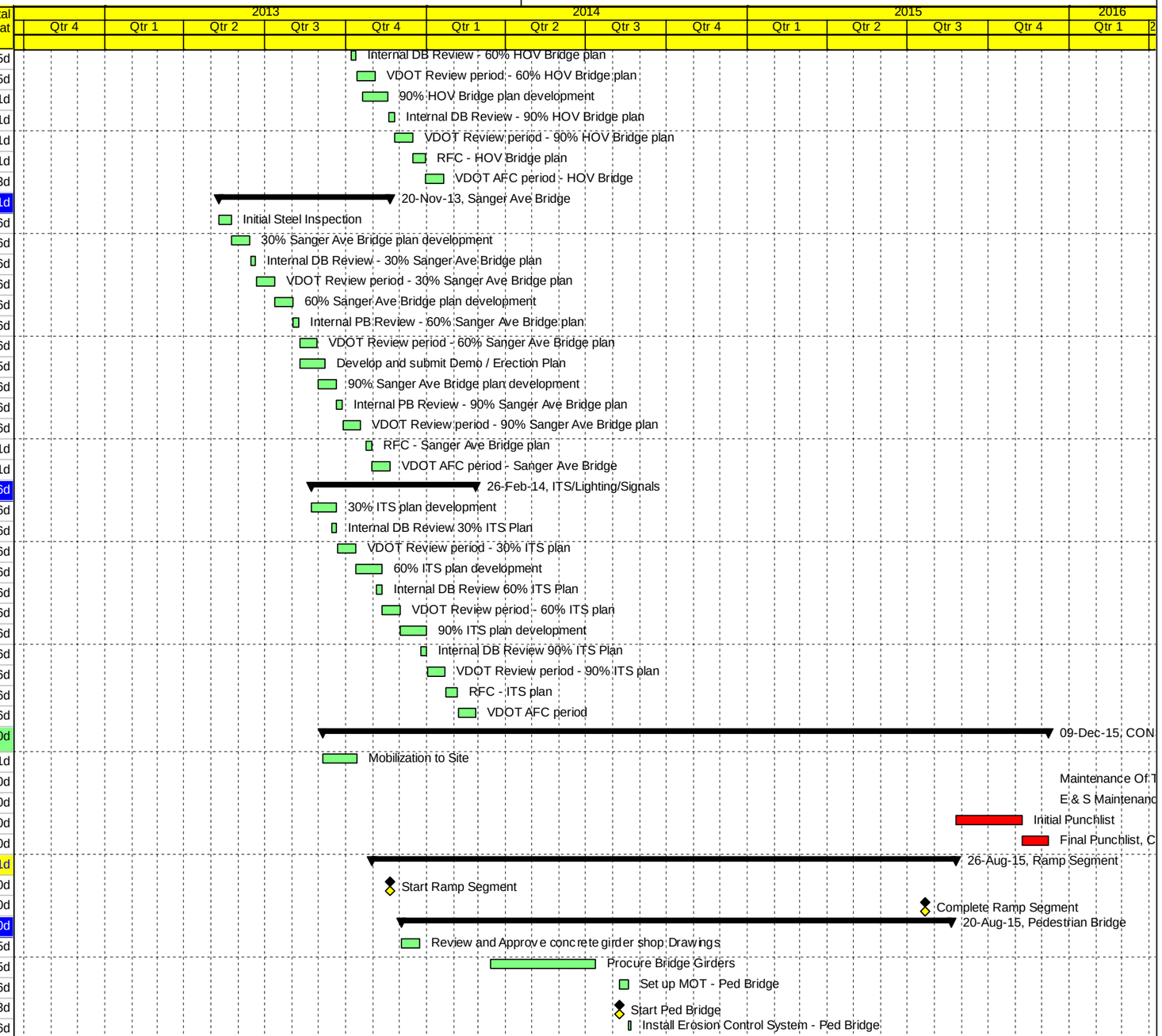
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
DGN07ADM020	Internal DB Review - 60% HOV Bridge plan	7d	07-Oct-13	13-Oct-13	65d
DGN07VDT020	VDOT Review period - 60% HOV Bridge pl	21d	14-Oct-13	03-Nov-13	65d
DGN07PLN050	90% HOV Bridge plan development	30d	20-Oct-13	18-Nov-13	191d
DGN07ADM030	Internal DB Review - 90% HOV Bridge plan	7d	19-Nov-13	25-Nov-13	191d
DGN07VDT030	VDOT Review period - 90% HOV Bridge pl	21d	26-Nov-13	16-Dec-13	191d
DGN07PLN060	RFC - HOV Bridge plan	14d	17-Dec-13	30-Dec-13	191d
DGN07VDT040	VDOT AFC period - HOV Bridge	21d	31-Dec-13	20-Jan-14	233d
Sanger Ave Bridge		195d	10-May-13	20-Nov-13	291d
DGN08PLN60	Initial Steel Inspection	15d	10-May-13	24-May-13	296d
DGN08PLN030	30% Sanger Ave Bridge plan development	21d	25-May-13	14-Jun-13	296d
DGN08ADM010	Internal DB Review - 30% Sanger Ave Brid	7d	15-Jun-13	21-Jun-13	296d
DGN08VDT010	VDOT Review period - 30% Sanger Ave Br	21d	22-Jun-13	12-Jul-13	296d
DGN08PLN040	60% Sanger Ave Bridge plan development	21d	13-Jul-13	02-Aug-13	296d
DGN08ADM020	Internal PB Review - 60% Sanger Ave Brid	7d	03-Aug-13	09-Aug-13	296d
DGN08VDT020	VDOT Review period - 60% Sanger Ave Br	21d	10-Aug-13	30-Aug-13	296d
DGN08ADM30	Develop and submit Demo / Erection Plan	30d	10-Aug-13	08-Sep-13	315d
DGN08PLN050	90% Sanger Ave Bridge plan development	21d	31-Aug-13	20-Sep-13	296d
DGN08ADM030	Internal PB Review - 90% Sanger Ave Brid	7d	21-Sep-13	27-Sep-13	296d
DGN08VDT030	VDOT Review period - 90% Sanger Ave Br	21d	28-Sep-13	18-Oct-13	296d
DGN08PLN060	RFC - Sanger Ave Bridge plan	7d	24-Oct-13	30-Oct-13	291d
DGN08VDT040	VDOT AFC period - Sanger Ave Bridge	21d	31-Oct-13	20-Nov-13	291d
ITS/Lighting/Signals		188d	23-Aug-13	26-Feb-14	376d
DGN09PLN010	30% ITS plan development	30d	23-Aug-13	21-Sep-13	376d
DGN09PLN050	Internal DB Review 30% ITS Plan	7d	15-Sep-13	21-Sep-13	376d
DGN09VDT010	VDOT Review period - 30% ITS plan	21d	22-Sep-13	12-Oct-13	376d
DGN09PLN020	60% ITS plan development	30d	13-Oct-13	11-Nov-13	376d
DGN09PLN060	Internal DB Review 60% ITS Plan	7d	05-Nov-13	11-Nov-13	376d
DGN09VDT020	VDOT Review period - 60% ITS plan	21d	12-Nov-13	02-Dec-13	376d
DGN09PLN030	90% ITS plan development	30d	03-Dec-13	01-Jan-14	376d
DGN09PLN090	Internal DB Review 90% ITS Plan	7d	26-Dec-13	01-Jan-14	376d
DGN09VDT030	VDOT Review period - 90% ITS plan	21d	02-Jan-14	22-Jan-14	376d
DGN09PLN040	RFC - ITS plan	14d	23-Jan-14	05-Feb-14	376d
DGN09VDT040	VDOT AFC period	21d	06-Feb-14	26-Feb-14	376d
CONSTRUCTION		430d	05-Sep-13	09-Dec-15	0d
CON00MOB010	Mobilization to Site	20d	05-Sep-13	14-Oct-13	21d
CON00MOB040	Maintenance Of Traffic	389d	21-Nov-13	08-Dec-15	0d
CON00MOB050	E & S Maintenance	389d	21-Nov-13*	08-Dec-15	0d
CON00MOB030	Initial Punchlist	75d	26-Aug-15	09-Nov-15	0d
CON00MOB020	Final Punchlist, Close-Out & Demobilization	30d	09-Nov-15	09-Dec-15	0d
Ramp Segment		349d	31-Oct-13	26-Aug-15	51d
RMP00ADM010	Start Ramp Segment	0d	21-Nov-13		0d
RMP00ADM020	Complete Ramp Segment	0d		22-Jul-15	110d
Pedestrian Bridge		330d	04-Dec-13	20-Aug-15	40d
DGN06PRC010	Review and Approve concrete girder shop	21d	04-Dec-13	24-Dec-13	235d
RMP01PRC010	Procure Bridge Girders	120d	15-Mar-14	12-Jul-14	235d
RMP01MOT010	Set up MOT - Ped Bridge	5d	08-Aug-14	18-Aug-14	16d
RMP01MSN010	Start Ped Bridge	0d	08-Aug-14		33d
RMP01MOT020	Install Erosion Control System - Ped Bridge	2d	19-Aug-14	21-Aug-14	16d



Actual Work | Critical Remaining Work | Milestone
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I-395 HOV Ramp at Seminary Road

Proposal A Schedule

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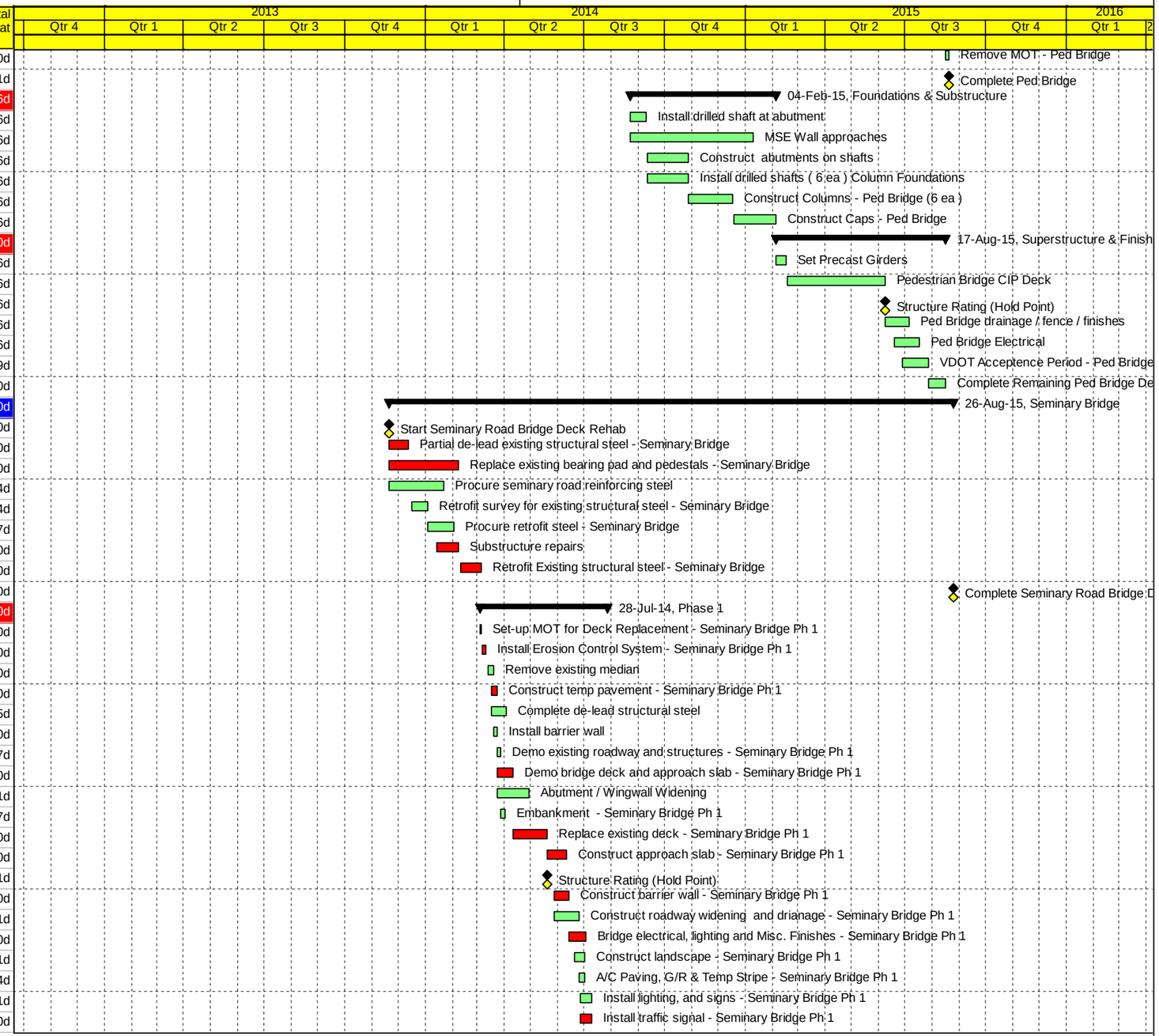
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
RMP01MOT030	Remove MOT - Ped Bridge	2d	17-Aug-15	20-Aug-15	40d
RMP01MSN020	Complete Ped Bridge	0d		20-Aug-15	81d
Foundations & Substructure		**84d**	**22-Aug-14**	**04-Feb-15**	**16d**
RMP01PLE030	Install drilled shaft at abutment	9d	22-Aug-14	09-Sep-14	16d
RMP01PLE30	MSE Wall approaches	70d	22-Aug-14	09-Jan-15	16d
RMP01SUB010	Construct abutments on shafts	25d	11-Sep-14	27-Oct-14	66d
RMP01SUB30	Install drilled shafts (6 ea) Column Founda	25d	11-Sep-14	27-Oct-14	16d
RMP01SUB020	Construct Columns - Ped Bridge (6 ea)	25d	28-Oct-14	17-Dec-14	16d
RMP01SUB030	Construct Caps - Ped Bridge	25d	18-Dec-14	04-Feb-15	16d
Superstructure & Finishes		**105d**	**05-Feb-15**	**17-Aug-15**	**40d**
RMP01SUP010	Set Precast Girders	7d	05-Feb-15	16-Feb-15	16d
RMP01SUP20	Pedestrian Bridge CIP Deck	60d	17-Feb-15	08-Jun-15	16d
RMP01SUP30	Structure Rating (Hold Point)	0d		08-Jun-15	16d
RMP01FIN010	Ped Bridge drainage / fence / finishes	15d	09-Jun-15	06-Jul-15	16d
RMP01ELT010	Ped Bridge Electrical	15d	19-Jun-15	17-Jul-15	16d
RMP01VDT10	VDOT Acceptence Period - Ped Bridge	30d	28-Jun-15	28-Jul-15	29d
RMP01DEM010	Complete Remaining Ped Bridge Demo	10d	28-Jul-15	17-Aug-15	40d
Seminary Bridge		**338d**	**21-Nov-13**	**26-Aug-15**	**0d**
RMP02MSN010	Start Seminary Road Bridge Deck Rehab	0d	21-Nov-13		0d
RMP02SUP015	Partial de-lead existing structural steel - Se	10d	21-Nov-13	13-Dec-13	0d
RMP02SUP030	Replace existing bearing pad and pedestals	40d	21-Nov-13	07-Feb-14	0d
RMP02MSN030	Procure seminary road reinforcing steel	30d	21-Nov-13	22-Jan-14	44d
RMP02SUP020	Retrofit survey for existing structural steel -	10d	16-Dec-13	03-Jan-14	4d
RMP02PRC010	Procure retrofit steel - Seminary Bridge	30d	04-Jan-14	02-Feb-14	7d
RMP02SUP170	Substructure repairs	15d	14-Jan-14	07-Feb-14	0d
RMP02SUP040	Retrofit Existing structural steel - Seminary	14d	10-Feb-14	05-Mar-14	0d
RMP02MSN020	Complete Seminary Road Bridge Deck Reh	0d		26-Aug-15	0d
Phase 1		**78d**	**04-Mar-14**	**28-Jul-14**	**0d**
RMP02MOT010	Set-up MOT for Deck Replacement - Semi	2d	04-Mar-14	05-Mar-14	0d
RMP02MOT020	Install Erosion Control System - Seminary E	3d	07-Mar-14	11-Mar-14	0d
RMP02MOT90	Remove existing median	5d	13-Mar-14	20-Mar-14	0d
RMP02MOT030	Construct temp pavement - Seminary Bridg	6d	17-Mar-14	24-Mar-14	0d
RMP02MOT120	Complete de-lead structural steel	10d	17-Mar-14	03-Apr-14	5d
RMP02MOT100	Install barrier wall	2d	20-Mar-14	24-Mar-14	0d
RMP02DEM020	Demo existing roadway and structures - Se	2d	24-Mar-14	27-Mar-14	27d
RMP02DEM010	Demo bridge deck and approach slab - Ser	10d	24-Mar-14	11-Apr-14	0d
RMP02DEM60	Abutment / Wingwall Widening	20d	24-Mar-14	29-Apr-14	11d
RMP02EMB010	Embankment - Seminary Bridge Ph 1	2d	27-Mar-14	02-Apr-14	27d
RMP02SUP050	Replace existing deck - Seminary Bridge Ph	21d	11-Apr-14	20-May-14	0d
RMP02SUP060	Construct approach slab - Seminary Bridge	10d	20-May-14	10-Jun-14	0d
RMP01SUP40	Structure Rating (Hold Point)	0d		20-May-14	21d
RMP02SUP070	Construct barrier wall - Seminary Bridge Ph	10d	27-May-14	13-Jun-14	0d
RMP02GRD010	Construct roadway widening and drianage	15d	28-May-14	25-Jun-14	11d
RMP02ELT010	Bridge electrical, lighting and Misc. Finishes	10d	13-Jun-14	03-Jul-14	0d
RMP02LND010	Construct landscape - Seminary Bridge Ph	5d	20-Jun-14	01-Jul-14	11d
RMP02PAV010	A/C Paving, G/R & Temp Stripe - Seminary	4d	25-Jun-14	01-Jul-14	14d
RMP02ELT030	Install lighting, and signs - Seminary Bridge	5d	26-Jun-14	09-Jul-14	11d
RMP02ELT020	Install traffic signal - Seminary Bridge Ph 1	5d	26-Jun-14	09-Jul-14	0d



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I-395 HOV Ramp at Seminary Road

Proposal A Schedule

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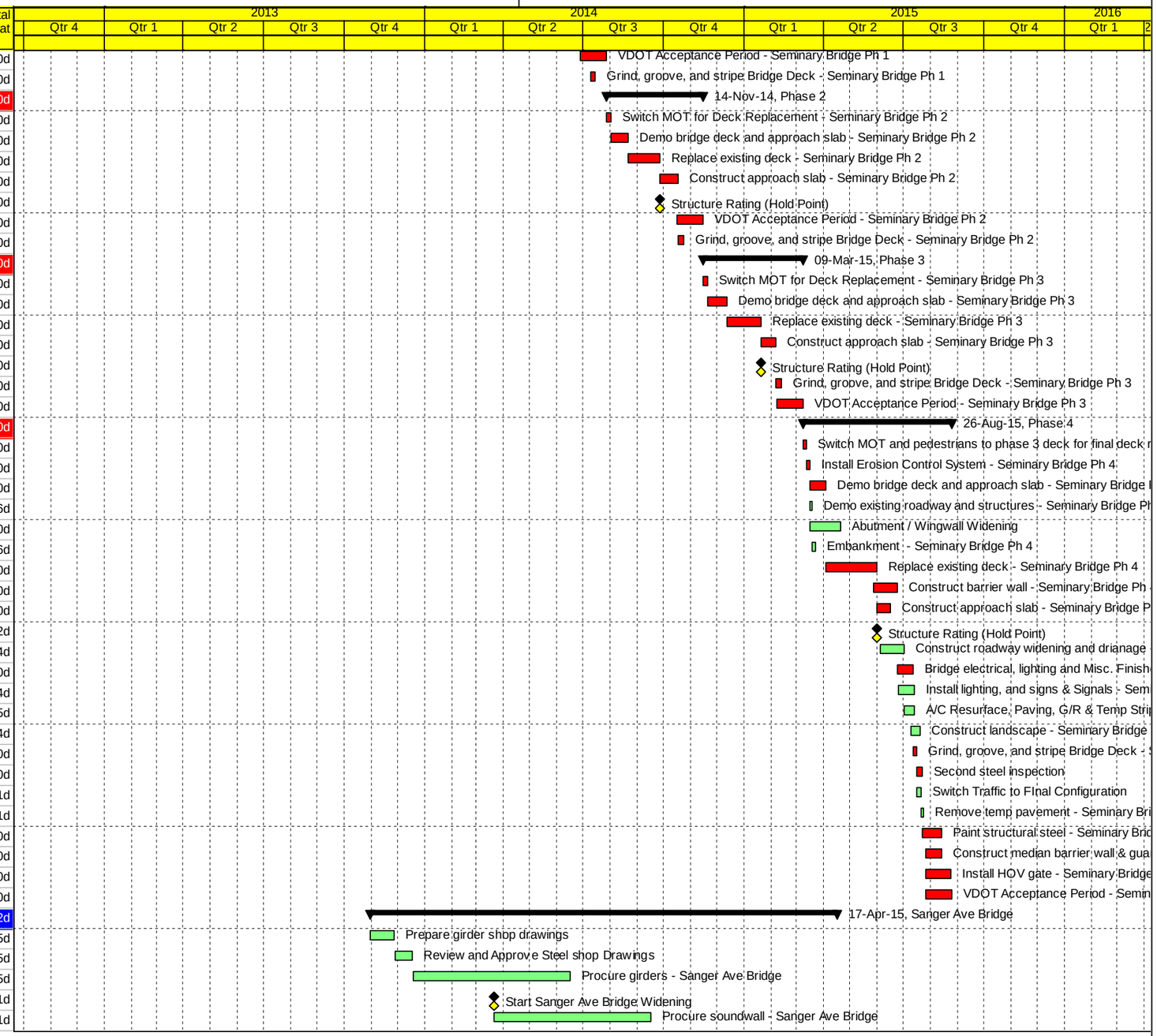
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
RMP02VDT010	VDOT Acceptance Period - Seminary Bridg	30d	28-Jun-14	28-Jul-14	0d
RMP02FIN010	Grind, groove, and stripe Bridge Deck - Se	3d	09-Jul-14	14-Jul-14	0d
Phase 2		58d	28-Jul-14	14-Nov-14	0d
RMP02MOT050	Switch MOT for Deck Replacement - Semi	3d	28-Jul-14	01-Aug-14	0d
RMP02DEM030	Demo bridge deck and approach slab - Ser	10d	01-Aug-14	21-Aug-14	0d
RMP02SUP080	Replace existing deck - Seminary Bridge Pl	19d	21-Aug-14	26-Sep-14	0d
RMP02SUP090	Construct approach slab - Seminary Bridge	10d	26-Sep-14	17-Oct-14	0d
RMP01SUP50	Structure Rating (Hold Point)	0d		26-Sep-14	10d
RMP02VDT020	VDOT Acceptance Period - Seminary Bridg	30d	15-Oct-14	14-Nov-14	0d
RMP02FIN020	Grind, groove, and stripe Bridge Deck - Se	3d	17-Oct-14	23-Oct-14	0d
Phase 3		58d	14-Nov-14	09-Mar-15	0d
RMP02MOT110	Switch MOT for Deck Replacement - Semi	3d	14-Nov-14	20-Nov-14	0d
RMP02DEM50	Demo bridge deck and approach slab - Ser	10d	20-Nov-14	12-Dec-14	0d
RMP02SUP150	Replace existing deck - Seminary Bridge Pl	19d	12-Dec-14	20-Jan-15	0d
RMP02SUP160	Construct approach slab - Seminary Bridge	10d	20-Jan-15	06-Feb-15	0d
RMP02SUP180	Structure Rating (Hold Point)	0d		20-Jan-15	10d
RMP02FIN40	Grind, groove, and stripe Bridge Deck - Se	3d	06-Feb-15	12-Feb-15	0d
RMP02VDT40	VDOT Acceptance Period - Seminary Bridg	30d	07-Feb-15	09-Mar-15	0d
Phase 4		93d	09-Mar-15	26-Aug-15	0d
RMP02MOT060	Switch MOT and pedestrians to phase 3 de	3d	09-Mar-15	13-Mar-15	0d
RMP02MOT070	Install Erosion Control System - Seminary E	1d	13-Mar-15	16-Mar-15	0d
RMP02DEM040	Demo bridge deck and approach slab - Ser	10d	16-Mar-15	03-Apr-15	0d
RMP02DEM050	Demo existing roadway and structures - Se	2d	16-Mar-15	19-Mar-15	36d
RMP02EMB20	Abutment / Wingwall Widening	20d	16-Mar-15	21-Apr-15	20d
RMP02EMB020	Embankment - Seminary Bridge Ph 4	2d	19-Mar-15	23-Mar-15	36d
RMP02SUP100	Replace existing deck - Seminary Bridge Pl	30d	03-Apr-15	01-Jun-15	0d
RMP02SUP120	Construct barrier wall - Seminary Bridge Ph	15d	28-May-15	24-Jun-15	0d
RMP02SUP110	Construct approach slab - Seminary Bridge	10d	01-Jun-15	16-Jun-15	0d
RMP01SUP60	Structure Rating (Hold Point)	0d		01-Jun-15	32d
RMP02GRD020	Construct roadway widening and drianage -	15d	05-Jun-15	02-Jul-15	4d
RMP02ELT050	Bridge electrical, lighting and Misc. Finishes	10d	24-Jun-15	13-Jul-15	0d
RMP02ELT060	Install lighting, and signs & Signals - Semina	10d	25-Jun-15	14-Jul-15	4d
RMP02PAV020	A/C Resurface, Paving, G/R & Temp Stripe	8d	02-Jul-15	14-Jul-15	5d
RMP02LND020	Construct landscape - Seminary Bridge Ph	5d	10-Jul-15	20-Jul-15	4d
RMP02FIN030	Grind, groove, and stripe Bridge Deck - Se	3d	13-Jul-15	17-Jul-15	0d
RMP02FIN50	Second steel inspection	3d	17-Jul-15	23-Jul-15	0d
RMP02MOT130	Switch Traffic to FInal Configuration	2d	17-Jul-15	22-Jul-15	1d
RMP02MOT090	Remove temp pavement - Seminary Bridge	2d	22-Jul-15	24-Jul-15	1d
RMP02FIN040	Paint structural steel - Seminary Bridge Ph	15d	23-Jul-15	14-Aug-15	0d
RMP02SUP130	Construct median barrier wall & guardrail- S	10d	27-Jul-15	14-Aug-15	0d
RMP02SUP140	Install HOV gate - Seminary Bridge Ph 4	15d	27-Jul-15	24-Aug-15	0d
RMP02VDT30	VDOT Acceptance Period - Seminary Bridg	30d	27-Jul-15	26-Aug-15	0d
Sanger Ave Bridge		278d	31-Oct-13	17-Apr-15	122d
RMP03PRC015	Prepare girder shop drawings	28d	31-Oct-13	27-Nov-13	395d
DGN08PRC010	Review and Approve Steel shop Drawings	21d	28-Nov-13	18-Dec-13	395d
RMP03PRC010	Procure girders - Sanger Ave Bridge	180d	19-Dec-13	16-Jun-14	395d
RMP03MSN010	Start Sanger Ave Bridge Widening	0d	21-Mar-14		291d
RMP03PRC020	Procure soundwall - Sanger Ave Bridge	180d	21-Mar-14	16-Sep-14	391d



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I-395 HOV Ramp at Seminary Road

Proposal A Schedule

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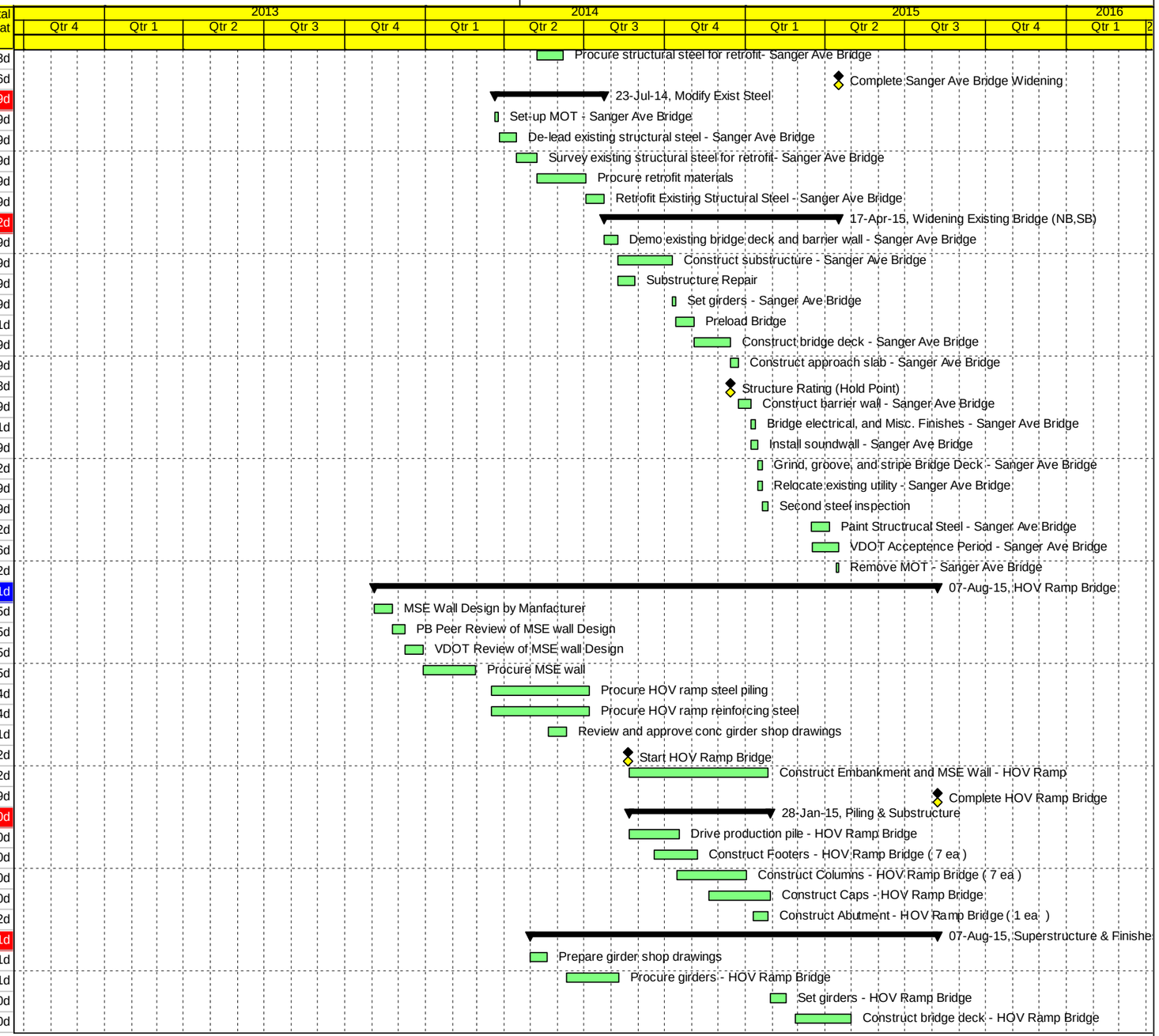
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
RMP03SUP090	Procure structural steel for retrofit- Sanger	30d	08-May-14	07-Jun-14	313d
RMP03MSN020	Complete Sanger Ave Bridge Widening	0d		17-Apr-15	236d
Modify Exist Steel		66d	21-Mar-14	23-Jul-14	149d
RMP03MOT010	Set-up MOT - Sanger Ave Bridge	3d	21-Mar-14	25-Mar-14	149d
RMP03SUP070	De-lead existing structural steel - Sanger A	10d	27-Mar-14	14-Apr-14	149d
RMP03SUP080	Survey existing structural steel for retrofit- S	13d	15-Apr-14	08-May-14	149d
RMP03SUP90	Procure retrofit materials	30d	08-May-14	03-Jul-14	149d
RMP03SUP010	Retrofit Existing Structural Steel - Sanger A	10d	03-Jul-14	23-Jul-14	149d
Widening Existing Bridge (NB,SB)		140d	23-Jul-14	17-Apr-15	122d
RMP03DEM010	Demo existing bridge deck and barrier wall	10d	23-Jul-14	08-Aug-14	149d
RMP03SUB010	Construct substructure - Sanger Ave Bridge	30d	08-Aug-14	09-Oct-14	149d
RMP03PLE30	Substructure Repair	10d	08-Aug-14	28-Aug-14	169d
RMP03SUP020	Set girders - Sanger Ave Bridge	2d	09-Oct-14	13-Oct-14	149d
RMP03SUP100	Preload Bridge	21d	13-Oct-14	03-Nov-14	281d
RMP03SUP030	Construct bridge deck - Sanger Ave Bridge	21d	03-Nov-14	15-Dec-14	149d
RMP03SUP060	Construct approach slab - Sanger Ave Brid	6d	15-Dec-14	24-Dec-14	149d
RMP01SUP70	Structure Rating (Hold Point)	0d		15-Dec-14	188d
RMP03SUP040	Construct barrier wall - Sanger Ave Bridge	5d	23-Dec-14	07-Jan-15	149d
RMP03ELT010	Bridge electrical, and Misc. Finishes - Sang	3d	07-Jan-15	12-Jan-15	151d
RMP03SUP050	Install soundwall - Sanger Ave Bridge	5d	07-Jan-15	15-Jan-15	149d
RMP03FIN010	Grind, groove, and stripe Bridge Deck - Sa	3d	15-Jan-15	20-Jan-15	162d
RMP03UTL010	Relocate existing utility - Sanger Ave Bridge	3d	15-Jan-15	20-Jan-15	149d
RMP03UTL10	Second steel inspection	3d	20-Jan-15	26-Jan-15	149d
RMP03FIN020	Paint Structrucal Steel - Sanger Ave Bridge	15d	16-Mar-15	06-Apr-15	152d
RMP03VDT010	VDOT Acceptence Period - Sanger Ave Bri	30d	18-Mar-15	17-Apr-15	236d
RMP03MOT020	Remove MOT - Sanger Ave Bridge	2d	14-Apr-15	17-Apr-15	122d
HOV Ramp Bridge		338d	04-Nov-13	07-Aug-15	61d
DGN04STR010	MSE Wall Design by Manfacturer	21d	04-Nov-13	24-Nov-13	65d
DGN04ADM010	PB Peer Review of MSE wall Design	14d	25-Nov-13	08-Dec-13	65d
DGN04VDT010	VDOT Review of MSE wall Design	21d	09-Dec-13	29-Dec-13	65d
RMP04PRC010	Procure MSE wall	60d	30-Dec-13	27-Feb-14	65d
RMP04PRC020	Procure HOV ramp steel piling	60d	17-Mar-14	07-Jul-14	34d
RMP04PRC040	Procure HOV ramp reinforcing steel	60d	17-Mar-14	07-Jul-14	34d
DGN07PRC020	Review and approve conc girder shop drav	21d	21-May-14	10-Jun-14	191d
RMP04MSN010	Start HOV Ramp Bridge	0d	20-Aug-14		22d
RMP04MSE010	Construct Embankment and MSE Wall - HO	80d	21-Aug-14	26-Jan-15	12d
RMP04MSN020	Complete HOV Ramp Bridge	0d		07-Aug-15	19d
Piling & Substructure		82d	21-Aug-14	28-Jan-15	10d
RMP04PLE020	Drive production pile - HOV Ramp Bridge	30d	21-Aug-14	17-Oct-14	10d
RMP04SUB020	Construct Footers - HOV Ramp Bridge (7	25d	19-Sep-14	06-Nov-14	10d
RMP04SUB030	Construct Columns - HOV Ramp Bridge (7	40d	14-Oct-14	02-Jan-15	10d
RMP04SUB040	Construct Caps - HOV Ramp Bridge	35d	20-Nov-14	28-Jan-15	10d
RMP04SUB050	Construct Abutment - HOV Ramp Bridge (	10d	09-Jan-15	26-Jan-15	12d
Superstructure & Finishes		244d	30-Apr-14	07-Aug-15	61d
RMP04PRC025	Prepare girder shop drawings	21d	30-Apr-14	20-May-14	191d
RMP04PRC030	Procure girders - HOV Ramp Bridge	60d	11-Jun-14	09-Aug-14	191d
RMP04SUP010	Set girders - HOV Ramp Bridge	10d	29-Jan-15	16-Feb-15	10d
RMP04SUP020	Construct bridge deck - HOV Ramp Bridge	36d	26-Feb-15	01-May-15	10d



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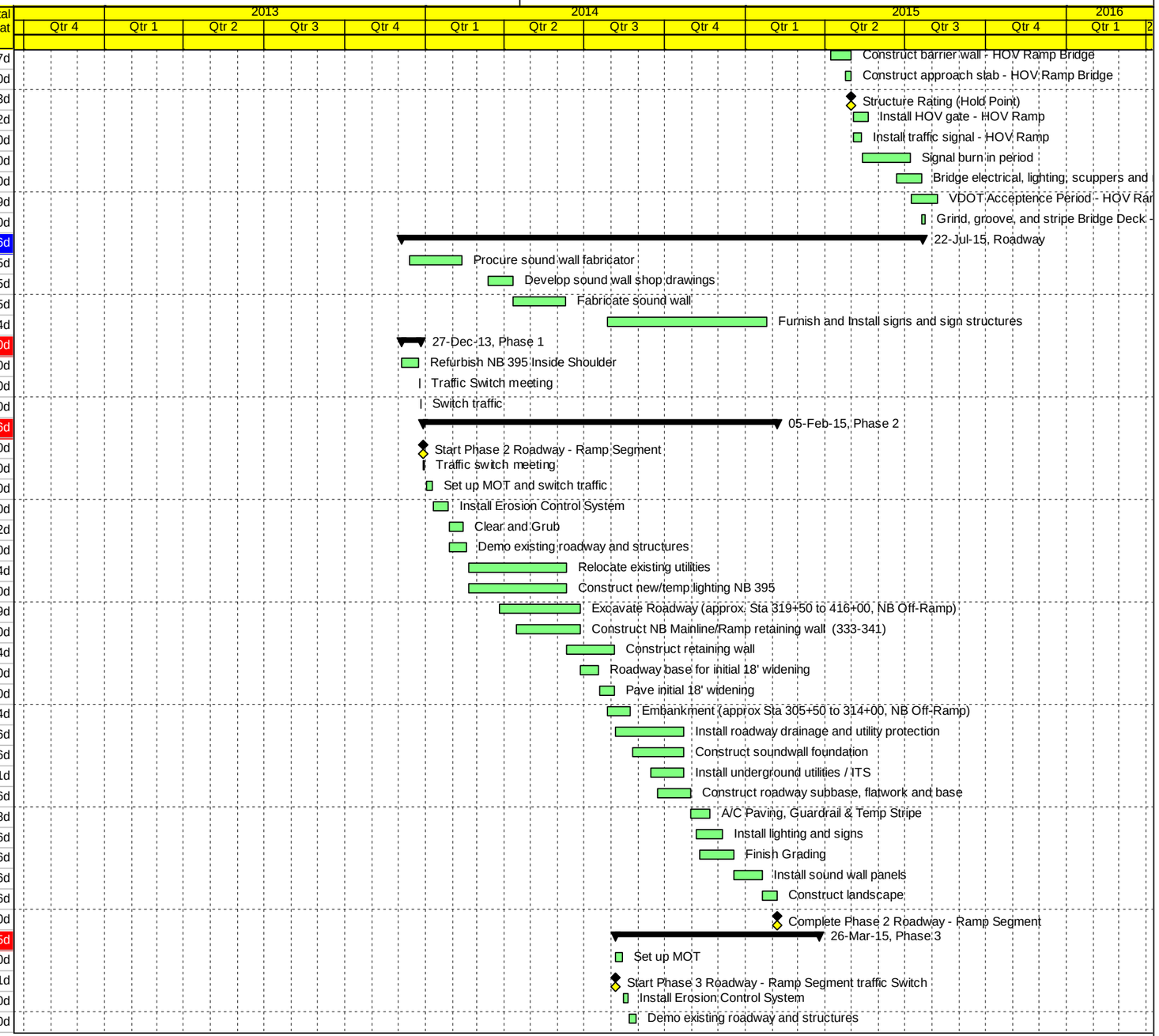
Proposal A Schedule

CK CONSTRUCTORS

05-Jan-13 14:10

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
RMP04SUP030	Construct barrier wall - HOV Ramp Bridge	15d	08-Apr-15	01-May-15	37d
RMP04SUP040	Construct approach slab - HOV Ramp Brid	5d	24-Apr-15	01-May-15	10d
RMP01SUP80	Structure Rating (Hold Point)	0d		01-May-15	113d
RMP04ELT010	Install HOV gate - HOV Ramp	10d	04-May-15	20-May-15	42d
RMP04ELT020	Install traffic signal - HOV Ramp	5d	04-May-15	12-May-15	10d
RMP04ELT30	Signal burn in period	30d	14-May-15	07-Jul-15	10d
RMP04ELT030	Bridge electrical, lighting, scuppers and mis	15d	22-Jun-15	20-Jul-15	10d
RMP04VDT010	VDOT Acceptence Period - HOV Ramp Bri	30d	08-Jul-15	07-Aug-15	19d
RMP04FIN010	Grind, groove, and stripe Bridge Deck - HC	3d	20-Jul-15	24-Jul-15	10d
Roadway		313d	05-Dec-13	22-Jul-15	56d
RMP05PRC010	Procure sound wall fabricator	60d	14-Dec-13	11-Feb-14	275d
RMP05PRC020	Develop sound wall shop drawings	28d	14-Mar-14	10-Apr-14	245d
RMP05PRC030	Fabricate sound wall	60d	11-Apr-14	09-Jun-14	245d
RMP05PRC30	Furnish and Install signs and sign structure	182d	28-Jul-14	25-Jan-15	144d
Phase 1		12d	05-Dec-13	27-Dec-13	10d
RMP05MOT80	Refurbish NB 395 Inside Shoulder	10d	05-Dec-13	24-Dec-13	10d
RMP05MOT90	Traffic Switch meeting	1d	26-Dec-13	26-Dec-13	10d
RMP05MOT100	Switch traffic	1d	27-Dec-13	27-Dec-13	10d
Phase 2		212d	30-Dec-13	05-Feb-15	86d
RMP05MSN030	Start Phase 2 Roadway - Ramp Segment	0d	30-Dec-13		10d
RMP05MOT110	Traffic switch meeting	1d	30-Dec-13	30-Dec-13	10d
RMP05MOT040	Set up MOT and switch traffic	5d	02-Jan-14	09-Jan-14	10d
RMP05MOT050	Install Erosion Control System	10d	10-Jan-14	27-Jan-14	10d
RMP05DEM020	Clear and Grub	10d	28-Jan-14	13-Feb-14	12d
RMP05DEM030	Demo existing roadway and structures	12d	28-Jan-14	17-Feb-14	10d
RMP05UTL030	Relocate existing utilities	60d	19-Feb-14	10-Jun-14	74d
RMP05DEM30	Construct new/temp lighting NB 395	60d	19-Feb-14	10-Jun-14	10d
RMP05EXC020	Excavate Roadway (approx. Sta 319+50 to	50d	27-Mar-14	26-Jun-14	109d
RMP05DEM40	Construct NB Mainline/Ramp retaining wall	40d	15-Apr-14	26-Jun-14	10d
RMP05STR020	Construct retaining wall	30d	11-Jun-14	04-Aug-14	74d
RMP05DEM50	Roadway base for initial 18' widening	10d	27-Jun-14	17-Jul-14	10d
RMP05DEM60	Pave initial 18' widening	10d	18-Jul-14	04-Aug-14	10d
RMP05EMB020	Embankment (approx Sta 305+50 to 314+0	15d	28-Jul-14	22-Aug-14	74d
RMP05UTL040	Install roadway drainage and utility protectic	40d	05-Aug-14	22-Oct-14	86d
RMP05STR030	Construct soundwall foundation	30d	25-Aug-14	22-Oct-14	86d
RMP05UTL050	Install underground utilities / ITS	20d	15-Sep-14	22-Oct-14	91d
RMP05GRD020	Construct roadway subbase, flatwork and I	20d	23-Sep-14	30-Oct-14	86d
RMP05PAV030	A/C Paving, Guardrail & Temp Stripe	15d	30-Oct-14	21-Nov-14	48d
RMP05ELT020	Install lighting and signs	15d	06-Nov-14	05-Dec-14	116d
RMP05STR040	Finish Grading	20d	10-Nov-14	18-Dec-14	86d
RMP05STR050	Install sound wall panels	15d	19-Dec-14	19-Jan-15	86d
RMP05LND010	Construct landscape	10d	20-Jan-15	05-Feb-15	86d
RMP05MSN040	Complete Phase 2 Roadway - Ramp Segm	0d		05-Feb-15	160d
Phase 3		121d	05-Aug-14	26-Mar-15	45d
RMP05MOT010	Set up MOT	5d	05-Aug-14	13-Aug-14	10d
RMP05MSN010	Start Phase 3 Roadway - Ramp Segment tr	0d	05-Aug-14		41d
RMP05MOT020	Install Erosion Control System	3d	15-Aug-14	19-Aug-14	10d
RMP05DEM010	Demo existing roadway and structures	5d	21-Aug-14	28-Aug-14	80d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

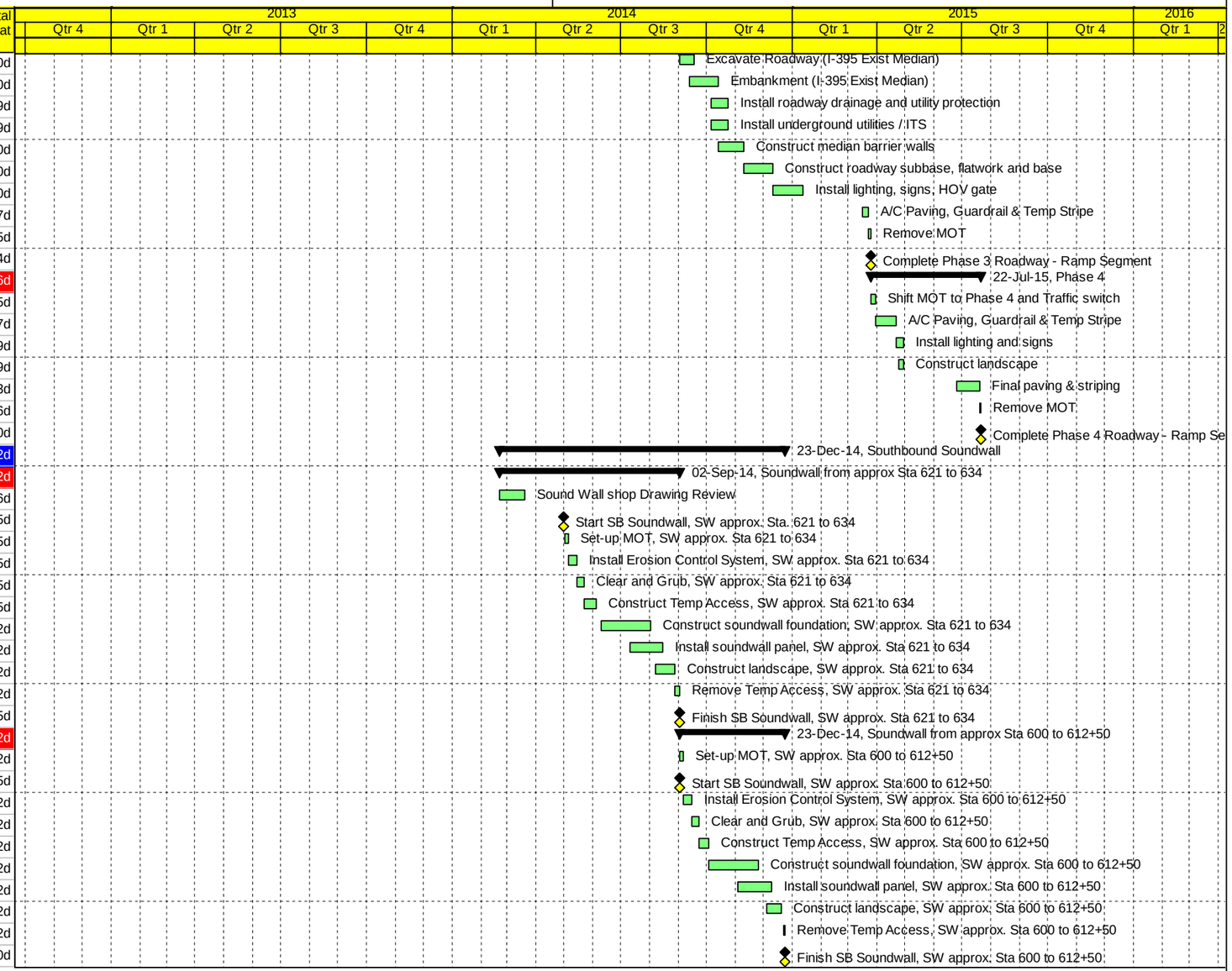
I-395 HOV Ramp at Seminary Road

Proposal A Schedule

CK CONSTRUCTORS

05-Jan-13 14:10

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
RMP05EXC010	Excavate Roadway (I-395 Exist Median)	10d	02-Sep-14	17-Sep-14	80d
RMP05EMB010	Embankment (I-395 Exist Median)	15d	12-Sep-14	13-Oct-14	80d
RMP05UTL010	Install roadway drainage and utility protectic	10d	06-Oct-14	23-Oct-14	89d
RMP05UTL020	Install underground utilities / ITS	10d	06-Oct-14	23-Oct-14	89d
RMP05STR010	Construct median barrier walls	15d	13-Oct-14	10-Nov-14	80d
RMP05GRD010	Construct roadway subbase, flatwork and l	15d	10-Nov-14	10-Dec-14	80d
RMP05ELT010	Install lighting, signs, HOV gate	15d	10-Dec-14	12-Jan-15	80d
RMP05PAV010	A/C Paving, Guardrail & Temp Stripe	6d	16-Mar-15	23-Mar-15	57d
RMP05MOT030	Remove MOT	2d	23-Mar-15	26-Mar-15	45d
RMP05MSN020	Complete Phase 3 Roadway - Ramp Segm	0d		26-Mar-15	84d
Phase 4		62d	26-Mar-15	22-Jul-15	56d
RMP05MOT060	Shift MOT to Phase 4 and Traffic switch	2d	26-Mar-15	30-Mar-15	45d
RMP05PAV040	A/C Paving, Guardrail & Temp Stripe	15d	30-Mar-15	21-Apr-15	57d
RMP05ELT030	Install lighting and signs	5d	21-Apr-15	29-Apr-15	99d
RMP05LND020	Construct landscape	3d	24-Apr-15	29-Apr-15	99d
RMP05PAV050	Final paving & striping	15d	26-Jun-15	20-Jul-15	13d
RMP05MOT080	Remove MOT	1d	20-Jul-15	22-Jul-15	56d
RMP05MSN060	Complete Phase 4 Roadway - Ramp Segm	0d		22-Jul-15	110d
Southbound Soundwall		160d	21-Feb-14	23-Dec-14	182d
Soundwall from approx Sta 621 to 634		102d	21-Feb-14	02-Sep-14	182d
DGN03PRC010	Sound Wall shop Drawing Review	28d	21-Feb-14	20-Mar-14	266d
RMP06MSN010	Start SB Soundwall, SW approx. Sta. 621 tc	0d	01-May-14		355d
RMP06MOT010	Set-up MOT, SW approx. Sta 621 to 634	2d	02-May-14	05-May-14	185d
RMP06MOT020	Install Erosion Control System, SW approx.	5d	06-May-14	14-May-14	185d
RMP06DEM010	Clear and Grub, SW approx. Sta 621 to 634	5d	15-May-14	22-May-14	185d
RMP06MOT030	Construct Temp Access, SW approx. Sta 6	5d	23-May-14	04-Jun-14	185d
RMP06STR010	Construct soundwall foundation, SW appro	30d	10-Jun-14	01-Aug-14	182d
RMP06STR020	Install soundwall panel, SW approx. Sta 62:	20d	10-Jul-14	15-Aug-14	182d
RMP06LND010	Construct landscape, SW approx. Sta 621	10d	07-Aug-14	27-Aug-14	182d
RMP06MOT040	Remove Temp Access, SW approx. Sta 62	2d	27-Aug-14	02-Sep-14	182d
RMP06MSN020	Finish SB Soundwall, SW approx. Sta 621 t	0d		02-Sep-14	345d
Soundwall from approx Sta 600 to 612+50		59d	02-Sep-14	23-Dec-14	182d
RMP06MOT050	Set-up MOT, SW approx. Sta 600 to 612+5	2d	02-Sep-14	05-Sep-14	182d
RMP06MSN030	Start SB Soundwall, SW approx. Sta 600 to	0d	02-Sep-14		345d
RMP06MOT060	Install Erosion Control System, SW approx.	5d	05-Sep-14	15-Sep-14	182d
RMP06DEM020	Clear and Grub, SW approx. Sta 600 to 61:	4d	15-Sep-14	22-Sep-14	182d
RMP06MOT070	Construct Temp Access, SW approx. Sta 6	5d	22-Sep-14	03-Oct-14	182d
RMP06STR030	Construct soundwall foundation, SW appro	28d	03-Oct-14	25-Nov-14	182d
RMP06STR040	Install soundwall panel, SW approx. Sta 60(	18d	03-Nov-14	09-Dec-14	182d
RMP06LND020	Construct landscape, SW approx. Sta 600	10d	04-Dec-14	19-Dec-14	182d
RMP06MOT080	Remove Temp Access, SW approx. Sta 60	2d	22-Dec-14	23-Dec-14	182d
RMP06MSN040	Finish SB Soundwall, SW approx. Sta 600 t	0d		23-Dec-14	350d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

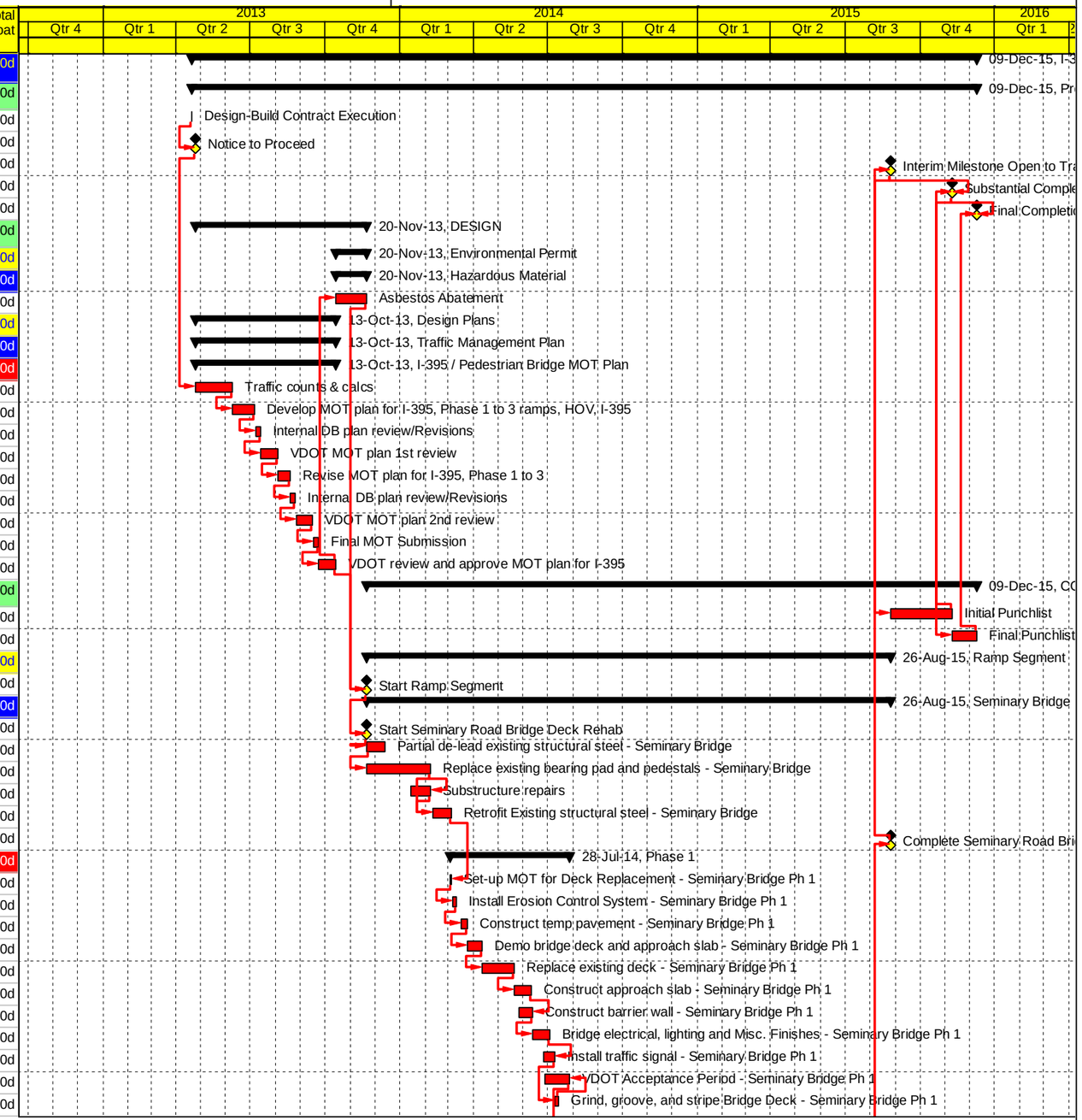
I-395 HOV Ramp at Seminary Road

Proposal A Schedule

CK CONSTRUCTORS

04-Jan-13 19:00

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
I-395 HOV Ramp at Seminary Road - Proposal Schedule (HOV) Propo		501d	20-Apr-13	09-Dec-15	0d
Project Overview		963d	20-Apr-13	09-Dec-15	0d
GEN00ADM030	Design-Build Contract Execution	1d	20-Apr-13*	20-Apr-13	0d
GEN00ADM040	Notice to Proceed	0d	25-Apr-13		0d
CON00MSN010	Interim Milestone Open to Traffic HOV Ramp on to Seminary	0d		26-Aug-15*	0d
CON00MSN020	Substantial Completion	0d		09-Nov-15	0d
CON00MSN030	Final Completion	0d		09-Dec-15*	0d
DESIGN		109d	25-Apr-13	20-Nov-13	0d
Environmental Permit		21d	14-Oct-13	20-Nov-13	0d
Hazardous Material		21d	14-Oct-13	20-Nov-13	0d
PEM04HAZ120	Asbestos Abatement	21d	14-Oct-13	20-Nov-13	0d
Design Plans		172d	25-Apr-13	13-Oct-13	0d
Traffic Management Plan		172d	25-Apr-13	13-Oct-13	0d
I-395 / Pedestrian Bridge MOT Plan		172d	25-Apr-13	13-Oct-13	0d
DGN02PLN160	Traffic counts & calcs	45d	25-Apr-13	08-Jun-13	0d
DGN02PLN010	Develop MOT plan for I-395, Phase 1 to 3 ramps, HOV, I-395	28d	09-Jun-13	06-Jul-13	0d
DGN02PLN020	Internal DB plan review/Revisions	7d	07-Jul-13	13-Jul-13	0d
DGN02VDT010	VDOT MOT plan 1st review	21d	14-Jul-13	03-Aug-13	0d
DGN02PLN030	Revise MOT plan for I-395, Phase 1 to 3	15d	04-Aug-13	18-Aug-13	0d
DGN02PLN040	Internal DB plan review/Revisions	7d	19-Aug-13	25-Aug-13	0d
DGN02VDT020	VDOT MOT plan 2nd review	21d	26-Aug-13	15-Sep-13	0d
DGN02PLN050	Final MOT Submission	7d	16-Sep-13	22-Sep-13	0d
DGN02VDT030	VDOT review and approve MOT plan for I-395	21d	23-Sep-13	13-Oct-13	0d
CONSTRUCTION		389d	21-Nov-13	09-Dec-15	0d
CON00MOB030	Initial Punchlist	75d	26-Aug-15	09-Nov-15	0d
CON00MOB020	Final Punchlist, Close-Out & Demobilization	30d	09-Nov-15	09-Dec-15	0d
Ramp Segment		338d	21-Nov-13	26-Aug-15	0d
RMP00ADM010	Start Ramp Segment	0d	21-Nov-13		0d
Seminary Bridge		338d	21-Nov-13	26-Aug-15	0d
RMP02MSN010	Start Seminary Road Bridge Deck Rehab	0d	21-Nov-13		0d
RMP02SUP015	Partial de-lead existing structural steel - Seminary Bridge	10d	21-Nov-13	13-Dec-13	0d
RMP02SUP030	Replace existing bearing pad and pedestals - Seminary Bridge	40d	21-Nov-13	07-Feb-14	0d
RMP02SUP170	Substructure repairs	15d	14-Jan-14	07-Feb-14	0d
RMP02SUP040	Retrofit Existing structural steel - Seminary Bridge	14d	10-Feb-14	05-Mar-14	0d
RMP02MSN020	Complete Seminary Road Bridge Deck Rehab - Seminary Bridge	0d		26-Aug-15	0d
Phase 1		78d	04-Mar-14	28-Jul-14	0d
RMP02MOT010	Set-up MOT for Deck Replacement - Seminary Bridge Ph 1	2d	04-Mar-14	05-Mar-14	0d
RMP02MOT020	Install Erosion Control System - Seminary Bridge Ph 1	3d	07-Mar-14	11-Mar-14	0d
RMP02MOT030	Construct temp pavement - Seminary Bridge Ph 1	6d	17-Mar-14	24-Mar-14	0d
RMP02DEM010	Demo bridge deck and approach slab - Seminary Bridge Ph 1	10d	24-Mar-14	11-Apr-14	0d
RMP02SUP050	Replace existing deck - Seminary Bridge Ph 1	21d	11-Apr-14	20-May-14	0d
RMP02SUP060	Construct approach slab - Seminary Bridge Ph 1	10d	20-May-14	10-Jun-14	0d
RMP02SUP070	Construct barrier wall - Seminary Bridge Ph 1	10d	27-May-14	13-Jun-14	0d
RMP02ELT010	Bridge electrical, lighting and Misc. Finishes - Seminary Bridge Ph 1	10d	13-Jun-14	03-Jul-14	0d
RMP02ELT020	Install traffic signal - Seminary Bridge Ph 1	5d	26-Jun-14	09-Jul-14	0d
RMP02VDT010	VDOT Acceptance Period - Seminary Bridge Ph 1	30d	28-Jun-14	28-Jul-14	0d
RMP02FIN010	Grind, groove, and stripe Bridge Deck - Seminary Bridge Ph 1	3d	09-Jul-14	14-Jul-14	0d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

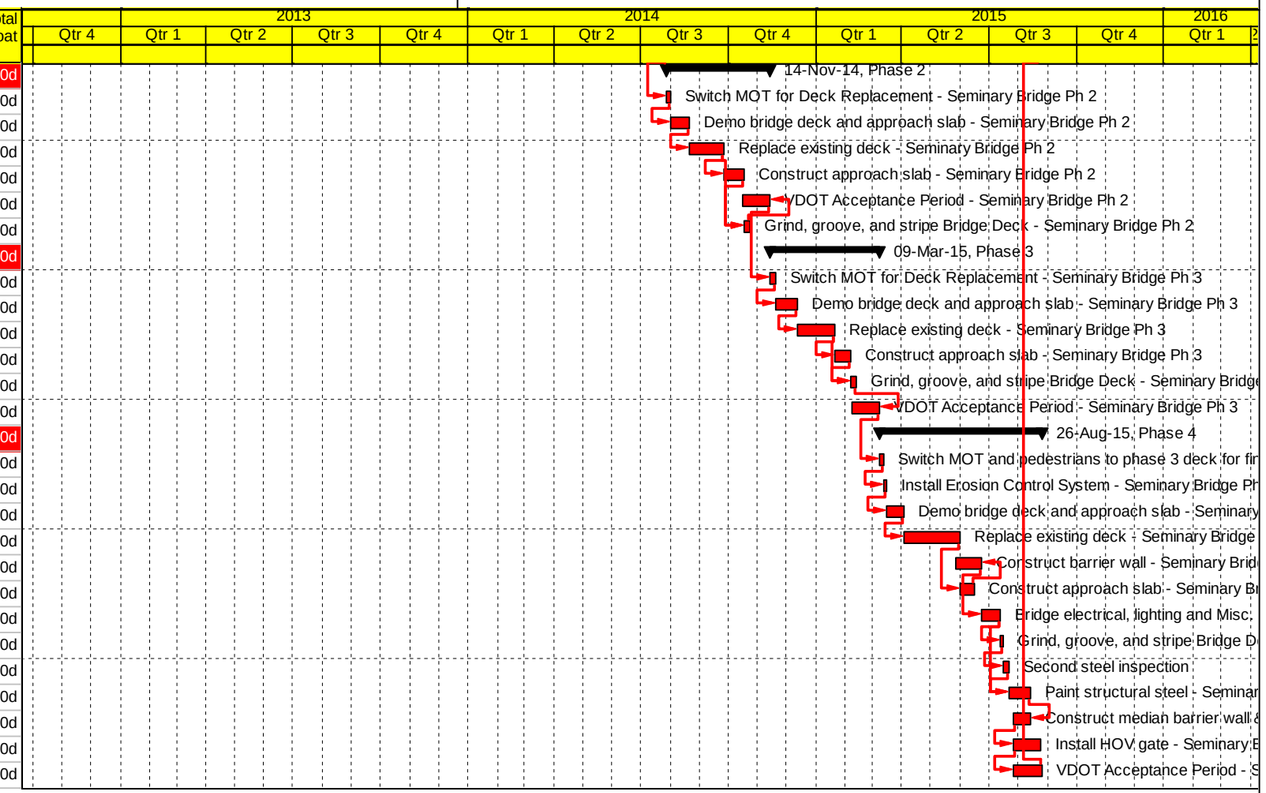
I-395 HOV Ramp at Seminary Road

Proposal A Schedule

CK CONSTRUCTORS

04-Jan-13 19:00

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
Phase 2		**58d**	**28-Jul-14**	**14-Nov-14**	**0d**
RMP02MOT050	Switch MOT for Deck Replacement - Seminary Bridge Ph 2	3d	28-Jul-14	01-Aug-14	0d
RMP02DEM030	Demo bridge deck and approach slab - Seminary Bridge Ph 2	10d	01-Aug-14	21-Aug-14	0d
RMP02SUP080	Replace existing deck - Seminary Bridge Ph 2	19d	21-Aug-14	26-Sep-14	0d
RMP02SUP090	Construct approach slab - Seminary Bridge Ph 2	10d	26-Sep-14	17-Oct-14	0d
RMP02VDT020	VDOT Acceptance Period - Seminary Bridge Ph 2	30d	15-Oct-14	14-Nov-14	0d
RMP02FIN020	Grind, groove, and stripe Bridge Deck - Seminary Bridge Ph 2	3d	17-Oct-14	23-Oct-14	0d
Phase 3		**58d**	**14-Nov-14**	**09-Mar-15**	**0d**
RMP02MOT110	Switch MOT for Deck Replacement - Seminary Bridge Ph 3	3d	14-Nov-14	20-Nov-14	0d
RMP02DEM50	Demo bridge deck and approach slab - Seminary Bridge Ph 3	10d	20-Nov-14	12-Dec-14	0d
RMP02SUP150	Replace existing deck - Seminary Bridge Ph 3	19d	12-Dec-14	20-Jan-15	0d
RMP02SUP160	Construct approach slab - Seminary Bridge Ph 3	10d	20-Jan-15	06-Feb-15	0d
RMP02FIN40	Grind, groove, and stripe Bridge Deck - Seminary Bridge Ph 3	3d	06-Feb-15	12-Feb-15	0d
RMP02VDT40	VDOT Acceptance Period - Seminary Bridge Ph 3	30d	07-Feb-15	09-Mar-15	0d
Phase 4		**93d**	**09-Mar-15**	**26-Aug-15**	**0d**
RMP02MOT060	Switch MOT and pedestrians to phase 3 deck for final deck replacement	3d	09-Mar-15	13-Mar-15	0d
RMP02MOT070	Install Erosion Control System - Seminary Bridge Ph 4	1d	13-Mar-15	16-Mar-15	0d
RMP02DEM040	Demo bridge deck and approach slab - Seminary Bridge Ph 4	10d	16-Mar-15	03-Apr-15	0d
RMP02SUP100	Replace existing deck - Seminary Bridge Ph 4	30d	03-Apr-15	01-Jun-15	0d
RMP02SUP120	Construct barrier wall - Seminary Bridge Ph 4	15d	28-May-15	24-Jun-15	0d
RMP02SUP110	Construct approach slab - Seminary Bridge Ph 4	10d	01-Jun-15	16-Jun-15	0d
RMP02ELT050	Bridge electrical, lighting and Misc. Finishes - Seminary Bridge Ph 4	10d	24-Jun-15	13-Jul-15	0d
RMP02FIN030	Grind, groove, and stripe Bridge Deck - Seminary Bridge Ph 4	3d	13-Jul-15	17-Jul-15	0d
RMP02FIN50	Second steel inspection	3d	17-Jul-15	23-Jul-15	0d
RMP02FIN040	Paint structural steel - Seminary Bridge Ph 4	15d	23-Jul-15	14-Aug-15	0d
RMP02SUP130	Construct median barrier wall & guardrail- Seminary Bridge Ph 4	10d	27-Jul-15	14-Aug-15	0d
RMP02SUP140	Install HOV gate - Seminary Bridge Ph 4	15d	27-Jul-15	24-Aug-15	0d
RMP02VDT30	VDOT Acceptance Period - Seminary Bridge Ph 4.1	30d	27-Jul-15	26-Aug-15	0d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

4.6 PROPOSAL SCHEDULE

Proposal A Schedule Summary

The CK Team has thoroughly evaluated the RFP Documents, visited the project sites, attended pre-proposal meetings, participated in proprietary meeting discussions, met numerous times with local utilities, and conducted working sessions with our construction and design teams, including our Geotechnical and Traffic Engineers. Through this progression came simplified solutions to the complex engineering and construction of the HOV Ramp project. Our schedule and proposal takes full advantage of the innovations that have emerged and this narrative explains our course of action in delivering a superior project to VDOT and the stakeholders for whom the project is intended to benefit. Since public outreach and MOT are critical elements, we maintained flexibility in the schedule to address and incorporate these concerns during the project's duration. Opening the HOV Ramp to traffic and Final Completion are 8/26/2015 and 12/9/2015, respectively.

Our plan is to start the design at Notice of Award and roll approved drawings out for construction as soon as they are fully approved by VDOT. The CK Team, including PB, has local resources for rapid mobilization and acceleration to progress the design deliverables for an on time construction start. We also have an abundance of local resources to handle the ramp up that the project demands. This provides multiple work areas, such as those outlined in the schedule, to allow concurrent work and design throughout the project limits.

Our team devoted significant time to refining our preliminary design and schedule based on our combined design-build experience on projects with high demands of traveling through work zones safely and efficiently. This level of knowledge empowers us to simplify the project for stakeholders. Through each step, our team zeroed in on traveling public, worker, and stakeholder safety. This will continue to be a driving force when developing more detailed plans and construction execution.

Project Milestones/Schedule Overview

Notice of Intent to Award	**2/21/13**
Notice to Proceed	**4/25/13**
Interim Milestone –Open to Traffic HOV Ramp onto Seminary	**8/26/15**
Substantial Completion	**11/9/15**
Final Completion	**12/9/15**

The proposal schedules can be found following this narrative. Two separate and distinct schedules are provided:

Proposal A Schedule– HOV Ramp Only

This includes the design and construction of the Ramp segment containing all four bridges (Sanger, HOV Ramp, Seminary and Pedestrian), NB and SB sound walls, and all the roadway work from Seminary Road to just south of the Sanger Avenue Bridge, approximate Sta 303+75.

Utility relocations are incorporated into the I-395 roadway work and include the critical VDOT duct bank relocation within that section of roadway.

Work Breakdown Structure: The CPM schedule is structured in three Main Work Breakdown Structure (WBS) Groups; *Overview, Design and Construction*. Each group is then broken down into second, third and fourth levels to show details. An overview is outlined below and the Project WBS is outlined in Figure 12A.

Group 1: Overview containing three activities:

1. Key Contract Milestones – Notice of Intent to Award through Final Completion;
2. Scope Validation Period and QA/QC plan development and approval;

3. *"Level of effort"* to summarize various activities that transcend either design or construction such, as Public Outreach, QA / QC and Design Support for Construction.

Group 2: Design phase, including two sub-categories of Environmental Permitting and Design Plans:

1. Environmental Permitting: Includes the investigation on needing specific permits, such as developing, reviewing, and submitting the Erosion & Sediment Control Permits, SWPPP, JPA, NW 6 permit and any others deemed necessary from the initial investigation starting at NTP;
2. Design Segment: Development and reviews of the Geotechnical Investigation Report, Utility Identification / Relocations, Traffic Management Plan, Noise Studies, Sound Wall Feasibility Studies and Design, Roadway, Structural, Traffic Signals, Lighting, ITS, Drainage and Landscape design. Each Design package has three VDOT review periods at 30%, 60% and 90% design submittals, are 21 calendar days, and will be complete before the final design is submitted for Release for Construction. Each Design Deliverable will be reviewed internally by the Design QC Manager and Construction staff prior to submitting to VDOT.

Group 3: Construction Phase. Construction includes all components of the bridge, roadway and walls, as well as maintenance of traffic, erosion & sediment controls, signals, signs, lighting, ITS, drainage, utilities, and roadside improvements, including landscaping. As with all of these construction activities, quality hold points and initial start up meetings will be held prior to commencing new operations. These will be further detailed in the development of the QA / QC Plan and then added to the schedule as "Hold Points". The WBS second and third levels provide further breakdown of the work by area, such as Pedestrian Bridge, Seminary Bridge, Sanger Avenue Bridge, HOV Bridge, Roadway, and SB Sound Wall.

Work Breakdown Structure: The work breakdown structure for the Proposal A schedule is on the following page.

I-395 HOV Ramp at Seminary Road

Proposal A Schedule

WBS

05-Jan-13 13:52

WBS Code	WBS Name	Total Activities	Est Weight
SMRD00.1-3	I-395 HOV Ramp at Seminary Road - Proposal	426	1.0
SMRD00.1-3.1	Project Overview	15	1.0
SMRD00.1-3.2	DESIGN	186	1.0
SMRD00.1-3.2.1	Environmental Permit	38	1.0
SMRD00.1-3.2.1.1	Median Work	7	1.0
SMRD00.1-3.2.1.2	Widening Work	7	1.0
SMRD00.1-3.2.1.3	Westside Work	7	1.0
SMRD00.1-3.2.1.4	Hazardous Material	10	1.0
SMRD00.1-3.2.2	Design Plans	148	1.0
SMRD00.1-3.2.2.1	Roadway / Civil Design / HOV Ramp	21	1.0
SMRD00.1-3.2.2.2	Traffic Management Plan	27	1.0
SMRD00.1-3.2.2.2.1	I-395 / Pedestrian Bridge MOT Plan	9	1.0
SMRD00.1-3.2.2.2.2	Seminary MOT Plan	9	1.0
SMRD00.1-3.2.2.2.3	Sanger Ave MOT Plan	9	1.0
SMRD00.1-3.2.2.3	Soundwall / Retaining Wall Design HOV	13	1.0
SMRD00.1-3.2.2.4	Utility Relocation / New Facilities	12	1.0
SMRD00.1-3.2.2.5	Seminary Road Bridge	13	1.0
SMRD00.1-3.2.2.6	ROW / Easement Plan	13	1.0
SMRD00.1-3.2.2.6.1	ROW Easement Acquisition	9	1.0
SMRD00.1-3.2.2.7	Pedestrian Bridge	13	1.0
SMRD00.1-3.2.2.8	HOV Bridge	12	1.0
SMRD00.1-3.2.2.9	Sanger Ave Bridge	13	1.0
SMRD00.1-3.2.2.10	ITS/Lighting/Signals	11	1.0
SMRD00.1-3.3	CONSTRUCTION	225	1.0
SMRD00.1-3.3.1	Ramp Segment	220	1.0
SMRD00.1-3.3.1.1	Pedestrian Bridge	20	1.0
SMRD00.1-3.3.1.1.1	Foundations & Substructure	6	1.0
SMRD00.1-3.3.1.1.2	Superstructure & Finishes	7	1.0
SMRD00.1-3.3.1.2	Seminary Bridge	68	1.0
SMRD00.1-3.3.1.2.1	Phase 1	22	1.0
SMRD00.1-3.3.1.2.2	Phase 2	7	1.0
SMRD00.1-3.3.1.2.4	Phase 3	7	1.0
SMRD00.1-3.3.1.2.3	Phase 4	23	1.0
SMRD00.1-3.3.1.3	Sanger Ave Bridge	29	1.0
SMRD00.1-3.3.1.3.1	Modify Exist Steel	5	1.0
SMRD00.1-3.3.1.3.2	Widening Existing Bridge (NB,SB)	17	1.0
SMRD00.1-3.3.1.4	HOV Ramp Bridge	28	1.0
SMRD00.1-3.3.1.4.1	Piling & Substructure	5	1.0
SMRD00.1-3.3.1.4.2	Superstructure & Finishes	13	1.0
SMRD00.1-3.3.1.5	Roadway	52	1.0
SMRD00.1-3.3.1.5.4	Phase 1	3	1.0
SMRD00.1-3.3.1.5.2	Phase 2	24	1.0
SMRD00.1-3.3.1.5.1	Phase 3	14	1.0
SMRD00.1-3.3.1.5.3	Phase 4	7	1.0
SMRD00.1-3.3.1.6	Southbound Soundwall	21	1.0
SMRD00.1-3.3.1.6.1	Soundwall from approx Sta 621 to 634	11	1.0
SMRD00.1-3.3.1.6.2	Soundwall from approx Sta 600 to 612+50	10	1.0

Page 1 of 1

CK CONSTRUCTORS

Figure 12A: Proposal A (Ramp) Work Breakdown Structure

Calendar: The proposal schedule uses three calendars to calculate the project completion time:

1. **"Standard Cal Day" - Calendar Day:** Contains no weekend, holiday, or weather day. This calendar is assigned to design activities, procurement, document review / approval, and milestones.
2. **"Standard Five Work Day with Holiday & Weather"** is the standard work days - five days per week. Contains weekends, holidays, and anticipated weather days (precipitation > 0.1 inches) and is assigned to all field operations, except asphalt paving and painting, since all field operations are generally affected by weather, weekends, and holiday. It assumes the ground will not freeze overall the winter months, and the concrete work is also operable during the same time.
3. **"A / C Paving / Painting Calendar with Holiday, Weather & Winter"** is the "standard work day" calendar with winter shutdown. Contains all the weekends, holidays and weather days as the prior calendar, plus it assumes the asphalt plants shut down from Mid-December to Mid-March of each year and that bridge painting is limited during that time. The calendar is assigned to all asphalt paving and bridge painting activities.

Weather Day Calculation: Weather days are arbitrarily assigned to the schedule calendars. The schedule assumed a weather day for each day precipitation is greater than 0.1 inch. Weather data is from the NOAA Weather Station at the Reagan National Airport. The project gathered the weather information for the past three years and calculated the average number of weather days for each month. The average number is then down rated for work days (22 work days per month). Results of the weather study are as follows:

TABLE 9: WEATHER STUDY RESULTS

Month	2012	2011	2010	2009	Average	Month	Rain %	WD Impact
Jan	6	4	4		4.7	31	15.1%	3
Feb	4	6	6		5.3	28	19.0%	4
Mar	5	7	7		6.3	31	20.4%	4
Apr	4	7	5		5.3	30	17.8%	4
May	7	5	8		6.7	31	21.5%	5
Jun	4	4	4		4.0	30	13.3%	3
Jul	7	5	6		6.0	31	19.4%	4
Aug	8	9	6		7.7	31	24.7%	5
Sep		9	5	5	6.3	30	21.1%	5
Oct		9	4	8	7.0	31	22.6%	5
Nov		4	5	10	6.3	30	21.1%	5
Dec		6	3	11	6.7	31	21.5%	5
							TOTAL	52
							Against 260 Work Days per Year =	**20.0%**

Design Phase: Divided into two sub-groups: Permit and Design Plans.

Permit Plans: Environmental permitting will begin at Noticed of Award for permits needed early in the design phase, such as the E & S Plan Development for the HOV roadwork. The Erosion & Sediment Control permits will further develop following QA / QC Plan approval and will be approved by the respective agencies prior to final approval for the roadway plans.

The investigation and report of any hazardous materials, such as asbestos and lead paint, will also commence at NTP. The schedule allows one review period by VDOT for the HazMat report prior to abatement. Abatement of any found materials will be done once the TMP is approved for each activity.

The Schedule's Permit section does not impact the Critical Path.

Design Plans: The design phase includes preparation, QA / QC reviews, internal team reviews, and submitting the Right of Way, Transportation Management Plan, including the MOT Plan, Roadway Plans, Noise Studies, Sound Wall / Retaining Wall Plans, Utility Relocation Plans, Bridge (Seminary, Pedestrian, HOV Bridge and Sanger) Plans, Lighting, ITS, Lighting, and Signal Plans. These submissions will be done as Preliminary (30%), Detailed (60%), Final (90%) and Final Approved for Construction.

The schedule has a 21-calendar day VDOT review period for each submission and includes comments from other stakeholders, such as the City of Alexandra, Fairfax County, etc. Development of the HOV Roadway Plan, Geotechnical Drilling Plan, and HOV E&S Control Plan will commence at Notice of Award to start early plan development during the Scope Validation Period. However, no submission to VDOT or Field Investigations will be done before NTP.

Some initial field activities, such as traffic counts, utility verification, design survey, HazMat sampling, initial superstructure steel survey, and geotechnical investigation will commence at NTP utilizing local MOT permits to access the site. The Geotechnical investigation and report are an integral part of the Design Schedule. The Geotechnical Report will be submitted to VDOT for one 90-day review prior to submitting final Roadway or Bridge designs.

The Pedestrian Bridge is unique as it requires additional work related to ROW and easements. The CK Team's initial assessment is that the new structure will fit within the RFP's proposed limits. This will be confirmed one final time once the Pedestrian Bridge alignment is finalized during initial design. Once confirmed, the ROW / easement process can begin.

The Utility Relocation Design starts at NTP with a 30-day utility verification period followed by developing the Final Utility Matrix and utility surveys. Once all utilities are identified and their disposition is determined, a 30-day period is reserved to coordinate with the utilities while the initial relocation concepts are being developed. Additional utility coordination with DVEC, VDOT Traffic Control, and other stakeholders will also be needed during the design of the ITS / ETC, power drops, lighting connections, and signal components for a seamless cutover into the existing network.

Based on our pre-bid analysis, there are several utilities that need to be relocated: VDOT's electrical services to the lighting along I-395 and associated power drops, and the VDOT Duct Bank along NB I-395 containing three VDOT fiber cables and the Army Corp of Engineers fiber. The CK Team has already contacted these stakeholders in the corridor. Since these are VDOT-owned facilities and a majority of the design coordination will be done with the VDOT plan reviewers, relocating the VDOT utilities will follow the same protocol as the other design submissions. There will be one additional review for the other stakeholders located within the relocated facilities.

Initial packages, such as the TMP, 30% Roadway, 30% Seminary Bridge, 30% Pedestrian Bridge, VSMP Permits, Hazardous Material Plans and 30% Sound Wall packages will be submitted to VDOT 2nd Quarter 2013, with all final Design packages approved in Early 3rd Quarter 2014.

Construction Phase

The construction phase is organized by the proposal scope. Proposal A includes all work for the HOV Ramp segment. The HOV Ramp section has two distinct construction areas that require multiple work phases: 1) Ramp and Roadway, and 2) Seminary Road. Each of these work zones has four phases that are independent of other project segments. A third work area, Pedestrian Bridge, is constructed as one continuous phase.

Construction will begin with the roadwork along NB I-395 starting in 4th Quarter 2013 concurrent with the Seminary Bridge bearing replacement. This will follow the Plan approvals for the Civil Roadway, Seminary Bridge drawings, TMP, and QA / QC Plan. Our Sequence of Construction is shown graphically on Page 50.

Ramp Construction

Roadway: The Roadway section of the schedule outlines the activities required to build the final reconstruction, along with alternating phases to construct the HOV Ramp with minimum temporary work.

The I-395 Roadway work begins Late 2013 and is complete Summer 2015. Within this timeframe, there are three traffic movements to start HOV Ramp construction Mid-Summer 2014.

The following highlights the four roadway phases, which are separate and independent of the Seminary Road phasing. Currently, our critical path does not run through the I-395 roadway work because of these scheduling strategies:

Ramp Phase 1 of the I-395 work refurbishes the NB inside shoulder to accept traffic for the first movement of traffic to the inside in Late 2013.

Ramp Phase 2 of the roadway work starts immediately following the Phase 1 switch in Late 2013 and includes setting up MOT, installing / maintaining erosion controls, clearing, demolition, drainage installation , sound walls, retaining walls, relocating roadway lighting and VDOT duct bank, excavation and embankment, and associated roadway construction. Within these activities, we focused construction on widening NB I-395 just enough to shift traffic to start the HOV Ramp in Summer 2014. Additionally, we have not made the shift to Phase 3 contingent on completing the VDOT duct bank relocation.

These scheduling tactics positioned the CK Team to keep the road widening and HOV Ramp off the critical path. Once the switch is made to start Phase 3, Phase 2 work will continue to progress until completion in Early 2015.

Ramp Phase 3 constructs the median of the NB I-395 and HOV lanes to the configuration to accept the new reversible ramp. This starts Summer 2014 and carries through to Summer 2015 to tie in to Seminary Road Bridge deck.

Completion of the Seminary Road Bridge deck is the driving force to meet the Interim Milestone of opening the ramp to traffic. Our focus on expediting a partial widening for NB I-395 during Phase 2 enabled us to keep the critical path on Seminary Road Bridge widening vs. the HOV Ramp work. Ramp approach walls and HOV bridge elements will be completed during this phase which also includes demolition of the existing roadway, installing associated drainage, excavation, embankment, roadway, median barrier wall, lighting, HOV gates, guardrail and paving.

Ramp Phase 4 of the roadway immediately follows Phase 3, commences Early Spring 2015, and resurfaces I-395 areas affected by traffic movements. Due to the desirable quality aspects of overlaying in one continuous operation, this phase is ultimately controlled by completion of the HOV Ramp and major elements of the Seminary Bridge rehabilitation. Completion is scheduled for Late Summer 2015.

Concurrent with the mill and overlay work is the completion of the ITS interface between the HOV Ramp and Seminary Road.

Pedestrian Bridge: Pedestrian Bridge construction directly follows approval of the drawings and the ROW process for acquisitions shown on the RFP plans, along with temporary and permanent easements. Commences Summer 2014 with concurrent work on the piers, abutments and MSE wall approaches.

Precast girders will be set in Early 2015; setting up deck pours in Spring 2015. Once bridge finishes, such as lighting, drainage, and fence are complete, the 30-day VDOT inspection period commences allowing pedestrians to use the new facility Mid-Summer 2015.

Seminary Bridge Rehabilitation: Begins immediately after the plans are approved in Late 2013. Seminary Road also has four phases, but is distinct and separate from the roadway phases on I-395. Initial work replaces the existing bearings, installs steel retrofits, and substructure repairs. After completing initial work, phased work starts with the re-decking and abutment widening. A Phasing Plan is shown on Page 68 of the plans contained in Volume II.

Seminary Phase 1: Bridge deck will start in 1st Quarter 2014 with removing the existing median and installing temporary pavement and barrier The bridge re-decking phase starts on the south side and progresses northward with future phases. Phase 1 will be complete Mid-Summer 2014 and will switch to Phase 2 following the VDOT 30-day inspection period.

Additional work during this timeframe is installing the barrier wall along the south side of the deck, new approach slab, abutment widening, signs and lighting.

Seminary Phase 2: Bridge deck and approach slab replacement directly follows the completion of Phase 1 and is completed 4th Quarter 2014.

Seminary Phase 3 commences 4th Quarter 2014 and finishes 1st Quarter 2015. Work is the same as Phase 2: Demolition and replacing the bridge deck and approach slab.

Seminary Phase 4 is the final phase of the Seminary work. Achieving the ramp opening milestone is driven by the completion of Phase 4 re-decking.

This phase follows directly behind Phase 3 and moves the pedestrians from their original location along the existing north barrier wall to a protected, temporary walkway on the new bridge deck (See Page 68, Phase 4, in Volume II). Our strategy is to accelerate Pedestrian Bridge construction and move pedestrians directly onto the new Pedestrian Bridge, but this can only be analyzed after the final geotechnical investigations, TMP and a more detailed schedule review after NTP.

Phase 4 commences 1st Quarter 2015 with the relocation of the barrier wall, traffic, and pedestrians, and finishes Late Summer 2015 with the removal of the MOT and final striping on the deck. Completion wraps up the work pertaining to the signal, HOV gate and signs, grooving, grinding, the median and reworking the bridge approaches to their final configuration.

Sanger Avenue Bridge Widening: Widening the I-395 Bridge over Sanger Avenue will not impact any critical path work on the project. Bridge construction begins with the MOT, de-lead and steel retrofit survey 1st Quarter 2014. Demolition of the existing bridge to accept the widening commences Mid- 2014. Reconstruction will begin Late Summer 2014 and encompasses the substructure repairs and widening, superstructure widening, barrier wall and sound wall installations.

The new widening will be built on spread footings. The east and west side widenings are independent of each other, but will be constructed concurrently. The SB widening is completed in 4th Quarter 2014 to coincide with SB noise wall completion. The NB widening of the I-395 Bridge over Sanger Avenue will be complete to coincide with the Phase 3 roadway completion. Final steel inspection and VDOT approval will follow prior to traffic opening of the structure and final striping.

HOV Reversible Ramp Approach and Bridge: The HOV Ramp and Bridge structure construction starts with the beginning of the roadway Phase 3 in Summer 2014. These walls and bridge structure do not drive the critical path.

As stated earlier, we added interim roadway milestones for partial widenings that enables the CK Team to start the ramp much earlier than expected, with only minimum temporary work. The initial design, reviews, and procurement of the MSE wall and girders will be complete prior to construction starting to not hinder this section of work.

One of the key schedule components to this group is the MSE wall bridge approach construction which starts directly following the traffic switch in Summer 2014 and finishes Early 2015. Completion of the MSE wall directly ties to setting the girders in Early 2015 and the follow on bridge deck work. Concurrent with the bridge deck placement and the installation of the barrier walls, lighting, bridge drainage, and other finishes will be ongoing as the work areas open up.

The Final VDOT inspection for this structure will be complete approximately three weeks before completing the Seminary Bridge. Final ITS tie-ins system checks will be performed concurrently between the two structures. The Reversible Ramp will be open to traffic with the completion of the Seminary Road Bridge.

SB Sound Walls: The SB I-395 sound wall activities are broken into two groups based on their geographic location in relation to Sanger Avenue. Sound walls commence as soon as the final plans are approved. The sound wall from Sta 621 to 634 (northern wall) begins Spring 2014 and finishes mid-summer with the final grading and landscaping.

The southern wall from Sta 600 to 612+50 starts at the end of completing the north wall in Summer 2014 and finishes Winter 2014. Activities in these groups include MOT set up / maintenance, installing erosion controls, clearing and grubbing, access grading, sound wall foundations / posts / panels, final grading and landscaping.

For this project, we made the following assumptions:

Pedestrian Bridge

- Pedestrians continue to use the Seminary Road Bridge during construction of the new Pedestrian Bridge and re-decking of Seminary Bridge. Our plan includes a temporary pedestrian walkway on the new Phase 3 Seminary Bridge deck if the Pedestrian Bridge is not complete prior to Phase 3.
- ROW is required as shown in the RFP plans.

Seminary Bridge Deck Rehabilitation

- Project will be able to maintain pedestrian traffic on the north side of the bridge, so we can demolish the southern deck first.
- Schedule sequencing delays the final construction of the median barrier wall, guardrail, and HOV gate so the median area can be used to maintain traffic.
- Conventional deck construction joint will be permissible between Seminary Bridge and HOV Ramp span. Phase 1 of Seminary re-decking is completed nine months before the HOV deck placing, therefore, provisions must be made for a continuous bridge deck at this interface, as per Addendum No.1.

- The traffic signal and the HOV gate on the south side of the bridge will be constructed as part of the HOV bridge work.

Sanger Avenue Bridge Widening

- Project can set up MOT on Sanger Avenue and work on existing structural steel independent of the I-395 roadway work progress. This will shorten the Sanger Bridge work duration in I-395 Phase 2 MOT setting.
- The remaining Sanger Avenue Bridge widening work will be within Phase 2 of the I-395 Roadway widening work (Ramp Segment).
- The existing bridge and new roadway utilities will require temporary connections leaving the duct bank temporarily in its existing location.

HOV Ramp Bridge

- HOV bridge deck will be concurrent with the Seminary Bridge work and the final tie in piece to the HOV Seminary deck (Span g) will be with a conventional deck construction joint constructed during Phase 1 of Seminary re-decking.
- The HOV gate and traffic signal can be substantially installed without the bridge tie-in being completed.
- ITS , electrical and other utility connections will be completed during Roadway Phase 4.

I-395 Roadway Construction

- HOV Bridge will be constructed in Phase 3 MOT.
- Sanger Avenue Bridge widening NB and SB will be constructed in Phases 2 and 3 MOT.
- Switch to Phase 3 after partial widening and is not contingent on completing the VDOT duct bank relocation. Leaving the VDOT duck bank in its existing location during initial bridge and shoulder construction will prevent it from impacting the bridge or widening schedules.

SB Sound Wall

- Work can start independent of all operations on the east side.
- Sound wall design and material procurement are the only predecessors to the work sequence.

Critical Path: The critical path for Proposal Schedule A is shown on the schedule included with this narrative. The critical path is based off the longest path of the project which starts at NTP and then shifts directly to the traffic counts needed to develop the I-395 MOT Plan. The Critical Path works itself through the initial development, internal review, VDOT review for the I-395 / Pedestrian Bridge MOT Plan. This continues through a second set of reviews and then the final submission and approval by VDOT. Each VDOT review period is 21-calendar days for a total of 63 days for the I-395 / Pedestrian Bridge MOT Plan.

Once the I-395 MOT Plan is approved to allow asbestos abatement to commence, the critical path shifts to the Seminary Road Bridge Rehabiliation. Seminary Road Bridge Rehabilitation stays on the critical path from start to finish. It starts with de-leading, replacement of the bearing pads while concurrently performing the substructure repairs, and then moves to the steel retrofit before it shifts to the bridge deck replacement.

The critical path follows through all four phases of the Seminary Bridge deck replacement. In Phase 1, the critical path goes through the initial MOT, installation of E & S controls, construction of temporary pavement, demolition of the bridge deck, replacing the existing deck, constructing approach slab (concurrent with the

bridge barrier wall), bridge lighting and miscellaneous finishes, traffic signal components and then through the VDOT 30-day safety inspection period.

Phase 1 goes directly to Phase 2. The critical path in Phase 2 is switch MOT, demolish bridge deck, replace bridge deck, construct approach slab, and then the 30-day VDOT safety inspection (concurrent with the grinding, grooving and temporary striping of the bridge deck).

Phase 2 goes directly to Phase 3 where the critical path follows; switch MOT for deck replacement, demolish bridge deck and approach slab, replace existing deck, construct approach slab, and then the 30-day VDOT safety inspection (concurrent with the grinding, grooving and temporary striping of the bridge deck).

The critical Phase 4 Seminary Bridge goes through; switch MOT, install erosion controls, demolish bridge deck and approach slab, replace existing deck, construct barrier wall (concurrent with construct approach slab), bridge electrical, grind / groove bridge deck, second steel inspection, paint structural steel (concurrent with construct median barrier wall and guardrail, install HOV gate and VDOT safety inspection period). The critical path of the Seminary Bridge work leads to the Interim Milestone (Open to Traffic-HOV Ramp). The critical path goes from the Interim Milestone to the initial punch list which leads to substantial completion.

Once final completion is achieved, the critical path goes through the final punch list, close out, and demobilization leading to final completion of the project.

Schedule Recovery: The profound experience the CK Team gained working on similar projects will be critical to resolving design and construction hurdles as they occur. This team knows and respects one another, having just successfully completed the Telegraph project for VDOT with similar traffic conditions and where effective decisions were made.

The CK Team successfully managed design on other projects that enabled critical activities, such as utility relocations and environmental permitting to be prioritized and monitored while the overall design and construction progressed on schedule. We pride ourselves in solving construction and design issues rapidly without sacrificing quality. We will aggressively manage the entire project to where VDOT minimizes its management and inspection resources to monitor the project.

The largest portion of work requiring the most resources is construction of the ramp walls and ramp bridge structure. We mitigated the ramp schedule impacts by limiting the amount of Phase 2 roadway work before shifting to the ramp construction. We re-directed the critical path to the Seminary Road re-decking where traffic impacts are less. Additionally, within the re-decking phases, additional resources can be used to accelerate the schedule. The CK Team has demonstrated on the Telegraph Road project our ability to develop and maintain an aggressive schedule. Should any items on the CPM Schedule show unacceptable progress – for any reason – a schedule recovery strategy will be developed and implemented immediately with VDOT's concurrence.

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

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

1. Weekly design / construction scheduling and coordination meetings during the design phase;
2. Weekly construction scheduling meetings during the construction phase;
3. Bi-weekly onsite progress meetings;
4. Utility relocation tracking sheets during the design and construction phases;
5. ROW progress tracking spreadsheets during the design and construction phases;
6. Review / approval tracking spreadsheets of design element submittals;
7. Shop drawings status tracking sheets;
8. Material submittals and delivery schedules;
9. Non-conformance logs by QC / QA for design and construction;
10. RFI logs;
11. Monthly internal project review meetings by the CK Team's Executive Review Committee;
12. Monthly progress / partnering meetings with major stakeholders, including VDOT, the CK Team, designers, major subcontractors / vendors and local businesses. Affected utilities will also be invited for the current stage of the work.

At the internal weekly meetings, issues / concerns are identified utilizing the above tracking aids with action items identified and assigned to the responsible party who can resolve it. Two-week, 30- day and 60-day "look-ahead schedules" will be prepared and discussed to analyze schedule and quality impacts. Similar information will be discussed and action items assigned at the Monthly Progress / Partnering meetings with key stakeholders. Other stakeholders may be invited to the monthly meeting for anticipated issues during upcoming schedule activities. For example, the City of Alexandria would be invited to early concept meetings for the pedestrian overpass. There is also a need to involve the local community before large traffic shifts or phases along I-395 or Seminary Road. Representatives from local businesses and emergency responders will be invited to meetings prior to changes on existing traffic patterns so they can plan their routes to best navigate the work zone with minimum impact.

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

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

Managing the Design and Construction Schedule: Meeting design milestones is the key to successful design-build projects. The CK Team will use performance evaluation tools, such as the earned value method, to track design consultant and other team member progress. This provides the design status to the management team as the job progresses. Constructability reviews are crucial and will be performed by all parties to avoid schedule

delays of field design changes. At the regularly scheduled project control meeting, the individual discipline manager (whether it be design or field) will report on their group's progress and how it fits into the overall CPM schedule.

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

The CK Team has the following proven management systems that keep the project on track:

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

This project will be administered through our Viewpoint Project Management System, which manages the project lifecycle, including design plans, contract management, RFI control, change orders, submittal / transmittal control, meetings, QA / QC documents, issue logs / lists, and more. It will administer the project timely to prevent schedule delays. Viewpoint offers secure remote access by all appropriate stakeholders via the web and is designed to give the CK Team, designers, VDOT, subcontractors, utilities and vendors access to the project data they need, when they need it, 24 / 7.

PROPOSAL SCHEDULE

PROPOSAL B

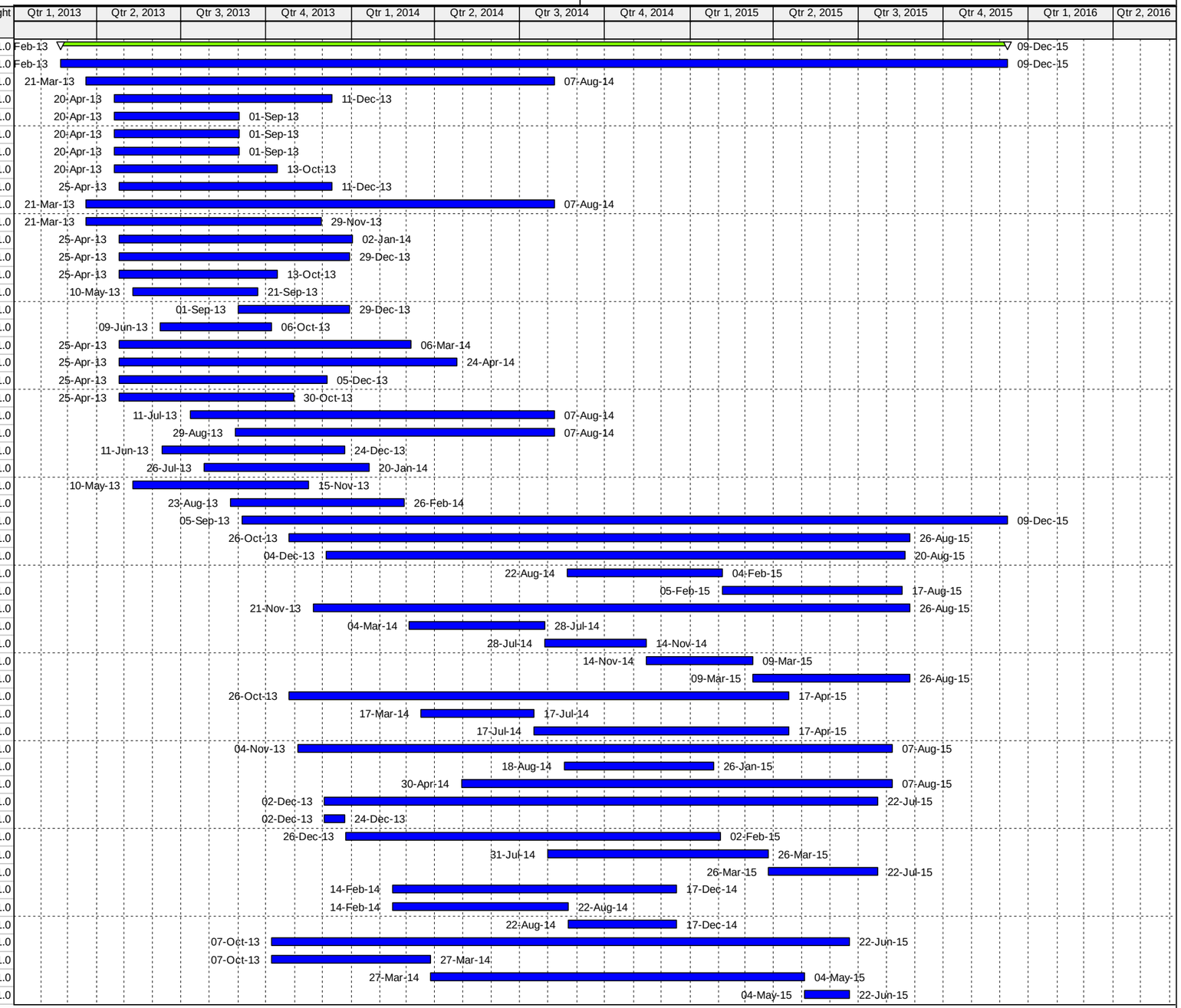
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

WBS with Schedule

04-Jan-13 18:51

WBS Code	WBS Name	Total Activities	Est Weight	Start	Finish
SMRD00.1-4	I-395 HOV Ramp at Seminary Road - Proposal	505	1.0	Feb-13	09-Dec-15
SMRD00.1-4.1	Project Overview	15	1.0	Feb-13	09-Dec-15
SMRD00.1-4.2	DESIGN	236	1.0	21-Mar-13	07-Aug-14
SMRD00.1-4.2.1	Environmental Permit	45	1.0	20-Apr-13	11-Dec-13
SMRD00.1-4.2.1.1	Median Work	7	1.0	20-Apr-13	01-Sep-13
SMRD00.1-4.2.1.2	Widening Work	7	1.0	20-Apr-13	01-Sep-13
SMRD00.1-4.2.1.3	Westside Work	7	1.0	20-Apr-13	01-Sep-13
SMRD00.1-4.2.1.5	Aluxiliary Lane Permit	7	1.0	20-Apr-13	13-Oct-13
SMRD00.1-4.2.1.4	Hazardous Material	10	1.0	25-Apr-13	11-Dec-13
SMRD00.1-4.2.2	Design Plans	191	1.0	21-Mar-13	07-Aug-14
SMRD00.1-4.2.2.1	Roadway / Civil Design / HOV Ramp	21	1.0	21-Mar-13	29-Nov-13
SMRD00.1-4.2.2.11	Roadway / Civil Design Auxiliary lane	20	1.0	25-Apr-13	02-Jan-14
SMRD00.1-4.2.2.2	Traffic Management Plan	36	1.0	25-Apr-13	29-Dec-13
SMRD00.1-4.2.2.2.1	I-395 / Pedestrian Bridge MOT Plan	9	1.0	25-Apr-13	13-Oct-13
SMRD00.1-4.2.2.2.2	Seminary MOT Plan	9	1.0	10-May-13	21-Sep-13
SMRD00.1-4.2.2.2.3	Sanger Ave MOT Plan	9	1.0	01-Sep-13	29-Dec-13
SMRD00.1-4.2.2.2.4	Auxliary Lane MOTPlan	9	1.0	09-Jun-13	06-Oct-13
SMRD00.1-4.2.2.3	Soundwall / Retaining Wall Design HOV	13	1.0	25-Apr-13	06-Mar-14
SMRD00.1-4.2.2.12	Soundwall / Retaining Wall Design Auxiliary Lane	14	1.0	25-Apr-13	24-Apr-14
SMRD00.1-4.2.2.4	Utility Relocation / New Facilities	12	1.0	25-Apr-13	05-Dec-13
SMRD00.1-4.2.2.5	Seminary Road Bridge	13	1.0	25-Apr-13	30-Oct-13
SMRD00.1-4.2.2.6	ROW / Easement Plan	13	1.0	11-Jul-13	07-Aug-14
SMRD00.1-4.2.2.6.1	ROW Easement Acquisition	9	1.0	29-Aug-13	07-Aug-14
SMRD00.1-4.2.2.7	Pedestrian Bridge	13	1.0	11-Jun-13	24-Dec-13
SMRD00.1-4.2.2.8	HOV Bridge	12	1.0	26-Jul-13	20-Jan-14
SMRD00.1-4.2.2.9	Sanger Ave Bridge	13	1.0	10-May-13	15-Nov-13
SMRD00.1-4.2.2.10	ITS/Lighting/Signals	11	1.0	23-Aug-13	26-Feb-14
SMRD00.1-4.3	CONSTRUCTION	254	1.0	05-Sep-13	09-Dec-15
SMRD00.1-4.3.1	Ramp Segment	220	1.0	26-Oct-13	26-Aug-15
SMRD00.1-4.3.1.1	Pedestrian Bridge	20	1.0	04-Dec-13	20-Aug-15
SMRD00.1-4.3.1.1.1	Foundations & Substructure	6	1.0	22-Aug-14	04-Feb-15
SMRD00.1-4.3.1.1.2	Superstructure & Finishes	7	1.0	05-Feb-15	17-Aug-15
SMRD00.1-4.3.1.2	Seminary Bridge	68	1.0	21-Nov-13	26-Aug-15
SMRD00.1-4.3.1.2.1	Phase 1	22	1.0	04-Mar-14	28-Jul-14
SMRD00.1-4.3.1.2.2	Phase 2	7	1.0	28-Jul-14	14-Nov-14
SMRD00.1-4.3.1.2.4	Phase 3	7	1.0	14-Nov-14	09-Mar-15
SMRD00.1-4.3.1.2.3	Phase 4	23	1.0	09-Mar-15	26-Aug-15
SMRD00.1-4.3.1.3	Sanger Ave Bridge	29	1.0	26-Oct-13	17-Apr-15
SMRD00.1-4.3.1.3.1	Modify Exist Steel	5	1.0	17-Mar-14	17-Jul-14
SMRD00.1-4.3.1.3.2	Widening Existing Bridge (NB,SB)	17	1.0	17-Jul-14	17-Apr-15
SMRD00.1-4.3.1.4	HOV Ramp Bridge	28	1.0	04-Nov-13	07-Aug-15
SMRD00.1-4.3.1.4.1	Piling & Substructure	5	1.0	18-Aug-14	26-Jan-15
SMRD00.1-4.3.1.4.2	Superstructure & Finishes	13	1.0	30-Apr-14	07-Aug-15
SMRD00.1-4.3.1.5	Roadway	52	1.0	02-Dec-13	22-Jul-15
SMRD00.1-4.3.1.5.4	Phase 1	3	1.0	02-Dec-13	24-Dec-13
SMRD00.1-4.3.1.5.2	Phase 2	24	1.0	26-Dec-13	02-Feb-15
SMRD00.1-4.3.1.5.1	Phase 3	14	1.0	31-Jul-14	26-Mar-15
SMRD00.1-4.3.1.5.3	Phase 4	7	1.0	26-Mar-15	22-Jul-15
SMRD00.1-4.3.1.6	Southbound Soundwall	21	1.0	14-Feb-14	17-Dec-14
SMRD00.1-4.3.1.6.1	Soundwall from approx Sta 621 to 634	11	1.0	14-Feb-14	22-Aug-14
SMRD00.1-4.3.1.6.2	Soundwall from approx Sta 600 to 612+50	10	1.0	22-Aug-14	17-Dec-14
SMRD00.1-4.3.2	Aux-Lane Segment	29	1.0	07-Oct-13	22-Jun-15
SMRD00.1-4.3.2.1	Phase 1	4	1.0	07-Oct-13	27-Mar-14
SMRD00.1-4.3.2.2	Phase 2	17	1.0	27-Mar-14	04-May-15
SMRD00.1-4.3.2.3	Phase 3	8	1.0	04-May-15	22-Jun-15



All Projects
WBS Elements below Project
Summary

CK CONSTRUCTORS

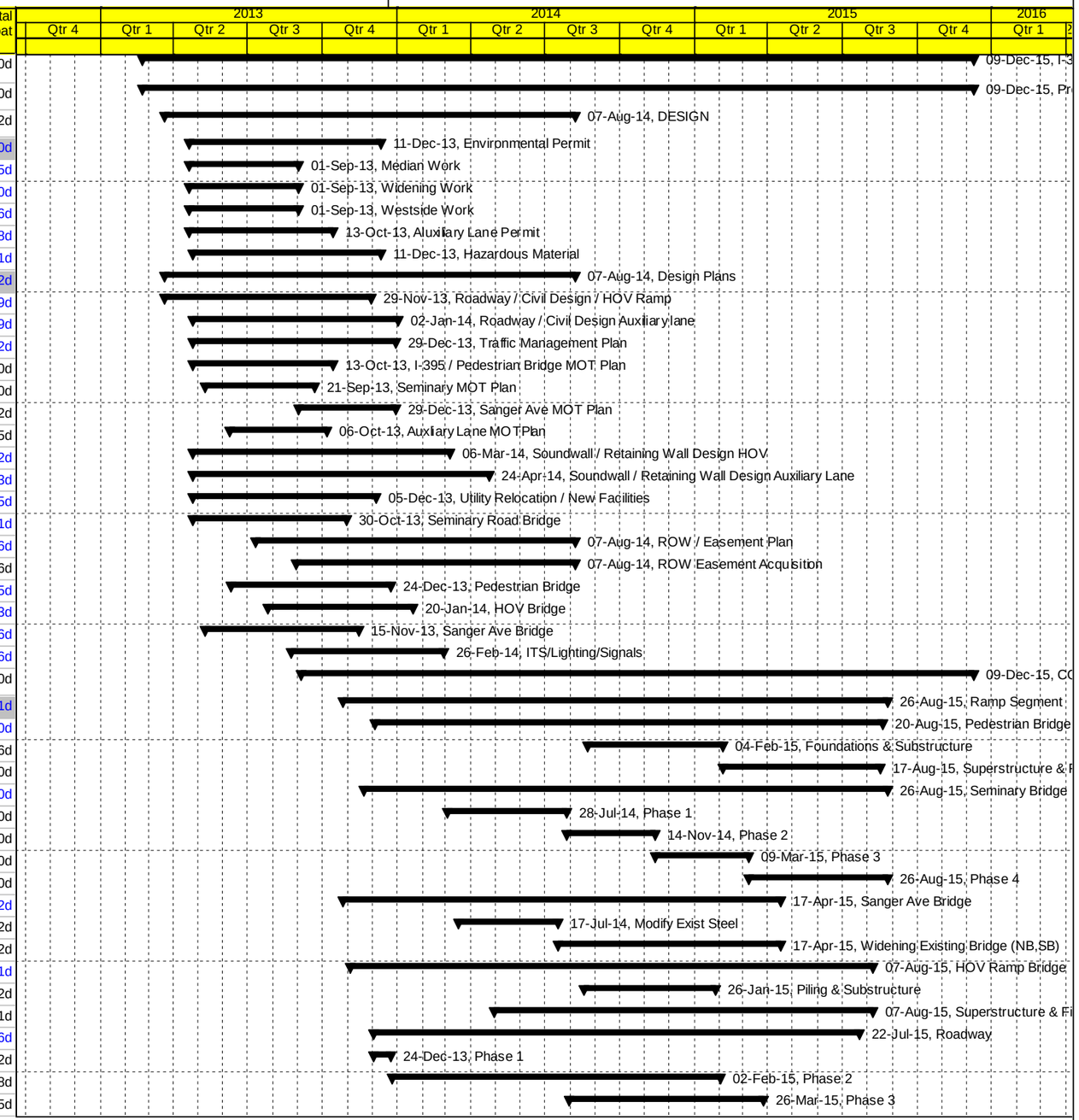
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

04-Jan-13 18:56

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
I-395 HOV Ramp at Seminary Road - Proposal Schedule (Combined)		533d	21-Feb-13	09-Dec-15	0d
Project Overview		533d	21-Feb-13	09-Dec-15	0d
DESIGN		266d	21-Mar-13	07-Aug-14	252d
Environmental Permit		121d	20-Apr-13	11-Dec-13	260d
Median Work		135d	20-Apr-13	01-Sep-13	115d
Widening Work		135d	20-Apr-13	01-Sep-13	140d
Westside Work		135d	20-Apr-13	01-Sep-13	596d
Aluxiliary Lane Permit		177d	20-Apr-13	13-Oct-13	308d
Hazardous Material		118d	25-Apr-13	11-Dec-13	1d
Design Plans		266d	21-Mar-13	07-Aug-14	252d
Roadway / Civil Design / HOV Ramp		254d	21-Mar-13	29-Nov-13	709d
Roadway / Civil Design Auxiliary lane		253d	25-Apr-13	02-Jan-14	229d
Traffic Management Plan		249d	25-Apr-13	29-Dec-13	372d
I-395 / Pedestrian Bridge MOT Plan		172d	25-Apr-13	13-Oct-13	0d
Seminary MOT Plan		135d	10-May-13	21-Sep-13	60d
Sanger Ave MOT Plan		120d	01-Sep-13	29-Dec-13	372d
Auxliary Lane MOTPlan		120d	09-Jun-13	06-Oct-13	315d
Soundwall / Retaining Wall Design HOV		316d	25-Apr-13	06-Mar-14	252d
Soundwall / Retaining Wall Design Auxiliary Lane		365d	25-Apr-13	24-Apr-14	593d
Utility Relocation / New Facilities		225d	25-Apr-13	05-Dec-13	215d
Seminary Road Bridge		189d	25-Apr-13	30-Oct-13	21d
ROW / Easement Plan		206d	11-Jul-13	07-Aug-14	16d
ROW Easement Acquisition		179d	29-Aug-13	07-Aug-14	16d
Pedestrian Bridge		197d	11-Jun-13	24-Dec-13	235d
HOV Bridge		179d	26-Jul-13	20-Jan-14	233d
Sanger Ave Bridge		190d	10-May-13	15-Nov-13	296d
ITS/Lighting/Signals		188d	23-Aug-13	26-Feb-14	376d
CONSTRUCTION		430d	05-Sep-13	09-Dec-15	0d
Ramp Segment		351d	26-Oct-13	26-Aug-15	51d
Pedestrian Bridge		330d	04-Dec-13	20-Aug-15	40d
Foundations & Substructure		84d	22-Aug-14	04-Feb-15	16d
Superstructure & Finishes		105d	05-Feb-15	17-Aug-15	40d
Seminary Bridge		338d	21-Nov-13	26-Aug-15	0d
Phase 1		78d	04-Mar-14	28-Jul-14	0d
Phase 2		58d	28-Jul-14	14-Nov-14	0d
Phase 3		58d	14-Nov-14	09-Mar-15	0d
Phase 4		93d	09-Mar-15	26-Aug-15	0d
Sanger Ave Bridge		280d	26-Oct-13	17-Apr-15	122d
Modify Exist Steel		66d	17-Mar-14	17-Jul-14	152d
Widening Existing Bridge (NB,SB)		143d	17-Jul-14	17-Apr-15	122d
HOV Ramp Bridge		338d	04-Nov-13	07-Aug-15	61d
Piling & Substructure		82d	18-Aug-14	26-Jan-15	12d
Superstructure & Finishes		244d	30-Apr-14	07-Aug-15	61d
Roadway		315d	02-Dec-13	22-Jul-15	56d
Phase 1		12d	02-Dec-13	24-Dec-13	12d
Phase 2		212d	26-Dec-13	02-Feb-15	88d
Phase 3		123d	31-Jul-14	26-Mar-15	45d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

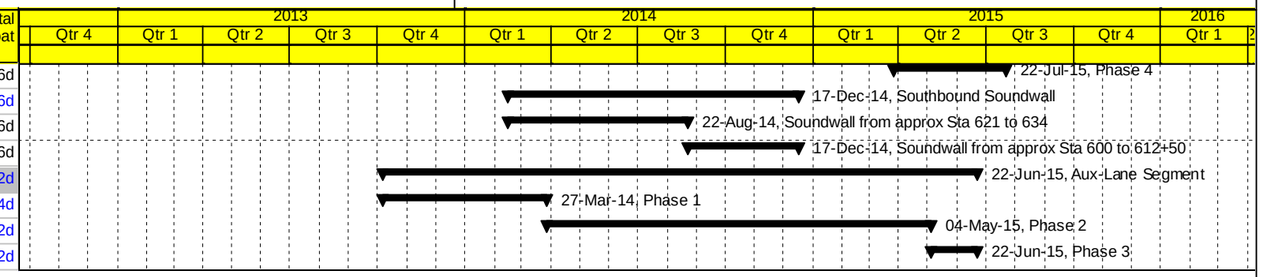
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

04-Jan-13 18:56

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
	Phase 4	62d	26-Mar-15	22-Jul-15	56d
	Southbound Soundwall	160d	14-Feb-14	17-Dec-14	186d
	Soundwall from approx Sta 621 to 634	102d	14-Feb-14	22-Aug-14	186d
	Soundwall from approx Sta 600 to 612+50	59d	22-Aug-14	17-Dec-14	186d
	Aux-Lane Segment	327d	07-Oct-13	22-Jun-15	72d
	Phase 1	90d	07-Oct-13	27-Mar-14	84d
	Phase 2	211d	27-Mar-14	04-May-15	72d
	Phase 3	26d	04-May-15	22-Jun-15	72d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

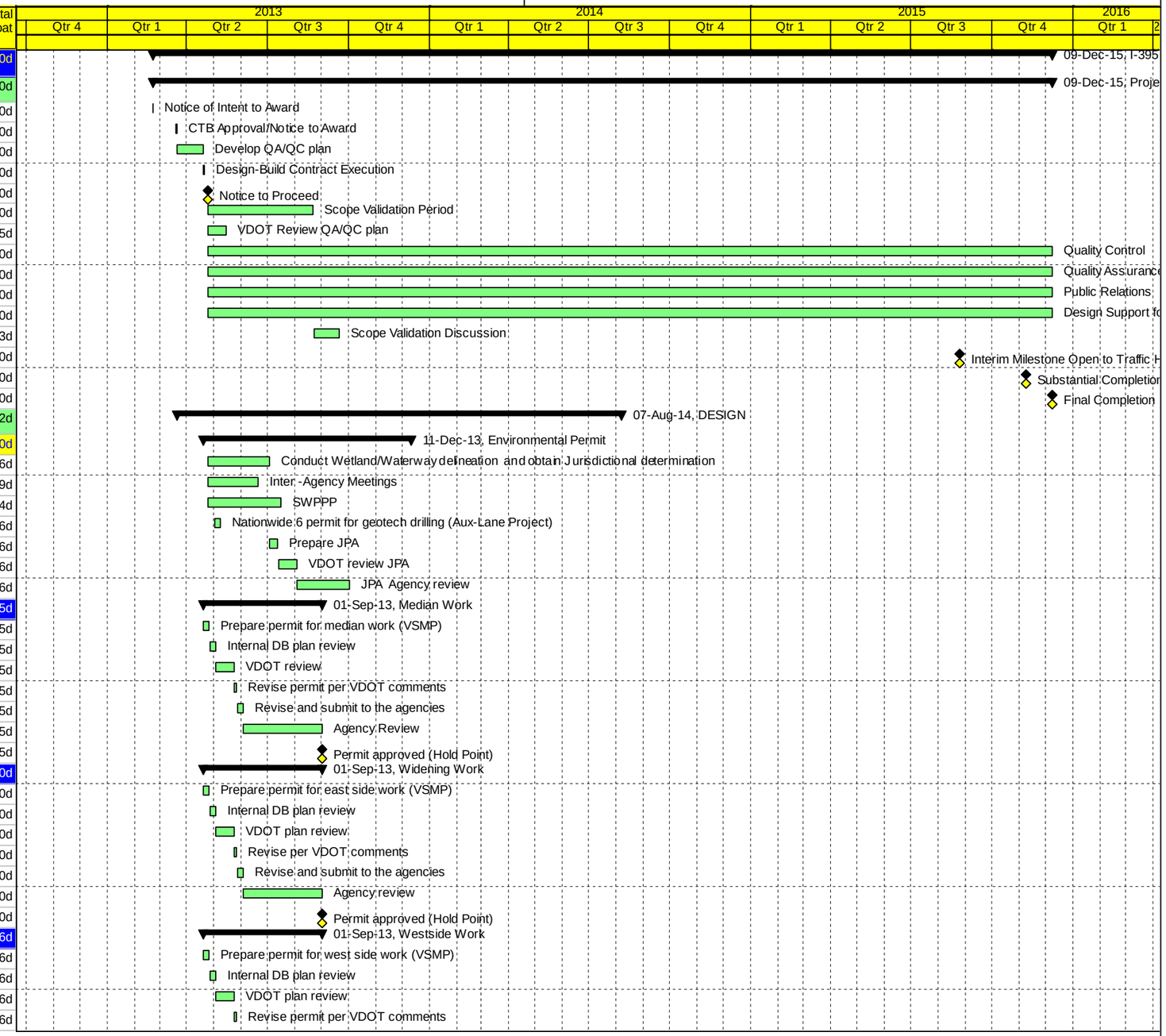
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

05-Jan-13 14:15

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
I-395 HOV Ramp at Seminary Road - Proposal Sch		533d	21-Feb-13	09-Dec-15	0d
Project Overview		533d	21-Feb-13	09-Dec-15	0d
GEN00ADM010	Notice of Intent to Award	1d	21-Feb-13*	21-Feb-13	0d
GEN00ADM020	CTB Approval/Notice to Award	1d	20-Mar-13*	20-Mar-13	0d
DGN00ADM30	Develop QA/QC plan	30d	21-Mar-13	19-Apr-13	50d
GEN00ADM030	Design-Build Contract Execution	1d	20-Apr-13*	20-Apr-13	0d
GEN00ADM040	Notice to Proceed	0d	25-Apr-13		0d
GEN00ADM050	Scope Validation Period	120d	25-Apr-13	22-Aug-13*	0d
DGN00ADM40	VDOT Review QA/QC plan	21d	25-Apr-13	15-May-13	45d
CON00MSN040	Quality Control	498d	25-Apr-13	08-Dec-15	0d
CON00MSN050	Quality Assurance	498d	25-Apr-13	08-Dec-15	0d
CON00MSN060	Public Relations	498d	25-Apr-13	08-Dec-15	0d
GEN00DGN010	Design Support for Construction	498d	25-Apr-13	08-Dec-15	0d
GEN00ADM060	Scope Validation Discussion	30d	23-Aug-13	21-Sep-13	53d
CON00MSN010	Interim Milestone Open to Traffic HOV Ran	0d		26-Aug-15*	0d
CON00MSN020	Substantial Completion	0d		09-Nov-15	0d
CON00MSN030	Final Completion	0d		09-Dec-15*	0d
DESIGN		266d	21-Mar-13	07-Aug-14	252d
Environmental Permit		121d	20-Apr-13	11-Dec-13	260d
PEM00ADM050	Conduct Wetland/Waterway delineation an	70d	25-Apr-13	03-Jul-13	106d
PEM00ADM060	Inter -Agency Meetings	30d	25-Apr-13	21-Jun-13	79d
PEM00ADM070	SWPPP	45d	25-Apr-13	17-Jul-13	64d
PEM00ADM010	Nationwide 6 permit for geotech drilling (Au:	7d	02-May-13	08-May-13	246d
PEM00ADM080	Prepare JPA	10d	04-Jul-13	13-Jul-13	106d
PEM00ADM090	VDOT review JPA	21d	14-Jul-13	03-Aug-13	106d
PEM00ADM100	JPA Agency review	60d	04-Aug-13	02-Oct-13	106d
Median Work		135d	20-Apr-13	01-Sep-13	115d
PEM01WTR010	Prepare permit for median work (VSMP)	7d	20-Apr-13	26-Apr-13	115d
PEM01WTR020	Internal DB plan review	7d	27-Apr-13	03-May-13	115d
PEM01WTR030	VDOT review	21d	04-May-13	24-May-13	115d
PEM01WTR040	Revise permit per VDOT comments	3d	25-May-13	27-May-13	115d
PEM01WTR060	Revise and submit to the agencies	7d	28-May-13	03-Jun-13	115d
PEM01WTR070	Agency Review	90d	04-Jun-13	01-Sep-13	115d
PEM01WTR080	Permit approved (Hold Point)	0d		01-Sep-13	115d
Widening Work		135d	20-Apr-13	01-Sep-13	140d
PEM02WTR010	Prepare permit for east side work (VSMP)	7d	20-Apr-13	26-Apr-13	140d
PEM02WTR030	Internal DB plan review	7d	27-Apr-13	03-May-13	140d
PEM02WTR040	VDOT plan review	21d	04-May-13	24-May-13	140d
PEM02WTR050	Revise per VDOT comments	3d	25-May-13	27-May-13	140d
PEM02WTR070	Revise and submit to the agencies	7d	28-May-13	03-Jun-13	140d
PEM02WTR080	Agency review	90d	04-Jun-13	01-Sep-13	140d
PEM02WTR120	Permit approved (Hold Point)	0d		01-Sep-13	140d
Westside Work		135d	20-Apr-13	01-Sep-13	596d
PEM03WTR010	Prepare permit for west side work (VSMP)	7d	20-Apr-13	26-Apr-13	596d
PEM03WTR030	Internal DB plan review	7d	27-Apr-13	03-May-13	596d
PEM03WTR040	VDOT plan review	21d	04-May-13	24-May-13	596d
PEM03WTR050	Revise permit per VDOT comments	3d	25-May-13	27-May-13	596d



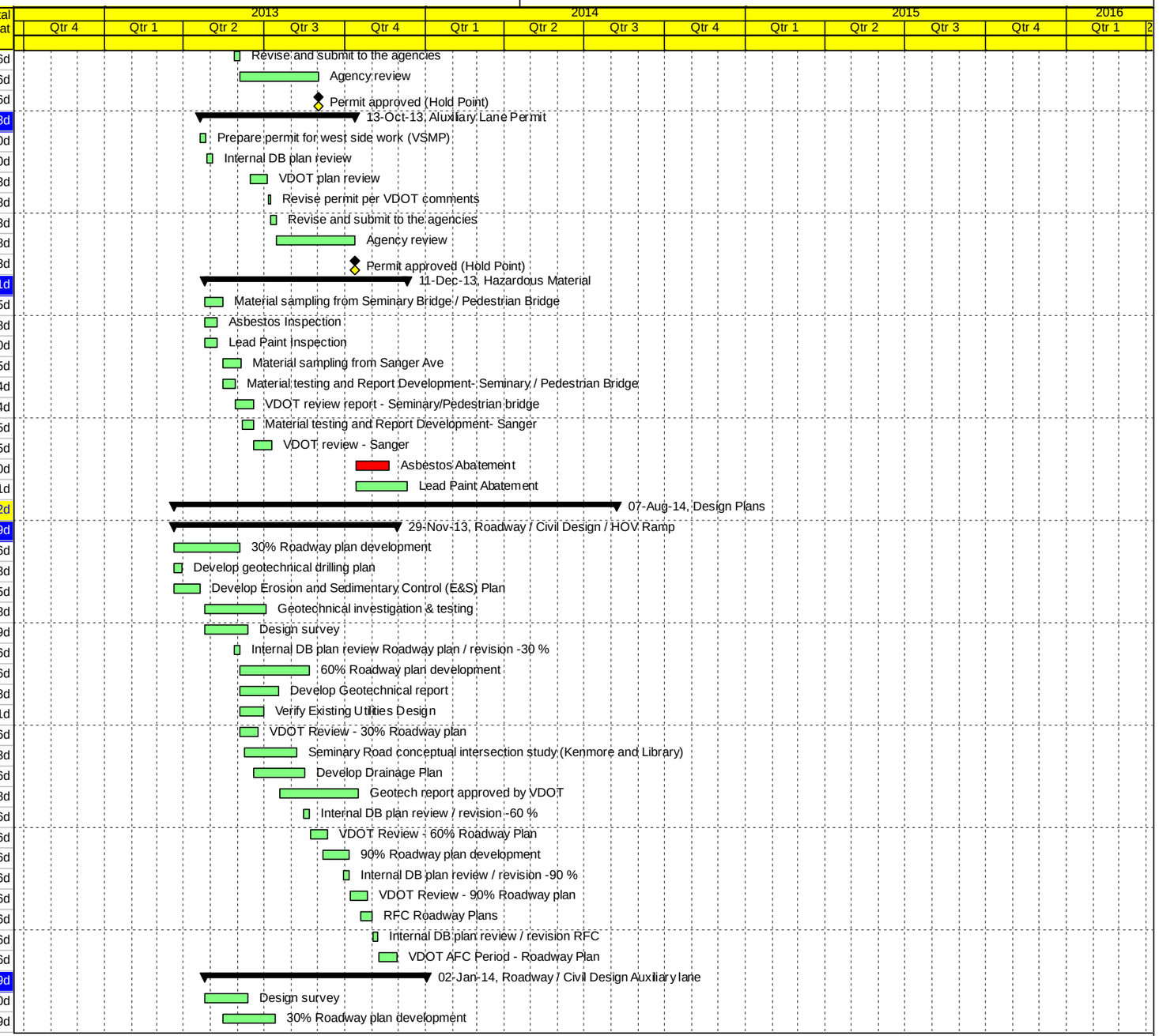
Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
PEM03WTR070	Revise and submit to the agencies	7d	28-May-13	03-Jun-13	596d
PEM03WTR080	Agency review	90d	04-Jun-13	01-Sep-13	596d
PEM03WTR120	Permit approved (Hold Point)	0d		01-Sep-13	596d
Aluxiliary Lane Permit		177d	20-Apr-13	13-Oct-13	308d
PEM05ALP010	Prepare permit for west side work (VSMP)	7d	20-Apr-13	26-Apr-13	350d
PEM05ALP030	Internal DB plan review	7d	27-Apr-13	03-May-13	350d
PEM05ALP040	VDOT plan review	21d	15-Jun-13	05-Jul-13	308d
PEM05ALP050	Revise permit per VDOT comments	3d	06-Jul-13	08-Jul-13	308d
PEM05ALP070	Revise and submit to the agencies	7d	09-Jul-13	15-Jul-13	308d
PEM05ALP080	Agency review	90d	16-Jul-13	13-Oct-13	308d
PEM05ALP120	Permit approved (Hold Point)	0d		13-Oct-13	308d
Hazardous Material		118d	25-Apr-13	11-Dec-13	1d
PEM04HAZ010	Material sampling from Seminary Bridge / P	21d	25-Apr-13	15-May-13	95d
PEM04HAZ100	Asbestos Inspection	14d	25-Apr-13	08-May-13	158d
PEM04HAZ130	Lead Paint Inspection	14d	25-Apr-13	08-May-13	160d
PEM04HAZ020	Material sampling from Sanger Ave	21d	16-May-13	05-Jun-13	95d
PEM04HAZ040	Material testing and Report Development- S	14d	16-May-13	29-May-13	154d
PEM04HAZ045	VDOT review report - Seminary/Pedestrian	21d	30-May-13	19-Jun-13	154d
PEM04HAZ050	Material testing and Report Development- S	14d	06-Jun-13	19-Jun-13	95d
PEM04HAZ055	VDOT review - Sanger	21d	20-Jun-13	10-Jul-13	95d
PEM04HAZ120	Asbestos Abatement	21d	14-Oct-13	20-Nov-13	0d
PEM04HAZ150	Lead Paint Abatement	30d	14-Oct-13	11-Dec-13	1d
Design Plans		266d	21-Mar-13	07-Aug-14	252d
Roadway / Civil Design / HOV Ramp		254d	21-Mar-13	29-Nov-13	709d
DGN01PLN010	30% Roadway plan development	75d	21-Mar-13	03-Jun-13	26d
DGN01PLN060	Develop geotechnical drilling plan	10d	21-Mar-13	30-Mar-13	53d
DGN01PLN170	Develop Erosion and Sedimentary Control (	30d	21-Mar-13	19-Apr-13	115d
DGN01PLN070	Geotechnical investigation & testing	70d	25-Apr-13	03-Jul-13	28d
DGN01PLN110	Design survey	50d	25-Apr-13	13-Jun-13	89d
DGN01PLN020	Internal DB plan review Roadway plan / rev	7d	28-May-13	03-Jun-13	26d
DGN01PLN030	60% Roadway plan development	80d	04-Jun-13	22-Aug-13	26d
DGN01PLN080	Develop Geotechnical report	45d	04-Jun-13	18-Jul-13	28d
DGN01PLN100	Verify Existing Utilities Design	28d	04-Jun-13	01-Jul-13	71d
DGN01VDT010	VDOT Review - 30% Roadway plan	21d	04-Jun-13	24-Jun-13	26d
DGN10AUL160	Seminary Road conceptual intersection stu	60d	09-Jun-13	07-Aug-13	823d
DGN01PLN040	Develop Drainage Plan	60d	19-Jun-13	17-Aug-13	76d
DGN01VDT040	Geotech report approved by VDOT	90d	19-Jul-13	16-Oct-13	28d
DGN01PLN050	Internal DB plan review / revision -60 %	7d	16-Aug-13	22-Aug-13	26d
DGN01VDT020	VDOT Review - 60% Roadway Plan	21d	23-Aug-13	12-Sep-13	26d
DGN01PLN120	90% Roadway plan development	30d	07-Sep-13	06-Oct-13	26d
DGN01PLN130	Internal DB plan review / revision -90 %	7d	30-Sep-13	06-Oct-13	26d
DGN01VDT050	VDOT Review - 90% Roadway plan	21d	07-Oct-13	27-Oct-13	26d
DGN01PLN140	RFC Roadway Plans	14d	19-Oct-13	01-Nov-13	26d
DGN01PLN150	Internal DB plan review / revision RFC	7d	02-Nov-13	08-Nov-13	26d
DGN01VDT060	VDOT AFC Period - Roadway Plan	21d	09-Nov-13	29-Nov-13	26d
Roadway / Civil Design Auxiliary lane		253d	25-Apr-13	02-Jan-14	229d
DGN10AUL110	Design survey	50d	25-Apr-13	13-Jun-13	250d
DGN10AUL010	30% Roadway plan development	60d	16-May-13	14-Jul-13	229d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

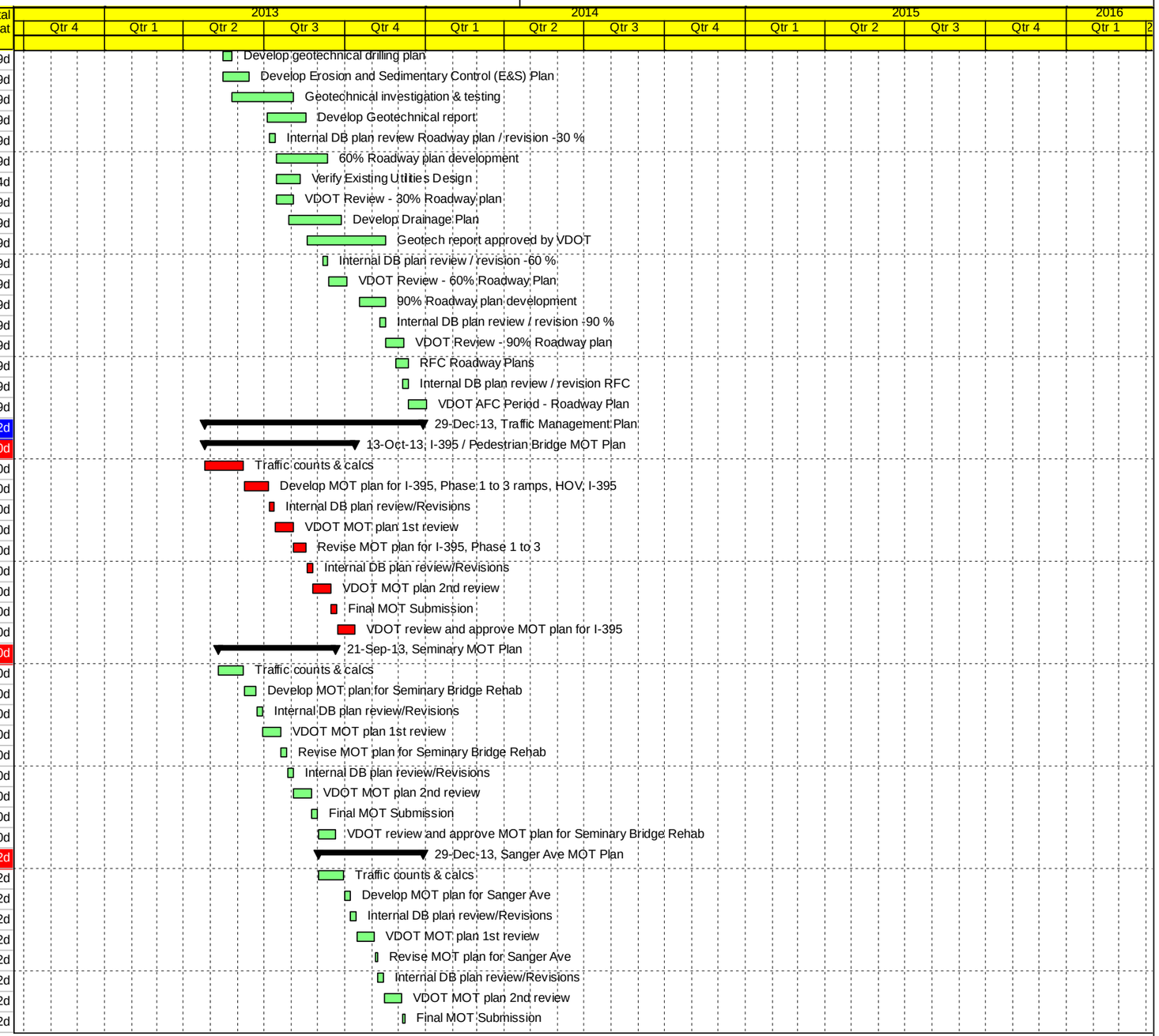
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

05-Jan-13 14:15

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
DGN10AUL060	Develop geotechnical drilling plan	10d	16-May-13	25-May-13	229d
DGN10AUL170	Develop Erosion and Sedimentary Control (	30d	16-May-13	14-Jun-13	279d
DGN10AUL070	Geotechnical investigation & testing	70d	26-May-13	03-Aug-13	229d
DGN10AUL080	Develop Geotechnical report	45d	05-Jul-13	18-Aug-13	229d
DGN10AUL020	Internal DB plan review Roadway plan / rev	7d	08-Jul-13	14-Jul-13	249d
DGN10AUL030	60% Roadway plan development	60d	15-Jul-13	12-Sep-13	249d
DGN10AUL100	Verify Existing Utilities Design	28d	15-Jul-13	11-Aug-13	274d
DGN10AUL015	VDOT Review - 30% Roadway plan	21d	15-Jul-13	04-Aug-13	249d
DGN10AUL040	Develop Drainage Plan	60d	30-Jul-13	27-Sep-13	279d
DGN10AUL045	Geotech report approved by VDOT	90d	19-Aug-13	16-Nov-13	229d
DGN10AUL050	Internal DB plan review / revision -60 %	7d	06-Sep-13	12-Sep-13	249d
DGN10AUL025	VDOT Review - 60% Roadway Plan	21d	13-Sep-13	03-Oct-13	249d
DGN10AUL120	90% Roadway plan development	30d	18-Oct-13	16-Nov-13	229d
DGN10AUL130	Internal DB plan review / revision -90 %	7d	10-Nov-13	16-Nov-13	229d
DGN10AUL055	VDOT Review - 90% Roadway plan	21d	17-Nov-13	07-Dec-13	229d
DGN10AUL140	RFC Roadway Plans	14d	29-Nov-13	12-Dec-13	229d
DGN10AUL150	Internal DB plan review / revision RFC	7d	06-Dec-13	12-Dec-13	229d
DGN10AUL065	VDOT AFC Period - Roadway Plan	21d	13-Dec-13	02-Jan-14	229d
Traffic Management Plan		249d	25-Apr-13	29-Dec-13	372d
I-395 / Pedestrian Bridge MOT Plan		172d	25-Apr-13	13-Oct-13	0d
DGN02PLN160	Traffic counts & calcs	45d	25-Apr-13	08-Jun-13	0d
DGN02PLN010	Develop MOT plan for I-395, Phase 1 to 3 r	28d	09-Jun-13	06-Jul-13	0d
DGN02PLN020	Internal DB plan review/Revisions	7d	07-Jul-13	13-Jul-13	0d
DGN02VDT010	VDOT MOT plan 1st review	21d	14-Jul-13	03-Aug-13	0d
DGN02PLN030	Revise MOT plan for I-395, Phase 1 to 3	15d	04-Aug-13	18-Aug-13	0d
DGN02PLN040	Internal DB plan review/Revisions	7d	19-Aug-13	25-Aug-13	0d
DGN02VDT020	VDOT MOT plan 2nd review	21d	26-Aug-13	15-Sep-13	0d
DGN02PLN050	Final MOT Submission	7d	16-Sep-13	22-Sep-13	0d
DGN02VDT030	VDOT review and approve MOT plan for I-	21d	23-Sep-13	13-Oct-13	0d
Seminary MOT Plan		135d	10-May-13	21-Sep-13	60d
DGN02PLN170	Traffic counts & calcs	30d	10-May-13	08-Jun-13	60d
DGN02PLN060	Develop MOT plan for Seminary Bridge Rel	14d	09-Jun-13	22-Jun-13	60d
DGN02PLN070	Internal DB plan review/Revisions	7d	23-Jun-13	29-Jun-13	60d
DGN02VDT040	VDOT MOT plan 1st review	21d	30-Jun-13	20-Jul-13	60d
DGN02PLN080	Revise MOT plan for Seminary Bridge Reh	7d	21-Jul-13	27-Jul-13	60d
DGN02PLN090	Internal DB plan review/Revisions	7d	28-Jul-13	03-Aug-13	60d
DGN02VDT050	VDOT MOT plan 2nd review	21d	04-Aug-13	24-Aug-13	60d
DGN02PLN100	Final MOT Submission	7d	25-Aug-13	31-Aug-13	60d
DGN02VDT060	VDOT review and approve MOT plan for S	21d	01-Sep-13	21-Sep-13	60d
Sanger Ave MOT Plan		120d	01-Sep-13	29-Dec-13	372d
DGN02PLN180	Traffic counts & calcs	30d	01-Sep-13	30-Sep-13	372d
DGN02PLN110	Develop MOT plan for Sanger Ave	7d	01-Oct-13	07-Oct-13	372d
DGN02PLN120	Internal DB plan review/Revisions	7d	08-Oct-13	14-Oct-13	372d
DGN02VDT070	VDOT MOT plan 1st review	21d	15-Oct-13	04-Nov-13	372d
DGN02PLN130	Revise MOT plan for Sanger Ave	3d	05-Nov-13	07-Nov-13	372d
DGN02PLN140	Internal DB plan review/Revisions	7d	08-Nov-13	14-Nov-13	372d
DGN02VDT080	VDOT MOT plan 2nd review	21d	15-Nov-13	05-Dec-13	372d
DGN02PLN150	Final MOT Submission	3d	06-Dec-13	08-Dec-13	372d



Actual Work | Critical Remaining Work | Milestone
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I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

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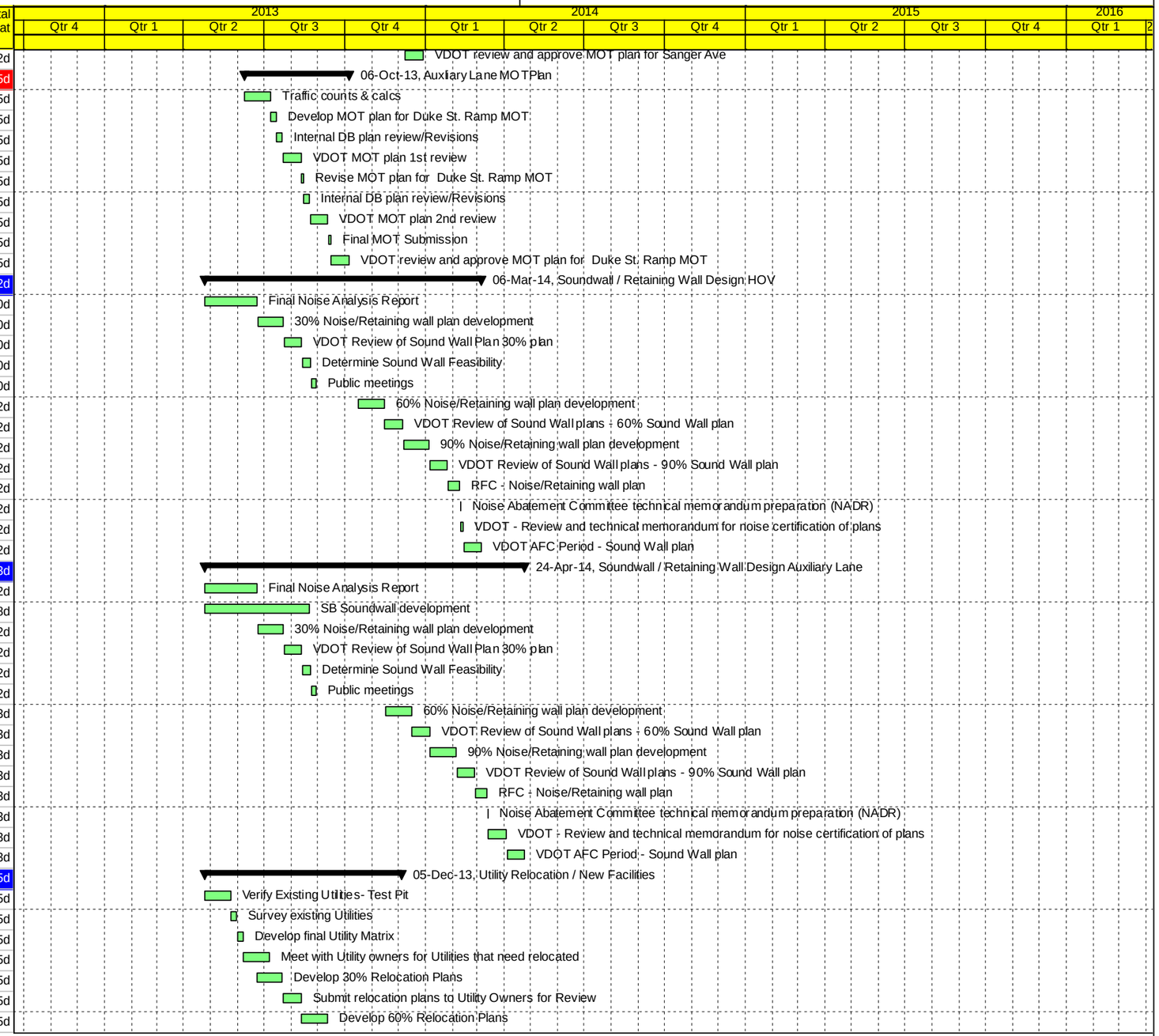
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
DGN02VDT090	VDOT review and approve MOT plan for S	21d	09-Dec-13	29-Dec-13	372d
Auxliary Lane MOTPlan		120d	09-Jun-13	06-Oct-13	315d
DGN02PLN240	Traffic counts & calcs	30d	09-Jun-13	08-Jul-13	315d
DGN02PLN190	Develop MOT plan for Duke St. Ramp MOT	7d	09-Jul-13	15-Jul-13	315d
DGN02PLN200	Internal DB plan review/Revisions	7d	16-Jul-13	22-Jul-13	315d
DGN02VDT90	VDOT MOT plan 1st review	21d	23-Jul-13	12-Aug-13	315d
DGN02PLN210	Revise MOT plan for Duke St. Ramp MOT	3d	13-Aug-13	15-Aug-13	315d
DGN02PLN220	Internal DB plan review/Revisions	7d	16-Aug-13	22-Aug-13	315d
DGN02VDT100	VDOT MOT plan 2nd review	21d	23-Aug-13	12-Sep-13	315d
DGN02PLN230	Final MOT Submission	3d	13-Sep-13	15-Sep-13	315d
DGN02VDT110	VDOT review and approve MOT plan for D	21d	16-Sep-13	06-Oct-13	315d
Soundwall / Retaining Wall Design HOV		316d	25-Apr-13	06-Mar-14	252d
DGN03PLN010	Final Noise Analysis Report	60d	25-Apr-13	23-Jun-13	300d
DGN03PLN80	30% Noise/Retaining wall plan development	30d	24-Jun-13	23-Jul-13	300d
DGN03PLN90	VDOT Review of Sound Wall Plan 30% plar	21d	24-Jul-13	13-Aug-13	300d
DGN03PLN040	Determine Sound Wall Feasibility	10d	14-Aug-13	23-Aug-13	300d
DGN03VDT010	Public meetings	6d	24-Aug-13	29-Aug-13	300d
DGN03PLN050	60% Noise/Retaining wall plan development	30d	17-Oct-13	15-Nov-13	252d
DGN03VDT020	VDOT Review of Sound Wall plans - 60% S	21d	16-Nov-13	06-Dec-13	252d
DGN03PLN060	90% Noise/Retaining wall plan development	30d	07-Dec-13	05-Jan-14	252d
DGN03VDT030	VDOT Review of Sound Wall plans - 90% S	21d	06-Jan-14	26-Jan-14	252d
DGN03PLN070	RFC - Noise/Retaining wall plan	14d	27-Jan-14	09-Feb-14	252d
DGN03PLN080	Noise Abatement Committee technical mem	1d	10-Feb-14	10-Feb-14	252d
DGN03VDT050	VDOT - Review and technical memorandu	3d	11-Feb-14	13-Feb-14	252d
DGN03VDT040	VDOT AFC Period - Sound Wall plan	21d	14-Feb-14	06-Mar-14	252d
Soundwall / Retaining Wall Design Auxiliary Lane		365d	25-Apr-13	24-Apr-14	593d
DGN11PLN010	Final Noise Analysis Report	60d	25-Apr-13	23-Jun-13	672d
DGN03PLN020	SB Soundwall development	120d	25-Apr-13	22-Aug-13	838d
DGN11PLN80	30% Noise/Retaining wall plan development	30d	24-Jun-13	23-Jul-13	672d
DGN11PLN90	VDOT Review of Sound Wall Plan 30% plar	21d	24-Jul-13	13-Aug-13	672d
DGN11PLN040	Determine Sound Wall Feasibility	10d	14-Aug-13	23-Aug-13	672d
DGN11VDT010	Public meetings	6d	24-Aug-13	29-Aug-13	672d
DGN11PLN050	60% Noise/Retaining wall plan development	30d	17-Nov-13	16-Dec-13	593d
DGN11VDT020	VDOT Review of Sound Wall plans - 60% S	21d	17-Dec-13	06-Jan-14	593d
DGN11PLN060	90% Noise/Retaining wall plan development	30d	07-Jan-14	05-Feb-14	593d
DGN11VDT030	VDOT Review of Sound Wall plans - 90% S	21d	06-Feb-14	26-Feb-14	593d
DGN11PLN070	RFC - Noise/Retaining wall plan	14d	27-Feb-14	12-Mar-14	593d
DGN11PLN080	Noise Abatement Committee technical mem	1d	13-Mar-14	13-Mar-14	593d
DGN11VDT050	VDOT - Review and technical memorandu	21d	14-Mar-14	03-Apr-14	593d
DGN11VDT040	VDOT AFC Period - Sound Wall plan	21d	04-Apr-14	24-Apr-14	593d
Utility Relocation / New Facilities		225d	25-Apr-13	05-Dec-13	215d
DGN04PLN010	Verify Existing Utilities- Test Pit	30d	25-Apr-13	24-May-13	215d
DGN04PLN020	Survey existing Utilities	7d	25-May-13	31-May-13	215d
DGN04PLN030	Develop final Utility Matrix	7d	01-Jun-13	07-Jun-13	215d
DGN04PLN040	Meet with Utility owners for Utilities that nee	30d	08-Jun-13	07-Jul-13	215d
DGN04PLN050	Develop 30% Relocation Plans	30d	23-Jun-13	22-Jul-13	215d
DGN04RVW010	Submit relocation plans to Utility Owners for	21d	23-Jul-13	12-Aug-13	215d
DGN04PLN060	Develop 60% Relocation Plans	30d	13-Aug-13	11-Sep-13	215d



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I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

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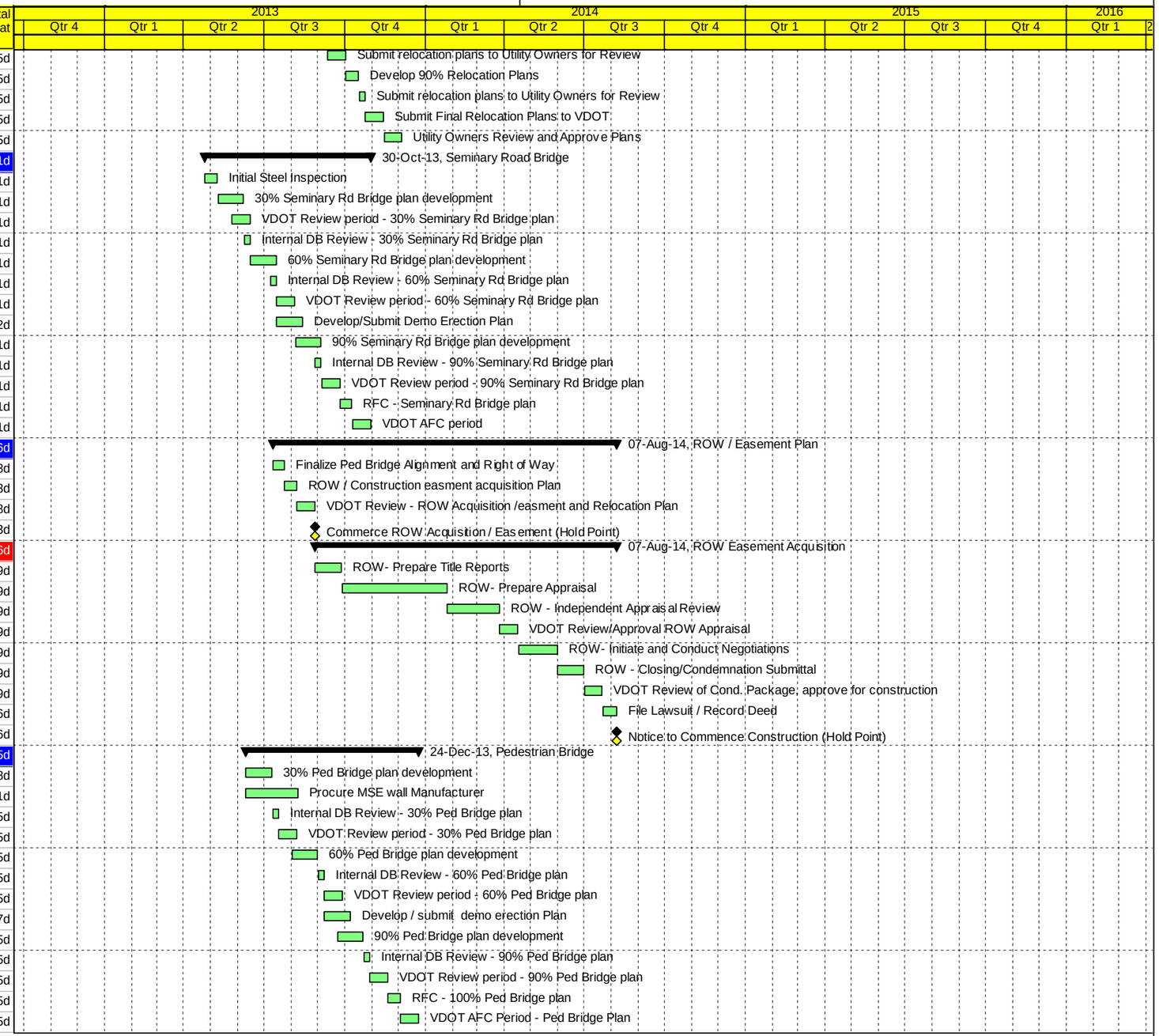
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
DGN04RVW020	Submit relocation plans to Utility Owners for	21d	12-Sep-13	02-Oct-13	215d
DGN04PLN070	Develop 90% Relocation Plans	15d	03-Oct-13	17-Oct-13	215d
DGN04RVW030	Submit relocation plans to Utility Owners for	7d	18-Oct-13	24-Oct-13	215d
DGN04PLN080	Submit Final Relocation Plans to VDOT	21d	25-Oct-13	14-Nov-13	215d
DGN04RVW040	Utility Owners Review and Approve Plans	21d	15-Nov-13	05-Dec-13	215d
Seminary Road Bridge		189d	25-Apr-13	30-Oct-13	21d
DGN05PLN70	Initial Steel Inspection	15d	25-Apr-13	09-May-13	21d
DGN05PLN020	30% Seminary Rd Bridge plan development	30d	10-May-13	08-Jun-13	21d
DGN05VDT010	VDOT Review period - 30% Seminary Rd E	21d	26-May-13	15-Jun-13	21d
DGN05PLN025	Internal DB Review - 30% Seminary Rd Bri	7d	09-Jun-13	15-Jun-13	21d
DGN05PLN030	60% Seminary Rd Bridge plan development	30d	16-Jun-13	15-Jul-13	21d
DGN05PLN035	Internal DB Review - 60% Seminary Rd Bri	7d	09-Jul-13	15-Jul-13	21d
DGN05VDT020	VDOT Review period - 60% Seminary Rd E	21d	16-Jul-13	05-Aug-13	21d
RMP02MSN20	Develop/Submit Demo Erection Plan	30d	16-Jul-13	14-Aug-13	42d
DGN05PLN040	90% Seminary Rd Bridge plan development	30d	06-Aug-13	04-Sep-13	21d
DGN05PLN045	Internal DB Review - 90% Seminary Rd Bri	7d	29-Aug-13	04-Sep-13	21d
DGN05VDT030	VDOT Review period - 90% Seminary Rd E	21d	05-Sep-13	25-Sep-13	21d
DGN05PLN050	RFC - Seminary Rd Bridge plan	14d	26-Sep-13	09-Oct-13	21d
DGN05VDT040	VDOT AFC period	21d	10-Oct-13	30-Oct-13	21d
ROW / Easement Plan		206d	11-Jul-13	07-Aug-14	16d
DGN05PLN060	Finalize Ped Bridge Alignment and Right of \	14d	11-Jul-13	24-Jul-13	28d
DGN05PLN070	ROW / Construction easment acquisition P	14d	25-Jul-13	07-Aug-13	28d
DGN05VDT050	VDOT Review - ROW Acquisition /easmen	21d	08-Aug-13	28-Aug-13	28d
DGN05VDT060	Commerce ROW Acquisition / Easement (I	0d		28-Aug-13	13d
ROW Easement Acquisition		179d	29-Aug-13	07-Aug-14	16d
ROW01PRC010	ROW- Prepare Title Reports	30d	29-Aug-13	27-Sep-13	29d
ROW01PRC020	ROW- Prepare Appraisal	120d	28-Sep-13	25-Jan-14	29d
ROW01PRC030	ROW - Independent Appraisal Review	60d	26-Jan-14	26-Mar-14	29d
ROW01VDT010	VDOT Review/Approval ROW Appraisal	21d	27-Mar-14	16-Apr-14	29d
ROW01PRC040	ROW- Initiate and Conduct Negotiations	45d	17-Apr-14	31-May-14	29d
ROW01PRC050	ROW - Closing/Condemnation Submittal	30d	01-Jun-14	30-Jun-14	29d
ROW01VDT020	VDOT Review of Cond. Package, approve	21d	01-Jul-14	21-Jul-14	29d
ROW01VDT040	File Lawsuit / Record Deed	10d	23-Jul-14	07-Aug-14	16d
ROW01VDT030	Notice to Commence Construction (Hold P	0d		07-Aug-14	16d
Pedestrian Bridge		197d	11-Jun-13	24-Dec-13	235d
DGN06PLN030	30% Ped Bridge plan development	30d	11-Jun-13	10-Jul-13	28d
DGN06PLN60	Procure MSE wall Manufacturer	60d	11-Jun-13	09-Aug-13	351d
DGN06ADM010	Internal DB Review - 30% Ped Bridge plan	7d	11-Jul-13	17-Jul-13	235d
DGN06VDT010	VDOT Review period - 30% Ped Bridge pla	21d	18-Jul-13	07-Aug-13	235d
DGN06PLN040	60% Ped Bridge plan development	30d	02-Aug-13	31-Aug-13	235d
DGN06ADM020	Internal DB Review - 60% Ped Bridge plan	7d	01-Sep-13	07-Sep-13	235d
DGN06VDT020	VDOT Review period - 60% Ped Bridge pla	21d	08-Sep-13	28-Sep-13	235d
DGN06ADM30	Develop / submit demo erection Plan	30d	08-Sep-13	07-Oct-13	257d
DGN06PLN050	90% Ped Bridge plan development	30d	23-Sep-13	22-Oct-13	235d
DGN06ADM030	Internal DB Review - 90% Ped Bridge plan	7d	23-Oct-13	29-Oct-13	235d
DGN06VDT030	VDOT Review period - 90% Ped Bridge pla	21d	30-Oct-13	19-Nov-13	235d
DGN06PLN060	RFC - 100% Ped Bridge plan	14d	20-Nov-13	03-Dec-13	235d
DGN06VDT040	VDOT AFC Period - Ped Bridge Plan	21d	04-Dec-13	24-Dec-13	235d



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I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

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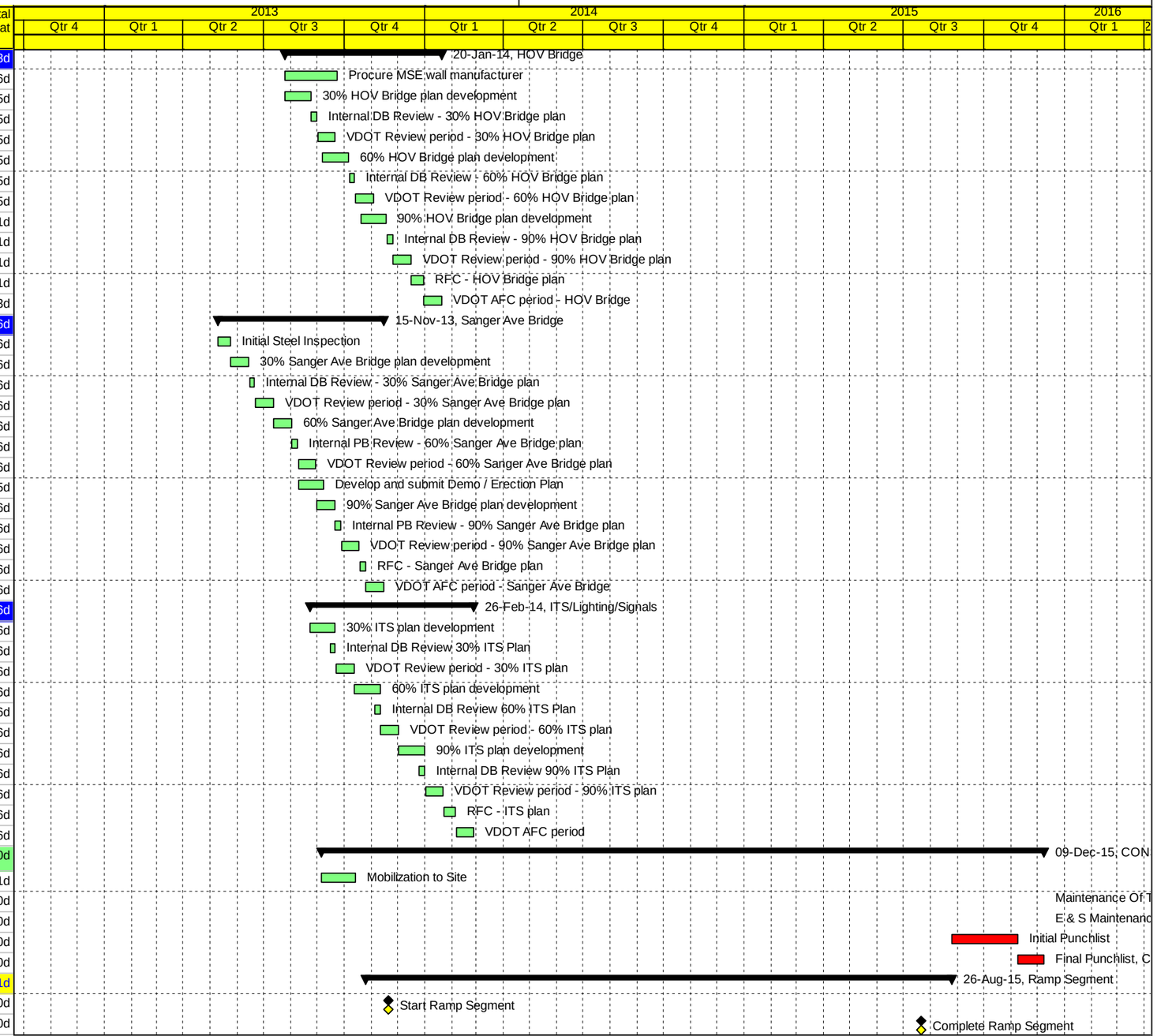
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
HOV Bridge		179d	26-Jul-13	20-Jan-14	233d
00PRC010	Procure MSE wall manufacturer	60d	26-Jul-13	23-Sep-13	106d
DGN07PLN030	30% HOV Bridge plan development	30d	26-Jul-13	24-Aug-13	65d
DGN07ADM010	Internal DB Review - 30% HOV Bridge plan	7d	25-Aug-13	31-Aug-13	65d
DGN07VDT010	VDOT Review period - 30% HOV Bridge pl	21d	01-Sep-13	21-Sep-13	65d
DGN07PLN040	60% HOV Bridge plan development	30d	07-Sep-13	06-Oct-13	65d
DGN07ADM020	Internal DB Review - 60% HOV Bridge plan	7d	07-Oct-13	13-Oct-13	65d
DGN07VDT020	VDOT Review period - 60% HOV Bridge pl	21d	14-Oct-13	03-Nov-13	65d
DGN07PLN050	90% HOV Bridge plan development	30d	20-Oct-13	18-Nov-13	191d
DGN07ADM030	Internal DB Review - 90% HOV Bridge plan	7d	19-Nov-13	25-Nov-13	191d
DGN07VDT030	VDOT Review period - 90% HOV Bridge pl	21d	26-Nov-13	16-Dec-13	191d
DGN07PLN060	RFC - HOV Bridge plan	14d	17-Dec-13	30-Dec-13	191d
DGN07VDT040	VDOT AFC period - HOV Bridge	21d	31-Dec-13	20-Jan-14	233d
Sanger Ave Bridge		190d	10-May-13	15-Nov-13	296d
DGN08PLN60	Initial Steel Inspection	15d	10-May-13	24-May-13	296d
DGN08PLN030	30% Sanger Ave Bridge plan development	21d	25-May-13	14-Jun-13	296d
DGN08ADM010	Internal DB Review - 30% Sanger Ave Brid	7d	15-Jun-13	21-Jun-13	296d
DGN08VDT010	VDOT Review period - 30% Sanger Ave Br	21d	22-Jun-13	12-Jul-13	296d
DGN08PLN040	60% Sanger Ave Bridge plan development	21d	13-Jul-13	02-Aug-13	296d
DGN08ADM020	Internal PB Review - 60% Sanger Ave Brid	7d	03-Aug-13	09-Aug-13	296d
DGN08VDT020	VDOT Review period - 60% Sanger Ave Br	21d	10-Aug-13	30-Aug-13	296d
DGN08ADM30	Develop and submit Demo / Erection Plan	30d	10-Aug-13	08-Sep-13	315d
DGN08PLN050	90% Sanger Ave Bridge plan development	21d	31-Aug-13	20-Sep-13	296d
DGN08ADM030	Internal PB Review - 90% Sanger Ave Brid	7d	21-Sep-13	27-Sep-13	296d
DGN08VDT030	VDOT Review period - 90% Sanger Ave Br	21d	28-Sep-13	18-Oct-13	296d
DGN08PLN060	RFC - Sanger Ave Bridge plan	7d	19-Oct-13	25-Oct-13	296d
DGN08VDT040	VDOT AFC period - Sanger Ave Bridge	21d	26-Oct-13	15-Nov-13	296d
ITS/Lighting/Signals		188d	23-Aug-13	26-Feb-14	376d
DGN09PLN010	30% ITS plan development	30d	23-Aug-13	21-Sep-13	376d
DGN09PLN050	Internal DB Review 30% ITS Plan	7d	15-Sep-13	21-Sep-13	376d
DGN09VDT010	VDOT Review period - 30% ITS plan	21d	22-Sep-13	12-Oct-13	376d
DGN09PLN020	60% ITS plan development	30d	13-Oct-13	11-Nov-13	376d
DGN09PLN060	Internal DB Review 60% ITS Plan	7d	05-Nov-13	11-Nov-13	376d
DGN09VDT020	VDOT Review period - 60% ITS plan	21d	12-Nov-13	02-Dec-13	376d
DGN09PLN030	90% ITS plan development	30d	03-Dec-13	01-Jan-14	376d
DGN09PLN090	Internal DB Review 90% ITS Plan	7d	26-Dec-13	01-Jan-14	376d
DGN09VDT030	VDOT Review period - 90% ITS plan	21d	02-Jan-14	22-Jan-14	376d
DGN09PLN040	RFC - ITS plan	14d	23-Jan-14	05-Feb-14	376d
DGN09VDT040	VDOT AFC period	21d	06-Feb-14	26-Feb-14	376d
CONSTRUCTION		430d	05-Sep-13	09-Dec-15	0d
CON00MOB010	Mobilization to Site	20d	05-Sep-13	14-Oct-13	21d
CON00MOB040	Maintenance Of Traffic	389d	21-Nov-13	08-Dec-15	0d
CON00MOB050	E & S Maintenance	389d	21-Nov-13*	08-Dec-15	0d
CON00MOB030	Initial Punchlist	75d	26-Aug-15	09-Nov-15	0d
CON00MOB020	Final Punchlist, Close-Out & Demobilization	30d	09-Nov-15	09-Dec-15	0d
Ramp Segment		351d	26-Oct-13	26-Aug-15	51d
RMP00ADM010	Start Ramp Segment	0d	21-Nov-13		0d
RMP00ADM020	Complete Ramp Segment	0d		22-Jul-15	110d



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I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

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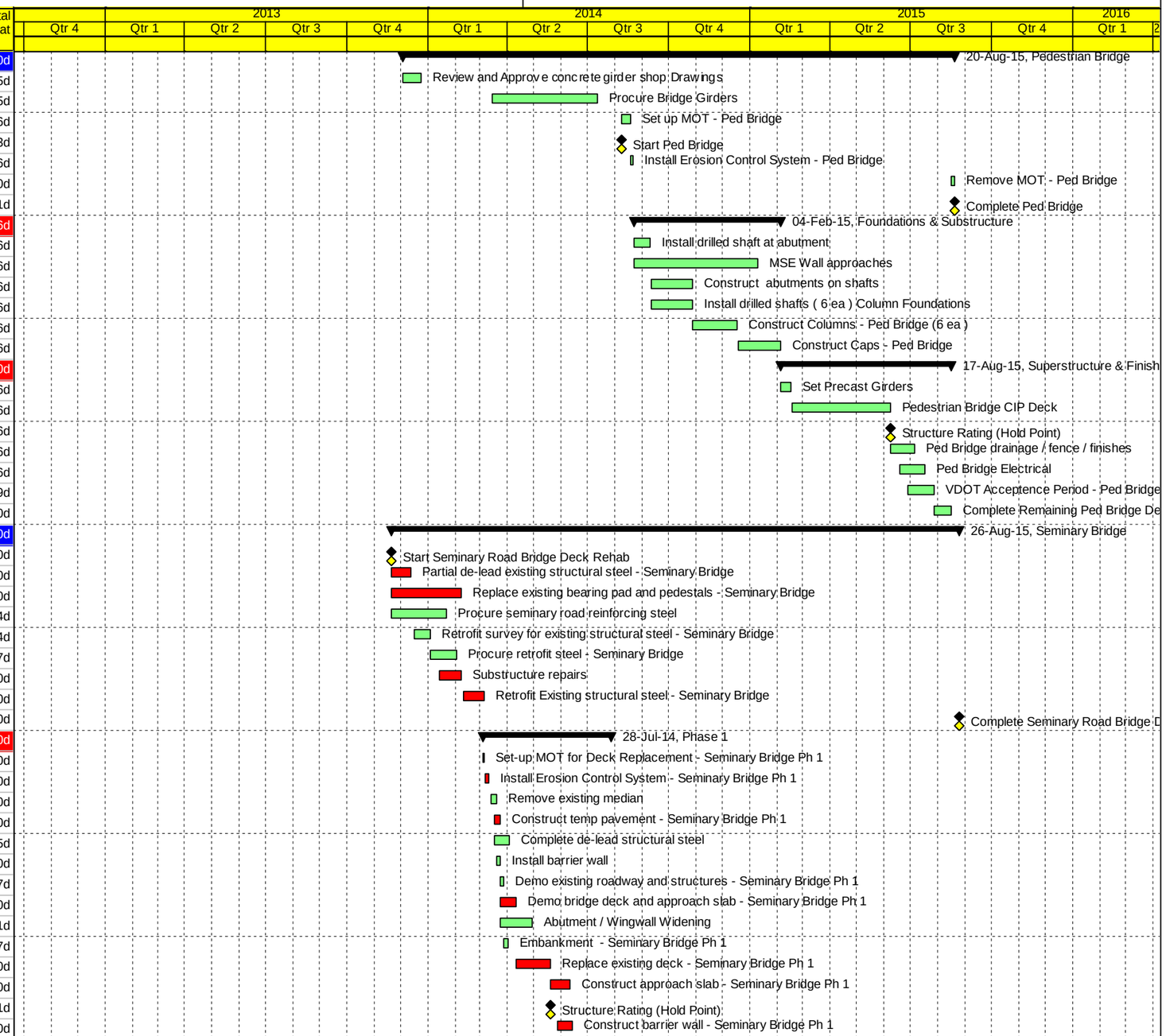
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
Pedestrian Bridge		330d	04-Dec-13	20-Aug-15	40d
DGN06PRC010	Review and Approve concrete girder shop	21d	04-Dec-13	24-Dec-13	235d
RMP01PRC010	Procure Bridge Girders	120d	15-Mar-14	12-Jul-14	235d
RMP01MOT010	Set up MOT - Ped Bridge	5d	08-Aug-14	18-Aug-14	16d
RMP01MSN010	Start Ped Bridge	0d	08-Aug-14		33d
RMP01MOT020	Install Erosion Control System - Ped Bridge	2d	19-Aug-14	21-Aug-14	16d
RMP01MOT030	Remove MOT - Ped Bridge	2d	17-Aug-15	20-Aug-15	40d
RMP01MSN020	Complete Ped Bridge	0d		20-Aug-15	81d
Foundations & Substructure		84d	22-Aug-14	04-Feb-15	16d
RMP01PLE030	Install drilled shaft at abutment	9d	22-Aug-14	09-Sep-14	16d
RMP01PLE30	MSE Wall approaches	70d	22-Aug-14	09-Jan-15	16d
RMP01SUB010	Construct abutments on shafts	25d	11-Sep-14	27-Oct-14	66d
RMP01SUB30	Install drilled shafts (6 ea) Column Founda	25d	11-Sep-14	27-Oct-14	16d
RMP01SUB020	Construct Columns - Ped Bridge (6 ea)	25d	28-Oct-14	17-Dec-14	16d
RMP01SUB030	Construct Caps - Ped Bridge	25d	18-Dec-14	04-Feb-15	16d
Superstructure & Finishes		105d	05-Feb-15	17-Aug-15	40d
RMP01SUP010	Set Precast Girders	7d	05-Feb-15	16-Feb-15	16d
RMP01SUP20	Pedestrian Bridge CIP Deck	60d	17-Feb-15	08-Jun-15	16d
RMP01SUP30	Structure Rating (Hold Point)	0d		08-Jun-15	16d
RMP01FIN010	Ped Bridge drainage / fence / finishes	15d	09-Jun-15	06-Jul-15	16d
RMP01ELT010	Ped Bridge Electrical	15d	19-Jun-15	17-Jul-15	16d
RMP01VDT10	VDOT Acceptence Period - Ped Bridge	30d	28-Jun-15	28-Jul-15	29d
RMP01DEM010	Complete Remaining Ped Bridge Demo	10d	28-Jul-15	17-Aug-15	40d
Seminary Bridge		338d	21-Nov-13	26-Aug-15	0d
RMP02MSN010	Start Seminary Road Bridge Deck Rehab	0d	21-Nov-13		0d
RMP02SUP015	Partial de-lead existing structural steel - Se	10d	21-Nov-13	13-Dec-13	0d
RMP02SUP030	Replace existing bearing pad and pedestals	40d	21-Nov-13	07-Feb-14	0d
RMP02MSN030	Procure seminary road reinforcing steel	30d	21-Nov-13	22-Jan-14	44d
RMP02SUP020	Retrofit survey for existing structural steel -	10d	16-Dec-13	03-Jan-14	4d
RMP02PRC010	Procure retrofit steel - Seminary Bridge	30d	04-Jan-14	02-Feb-14	7d
RMP02SUP170	Substructure repairs	15d	14-Jan-14	07-Feb-14	0d
RMP02SUP040	Retrofit Existing structural steel - Seminary	14d	10-Feb-14	05-Mar-14	0d
RMP02MSN020	Complete Seminary Road Bridge Deck Reh	0d		26-Aug-15	0d
Phase 1		78d	04-Mar-14	28-Jul-14	0d
RMP02MOT010	Set-up MOT for Deck Replacement - Semi	2d	04-Mar-14	05-Mar-14	0d
RMP02MOT020	Install Erosion Control System - Seminary E	3d	07-Mar-14	11-Mar-14	0d
RMP02MOT90	Remove existing median	5d	13-Mar-14	20-Mar-14	0d
RMP02MOT030	Construct temp pavement - Seminary Bridg	6d	17-Mar-14	24-Mar-14	0d
RMP02MOT120	Complete de-lead structural steel	10d	17-Mar-14	03-Apr-14	5d
RMP02MOT100	Install barrier wall	2d	20-Mar-14	24-Mar-14	0d
RMP02DEM020	Demo existing roadway and structures - Se	2d	24-Mar-14	27-Mar-14	27d
RMP02DEM010	Demo bridge deck and approach slab - Ser	10d	24-Mar-14	11-Apr-14	0d
RMP02DEM60	Abutment / Wingwall Widening	20d	24-Mar-14	29-Apr-14	11d
RMP02EMB010	Embankment - Seminary Bridge Ph 1	2d	27-Mar-14	02-Apr-14	27d
RMP02SUP050	Replace existing deck - Seminary Bridge Ph	21d	11-Apr-14	20-May-14	0d
RMP02SUP060	Construct approach slab - Seminary Bridge	10d	20-May-14	10-Jun-14	0d
RMP01SUP40	Structure Rating (Hold Point)	0d		20-May-14	21d
RMP02SUP070	Construct barrier wall - Seminary Bridge Ph	10d	27-May-14	13-Jun-14	0d



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I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

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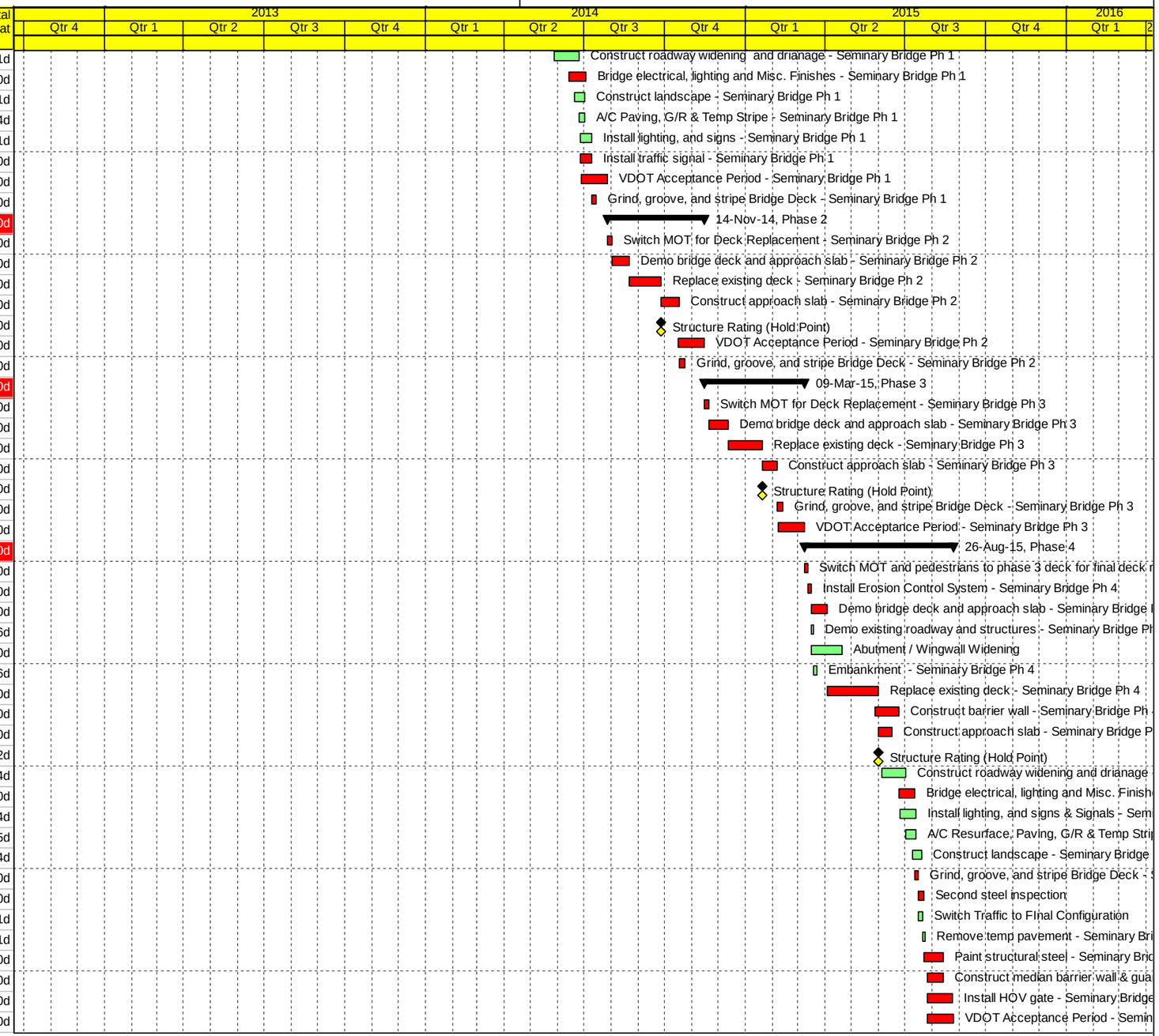
05-Jan-13 14:15

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
RMP02GRD010	Construct roadway widening and drianage	15d	28-May-14	25-Jun-14	11d
RMP02ELT010	Bridge electrical, lighting and Misc. Finishes	10d	13-Jun-14	03-Jul-14	0d
RMP02LND010	Construct landscape - Seminary Bridge Ph	5d	20-Jun-14	01-Jul-14	11d
RMP02PAV010	A/C Paving, G/R & Temp Stripe - Seminary	4d	25-Jun-14	01-Jul-14	14d
RMP02ELT030	Install lighting, and signs - Seminary Bridge	5d	26-Jun-14	09-Jul-14	11d
RMP02ELT020	Install traffic signal - Seminary Bridge Ph 1	5d	26-Jun-14	09-Jul-14	0d
RMP02VDT010	VDOT Acceptance Period - Seminary Bridg	30d	28-Jun-14	28-Jul-14	0d
RMP02FIN010	Grind, groove, and stripe Bridge Deck - Se	3d	09-Jul-14	14-Jul-14	0d
Phase 2		58d	28-Jul-14	14-Nov-14	0d
RMP02MOT050	Switch MOT for Deck Replacement - Semi	3d	28-Jul-14	01-Aug-14	0d
RMP02DEM030	Demo bridge deck and approach slab - Ser	10d	01-Aug-14	21-Aug-14	0d
RMP02SUP080	Replace existing deck - Seminary Bridge Pl	19d	21-Aug-14	26-Sep-14	0d
RMP02SUP090	Construct approach slab - Seminary Bridge	10d	26-Sep-14	17-Oct-14	0d
RMP01SUP50	Structure Rating (Hold Point)	0d		26-Sep-14	10d
RMP02VDT020	VDOT Acceptance Period - Seminary Bridg	30d	15-Oct-14	14-Nov-14	0d
RMP02FIN020	Grind, groove, and stripe Bridge Deck - Se	3d	17-Oct-14	23-Oct-14	0d
Phase 3		58d	14-Nov-14	09-Mar-15	0d
RMP02MOT110	Switch MOT for Deck Replacement - Semi	3d	14-Nov-14	20-Nov-14	0d
RMP02DEM50	Demo bridge deck and approach slab - Ser	10d	20-Nov-14	12-Dec-14	0d
RMP02SUP150	Replace existing deck - Seminary Bridge Pl	19d	12-Dec-14	20-Jan-15	0d
RMP02SUP160	Construct approach slab - Seminary Bridge	10d	20-Jan-15	06-Feb-15	0d
RMP02SUP180	Structure Rating (Hold Point)	0d		20-Jan-15	10d
RMP02FIN40	Grind, groove, and stripe Bridge Deck - Se	3d	06-Feb-15	12-Feb-15	0d
RMP02VDT40	VDOT Acceptance Period - Seminary Bridg	30d	07-Feb-15	09-Mar-15	0d
Phase 4		93d	09-Mar-15	26-Aug-15	0d
RMP02MOT060	Switch MOT and pedestrians to phase 3 de	3d	09-Mar-15	13-Mar-15	0d
RMP02MOT070	Install Erosion Control System - Seminary E	1d	13-Mar-15	16-Mar-15	0d
RMP02DEM040	Demo bridge deck and approach slab - Ser	10d	16-Mar-15	03-Apr-15	0d
RMP02DEM050	Demo existing roadway and structures - Se	2d	16-Mar-15	19-Mar-15	36d
RMP02EMB20	Abutment / Wingwall Widening	20d	16-Mar-15	21-Apr-15	20d
RMP02EMB020	Embankment - Seminary Bridge Ph 4	2d	19-Mar-15	23-Mar-15	36d
RMP02SUP100	Replace existing deck - Seminary Bridge Pl	30d	03-Apr-15	01-Jun-15	0d
RMP02SUP120	Construct barrier wall - Seminary Bridge Ph	15d	28-May-15	24-Jun-15	0d
RMP02SUP110	Construct approach slab - Seminary Bridge	10d	01-Jun-15	16-Jun-15	0d
RMP01SUP60	Structure Rating (Hold Point)	0d		01-Jun-15	32d
RMP02GRD020	Construct roadway widening and drianage	15d	05-Jun-15	02-Jul-15	4d
RMP02ELT050	Bridge electrical, lighting and Misc. Finishes	10d	24-Jun-15	13-Jul-15	0d
RMP02ELT060	Install lighting, and signs & Signals - Semina	10d	25-Jun-15	14-Jul-15	4d
RMP02PAV020	A/C Resurface, Paving, G/R & Temp Stripe	8d	02-Jul-15	14-Jul-15	5d
RMP02LND020	Construct landscape - Seminary Bridge Ph	5d	10-Jul-15	20-Jul-15	4d
RMP02FIN030	Grind, groove, and stripe Bridge Deck - Se	3d	13-Jul-15	17-Jul-15	0d
RMP02FIN50	Second steel inspection	3d	17-Jul-15	23-Jul-15	0d
RMP02MOT130	Switch Traffic to FInal Configuration	2d	17-Jul-15	22-Jul-15	1d
RMP02MOT090	Remove temp pavement - Seminary Bridge	2d	22-Jul-15	24-Jul-15	1d
RMP02FIN040	Paint structural steel - Seminary Bridge Ph	15d	23-Jul-15	14-Aug-15	0d
RMP02SUP130	Construct median barrier wall & guardrail- S	10d	27-Jul-15	14-Aug-15	0d
RMP02SUP140	Install HOV gate - Seminary Bridge Ph 4	15d	27-Jul-15	24-Aug-15	0d
RMP02VDT30	VDOT Acceptance Period - Seminary Bridg	30d	27-Jul-15	26-Aug-15	0d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

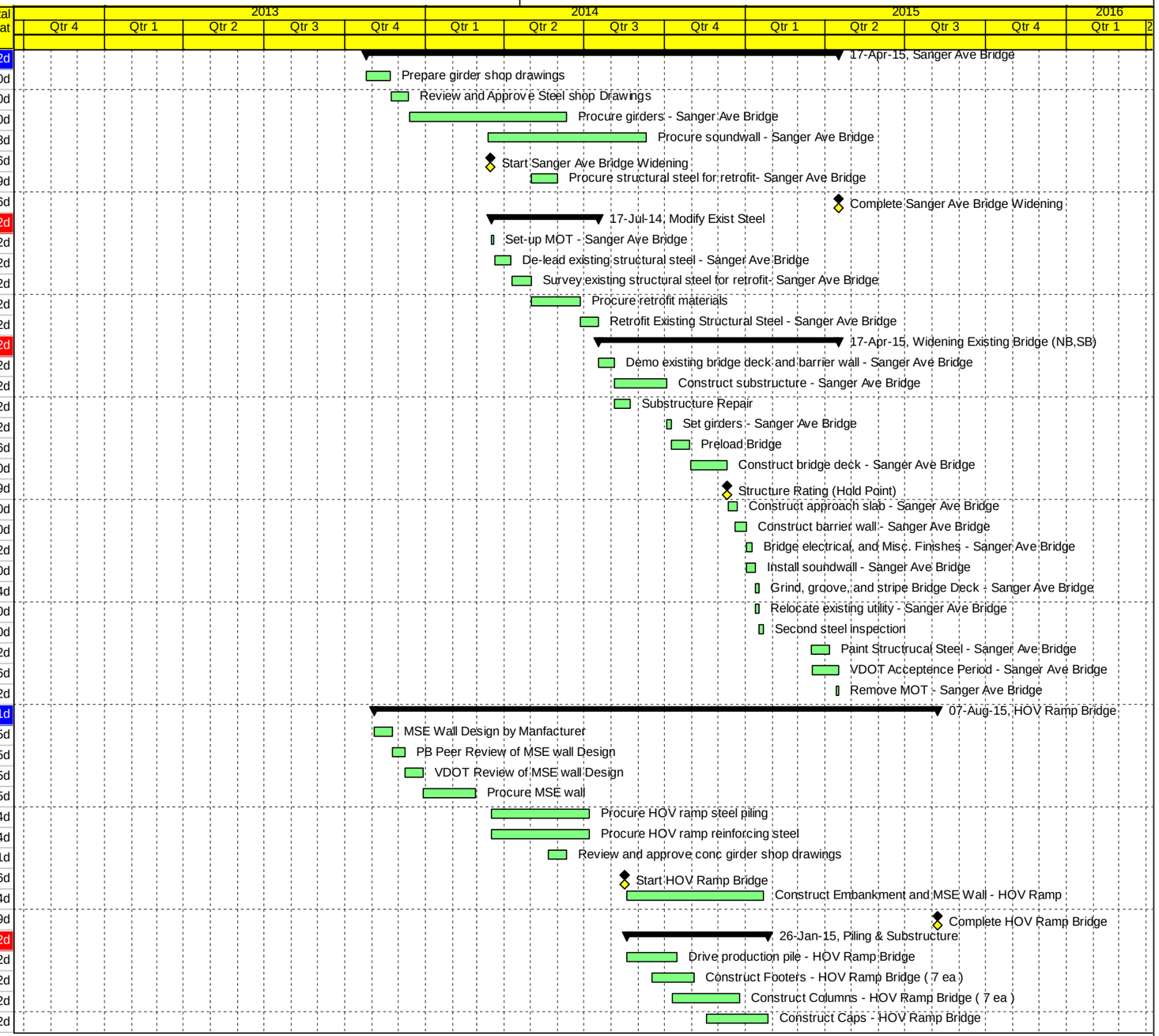
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

05-Jan-13 14:15

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
Sanger Ave Bridge		280d	26-Oct-13	17-Apr-15	122d
RMP03PRC015	Prepare girder shop drawings	28d	26-Oct-13	22-Nov-13	400d
DGN08PRC010	Review and Approve Steel shop Drawings	21d	23-Nov-13	13-Dec-13	400d
RMP03PRC010	Procure girders - Sanger Ave Bridge	180d	14-Dec-13	11-Jun-14	400d
RMP03PRC020	Procure soundwall - Sanger Ave Bridge	180d	14-Mar-14	09-Sep-14	398d
RMP03MSN010	Start Sanger Ave Bridge Widening	0d	16-Mar-14		296d
RMP03SUP090	Procure structural steel for retrofit- Sanger	30d	02-May-14	01-Jun-14	319d
RMP03MSN020	Complete Sanger Ave Bridge Widening	0d		17-Apr-15	236d
Modify Exist Steel		66d	17-Mar-14	17-Jul-14	152d
RMP03MOT010	Set-up MOT - Sanger Ave Bridge	3d	17-Mar-14	20-Mar-14	152d
RMP03SUP070	De-lead existing structural steel - Sanger A	10d	21-Mar-14	08-Apr-14	152d
RMP03SUP080	Survey existing structural steel for retrofit- S	13d	10-Apr-14	02-May-14	152d
RMP03SUP90	Procure retrofit materials	30d	02-May-14	26-Jun-14	152d
RMP03SUP010	Retrofit Existing Structural Steel - Sanger A	10d	26-Jun-14	17-Jul-14	152d
Widening Existing Bridge (NB,SB)		143d	17-Jul-14	17-Apr-15	122d
RMP03DEM010	Demo existing bridge deck and barrier wall	10d	17-Jul-14	04-Aug-14	152d
RMP03SUB010	Construct substructure - Sanger Ave Bridge	30d	04-Aug-14	03-Oct-14	152d
RMP03PLE30	Substructure Repair	10d	04-Aug-14	22-Aug-14	172d
RMP03SUP020	Set girders - Sanger Ave Bridge	2d	03-Oct-14	08-Oct-14	152d
RMP03SUP100	Preload Bridge	21d	08-Oct-14	29-Oct-14	286d
RMP03SUP030	Construct bridge deck - Sanger Ave Bridge	21d	30-Oct-14	10-Dec-14	150d
RMP01SUP70	Structure Rating (Hold Point)	0d		10-Dec-14	189d
RMP03SUP060	Construct approach slab - Sanger Ave Brid	6d	12-Dec-14	22-Dec-14	150d
RMP03SUP040	Construct barrier wall - Sanger Ave Bridge	5d	19-Dec-14	02-Jan-15	150d
RMP03ELT010	Bridge electrical, and Misc. Finishes - Sang	3d	02-Jan-15	08-Jan-15	152d
RMP03SUP050	Install soundwall - Sanger Ave Bridge	5d	02-Jan-15	12-Jan-15	150d
RMP03FIN010	Grind, groove, and stripe Bridge Deck - Sa	3d	12-Jan-15	16-Jan-15	164d
RMP03UTL010	Relocate existing utility - Sanger Ave Bridge	3d	12-Jan-15	16-Jan-15	150d
RMP03UTL10	Second steel inspection	3d	16-Jan-15	21-Jan-15	150d
RMP03FIN020	Paint Structrucal Steel - Sanger Ave Bridge	15d	16-Mar-15	06-Apr-15	152d
RMP03VDT010	VDOT Acceptence Period - Sanger Ave Bri	30d	18-Mar-15	17-Apr-15	236d
RMP03MOT020	Remove MOT - Sanger Ave Bridge	2d	14-Apr-15	17-Apr-15	122d
HOV Ramp Bridge		338d	04-Nov-13	07-Aug-15	61d
DGN04STR010	MSE Wall Design by Manfacturer	21d	04-Nov-13	24-Nov-13	65d
DGN04ADM010	PB Peer Review of MSE wall Design	14d	25-Nov-13	08-Dec-13	65d
DGN04VDT010	VDOT Review of MSE wall Design	21d	09-Dec-13	29-Dec-13	65d
RMP04PRC010	Procure MSE wall	60d	30-Dec-13	27-Feb-14	65d
RMP04PRC020	Procure HOV ramp steel piling	60d	17-Mar-14	07-Jul-14	34d
RMP04PRC040	Procure HOV ramp reinforcing steel	60d	17-Mar-14	07-Jul-14	34d
DGN07PRC020	Review and approve conc girder shop drav	21d	21-May-14	10-Jun-14	191d
RMP04MSN010	Start HOV Ramp Bridge	0d	16-Aug-14		26d
RMP04MSE010	Construct Embankment and MSE Wall - HO	80d	18-Aug-14	21-Jan-15	14d
RMP04MSN020	Complete HOV Ramp Bridge	0d		07-Aug-15	19d
Piling & Substructure		82d	18-Aug-14	26-Jan-15	12d
RMP04PLE020	Drive production pile - HOV Ramp Bridge	30d	18-Aug-14	14-Oct-14	12d
RMP04SUB020	Construct Footers - HOV Ramp Bridge (7	25d	16-Sep-14	03-Nov-14	12d
RMP04SUB030	Construct Columns - HOV Ramp Bridge (7	40d	10-Oct-14	24-Dec-14	12d
RMP04SUB040	Construct Caps - HOV Ramp Bridge	35d	17-Nov-14	26-Jan-15	12d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

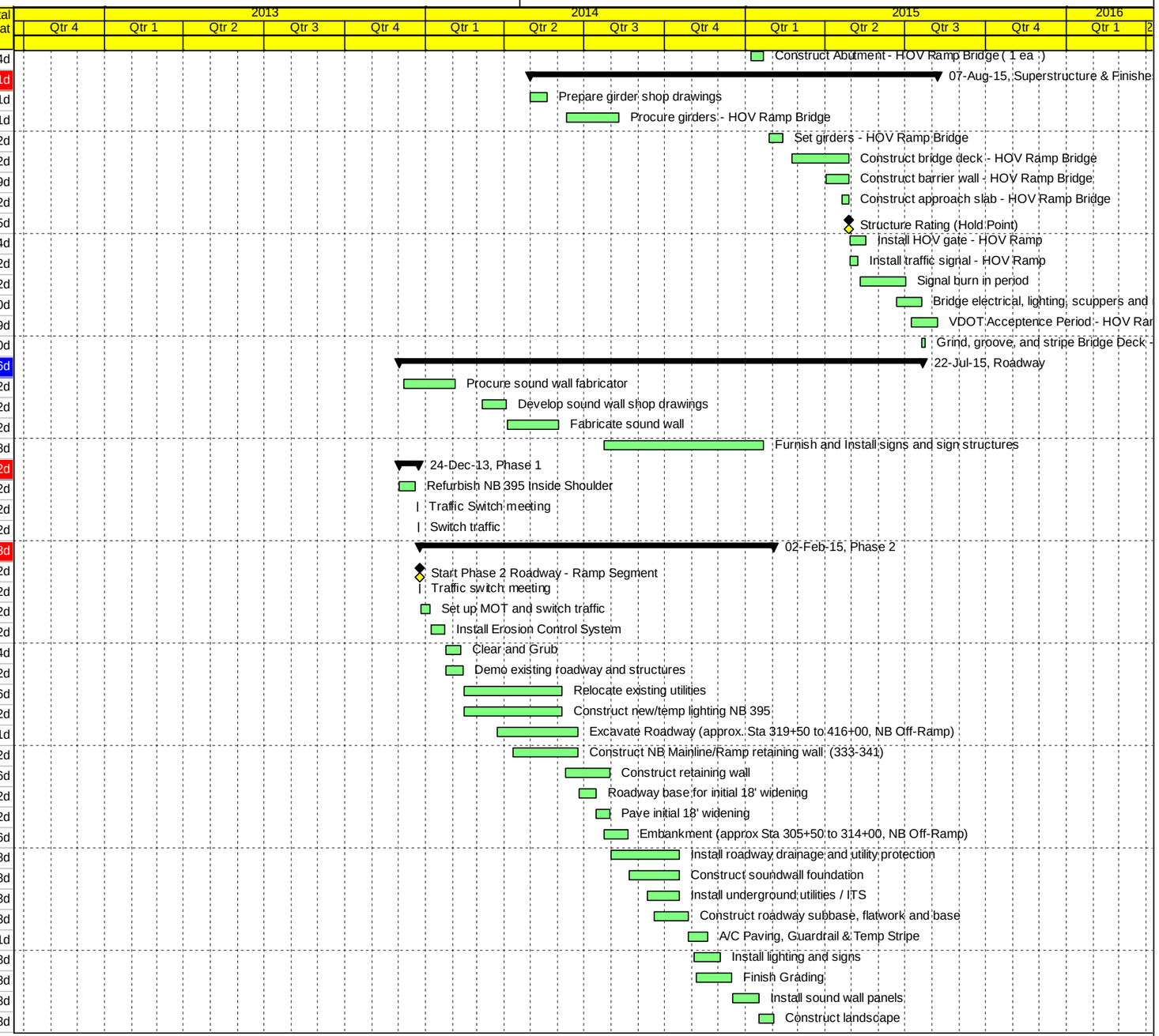
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

05-Jan-13 14:15

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
RMP04SUB050	Construct Abutment - HOV Ramp Bridge (	10d	07-Jan-15	21-Jan-15	14d
Superstructure & Finishes		**244d**	**30-Apr-14**	**07-Aug-15**	**61d**
RMP04PRC025	Prepare girder shop drawings	21d	30-Apr-14	20-May-14	191d
RMP04PRC030	Procure girders - HOV Ramp Bridge	60d	11-Jun-14	09-Aug-14	191d
RMP04SUP010	Set girders - HOV Ramp Bridge	10d	27-Jan-15	12-Feb-15	12d
RMP04SUP020	Construct bridge deck - HOV Ramp Bridge	36d	23-Feb-15	28-Apr-15	12d
RMP04SUP030	Construct barrier wall - HOV Ramp Bridge	15d	03-Apr-15	28-Apr-15	39d
RMP04SUP040	Construct approach slab - HOV Ramp Brid	5d	21-Apr-15	28-Apr-15	12d
RMP01SUP80	Structure Rating (Hold Point)	0d		28-Apr-15	115d
RMP04ELT010	Install HOV gate - HOV Ramp	10d	29-Apr-15	18-May-15	44d
RMP04ELT020	Install traffic signal - HOV Ramp	5d	29-Apr-15	08-May-15	12d
RMP04ELT30	Signal burn in period	30d	11-May-15	02-Jul-15	12d
RMP04ELT030	Bridge electrical, lighting, scuppers and mis	15d	22-Jun-15	20-Jul-15	10d
RMP04VDT010	VDOT Acceptence Period - HOV Ramp Bri	30d	08-Jul-15	07-Aug-15	19d
RMP04FIN010	Grind, groove, and stripe Bridge Deck - HC	3d	20-Jul-15	24-Jul-15	10d
Roadway		**315d**	**02-Dec-13**	**22-Jul-15**	**56d**
RMP05PRC010	Procure sound wall fabricator	60d	07-Dec-13	04-Feb-14	282d
RMP05PRC020	Develop sound wall shop drawings	28d	07-Mar-14	03-Apr-14	252d
RMP05PRC030	Fabricate sound wall	60d	04-Apr-14	02-Jun-14	252d
RMP05PRC30	Furnish and Install signs and sign structure	182d	24-Jul-14	21-Jan-15	148d
Phase 1		**12d**	**02-Dec-13**	**24-Dec-13**	**12d**
RMP05MOT80	Refurbish NB 395 Inside Shoulder	10d	02-Dec-13	20-Dec-13	12d
RMP05MOT90	Traffic Switch meeting	1d	23-Dec-13	23-Dec-13	12d
RMP05MOT100	Switch traffic	1d	24-Dec-13	24-Dec-13	12d
Phase 2		**212d**	**26-Dec-13**	**02-Feb-15**	**88d**
RMP05MSN030	Start Phase 2 Roadway - Ramp Segment	0d	26-Dec-13		12d
RMP05MOT110	Traffic switch meeting	1d	26-Dec-13	26-Dec-13	12d
RMP05MOT040	Set up MOT and switch traffic	5d	27-Dec-13	06-Jan-14	12d
RMP05MOT050	Install Erosion Control System	10d	08-Jan-14	23-Jan-14	12d
RMP05DEM020	Clear and Grub	10d	24-Jan-14	10-Feb-14	14d
RMP05DEM030	Demo existing roadway and structures	12d	24-Jan-14	13-Feb-14	12d
RMP05UTL030	Relocate existing utilities	60d	14-Feb-14	06-Jun-14	76d
RMP05DEM30	Construct new/temp lighting NB 395	60d	14-Feb-14	06-Jun-14	12d
RMP05EXC020	Excavate Roadway (approx. Sta 319+50 to	50d	24-Mar-14	23-Jun-14	111d
RMP05DEM40	Construct NB Mainline/Ramp retaining wall	40d	11-Apr-14	23-Jun-14	12d
RMP05STR020	Construct retaining wall	30d	09-Jun-14	30-Jul-14	76d
RMP05DEM50	Roadway base for initial 18' widening	10d	25-Jun-14	14-Jul-14	12d
RMP05DEM60	Pave initial 18' widening	10d	15-Jul-14	30-Jul-14	12d
RMP05EMB020	Embankment (approx Sta 305+50 to 314+0	15d	24-Jul-14	19-Aug-14	76d
RMP05UTL040	Install roadway drainage and utility protectic	40d	01-Aug-14	17-Oct-14	88d
RMP05STR030	Construct soundwall foundation	30d	21-Aug-14	17-Oct-14	88d
RMP05UTL050	Install underground utilities / ITS	20d	11-Sep-14	17-Oct-14	93d
RMP05GRD020	Construct roadway subbase, flatwork and I	20d	19-Sep-14	27-Oct-14	88d
RMP05PAV030	A/C Paving, Guardrail & Temp Stripe	15d	27-Oct-14	18-Nov-14	51d
RMP05ELT020	Install lighting and signs	15d	03-Nov-14	02-Dec-14	118d
RMP05STR040	Finish Grading	20d	06-Nov-14	15-Dec-14	88d
RMP05STR050	Install sound wall panels	15d	17-Dec-14	15-Jan-15	88d
RMP05LND010	Construct landscape	10d	16-Jan-15	02-Feb-15	88d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

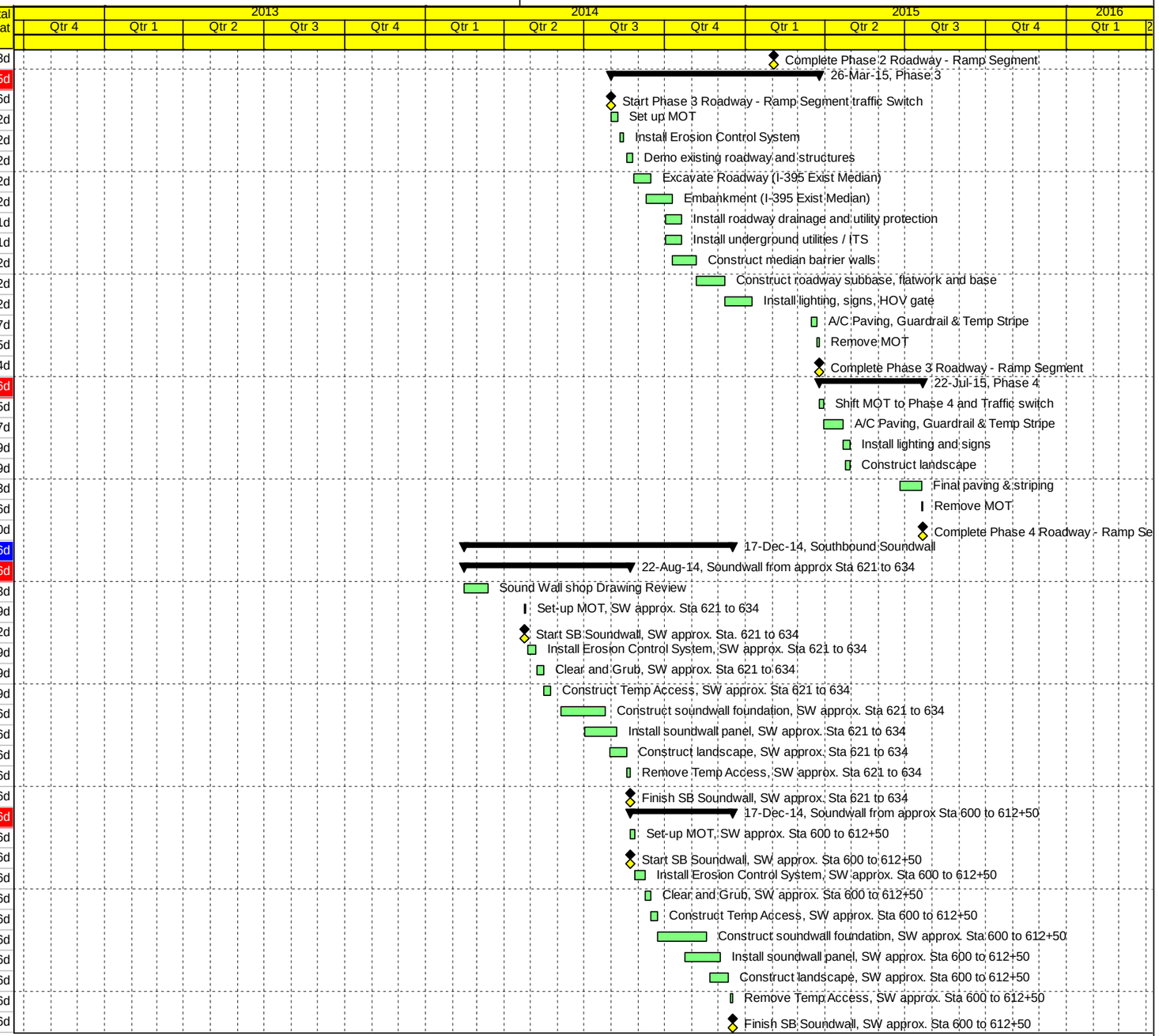
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

05-Jan-13 14:15

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
RMP05MSN040	Complete Phase 2 Roadway - Ramp Segm	0d		02-Feb-15	163d
Phase 3		123d	31-Jul-14	26-Mar-15	45d
RMP05MSN010	Start Phase 3 Roadway - Ramp Segment tr	0d	31-Jul-14		46d
RMP05MOT010	Set up MOT	5d	01-Aug-14	08-Aug-14	12d
RMP05MOT020	Install Erosion Control System	3d	11-Aug-14	15-Aug-14	12d
RMP05DEM010	Demo existing roadway and structures	5d	18-Aug-14	25-Aug-14	82d
RMP05EXC010	Excavate Roadway (I-395 Exist Median)	10d	27-Aug-14	15-Sep-14	82d
RMP05EMB010	Embankment (I-395 Exist Median)	15d	09-Sep-14	09-Oct-14	82d
RMP05UTL010	Install roadway drainage and utility protectic	10d	02-Oct-14	20-Oct-14	91d
RMP05UTL020	Install underground utilities / ITS	10d	02-Oct-14	20-Oct-14	91d
RMP05STR010	Construct median barrier walls	15d	09-Oct-14	06-Nov-14	82d
RMP05GRD010	Construct roadway subbase, flatwork and l	15d	06-Nov-14	08-Dec-14	82d
RMP05ELT010	Install lighting, signs, HOV gate	15d	08-Dec-14	08-Jan-15	82d
RMP05PAV010	A/C Paving, Guardrail & Temp Stripe	6d	16-Mar-15	23-Mar-15	57d
RMP05MOT030	Remove MOT	2d	23-Mar-15	26-Mar-15	45d
RMP05MSN020	Complete Phase 3 Roadway - Ramp Segm	0d		26-Mar-15	84d
Phase 4		62d	26-Mar-15	22-Jul-15	56d
RMP05MOT060	Shift MOT to Phase 4 and Traffic switch	2d	26-Mar-15	30-Mar-15	45d
RMP05PAV040	A/C Paving, Guardrail & Temp Stripe	15d	30-Mar-15	21-Apr-15	57d
RMP05ELT030	Install lighting and signs	5d	21-Apr-15	29-Apr-15	99d
RMP05LND020	Construct landscape	3d	24-Apr-15	29-Apr-15	99d
RMP05PAV050	Final paving & striping	15d	26-Jun-15	20-Jul-15	13d
RMP05MOT080	Remove MOT	1d	20-Jul-15	22-Jul-15	56d
RMP05MSN060	Complete Phase 4 Roadway - Ramp Segm	0d		22-Jul-15	110d
Southbound Soundwall		160d	14-Feb-14	17-Dec-14	186d
Soundwall from approx Sta 621 to 634		102d	14-Feb-14	22-Aug-14	186d
DGN03PRC010	Sound Wall shop Drawing Review	28d	14-Feb-14	13-Mar-14	273d
RMP06MOT010	Set-up MOT, SW approx. Sta 621 to 634	2d	24-Apr-14	25-Apr-14	189d
RMP06MSN010	Start SB Soundwall, SW approx. Sta. 621 tc	0d	24-Apr-14		362d
RMP06MOT020	Install Erosion Control System, SW approx.	5d	28-Apr-14	06-May-14	189d
RMP06DEM010	Clear and Grub, SW approx. Sta 621 to 634	5d	08-May-14	15-May-14	189d
RMP06MOT030	Construct Temp Access, SW approx. Sta 6	5d	16-May-14	23-May-14	189d
RMP06STR010	Construct soundwall foundation, SW appro	30d	04-Jun-14	25-Jul-14	186d
RMP06STR020	Install soundwall panel, SW approx. Sta 62:	20d	01-Jul-14	07-Aug-14	186d
RMP06LND010	Construct landscape, SW approx. Sta 621	10d	30-Jul-14	19-Aug-14	186d
RMP06MOT040	Remove Temp Access, SW approx. Sta 62	2d	19-Aug-14	22-Aug-14	186d
RMP06MSN020	Finish SB Soundwall, SW approx. Sta 621 t	0d		22-Aug-14	356d
Soundwall from approx Sta 600 to 612+50		59d	22-Aug-14	17-Dec-14	186d
RMP06MOT050	Set-up MOT, SW approx. Sta 600 to 612+5	2d	22-Aug-14	27-Aug-14	186d
RMP06MSN030	Start SB Soundwall, SW approx. Sta 600 to	0d	22-Aug-14		356d
RMP06MOT060	Install Erosion Control System, SW approx.	5d	27-Aug-14	08-Sep-14	186d
RMP06DEM020	Clear and Grub, SW approx. Sta 600 to 61:	4d	08-Sep-14	15-Sep-14	186d
RMP06MOT070	Construct Temp Access, SW approx. Sta 6	5d	15-Sep-14	23-Sep-14	186d
RMP06STR030	Construct soundwall foundation, SW appro	28d	23-Sep-14	17-Nov-14	186d
RMP06STR040	Install soundwall panel, SW approx. Sta 60(	18d	24-Oct-14	02-Dec-14	186d
RMP06LND020	Construct landscape, SW approx. Sta 600	10d	21-Nov-14	12-Dec-14	186d
RMP06MOT080	Remove Temp Access, SW approx. Sta 60	2d	15-Dec-14	17-Dec-14	186d
RMP06MSN040	Finish SB Soundwall, SW approx. Sta 600 t	0d		17-Dec-14	356d



Actual Work — Critical Remaining Work — Milestone
Remaining Work — Baseline Milestone — Summary

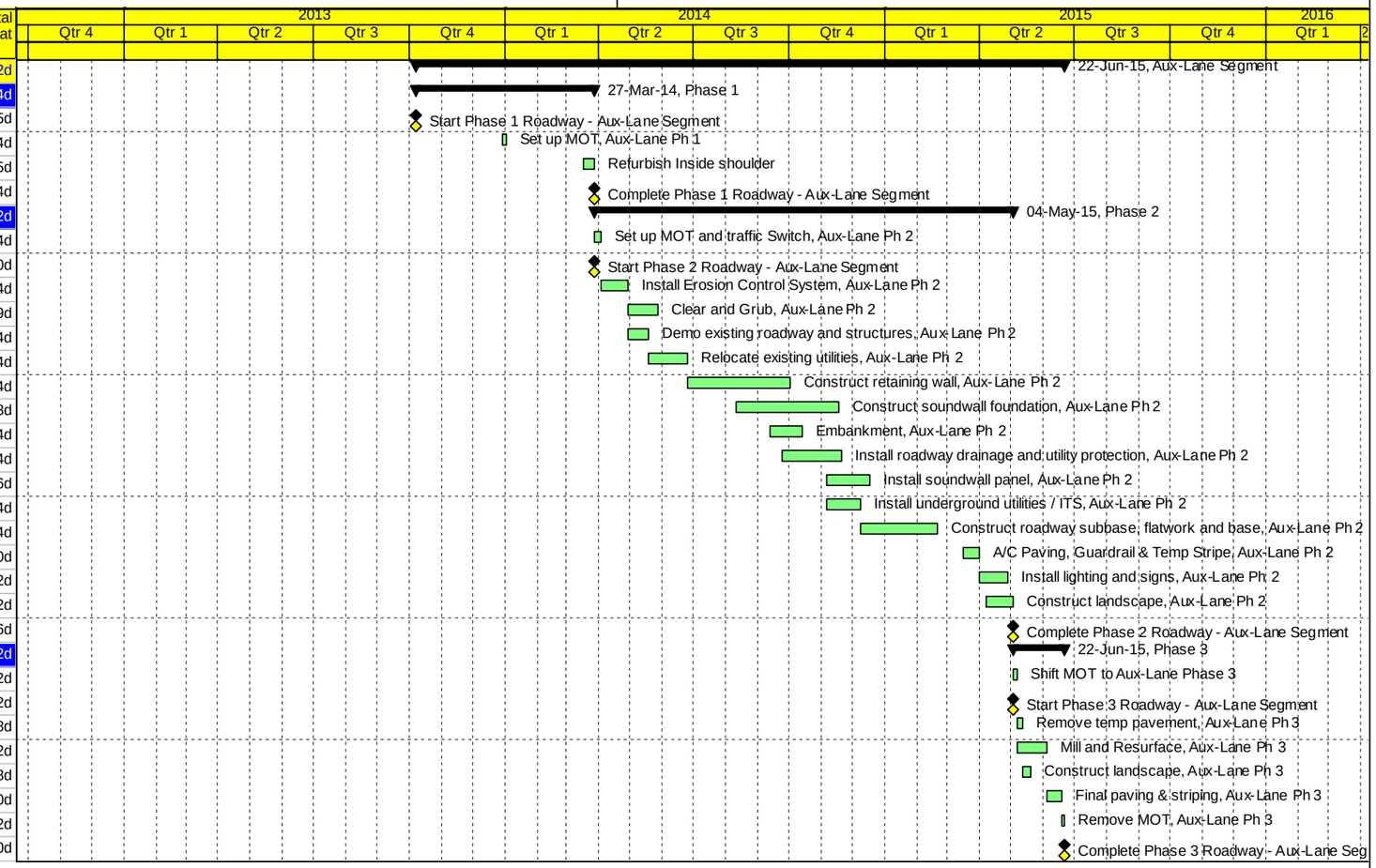
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

05-Jan-13 14:15

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
Aux-Lane Segment		327d	07-Oct-13	22-Jun-15	72d
Phase 1		90d	07-Oct-13	27-Mar-14	84d
AXL01MSN010	Start Phase 1 Roadway - Aux-Lane Segme	0d	07-Oct-13		315d
AXL01MOT010	Set up MOT, Aux-Lane Ph 1	2d	30-Dec-13	02-Jan-14	124d
AXL01MOT030	Refurbish Inside shoulder	8d	17-Mar-14	27-Mar-14	105d
AXL01MSN020	Complete Phase 1 Roadway - Aux-Lane Se	0d		27-Mar-14	84d
Phase 2		211d	27-Mar-14	04-May-15	72d
AXL02MOT010	Set up MOT and traffic Switch, Aux-Lane Pl	3d	27-Mar-14	03-Apr-14	84d
AXL02MSN010	Start Phase 2 Roadway - Aux-Lane Segme	0d	27-Mar-14		160d
AXL02MOT020	Install Erosion Control System, Aux-Lane Pl	15d	03-Apr-14	29-Apr-14	84d
AXL02DEM010	Clear and Grub, Aux-Lane Ph 2	15d	29-Apr-14	28-May-14	99d
AXL02DEM020	Demo existing roadway and structures, Au	10d	29-Apr-14	19-May-14	84d
AXL02UTL010	Relocate existing utilities, Aux-Lane Ph 2	20d	19-May-14	25-Jun-14	84d
AXL02STR010	Construct retaining wall, Aux-Lane Ph 2	50d	25-Jun-14	02-Oct-14	84d
AXL02STR020	Construct soundwall foundation, Aux-Lane I	50d	11-Aug-14	17-Nov-14	108d
AXL02EMB010	Embankment, Aux-Lane Ph 2	15d	12-Sep-14	13-Oct-14	84d
AXL02UTL020	Install roadway drainage and utility protectic	30d	23-Sep-14	20-Nov-14	84d
AXL02STR030	Install soundwall panel, Aux-Lane Ph 2	20d	06-Nov-14	17-Dec-14	146d
AXL02UTL030	Install underground utilities / ITS, Aux-Lane	15d	06-Nov-14	08-Dec-14	84d
AXL02GRD010	Construct roadway subbase, flatwork and I	40d	08-Dec-14	20-Feb-15	84d
AXL02PAV010	A/C Paving, Guardrail & Temp Stripe, Aux-L	12d	16-Mar-15	01-Apr-15	90d
AXL02ELT010	Install lighting and signs, Aux-Lane Ph 2	15d	01-Apr-15	28-Apr-15	72d
AXL02LND010	Construct landscape, Aux-Lane Ph 2	15d	08-Apr-15	04-May-15	72d
AXL02MSN020	Complete Phase 2 Roadway - Aux-Lane Se	0d		04-May-15	136d
Phase 3		26d	04-May-15	22-Jun-15	72d
AXL03MOT010	Shift MOT to Aux-Lane Phase 3	2d	04-May-15	08-May-15	72d
AXL03MSN010	Start Phase 3 Roadway - Aux-Lane Segme	0d	04-May-15		72d
AXL03MOT030	Remove temp pavement, Aux-Lane Ph 3	2d	08-May-15	12-May-15	88d
AXL03PAV010	Mill and Resurface, Aux-Lane Ph 3	15d	08-May-15	05-Jun-15	72d
AXL03LND010	Construct landscape, Aux-Lane Ph 3	5d	12-May-15	20-May-15	88d
AXL03PAV020	Final paving & striping, Aux-Lane Ph 3	10d	05-Jun-15	19-Jun-15	90d
AXL03MOT040	Remove MOT, Aux-Lane Ph 3	1d	19-Jun-15	22-Jun-15	72d
AXL03MSN020	Complete Phase 3 Roadway - Aux-Lane Se	0d		22-Jun-15	140d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

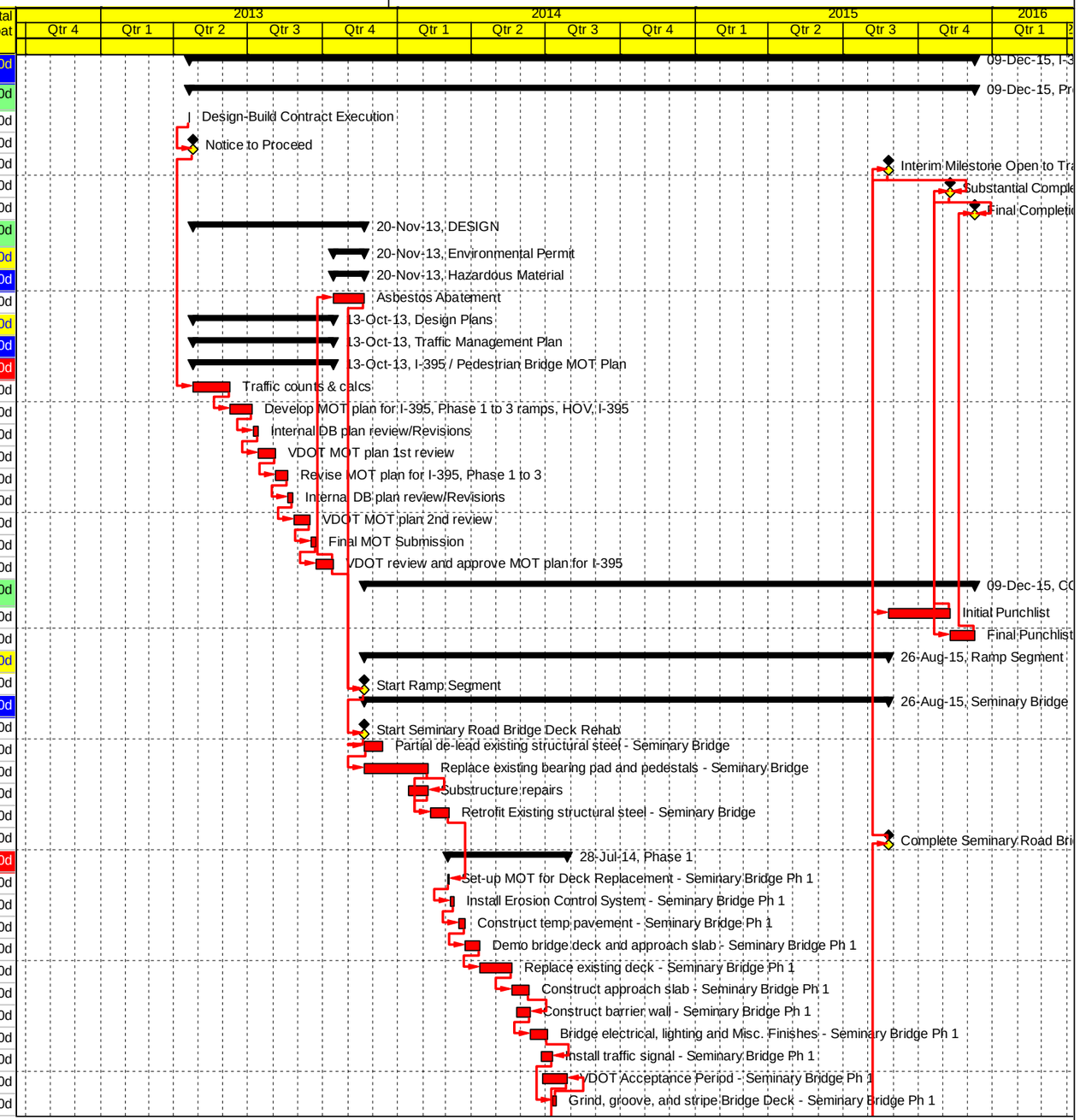
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

04-Jan-13 18:46

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
I-395 HOV Ramp at Seminary Road - Proposal Schedule (Combined)		501d	20-Apr-13	09-Dec-15	0d
Project Overview		963d	20-Apr-13	09-Dec-15	0d
GEN00ADM030	Design-Build Contract Execution	1d	20-Apr-13*	20-Apr-13	0d
GEN00ADM040	Notice to Proceed	0d	25-Apr-13		0d
CON00MSN010	Interim Milestone Open to Traffic HOV Ramp on to Seminary	0d		26-Aug-15*	0d
CON00MSN020	Substantial Completion	0d		09-Nov-15	0d
CON00MSN030	Final Completion	0d		09-Dec-15*	0d
DESIGN		109d	25-Apr-13	20-Nov-13	0d
Environmental Permit		21d	14-Oct-13	20-Nov-13	0d
Hazardous Material		21d	14-Oct-13	20-Nov-13	0d
PEM04HAZ120	Asbestos Abatement	21d	14-Oct-13	20-Nov-13	0d
Design Plans		172d	25-Apr-13	13-Oct-13	0d
Traffic Management Plan		172d	25-Apr-13	13-Oct-13	0d
I-395 / Pedestrian Bridge MOT Plan		172d	25-Apr-13	13-Oct-13	0d
DGN02PLN160	Traffic counts & calcs	45d	25-Apr-13	08-Jun-13	0d
DGN02PLN010	Develop MOT plan for I-395, Phase 1 to 3 ramps, HOV, I-395	28d	09-Jun-13	06-Jul-13	0d
DGN02PLN020	Internal DB plan review/Revisions	7d	07-Jul-13	13-Jul-13	0d
DGN02VDT010	VDOT MOT plan 1st review	21d	14-Jul-13	03-Aug-13	0d
DGN02PLN030	Revise MOT plan for I-395, Phase 1 to 3	15d	04-Aug-13	18-Aug-13	0d
DGN02PLN040	Internal DB plan review/Revisions	7d	19-Aug-13	25-Aug-13	0d
DGN02VDT020	VDOT MOT plan 2nd review	21d	26-Aug-13	15-Sep-13	0d
DGN02PLN050	Final MOT Submission	7d	16-Sep-13	22-Sep-13	0d
DGN02VDT030	VDOT review and approve MOT plan for I-395	21d	23-Sep-13	13-Oct-13	0d
CONSTRUCTION		389d	21-Nov-13	09-Dec-15	0d
CON00MOB030	Initial Punchlist	75d	26-Aug-15	09-Nov-15	0d
CON00MOB020	Final Punchlist, Close-Out & Demobilization	30d	09-Nov-15	09-Dec-15	0d
Ramp Segment		338d	21-Nov-13	26-Aug-15	0d
RMP00ADM010	Start Ramp Segment	0d	21-Nov-13		0d
Seminary Bridge		338d	21-Nov-13	26-Aug-15	0d
RMP02MSN010	Start Seminary Road Bridge Deck Rehab	0d	21-Nov-13		0d
RMP02SUP015	Partial de-lead existing structural steel - Seminary Bridge	10d	21-Nov-13	13-Dec-13	0d
RMP02SUP030	Replace existing bearing pad and pedestals - Seminary Bridge	40d	21-Nov-13	07-Feb-14	0d
RMP02SUP170	Substructure repairs	15d	14-Jan-14	07-Feb-14	0d
RMP02SUP040	Retrofit Existing structural steel - Seminary Bridge	14d	10-Feb-14	05-Mar-14	0d
RMP02MSN020	Complete Seminary Road Bridge Deck Rehab - Seminary Bridge	0d		26-Aug-15	0d
Phase 1		78d	04-Mar-14	28-Jul-14	0d
RMP02MOT010	Set-up MOT for Deck Replacement - Seminary Bridge Ph 1	2d	04-Mar-14	05-Mar-14	0d
RMP02MOT020	Install Erosion Control System - Seminary Bridge Ph 1	3d	07-Mar-14	11-Mar-14	0d
RMP02MOT030	Construct temp pavement - Seminary Bridge Ph 1	6d	17-Mar-14	24-Mar-14	0d
RMP02DEM010	Demo bridge deck and approach slab - Seminary Bridge Ph 1	10d	24-Mar-14	11-Apr-14	0d
RMP02SUP050	Replace existing deck - Seminary Bridge Ph 1	21d	11-Apr-14	20-May-14	0d
RMP02SUP060	Construct approach slab - Seminary Bridge Ph 1	10d	20-May-14	10-Jun-14	0d
RMP02SUP070	Construct barrier wall - Seminary Bridge Ph 1	10d	27-May-14	13-Jun-14	0d
RMP02ELT010	Bridge electrical, lighting and Misc. Finishes - Seminary Bridge Ph 1	10d	13-Jun-14	03-Jul-14	0d
RMP02ELT020	Install traffic signal - Seminary Bridge Ph 1	5d	26-Jun-14	09-Jul-14	0d
RMP02VDT010	VDOT Acceptance Period - Seminary Bridge Ph 1	30d	28-Jun-14	28-Jul-14	0d
RMP02FIN010	Grind, groove, and stripe Bridge Deck - Seminary Bridge Ph 1	3d	09-Jul-14	14-Jul-14	0d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

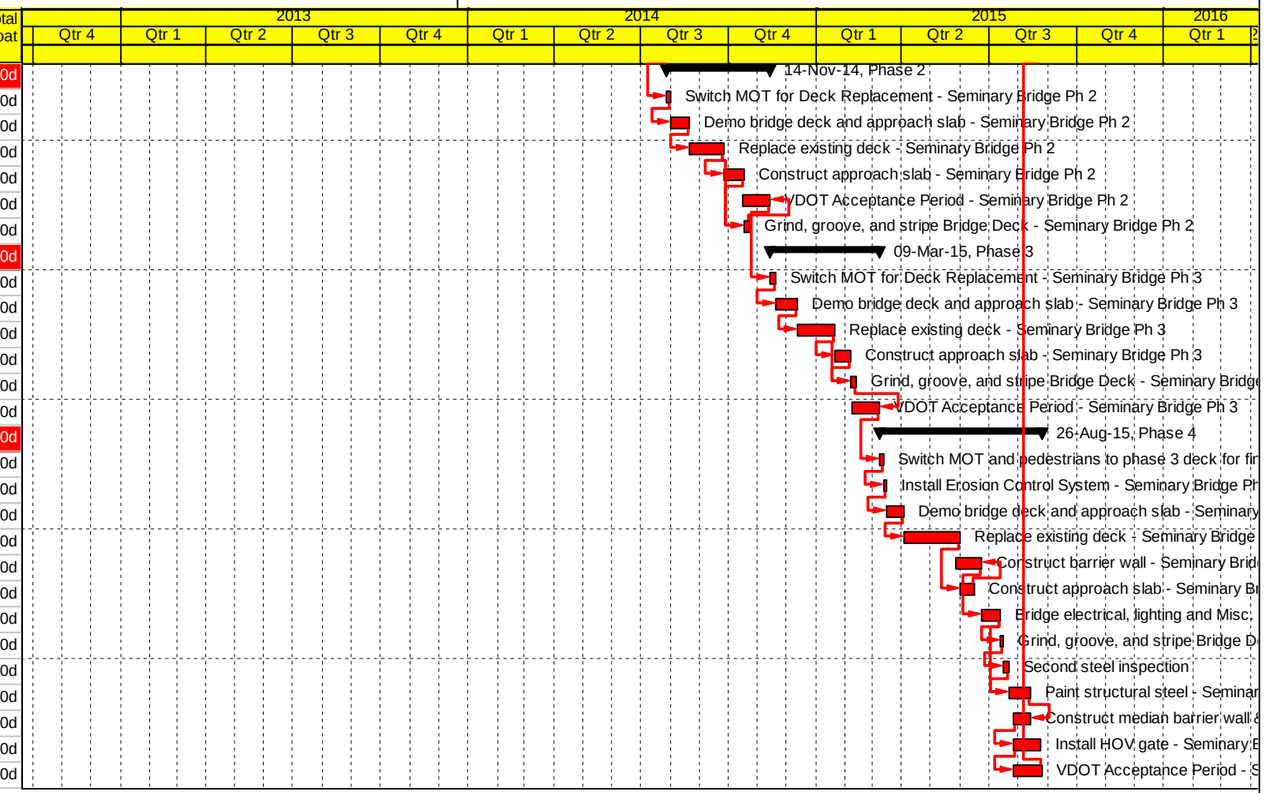
I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

CK CONSTRUCTORS

04-Jan-13 18:46

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
Phase 2		**58d**	**28-Jul-14**	**14-Nov-14**	**0d**
RMP02MOT050	Switch MOT for Deck Replacement - Seminary Bridge Ph 2	3d	28-Jul-14	01-Aug-14	0d
RMP02DEM030	Demo bridge deck and approach slab - Seminary Bridge Ph 2	10d	01-Aug-14	21-Aug-14	0d
RMP02SUP080	Replace existing deck - Seminary Bridge Ph 2	19d	21-Aug-14	26-Sep-14	0d
RMP02SUP090	Construct approach slab - Seminary Bridge Ph 2	10d	26-Sep-14	17-Oct-14	0d
RMP02VDT020	VDOT Acceptance Period - Seminary Bridge Ph 2	30d	15-Oct-14	14-Nov-14	0d
RMP02FIN020	Grind, groove, and stripe Bridge Deck - Seminary Bridge Ph 2	3d	17-Oct-14	23-Oct-14	0d
Phase 3		**58d**	**14-Nov-14**	**09-Mar-15**	**0d**
RMP02MOT110	Switch MOT for Deck Replacement - Seminary Bridge Ph 3	3d	14-Nov-14	20-Nov-14	0d
RMP02DEM50	Demo bridge deck and approach slab - Seminary Bridge Ph 3	10d	20-Nov-14	12-Dec-14	0d
RMP02SUP150	Replace existing deck - Seminary Bridge Ph 3	19d	12-Dec-14	20-Jan-15	0d
RMP02SUP160	Construct approach slab - Seminary Bridge Ph 3	10d	20-Jan-15	06-Feb-15	0d
RMP02FIN40	Grind, groove, and stripe Bridge Deck - Seminary Bridge Ph 3	3d	06-Feb-15	12-Feb-15	0d
RMP02VDT40	VDOT Acceptance Period - Seminary Bridge Ph 3	30d	07-Feb-15	09-Mar-15	0d
Phase 4		**93d**	**09-Mar-15**	**26-Aug-15**	**0d**
RMP02MOT060	Switch MOT and pedestrians to phase 3 deck for final deck replacement	3d	09-Mar-15	13-Mar-15	0d
RMP02MOT070	Install Erosion Control System - Seminary Bridge Ph 4	1d	13-Mar-15	16-Mar-15	0d
RMP02DEM040	Demo bridge deck and approach slab - Seminary Bridge Ph 4	10d	16-Mar-15	03-Apr-15	0d
RMP02SUP100	Replace existing deck - Seminary Bridge Ph 4	30d	03-Apr-15	01-Jun-15	0d
RMP02SUP120	Construct barrier wall - Seminary Bridge Ph 4	15d	28-May-15	24-Jun-15	0d
RMP02SUP110	Construct approach slab - Seminary Bridge Ph 4	10d	01-Jun-15	16-Jun-15	0d
RMP02ELT050	Bridge electrical, lighting and Misc. Finishes - Seminary Bridge Ph 4	10d	24-Jun-15	13-Jul-15	0d
RMP02FIN030	Grind, groove, and stripe Bridge Deck - Seminary Bridge Ph 4	3d	13-Jul-15	17-Jul-15	0d
RMP02FIN50	Second steel inspection	3d	17-Jul-15	23-Jul-15	0d
RMP02FIN040	Paint structural steel - Seminary Bridge Ph 4	15d	23-Jul-15	14-Aug-15	0d
RMP02SUP130	Construct median barrier wall & guardrail- Seminary Bridge Ph 4	10d	27-Jul-15	14-Aug-15	0d
RMP02SUP140	Install HOV gate - Seminary Bridge Ph 4	15d	27-Jul-15	24-Aug-15	0d
RMP02VDT30	VDOT Acceptance Period - Seminary Bridge Ph 4.1	30d	27-Jul-15	26-Aug-15	0d



Actual Work | Critical Remaining Work | Milestone
Remaining Work | Baseline Milestone | Summary

4.6 PROPOSAL SCHEDULE

Proposal B Schedule Summary

The CK Team has thoroughly evaluated the RFP Documents, visited the project sites, attended pre-proposal meetings, participated in proprietary meeting discussions, met numerous times with local utilities, and conducted working sessions with our construction and design teams, including our Geotechnical and Traffic Engineers. Through this progression came simplified solutions to the complex engineering and construction of the Ramp and Auxiliary Lane project. Our schedule and proposal takes full advantage of the innovations that have emerged and this narrative explains our course of action in delivering a superior project to VDOT and the stakeholders for whom the project is intended to benefit. Since public outreach and MOT are critical elements, we maintained flexibility in the schedule to address and incorporate these concerns during the project's duration. Opening the HOV Ramp to traffic and Final Completion are 8/26/2015 and 12/9/2015, respectively.

Our plan is to start the design at Notice of Award and roll approved drawings out for construction as soon as they are fully approved by VDOT. The CK Team, including PB, has local resources for rapid mobilization and acceleration to progress the design deliverables for an on time construction start. We also have an abundance of local resources to handle the ramp up that the project demands. This provides multiple work areas, such as those outlined in the schedule, to allow concurrent work and design throughout the project limits.

Our team devoted significant time to refining our preliminary design and schedule based on our combined design-build experience on projects with high demands of traveling through work zones safely and efficiently. This level of knowledge empowers us to simplify the project for stakeholders. Through each step, our team zeroed in on traveling public, worker, and stakeholder safety. This will continue to be a driving force when developing more detailed plans and construction execution.

Project Milestones/Schedule Overview

Notice of Intent to Award	**2/21/13**
Notice to Proceed	**4/25/13**
Interim Milestone –Open to Traffic HOV Ramp onto Seminary	**8/26/15**
Substantial Completion	**11/9/15**
Final Completion	**12/9/15**

The proposal schedules can be found following this narrative. Two separate and distinct schedules are provided:

Proposal B Schedule– Combined Ramp and Aux-Lane

This includes the design and construction of the Ramp segment containing all four bridges (Sanger, HOV Ramp, Seminary and Pedestrian), NB and SB sound walls, and all the roadway work from Seminary Road to just south of the Sanger Avenue Bridge, approximate Sta 303+75.

Utility relocations are incorporated into the I-395 roadway work and include the critical VDOT duct bank relocation within that section of roadway.

This also includes the design and construction of widening the I-395 Auxiliary Lane and associated utilities and walls, including the southern portion of the critical VDOT duct bank relocation. The Aux-Lane is shown as a second level WBS group.

Work Breakdown Structure: The CPM schedule is structured in three Main Work Breakdown Structure (WBS) Groups; *Overview, Design and Construction*. Each group is then broken down into second, third and fourth levels to show details. An overview is outlined below and the Project WBS is outlined in Figure 12B.

Group 1: Overview containing three activities:

1. Key Contract Milestones – Notice of Intent to Award through Final Completion;
2. Scope Validation Period and QA/QC plan development and approval;
3. *"Level of effort"* to summarize various activities that transcend either design or construction such, as Public Outreach, QA / QC and Design Support for Construction.

Group 2: Design phase, including two sub-categories of Environmental Permitting and Design Plans:

1. Environmental Permitting: Includes the investigation on needing specific permits, such as developing, reviewing, and submitting the Erosion & Sediment Control Permits, SWPPP, JPA, NW 6 permit and any others deemed necessary from the initial investigation starting at NTP;

2. Design Segment: Development and reviews of the Geotechnical Investigation Report, Utility Identification / Relocations, Traffic Management Plan, Noise Studies, Sound Wall Feasibility Studies and Design, Roadway, Structural, Traffic Signals, Lighting, ITS, Drainage and Landscape design. Each Design package has three VDOT review periods at 30%, 60% and 90% design submittals, are 21 calendar days, and will be complete before the final design is submitted for Release for Construction. Each Design Deliverable will be reviewed internally by the Design QC Manager and Construction staff prior to submitting to VDOT.

Group 3: Construction Phase. Construction includes all components of the bridge, roadway and walls, as well as maintenance of traffic, erosion & sediment controls, signals, signs, lighting, ITS, drainage, utilities, and roadside improvements, including landscaping. As with all of these construction activities, quality hold points and initial start up meetings will be held prior to commencing new operations. These will be further detailed in the development of the QA / QC Plan and then added to the schedule as "Hold Points". The WBS second and third levels provide further breakdown of the work by area, such as Pedestrian Bridge, Seminary Bridge, Sanger Avenue Bridge, HOV Bridge, Roadway, SB Sound Wall and Aux-Lane.

Work Breakdown Structure: The work breakdown structure for the Proposal B schedule is on the following page.

I-395 HOV Ramp at Seminary Road and Aux-Lane

Proposal B Schedule

WBS

04-Jan-13 18:50

WBS Code	WBS Name	Total Activities	Est Weight
SMRD00.1-4	I-395 HOV Ramp at Seminary Road - Proposal	505	1.0
SMRD00.1-4.1	Project Overview	15	1.0
SMRD00.1-4.2	DESIGN	236	1.0
SMRD00.1-4.2.1	Environmental Permit	45	1.0
SMRD00.1-4.2.1.1	Median Work	7	1.0
SMRD00.1-4.2.1.2	Widening Work	7	1.0
SMRD00.1-4.2.1.3	Westside Work	7	1.0
SMRD00.1-4.2.1.5	Aluxiliary Lane Permit	7	1.0
SMRD00.1-4.2.1.4	Hazardous Material	10	1.0
SMRD00.1-4.2.2	Design Plans	191	1.0
SMRD00.1-4.2.2.1	Roadway / Civil Design / HOV Ramp	21	1.0
SMRD00.1-4.2.2.11	Roadway / Civil Design Auxiliary lane	20	1.0
SMRD00.1-4.2.2.2	Traffic Management Plan	36	1.0
SMRD00.1-4.2.2.2.1	I-395 / Pedestrian Bridge MOT Plan	9	1.0
SMRD00.1-4.2.2.2.2	Seminary MOT Plan	9	1.0
SMRD00.1-4.2.2.2.3	Sanger Ave MOT Plan	9	1.0
SMRD00.1-4.2.2.2.4	Auxliary Lane MOTPlan	9	1.0
SMRD00.1-4.2.2.3	Soundwall / Retaining Wall Design HOV	13	1.0
SMRD00.1-4.2.2.12	Soundwall / Retaining Wall Design Auxiliary Lane	14	1.0
SMRD00.1-4.2.2.4	Utility Relocation / New Facilities	12	1.0
SMRD00.1-4.2.2.5	Seminary Road Bridge	13	1.0
SMRD00.1-4.2.2.6	ROW / Easement Plan	13	1.0
SMRD00.1-4.2.2.6.1	ROW Easement Acquisition	9	1.0
SMRD00.1-4.2.2.7	Pedestrian Bridge	13	1.0
SMRD00.1-4.2.2.8	HOV Bridge	12	1.0
SMRD00.1-4.2.2.9	Sanger Ave Bridge	13	1.0
SMRD00.1-4.2.2.10	ITS/Lighting/Signals	11	1.0
SMRD00.1-4.3	CONSTRUCTION	254	1.0
SMRD00.1-4.3.1	Ramp Segment	220	1.0
SMRD00.1-4.3.1.1	Pedestrian Bridge	20	1.0
SMRD00.1-4.3.1.1.1	Foundations & Substructure	6	1.0
SMRD00.1-4.3.1.1.2	Superstructure & Finishes	7	1.0
SMRD00.1-4.3.1.2	Seminary Bridge	68	1.0
SMRD00.1-4.3.1.2.1	Phase 1	22	1.0
SMRD00.1-4.3.1.2.2	Phase 2	7	1.0
SMRD00.1-4.3.1.2.4	Phase 3	7	1.0
SMRD00.1-4.3.1.2.3	Phase 4	23	1.0
SMRD00.1-4.3.1.3	Sanger Ave Bridge	29	1.0
SMRD00.1-4.3.1.3.1	Modify Exist Steel	5	1.0
SMRD00.1-4.3.1.3.2	Widening Existing Bridge (NB,SB)	17	1.0
SMRD00.1-4.3.1.4	HOV Ramp Bridge	28	1.0
SMRD00.1-4.3.1.4.1	Piling & Substructure	5	1.0
SMRD00.1-4.3.1.4.2	Superstructure & Finishes	13	1.0
SMRD00.1-4.3.1.5	Roadway	52	1.0
SMRD00.1-4.3.1.5.4	Phase 1	3	1.0
SMRD00.1-4.3.1.5.2	Phase 2	24	1.0
SMRD00.1-4.3.1.5.1	Phase 3	14	1.0
SMRD00.1-4.3.1.5.3	Phase 4	7	1.0
SMRD00.1-4.3.1.6	Southbound Soundwall	21	1.0
SMRD00.1-4.3.1.6.1	Soundwall from approx Sta 621 to 634	11	1.0
SMRD00.1-4.3.1.6.2	Soundwall from approx Sta 600 to 612+50	10	1.0
SMRD00.1-4.3.2	Aux-Lane Segment	29	1.0
SMRD00.1-4.3.2.1	Phase 1	4	1.0
SMRD00.1-4.3.2.2	Phase 2	17	1.0
SMRD00.1-4.3.2.3	Phase 3	8	1.0

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Figure 12B: Proposal B (Combined Ramp and Aux-Lane) Work Breakdown Structure

Calendar: The proposal schedule uses three calendars to calculate the project completion time:

1. **"Standard Cal Day" - Calendar Day:** Contains no weekend, holiday, or weather day. This calendar is assigned to design activities, procurement, document review / approval, and milestones.
2. **"Standard Five Work Day with Holiday & Weather"** is the standard work days - five days per week. Contains weekends, holidays, and anticipated weather days (precipitation > 0.1 inches) and is assigned to all field operations, except asphalt paving and painting, since all field operations are generally affected by weather, weekends, and holiday. It assumes the ground will not freeze overall the winter months, and the concrete work is also operable during the same time.
3. **"A / C Paving / Painting Calendar with Holiday, Weather & Winter"** is the "standard work day" calendar with winter shutdown. Contains all the weekends, holidays and weather days as the prior calendar, plus it assumes the asphalt plants shut down from Mid-December to Mid-March of each year and that bridge painting is limited during that time. The calendar is assigned to all asphalt paving and bridge painting activities.

Weather Day Calculation: Weather days are arbitrarily assigned to the schedule calendars. The schedule assumed a weather day for each day precipitation is greater than 0.1 inch. Weather data is from the NOAA Weather Station at the Reagan National Airport. The project gathered the weather information for the past three years and calculated the average number of weather days for each month. The average number is then down rated for work days (22 work days per month). Results of the weather study are as follows:

TABLE 9: WEATHER STUDY RESULTS

Month	2012	2011	2010	2009	Average	Month	Rain %	WD Impact
Jan	6	4	4		4.7	31	15.1%	3
Feb	4	6	6		5.3	28	19.0%	4
Mar	5	7	7		6.3	31	20.4%	4
Apr	4	7	5		5.3	30	17.8%	4
May	7	5	8		6.7	31	21.5%	5
Jun	4	4	4		4.0	30	13.3%	3
Jul	7	5	6		6.0	31	19.4%	4
Aug	8	9	6		7.7	31	24.7%	5
Sep		9	5	5	6.3	30	21.1%	5
Oct		9	4	8	7.0	31	22.6%	5
Nov		4	5	10	6.3	30	21.1%	5
Dec		6	3	11	6.7	31	21.5%	5
							TOTAL	52
							Against 260 Work Days per Year =	**20.0%**

Design Phase: Divided into two sub-groups: Permit and Design Plans.

Permit Plans: Environmental permitting will begin at Noticed of Award for permits needed early in the design phase, such as the E & S Plan Development for the HOV roadwork. The Erosion & Sediment Control permits will further develop following QA / QC Plan approval and will be approved by the respective agencies prior to final approval for the roadway plans.

The investigation and report of any hazardous materials, such as asbestos and lead paint, will also commence at NTP. The schedule allows one review period by VDOT for the HazMat report prior to abatement. Abatement of any found materials will be done once the TMP is approved for each activity.

The Schedule's Permit section does not impact the Critical Path.

Design Plans: The design phase includes preparation, QA / QC reviews, internal team reviews, and submitting the Right of Way, Transportation Management Plan, including the MOT Plan, Roadway Plans, Noise Studies, Sound Wall / Retaining Wall Plans, Utility Relocation Plans, Bridge (Seminary, Pedestrian, HOV Bridge and Sanger) Plans, Lighting, ITS, Lighting, and Signal Plans. These submissions will be done as Preliminary (30%), Detailed (60%), Final (90%) and Final Approved for Construction.

The schedule has a 21-calendar day VDOT review period for each submission and includes comments from other stakeholders, such as the City of Alexandra, Fairfax County, etc. Development of the HOV Roadway Plan, Geotechnical Drilling Plan, and HOV E&S Control Plan will commence at Notice of Award to start early plan development during the Scope Validation Period. However, no submission to VDOT or Field Investigations will be done before NTP.

Some initial field activities, such as traffic counts, utility verification, design survey, HazMat sampling, initial superstructure steel survey, and geotechnical investigation will commence at NTP utilizing local MOT permits to access the site. The Geotechnical investigation and report are an integral part of the Design Schedule. The Geotechnical Report will be submitted to VDOT for one 90-day review prior to submitting final Roadway or Bridge designs.

The Pedestrian Bridge is unique as it requires additional work related to ROW and easements. The CK Team's initial assessment is that the new structure will fit within the RFP's proposed limits. This will be confirmed one final time once the Pedestrian Bridge alignment is finalized during initial design. Once confirmed, the ROW / easement process can begin.

The Utility Relocation Design starts at NTP with a 30-day utility verification period followed by developing the Final Utility Matrix and utility surveys. Once all utilities are identified and their disposition is determined, a 30-day period is reserved to coordinate with the utilities while the initial relocation concepts are being developed. Additional utility coordination with DVEC, VDOT Traffic Control, and other stakeholders will also be needed during the design of the ITS / ETC, power drops, lighting connections, and signal components for a seamless cutover into the existing network.

Based on our pre-bid analysis, there are several utilities that need to be relocated: VDOT's electrical services to the lighting along I-395 and associated power drops, and the VDOT Duct Bank along NB I-395 containing three VDOT fiber cables and the Army Corp of Engineers fiber. The CK Team has already contacted these stakeholders in the corridor. Since these are VDOT-owned facilities and a majority of the design coordination will be done with the VDOT plan reviewers, relocating the VDOT utilities will follow the same protocol as the other design submissions. There will be one additional review for the other stakeholders located within the relocated facilities.

Initial packages, such as the TMP, 30% Roadway, 30% Seminary Bridge, 30% Pedestrian Bridge, VSMP Permits, Hazardous Material Plans and 30% Sound Wall packages will be submitted to VDOT 2nd Quarter 2013, with all final Design packages approved in Early 3rd Quarter 2014.

Construction Phase

The construction phase is organized by the proposal scope. Proposal B includes all work for the HOV Ramp segment and Aux-Lane. The HOV Ramp section has two distinct construction areas that require multiple work phases: 1) Ramp and Roadway, and 2) Seminary Road. Each of these work zones has four phases that are independent of other project segments. A third work area, Pedestrian Bridge, is constructed as one continuous phase.

Construction will begin with the roadwork along NB I-395 starting in 4th Quarter 2013 concurrent with the Seminary Bridge bearing replacement. This will follow the Plan approvals for the Civil Roadway, Seminary Bridge drawings, TMP, and QA / QC Plan. Our Sequence of Construction is shown graphically on Page 50.

Ramp Construction

Roadway: The Roadway section of the schedule outlines the activities required to build the final reconstruction, along with alternating phases to construct the HOV Ramp with minimum temporary work.

The I-395 Roadway work begins Late 2013 and is complete Summer 2015. Within this timeframe, there are three traffic movements to start HOV Ramp construction Mid-Summer 2014.

The following highlights the four roadway phases, which are separate and independent of the Seminary Road phasing. Currently, our critical path does not run through the I-395 roadway work because of these scheduling strategies:

Ramp Phase 1 of the I-395 work refurbishes the NB inside shoulder to accept traffic for the first movement of traffic to the inside in Late 2013.

Ramp Phase 2 of the roadway work starts immediately following the Phase 1 switch in Late 2013 and includes setting up MOT, installing / maintaining erosion controls, clearing, demolition, drainage installation , sound walls, retaining walls, relocating roadway lighting and VDOT duct bank, excavation and embankment, and associated roadway construction. Within these activities, we focused construction on widening NB I-395 just enough to shift traffic to start the HOV Ramp in Summer 2014. Additionally, we have not made the shift to Phase 3 contingent on completing the VDOT duct bank relocation.

These scheduling tactics positioned the CK Team to keep the road widening and HOV Ramp off the critical path. Once the switch is made to start Phase 3, Phase 2 work will continue to progress until completion in Early 2015.

Ramp Phase 3 constructs the median of the NB I-395 and HOV lanes to the configuration to accept the new reversible ramp. This starts Summer 2014 and carries through to Summer 2015 to tie in to Seminary Road Bridge deck.

Completion of the Seminary Road Bridge deck is the driving force to meet the Interim Milestone of opening the ramp to traffic. Our focus on expediting a partial widening for NB I-395 during Phase 2 enabled us to keep the critical path on Seminary Road Bridge widening vs. the HOV Ramp work. Ramp approach walls and HOV bridge elements will be completed during this phase which also includes demolition of the existing roadway, installing associated drainage, excavation, embankment, roadway, median barrier wall, lighting, HOV gates, guardrail and paving.

Ramp Phase 4 of the roadway immediately follows Phase 3, commences Early Spring 2015, and resurfaces I-395 areas affected by traffic movements. Due to the desirable quality aspects of overlaying in one continuous operation, this phase is ultimately controlled by completion of the HOV Ramp and major elements of the Seminary Bridge rehabilitation. Completion is scheduled for Late Summer 2015.

Concurrent with the mill and overlay work is the completion of the ITS interface between the HOV Ramp and Seminary Road.

Pedestrian Bridge: Pedestrian Bridge construction directly follows approval of the drawings and the ROW process for acquisitions shown on the RFP plans, along with temporary and permanent easements. Commences Summer 2014 with concurrent work on the piers, abutments and MSE wall approaches.

Precast girders will be set in Early 2015; setting up deck pours in Spring 2015. Once bridge finishes, such as lighting, drainage, and fence are complete, the 30-day VDOT inspection period commences allowing pedestrians to use the new facility Mid-Summer 2015.

Seminary Bridge Rehabilitation: Begins immediately after the plans are approved in Late 2013. Seminary Road also has four phases, but is distinct and separate from the roadway phases on I-395. Initial work replaces the existing bearings, installs steel retrofits, and substructure repairs. After completing initial work, phased work starts with the re-decking and abutment widening. A Phasing Plan is shown on Page 68 of the plans contained in Volume II.

Seminary Phase 1: Bridge deck will start in 1st Quarter 2014 with removing the existing median and installing temporary pavement and barrier The bridge re-decking phase starts on the south side and progresses northward with future phases. Phase 1 will be complete Mid-Summer 2014 and will switch to Phase 2 following the VDOT 30-day inspection period.

Additional work during this timeframe is installing the barrier wall along the south side of the deck, new approach slab, abutment widening, signs and lighting.

Seminary Phase 2: Bridge deck and approach slab replacement directly follows the completion of Phase 1 and is completed 4th Quarter 2014.

Seminary Phase 3 commences 4th Quarter 2014 and finishes 1st Quarter 2015. Work is the same as Phase 2: Demolition and replacing the bridge deck and approach slab.

Seminary Phase 4 is the final phase of the Seminary work. Achieving the ramp opening milestone is driven by the completion of Phase 4 re-decking.

This phase follows directly behind Phase 3 and moves the pedestrians from their original location along the existing north barrier wall to a protected, temporary walkway on the new bridge deck (See Page 68, Phase 4, in Volume II). Our strategy is to accelerate Pedestrian Bridge construction and move pedestrians directly onto the new Pedestrian Bridge, but this can only be analyzed after the final geotechnical investigations, TMP and a more detailed schedule review after NTP.

Phase 4 commences 1st Quarter 2015 with the relocation of the barrier wall, traffic, and pedestrians, and finishes Late Summer 2015 with the removal of the MOT and final striping on the deck. Completion wraps up the work pertaining to the signal, HOV gate and signs, grooving, grinding, the median and reworking the bridge approaches to their final configuration.

Sanger Avenue Bridge Widening: Widening the I-395 Bridge over Sanger Avenue will not impact any critical path work on the project. Bridge construction begins with the MOT, de-lead and steel retrofit survey 1st Quarter 2014. Demolition of the existing bridge to accept the widening commences Mid- 2014. Reconstruction will begin Late Summer 2014 and encompasses the substructure repairs and widening, superstructure widening, barrier wall and sound wall installations.

The new widening will be built on spread footings. The east and west side widenings are independent of each other, but will be constructed concurrently. The SB widening is completed in 4th Quarter 2014 to coincide with SB noise wall completion. The NB widening of the I-395 Bridge over Sanger Avenue will be complete to coincide with the Phase 3 roadway completion. Final steel inspection and VDOT approval will follow prior to traffic opening of the structure and final striping.

HOV Reversible Ramp Approach and Bridge: The HOV Ramp and Bridge structure construction starts with the beginning of the roadway Phase 3 in Summer 2014. These walls and bridge structure do not drive the critical path.

As stated earlier, we added interim roadway milestones for partial widenings that enables the CK Team to start the ramp much earlier than expected, with only minimum temporary work. The initial design, reviews, and procurement of the MSE wall and girders will be complete prior to construction starting to not hinder this section of work.

One of the key schedule components to this group is the MSE wall bridge approach construction which starts directly following the traffic switch in Summer 2014 and finishes Early 2015. Completion of the MSE wall directly ties to setting the girders in Early 2015 and the follow on bridge deck work. Concurrent with the bridge deck placement and the installation of the barrier walls, lighting, bridge drainage, and other finishes will be ongoing as the work areas open up.

The Final VDOT inspection for this structure will be complete approximately three weeks before completing the Seminary Bridge. Final ITS tie-ins system checks will be performed concurrently between the two structures. The Reversible Ramp will be open to traffic with the completion of the Seminary Road Bridge.

SB Sound Walls: The SB I-395 sound wall activities are broken into two groups based on their geographic location in relation to Sanger Avenue. Sound walls commence as soon as the final plans are approved. The sound wall from Sta 621 to 634 (northern wall) begins Spring 2014 and finishes mid-summer with the final grading and landscaping.

The southern wall from Sta 600 to 612+50 starts at the end of completing the north wall in Summer 2014 and finishes Winter 2014. Activities in these groups include MOT set up / maintenance, installing erosion controls, clearing and grubbing, access grading, sound wall foundations / posts / panels, final grading and landscaping.

Aux- Lane Work: Begins just after the winter paving calendar in Spring 2014. This work is broken out into three phases, opening to full lanes Summer 2015.

> **Aux- Lane Phase 1:** The initial phase is installing the MOT and refurbishing the inside shoulder to allow enough working room on the outside shoulder. MOT work in this phase starts directly after the Roadway plans are approved for construction, while the paving is pushed out to the end of the paving calendar.
>
> **Aux-Lane Phase 2:** Directly follows Phase 1 and contains the bulk of the work for the Aux-Lane segment. This includes MOT, installing / maintaining erosion controls, clearing, grubbing, relocating the VDOT duct bank, retaining walls, sound walls along NB I-395, excavation, embankment, roadway base and paving, lighting, guardrail, signage and landscaping.
>
> **Aux-Lane Phase 3** is the final phase and starts Spring 2015 with the commencement of milling and resurfacing I-395 once the traffic is switched at the end of Phase 2. This lasts for approximately two months and will be completed Summer 2015 with the final striping and putting traffic into their final configuration.

For this project, we made the following assumptions:

Pedestrian Bridge

- Pedestrians continue to use the Seminary Road Bridge during construction of the new Pedestrian Bridge and re-decking of Seminary Bridge. Our plan includes a temporary pedestrian walkway on the new Phase 3 Seminary Bridge deck if the Pedestrian Bridge is not complete prior to Phase 3.
- ROW is required as shown in the RFP plans.

Seminary Bridge Deck Rehabilitation

- Project will be able to maintain pedestrian traffic on the north side of the bridge, so we can demolish the southern deck first.
- Schedule sequencing delays the final construction of the median barrier wall, guardrail, and HOV gate so the median area can be used to maintain traffic.
- Conventional deck construction joint will be permissible between Seminary Bridge and HOV Ramp span. Phase 1 of Seminary re-decking is completed nine months before the HOV deck placing, therefore, provisions must be made for a continuous bridge deck at this interface, as per Addendum No.1.
- The traffic signal and the HOV gate on the south side of the bridge will be constructed as part of the HOV bridge work.

Sanger Avenue Bridge Widening

- Project can set up MOT on Sanger Avenue and work on existing structural steel independent of the I-395 roadway work progress. This will shorten the Sanger Bridge work duration in I-395 Phase 2 MOT setting.
- The remaining Sanger Avenue Bridge widening work will be within Phase 2 of the I-395 Roadway widening work (Ramp Segment).
- The existing bridge and new roadway utilities will require temporary connections leaving the duct bank temporarily in its existing location.

HOV Ramp Bridge

- HOV bridge deck will be concurrent with the Seminary Bridge work and the final tie in piece to the HOV Seminary deck (Span g) will be with a conventional deck construction joint constructed during Phase 1 of Seminary re-decking.
- The HOV gate and traffic signal can be substantially installed without the bridge tie-in being completed.
- ITS , electrical and other utility connections will be completed during Roadway Phase 4.

I-395 Roadway Construction

- HOV Bridge will be constructed in Phase 3 MOT.
- Sanger Avenue Bridge widening NB and SB will be constructed in Phases 2 and 3 MOT.
- Switch to Phase 3 after partial widening and is not contingent on completing the VDOT duct bank relocation. Leaving the VDOT duck bank in its existing location during initial bridge and shoulder construction will prevent it from impacting the bridge or widening schedules.

SB Sound Wall

- Work can start independent of all operations on the east side.
- Sound wall design and material procurement are the only predecessors to the work sequence.

Critical Path: The critical path for Proposal Schedule B is shown on the schedule included with this narrative. The critical path is based off the longest path of the project which starts at NTP and then shifts directly to the traffic counts needed to develop the I-395 MOT Plan. The Critical Path works itself through the initial development, internal review, VDOT review for the I-395 / Pedestrian Bridge MOT Plan. This continues through a second set of reviews and then the final submission and approval by VDOT. Each VDOT review period is 21-calendar days for a total of 63 days for the I-395 / Pedestrian Bridge MOT Plan.

Once the I-395 MOT Plan is approved to allow asbestos abatement to commence, the critical path shifts to the Seminary Road Bridge Rehabilitation. Seminary Road Bridge Rehabilitation stays on the critical path from start to finish. It starts with de-leading, replacement of the bearing pads while concurrently performing the substructure repairs, and then moves to the steel retrofit before it shifts to the bridge deck replacement.

The critical path follows through all four phases of the Seminary Bridge deck replacement. In Phase 1, the critical path goes through the initial MOT, installation of E & S controls, construction of temporary pavement, demolition of the bridge deck, replacing the existing deck, constructing approach slab (concurrent with the bridge barrier wall), bridge lighting and miscellaneous finishes, traffic signal components and then through the VDOT 30-day safety inspection period.

Phase 1 goes directly to Phase 2. The critical path in Phase 2 is switch MOT, demolish bridge deck, replace bridge deck, construct approach slab, and then the 30-day VDOT safety inspection (concurrent with the grinding, grooving and temporary striping of the bridge deck).

Phase 2 goes directly to Phase 3 where the critical path follows; switch MOT for deck replacement, demolish bridge deck and approach slab, replace existing deck, construct approach slab, and then the 30-day VDOT safety inspection (concurrent with the grinding, grooving and temporary striping of the bridge deck).

The critical Phase 4 Seminary Bridge goes through; switch MOT, install erosion controls, demolish bridge deck and approach slab, replace existing deck, construct barrier wall (concurrent with construct approach slab), bridge electrical, grind / groove bridge deck, second steel inspection, paint structural steel (concurrent with construct median barrier wall and guardrail, install HOV gate and VDOT safety inspection period). The critical path of the Seminary Bridge work leads to the Interim Milestone (Open to Traffic-HOV Ramp). The critical path goes from the Interim Milestone to the initial punch list which leads to substantial completion.

Once final completion is achieved, the critical path goes through the final punch list, close out, and demobilization leading to final completion of the “combined” project.

Schedule Recovery: The profound experience the CK Team gained working on similar projects will be critical to resolving design and construction hurdles as they occur. This team knows and respects one another, having just successfully completed the Telegraph project for VDOT with similar traffic conditions and where effective decisions were made.

The CK Team successfully managed design on other projects that enabled critical activities, such as utility relocations and environmental permitting to be prioritized and monitored while the overall design and construction progressed on schedule. We pride ourselves in solving construction and design issues rapidly without sacrificing quality. We will aggressively manage the entire project to where VDOT minimizes its management and inspection resources to monitor the project.

The largest portion of work requiring the most resources is construction of the ramp walls and ramp bridge structure. We mitigated the ramp schedule impacts by limiting the amount of Phase 2 roadway work before shifting to the ramp construction. We re-directed the critical path to the Seminary Road re-decking where traffic

impacts are less. Additionally, within the re-decking phases, additional resources can be used to accelerate the schedule. The CK Team has demonstrated on the Telegraph Road project our ability to develop and maintain an aggressive schedule. Should any items on the CPM Schedule show unacceptable progress – for any reason – a schedule recovery strategy will be developed and implemented immediately with VDOT's concurrence.

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

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

1. Weekly design / construction scheduling and coordination meetings during the design phase;
2. Weekly construction scheduling meetings during the construction phase;
3. Bi-weekly onsite progress meetings;
4. Utility relocation tracking sheets during the design and construction phases;
5. ROW progress tracking spreadsheets during the design and construction phases;
6. Review / approval tracking spreadsheets of design element submittals;
7. Shop drawings status tracking sheets;
8. Material submittals and delivery schedules;
9. Non-conformance logs by QC / QA for design and construction;
10. RFI logs;
11. Monthly internal project review meetings by the CK Team's Executive Review Committee;
12. Monthly progress / partnering meetings with major stakeholders, including VDOT, the CK Team, designers, major subcontractors / vendors and local businesses. Affected utilities will also be invited for the current stage of the work.

At the internal weekly meetings, issues / concerns are identified utilizing the above tracking aids with action items identified and assigned to the responsible party who can resolve it. Two-week, 30- day and 60-day "look-ahead schedules" will be prepared and discussed to analyze schedule and quality impacts. Similar information will be discussed and action items assigned at the Monthly Progress / Partnering meetings with key stakeholders. Other stakeholders may be invited to the monthly meeting for anticipated issues during upcoming schedule activities. For example, the City of Alexandria would be invited to early concept meetings for the pedestrian overpass. There is also a need to involve the local community before large traffic shifts or phases along I-395 or Seminary Road. Representatives from local businesses and emergency responders will be invited to meetings prior to changes on existing traffic patterns so they can plan their routes to best navigate the work zone with minimum impact.

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

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

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

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

The CK Team has the following proven management systems that keep the project on track:

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

This project will be administered through our Viewpoint Project Management System, which manages the project lifecycle, including design plans, contract management, RFI control, change orders, submittal / transmittal control, meetings, QA / QC documents, issue logs / lists, and more. It will administer the project timely to

prevent schedule delays. Viewpoint offers secure remote access by all appropriate stakeholders via the web and is designed to give the CK Team, designers, VDOT, subcontractors, utilities and vendors access to the project data they need, when they need it, 24 / 7.

ATTACHMENT 9.3.1

PROPOSAL PAYMENT AGREEMENT

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this "Agreement") is made and entered into as of this 9th day of Jan., 2013, by and between the Virginia Department of Transportation ("VDOT"), and CK Constructors, A Joint Venture ("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] CK Constructors, A Joint Venture

By: _____

Name: William G. Cox

Title: President and Attorney-in-Fact

ATTACHMENTS 11.8.6(a) & (b)

CERTIFICATION REGARDING DEBARMENT PRIMARY & LOWER TIER COVERED TRANSACTIONS

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.

10/18/12

Signature Date

President and Attorney-in-Fact
Title

CK Constructors, A Joint Venture
Name of Firm

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.

	10/18/12	President
Signature	Date	Title

Corman Construction, Inc.
Name of Firm

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

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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.

Timothy J. Clay 10/19/12 Vice President

Signature Date Title

Kiewit Infrastructure South Co.

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.

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, Lloyd Graham 11/6/2012 — Senior Vice President

Signature Date — Title

Parsons Brinckerhoff, Inc.

Name of Firm

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Dennis C. Morrison Oct. 22, 2012 Senior Vice President

Signature Date Title

Volkert, Inc.

Name of Firm

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Elizabeth Quinn October 18, 2012 President

Signature Date Title

Quinn Consulting Services, Inc.

Name of Firm

RECEIVED
OCT 2 2 2012
CORMAN CONSTRUCTION

ATTACHMENT 11.8.6(b)
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October 18, 2012 Sr. Vice President & Partner

Signature Date Title

Stratacomm LLC

Name of Firm

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NOV 19 2012
CORMAN CONSTRUCTION

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Signature 11-15-2012 Date VICE PRESIDENT Title

WILES MENSCH CORPORATION
Name of Firm

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OCT 2 2 2012
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Signature	Date	Title
	October 18, 2012	President

EBA Engineering, Inc.
Name of Firm

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NOV 19 2012
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Signature	Date	Title
	10/18/2012	Vice President

DMY Engineering Consultants, LLC
Name of Firm

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OCT 2 4 2012
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Signature Date 10-18-12 Title Managing Partner

Crider and Associates
Name of Firm

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Lorraine D. Davis 10-19-2012 Manager
Signature Date Title

Lorraine Davis Appraisal and Consulting, LLC
Name of Firm

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	10/18/12	Vice-President
Signature	Date	Title

Thomas L. Brown Associates, P.C.

Name of Firm

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Shawn Ward Harlos 10/18/2012 Vice President
Signature Date Title

EEE Consulting, Inc.
Name of Firm

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	10/18/12	President
Signature	Date	Title

Sabra, Wang & Associates, Inc.

Name of Firm

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Signature 11/15/12 Date Director of Marketing/Business Development Title

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

Original
Copy 1 of 10 Copies

Technical Proposal

Volume II

Design-Build

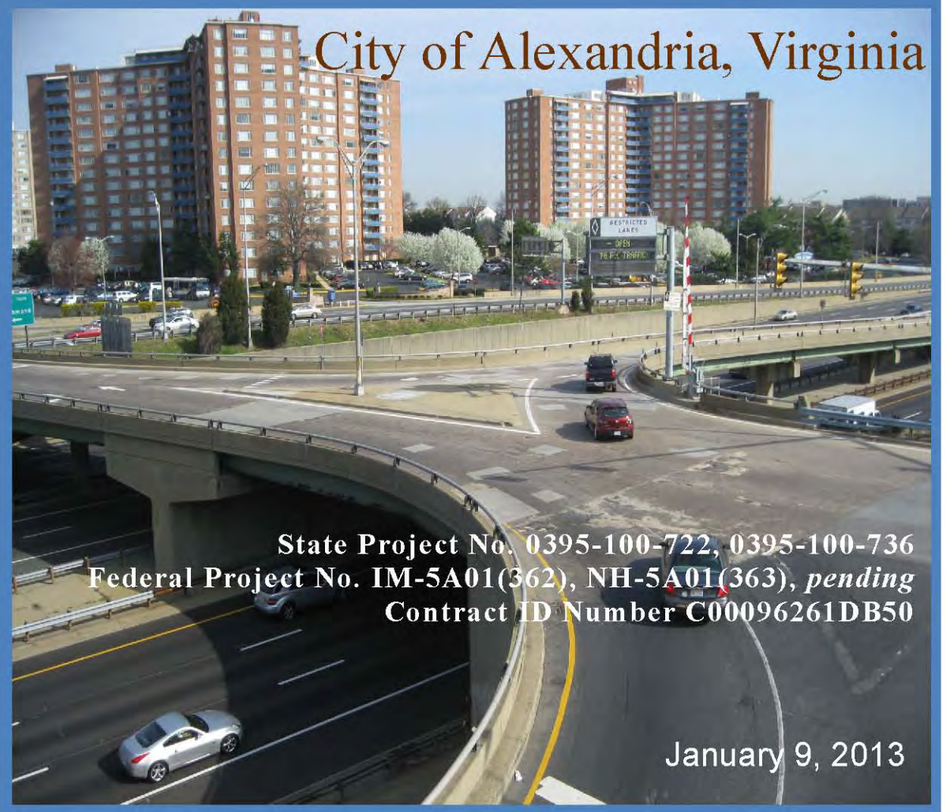
I-395 HOV Ramp at Seminary Road

From: Sanger Avenue
To: Seminary Road

With

I-395 NB Auxiliary Lane Extension

From: Duke Street
To: Sanger Avenue



Prepared for:

VDOT
Virginia Department of Transportation

Submitted by:

CK CONSTRUCTORS

A Joint Venture between
Corman Construction Inc. &
Kiewit Infrastructure South Co.

PARSONS BRINCKERHOFF

VOLKERT

PAGE INDEX OF SHEETS

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53-54 TYPICAL SECTIONS (2)
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67 SEMINARY ROAD BRIDGE OVER I-395 (PLAN, ELEVATION, SECTIONS)
68 SEMINARY ROAD BRIDGE OVER I-395 (TYPICAL SECTION AND PHASING)
69-72 I-395 BRIDGE OVER SANGER AVENUE (4)
73 PEDESTRIAN BRIDGE (PLAN AND ELEVATION)
74 PEDESTRIAN BRIDGE (SECTIONS AND MOT)
75 LANDSCAPE DETAILS AND PLANTING SCHEDULE

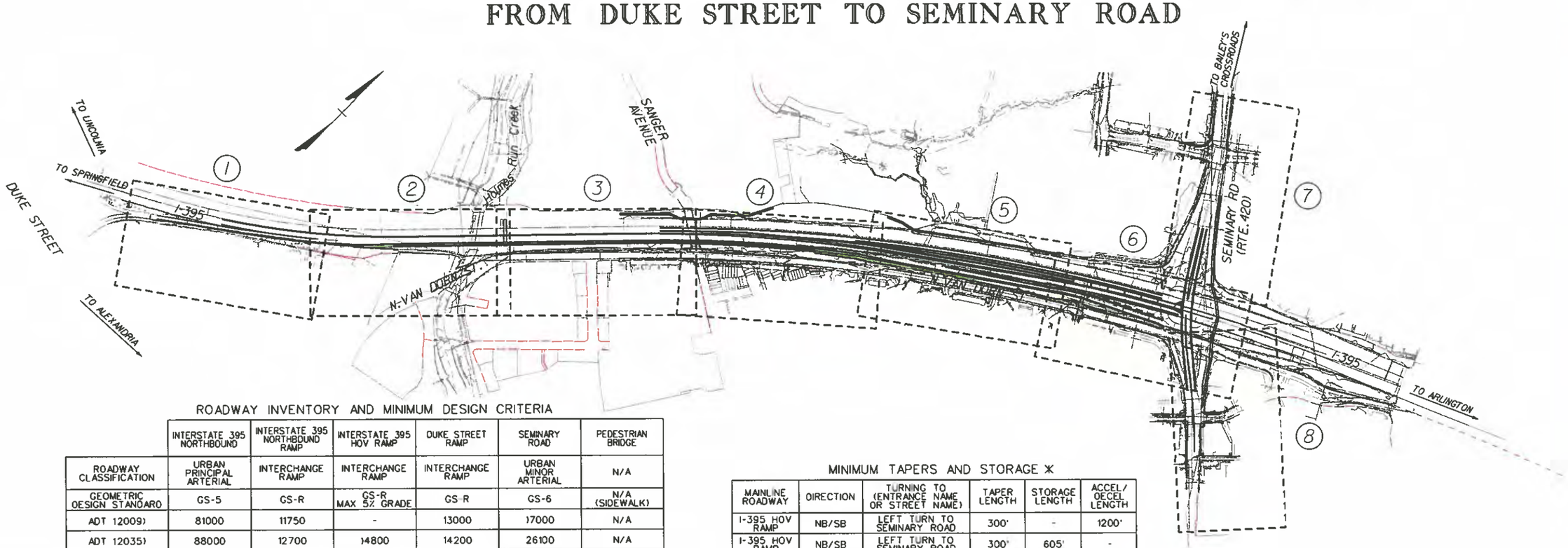
COMMONWEALTH OF VIRGINIA

DEPARTMENT OF TRANSPORTATION

VOLUME 2

CITY OF ALEXANDRIA

I-395 NORTHBOUND AUXILIARY LANE EXTENSION AND HOV RAMP FROM DUKE STREET TO SEMINARY ROAD



ROADWAY INVENTORY AND MINIMUM DESIGN CRITERIA

	INTERSTATE 395 NORTHBOUND	INTERSTATE 395 NORTHBOUND RAMP	INTERSTATE 395 HOV RAMP	DUKE STREET RAMP	SEMINARY ROAD	PEDESTRIAN BRIDGE
ROADWAY CLASSIFICATION	URBAN PRINCIPAL ARTERIAL	INTERCHANGE RAMP	INTERCHANGE RAMP	INTERCHANGE RAMP	URBAN MINOR ARTERIAL	N/A
GEOMETRIC DESIGN STANDARD	GS-5	GS-R	GS-R MAX 5% GRADE	GS-R	GS-6	N/A (SIDEWALK)
ADT (2009)	81000	11750	-	13000	17000	N/A
ADT (2035)	88000	12700	14800	14200	26100	N/A
DESIGN SPEED (MPH)	70	40	35	40	35	N/A
SUPERELEVATION STANDARD	TC-5.11R	TC-5.11R	TC-5.11R	TC-5.11R	TC-5.11U	N/A
MIN. VERTICAL CLEARANCE	14'-6" OVER SANGER AVE.	N/A	16'-6" OVER I-395	N/A	16'-6" OVER ALL ROADWAYS	17'-6"
MINIMUM LANE WIDTH	12'	12'	12' - 2 LANES 16' - 1 LANE	12'	12'	14'

MINIMUM TAPERS AND STORAGE *

MAINLINE ROADWAY	DIRECTION	TURNING TO (ENTRANCE NAME OR STREET NAME)	TAPER LENGTH	STORAGE LENGTH	ACCEL/ DECEL LENGTH
I-395 HOV RAMP	NB/SB	LEFT TURN TO SEMINARY ROAD	300'	-	1200'
I-395 HOV RAMP	NB/SB	LEFT TURN TO SEMINARY ROAD	300'	605'	-
I-395 NB RAMP	NB	STRAIGHT TO ROTARY BRIDGE	300'	-	1075'
I-395 NB RAMP	NB	RIGHT TURN TO SEMINARY ROAD	200'	270'	-

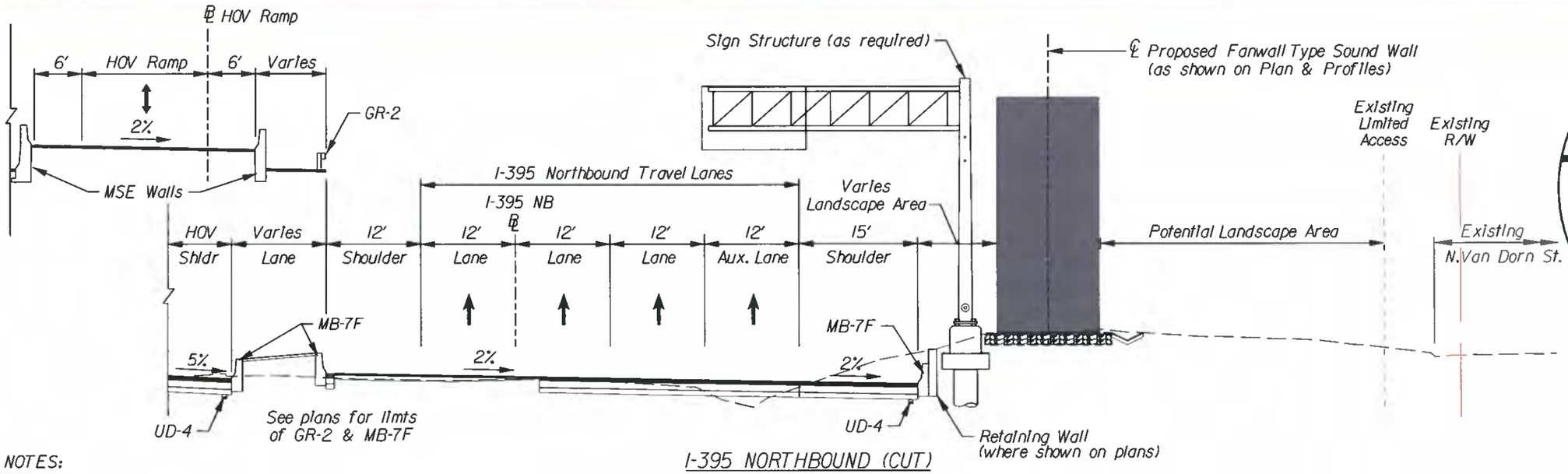
* TURN LANES MUST ACCOMMODATE THE LONGER LENGTH OF EITHER THE STORAGE LENGTH OR ACCEL/DECEL LENGTH, NOT INCLUDING TAPER LENGTH.

TECHNICAL PROPOSAL

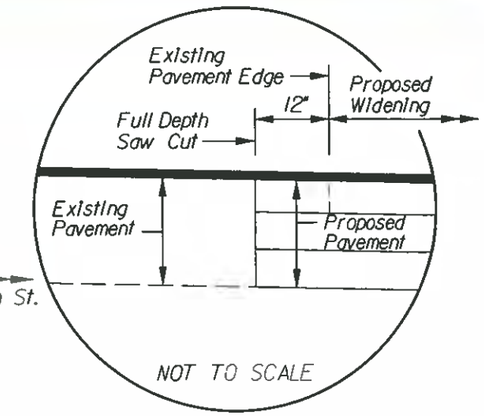
CK CONSTRUCTORS

CONCEPTUAL DRAWINGS

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



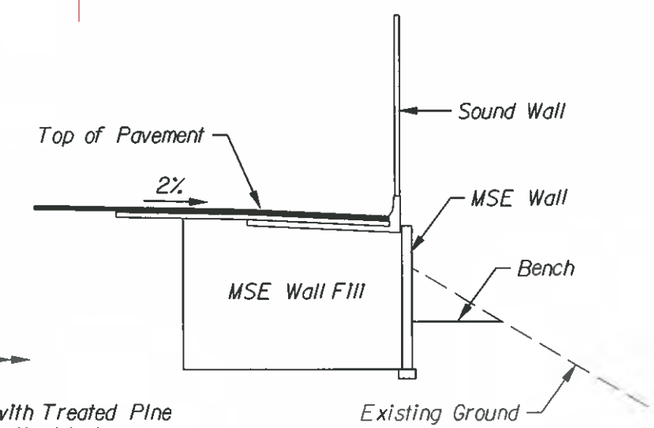
I-395 NORTHBOUND (CUT)



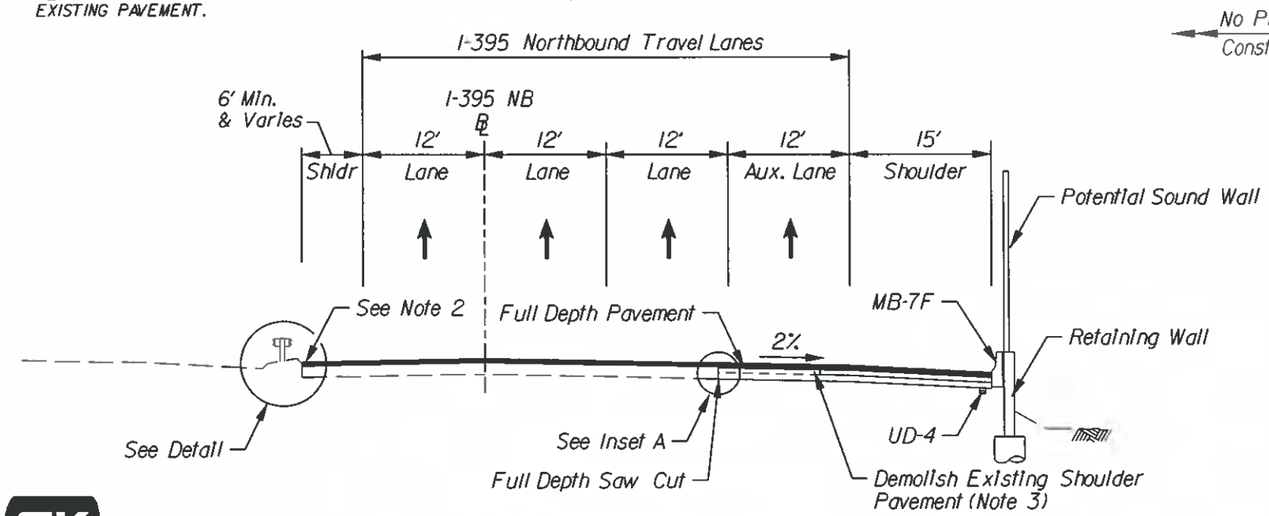
INSET A

NOTES:

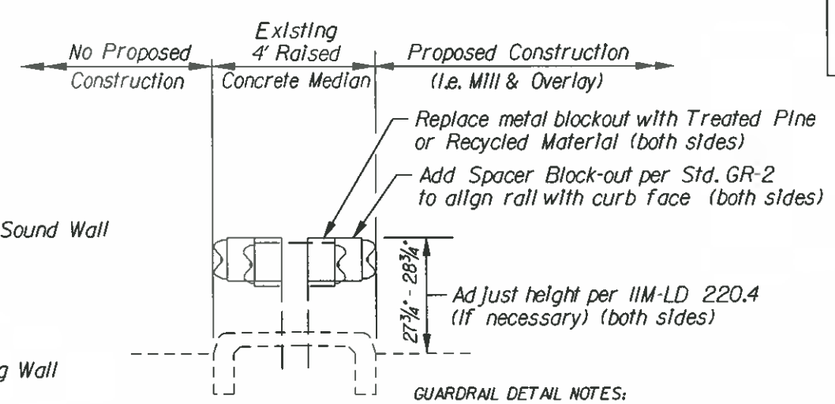
1. FOR LIMITS OF MILL AND OVERLAY AND FULL DEPTH PAVEMENT, REFER TO PLAN SHEETS.
2. REFER TO GEOTECHINCAL ENGINEERING DATA REPORT FOR PAVEMENT DESIGN. REFURBISH EXISTING SHOULDER, IF AND WHERE NEEDED, PRIOR TO USING FOR MOT.
3. ALL EXISTING PAVEMENT ADJACENT TO PROPOSED FULL DEPTH PAVEMENT (SHOULDERS AND EXISTING GORE AREAS) SHALL BE CUT WITH A SMOOTH VERTICAL FACE, ONE FOOT FROM EDGE. TO EXPOSE THE ORIGINAL PORTLAND CEMENT CONCRETE PAVEMENT. DEMOLISHED AND RECONSTRUCTED WITH THE MAINLINE I-395 PAVEMENT SECTION SPECIFIED IN THE GEOTECHNICAL ENGINEERING DATA REPORT.
4. ALL UNDERDRAINS BENEATH THE EXISTING PAVED SHOULDERS TO BE RECONSTRUCTED SHALL BE REMOVED AND REPLACED TO THE NEAREST AVAILABLE OUTLET, UNLESS SLOPE IS TOWARDS EXISTING PAVEMENT.



MSE WALL OVER
HOLMES RUN CULVERTS



I-395 NORTHBOUND (FILL)



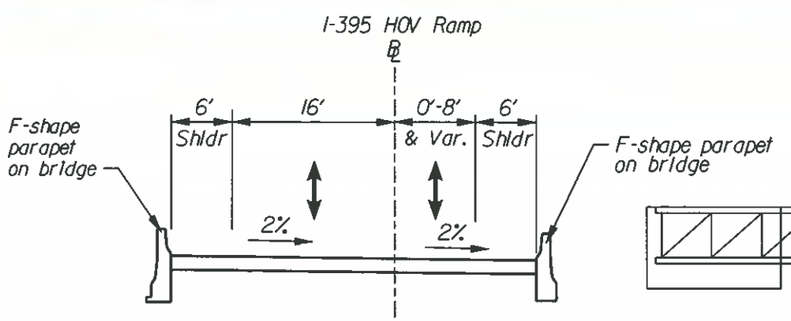
Upgrade Existing
Median Guardrail
DETAIL

GUARDRAIL DETAIL NOTES:

1. Verify condition and dimensions during scope validation period.
2. Detail assumes one additional spacer/blockout will move rail to face of curb and vertical height adjustment of no more than 4" is required to get within the required range from top of rail to pavement (27¾" to 28¾")

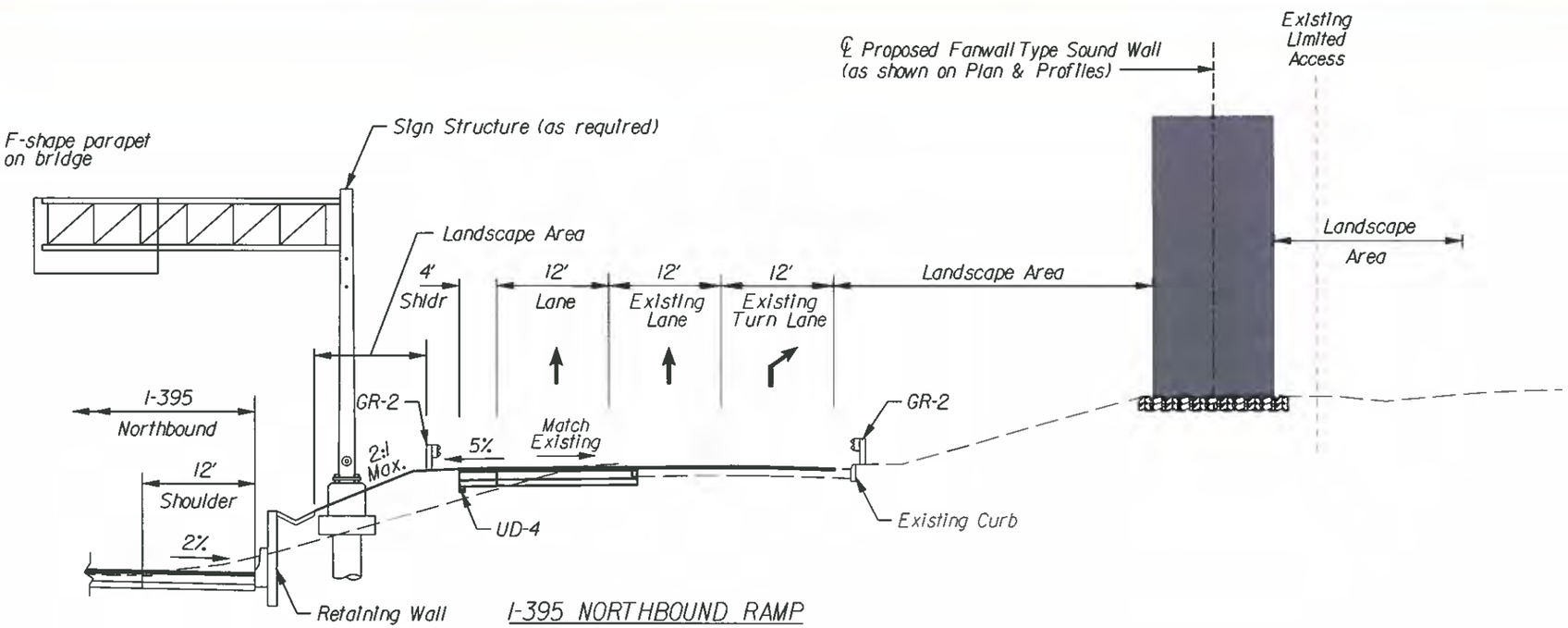
CONCEPTUAL
TYPICAL SECTIONS
SHEET 1 OF 2

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



I-395 HOV RAMP

16' Single Lane Transition to 2-12' Lanes on Bridge



I-395 NORTHBOUND RAMP

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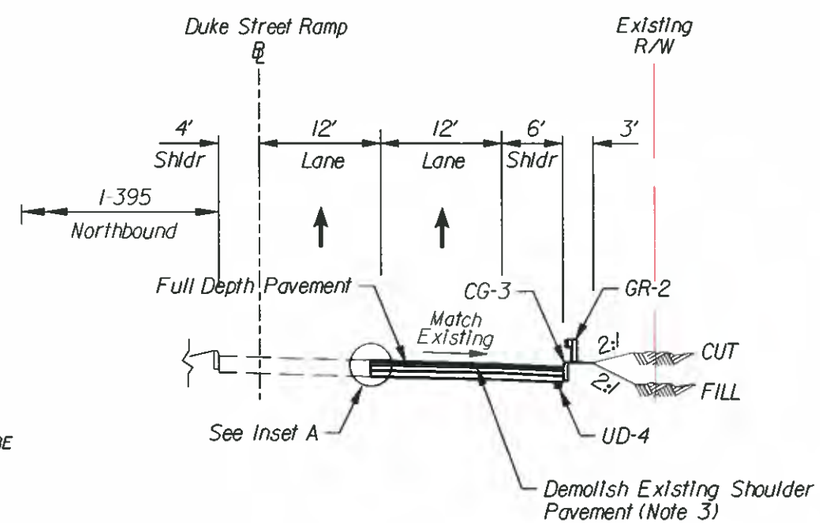
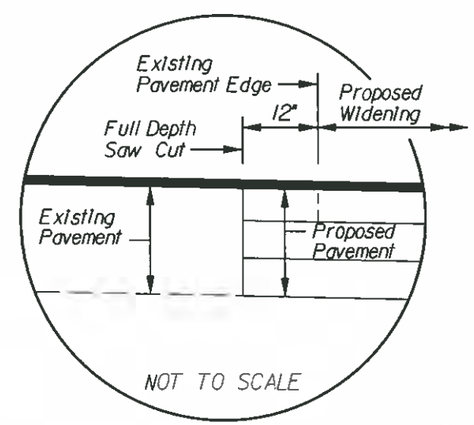


DUKE STREET RAMP



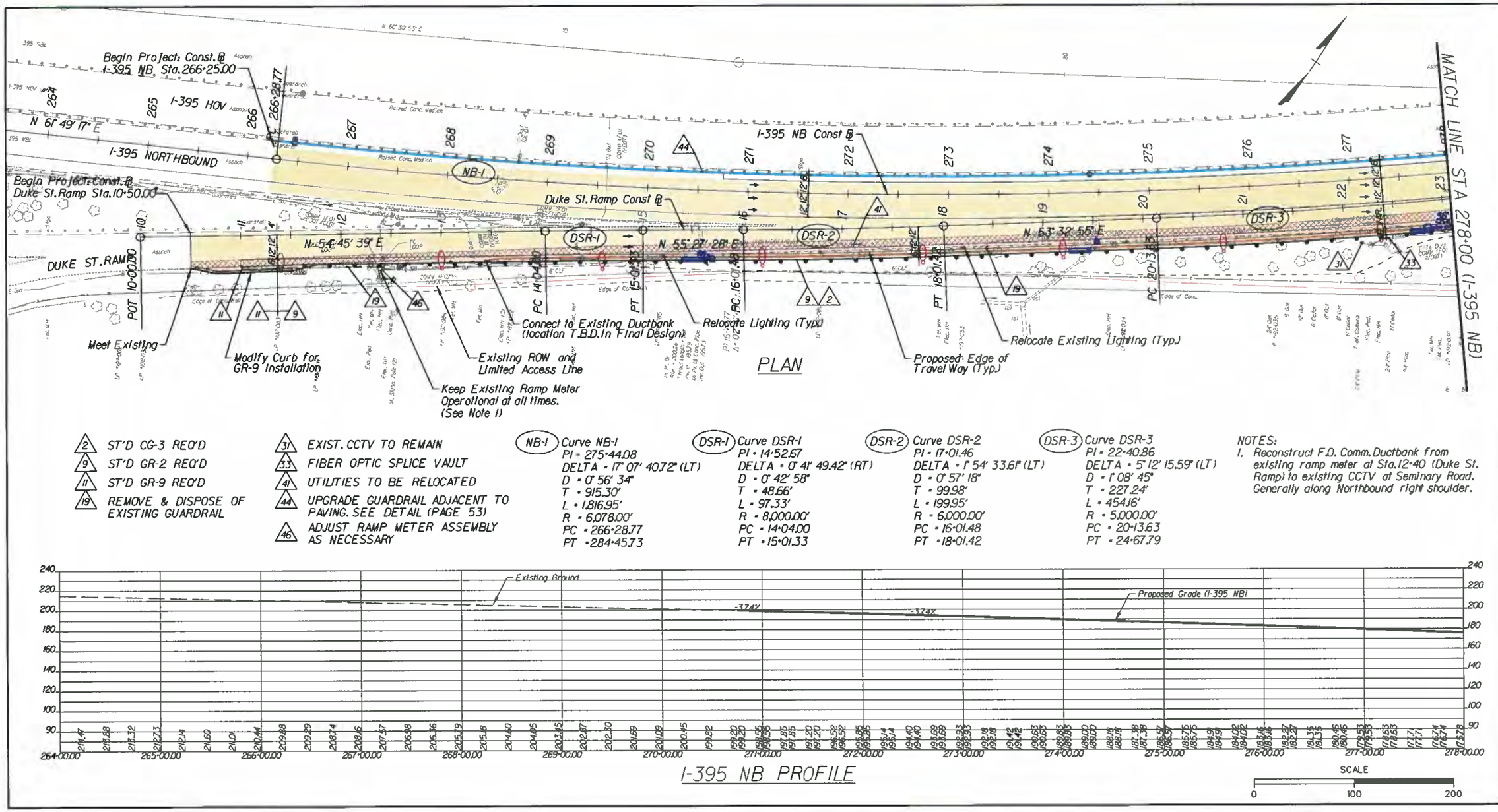
INSET A

CONCEPTUAL

TYPICAL SECTIONS
SHEET 2 OF 2

CK CONSTRUCTORS

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



2 ST'D CG-3 REQ'D
9 ST'D GR-2 REQ'D
11 ST'D GR-9 REQ'D
19 REMOVE & DISPOSE OF EXISTING GUARDRAIL

31 EXIST. CCTV TO REMAIN
33 FIBER OPTIC SPLICE VAULT
41 UTILITIES TO BE RELOCATED
44 UPGRADE GUARDRAIL ADJACENT TO PAVING. SEE DETAIL (PAGE 53)
46 ADJUST RAMP METER ASSEMBLY AS NECESSARY

NB-1 Curve NB-1
PI = 275+44.08
DELTA = 17° 07' 40.72" (LT)
D = 0° 56' 34"
T = 915.30'
L = 1,816.95'
R = 6,078.00'
PC = 266+28.77
PT = 284+45.73

DSR-1 Curve DSR-1
PI = 14+52.67
DELTA = 0° 41' 49.42" (RT)
D = 0° 42' 58"
T = 48.66'
L = 97.33'
R = 8,000.00'
PC = 14+04.00
PT = 15+01.33

DSR-2 Curve DSR-2
PI = 17+01.46
DELTA = 1° 54' 33.61" (LT)
D = 0° 57' 18"
T = 99.98'
L = 199.95'
R = 6,000.00'
PC = 16+01.48
PT = 18+01.42

DSR-3 Curve DSR-3
PI = 22+40.86
DELTA = 5° 12' 15.59" (LT)
D = 1° 08' 45"
T = 227.24'
L = 454.16'
R = 5,000.00'
PC = 20+13.63
PT = 24+67.79

NOTES:
1. Reconstruct F.O. Comm. Ductbank from existing ramp meter at Sta. 12+40 (Duke St. Ramp) to existing CCTV at Seminary Road. Generally along Northbound right shoulder.

LEGEND:

- EXISTING RIGHT OF WAY (ROW)
- PROPOSED RIGHT OF WAY (ROW)
- PROPOSED SOUND WALL
- PROPOSED SOUND WALL/RETAINING WALL
- PROPOSED DRAINAGE (PIPES)
- PROP. VDOT ELECT. CONDUIT & F.O. COMM. DUCTBANK (APPROX. LOCATION)
- UPGRADE GUARDRAIL
- PROPOSED MANHOLE (MH)
- PROPOSED INLET
- PROPOSED END SECTION
- REMOVE EXISTING INLET
- ABANDON EXISTING PIPE
- REMOVE EXISTING PIPE
- REMOVE INLET TOP AND SEAL
- PROPOSED LUMINAIRE (SINGLE)
- PROPOSED LUMINAIRE (DOUBLE)
- CUT/FILL DELINEATION
- REFURBISH EXIST. SHOULDER FOR MOT AS NEEDED (MILL AND OVERLAY FOR FINAL)
- MILL AND OVERLAY (INSTALL FINAL PAV'T MARKING AFTER OVERLAY)
- FULL DEPTH PROPOSED PAVEMENT
- PAVEMENT DEMOLITION

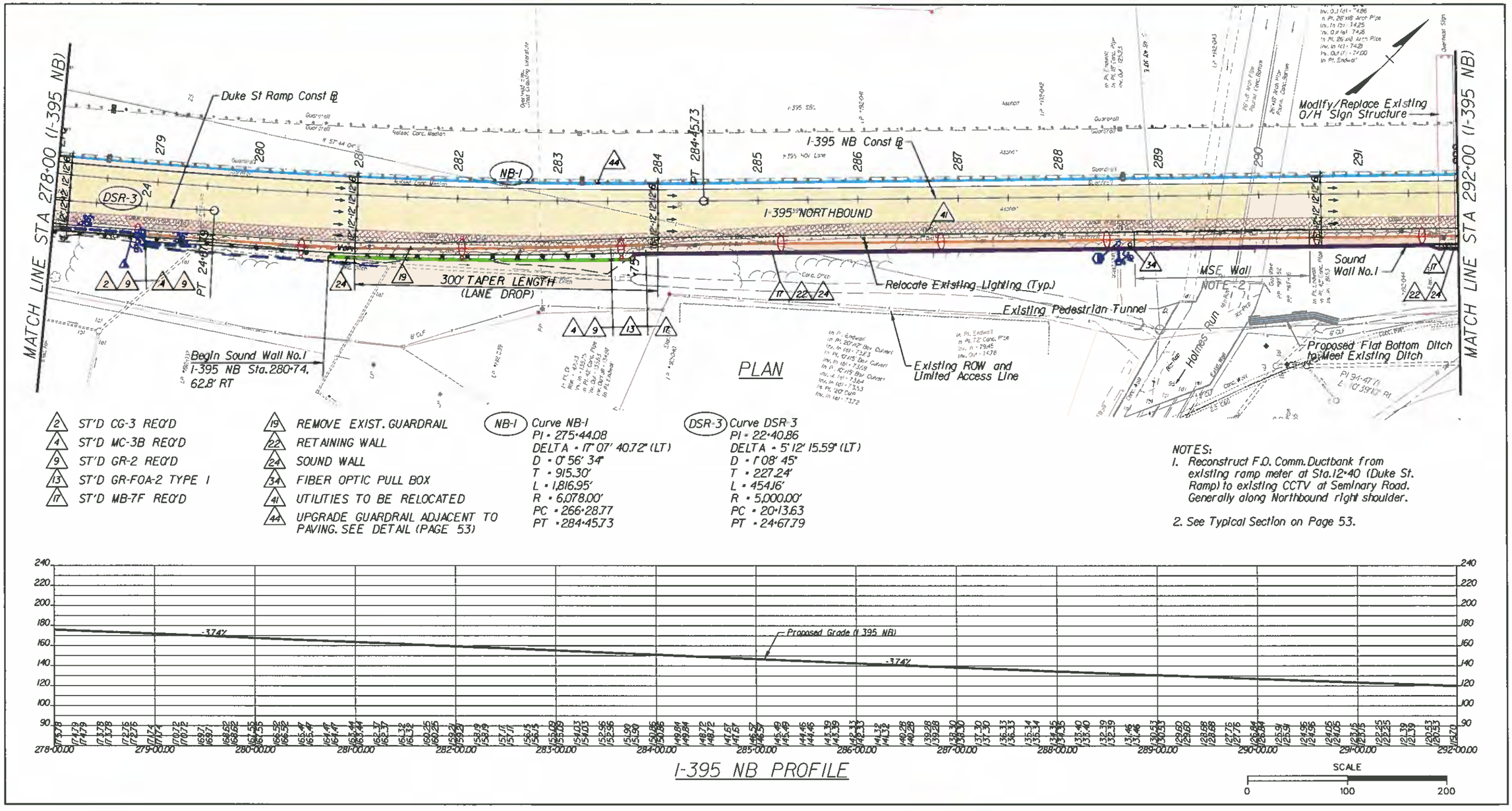
CK CONSTRUCTORS

TECHNICAL PROPOSAL

CONCEPTUAL

PLAN AND PROFILE
SHEET 1 OF 8

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



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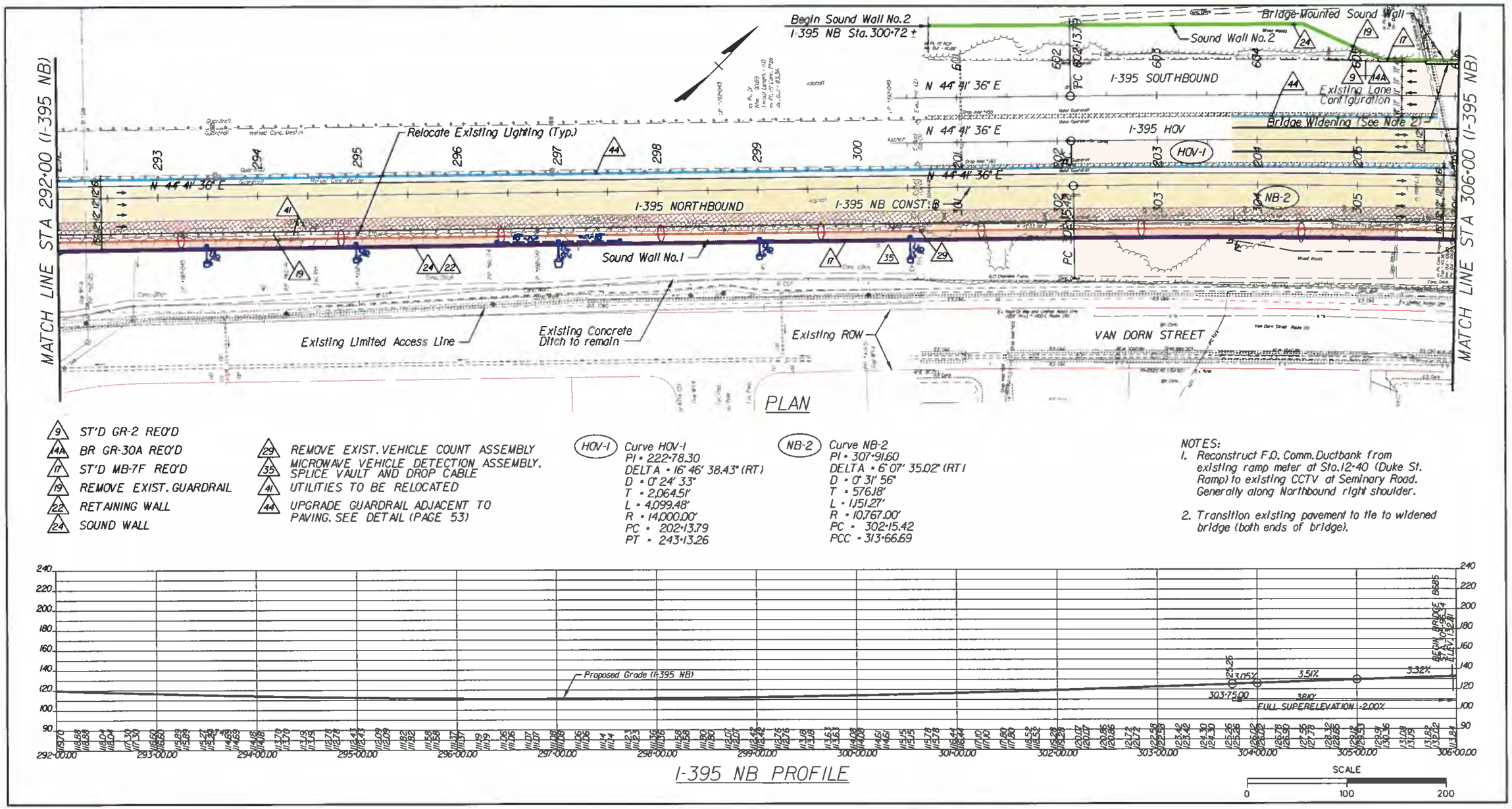
CK CONSTRUCTORS

TECHNICAL PROPOSAL

CONCEPTUAL
PLAN AND PROFILE
SHEET 2 OF 8

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



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- PROPOSED LUMINAIRE (SINGLE)
- PROPOSED LUMINAIRE (DOUBLE)
- c/f CUT/FILL DELINEATION
- REFURBISH EXIST. SHOULDER FOR MOT AS NEEDED (MILL AND OVERLAY FOR FINAL)
- MILL AND OVERLAY (INSTALL FINAL PAV'T MARKING AFTER OVERLAY)
- FULL DEPTH PROPOSED PAVEMENT
- PAVEMENT DEMOLITION

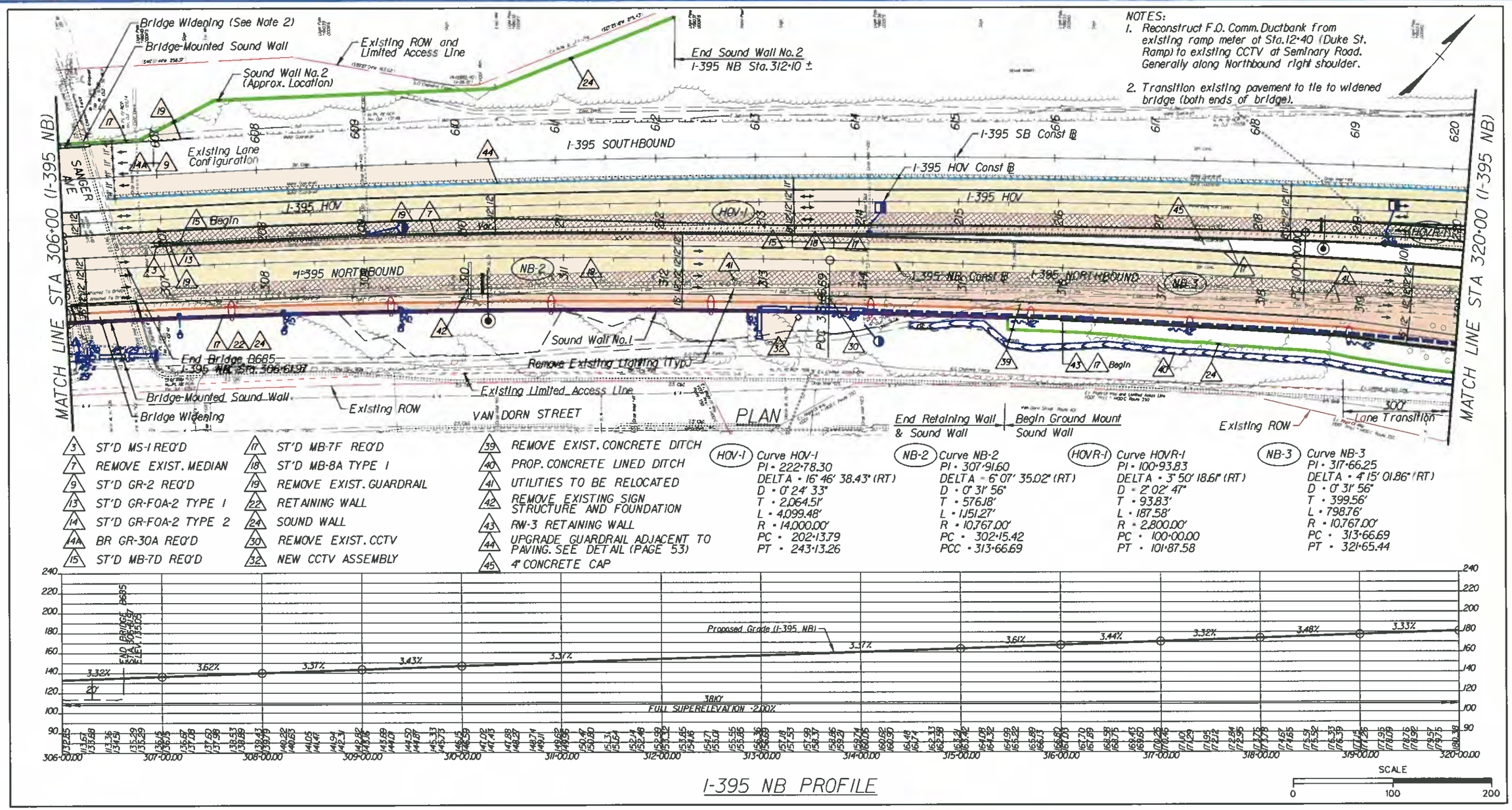
CK CONSTRUCTORS

TECHNICAL PROPOSAL

CONCEPTUAL

PLAN AND PROFILE
SHEET 3 OF 8

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



LEGEND:

- EXISTING RIGHT OF WAY (ROW)
- PROPOSED RIGHT OF WAY (ROW)
- PROPOSED SOUND WALL
- PROPOSED SOUND WALL/RETAINING WALL
- PROPOSED DRAINAGE (PIPES)
- PROP. VDOT ELECT. CONDUIT & F.O. COMM. DUCTBANK (APPROX. LOCATION)
- UPGRADE GUARDRAIL
- PROPOSED MANHOLE (MH)
- PROPOSED INLET
- PROPOSED END SECTION
- REMOVE EXISTING INLET
- ABANDON EXISTING PIPE
- REMOVE EXISTING PIPE
- REMOVE INLET TOP AND SEAL
- PROPOSED LUMINAIRE (SINGLE)
- PROPOSED LUMINAIRE (DOUBLE)
- CUT/FILL DELINEATION
- PROPOSED O/H SIGN STRUCTURE
- MILL AND OVERLAY (INSTALL FINAL PAV'T MARKING AFTER OVERLAY)
- FULL DEPTH PROPOSED PAVEMENT
- PAVEMENT DEMOLITION

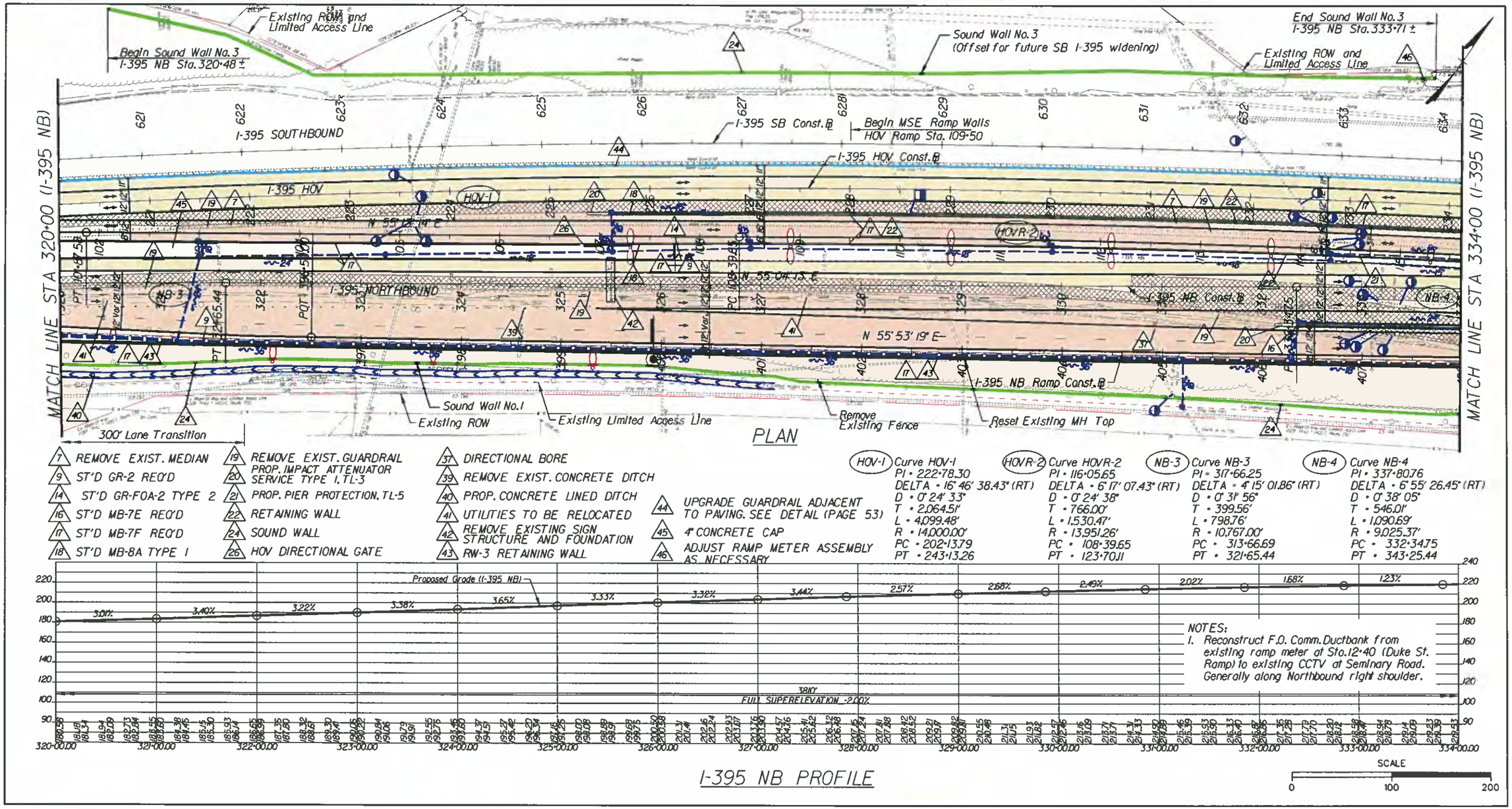
CK CONSTRUCTORS

TECHNICAL PROPOSAL

CONCEPTUAL

PLAN AND PROFILE
SHEET 4 OF 8

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



LEGEND:

- EXISTING RIGHT OF WAY (ROW)
- PROPOSED RIGHT OF WAY (ROW)
- PROPOSED SOUND WALL
- PROPOSED SOUND WALL/RETAINING WALL
- PROPOSED DRAINAGE (PIPES)
- PROP. VDOT ELECT. CONDUIT & F.O. COMM. DUCTBANK (APPROX. LOCATION)
- UPGRADE GUARDRAIL
- PROPOSED MANHOLE (MH)
- PROPOSED INLET
- PROPOSED END SECTION
- REMOVE EXISTING INLET
- ABANDON EXISTING PIPE
- REMOVE EXISTING PIPE
- REMOVE INLET TOP AND SEAL
- PROPOSED LUMINAIRE (SINGLE)
- PROPOSED LUMINAIRE (DOUBLE)
- CUT/FILL DELINEATION
- PROPOSED O/H SIGN STRUCTURE
- MILL AND OVERLAY (INSTALL FINAL PAV'T MARKING AFTER OVERLAY)
- FULL DEPTH PROPOSED PAVEMENT
- PAVEMENT DEMOLITION

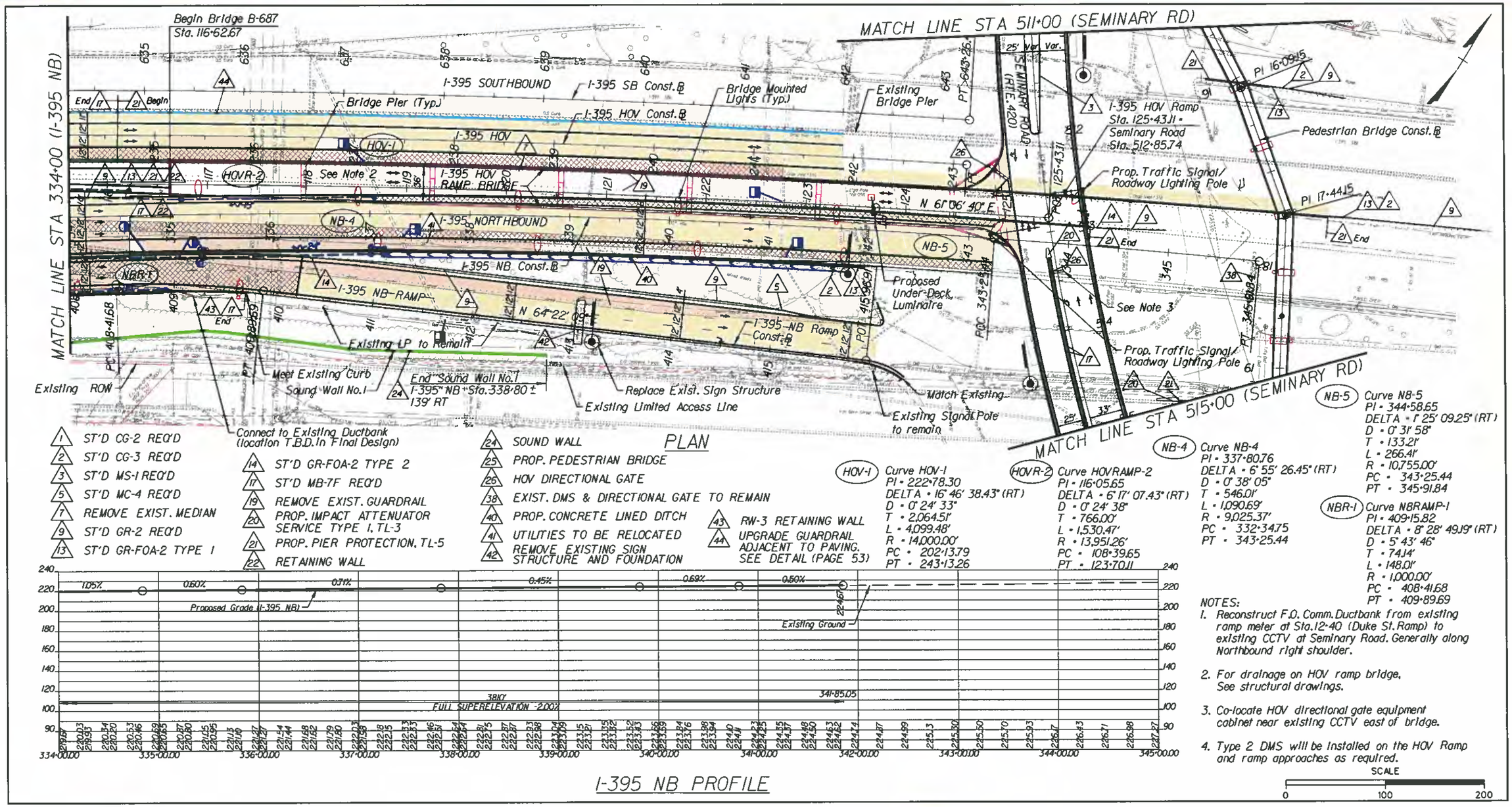
CK CONSTRUCTORS

TECHNICAL PROPOSAL

CONCEPTUAL

PLAN AND PROFILE
SHEET 5 OF 8

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



NOTES:

1. Reconstruct F.O. Comm. Ductbank from existing ramp meter at Sta. 12+40 (Duke St. Ramp) to existing CCTV at Seminary Road. Generally along Northbound right shoulder.
2. For drainage on HOV ramp bridge, See structural drawings.
3. Co-locate HOV directional gate equipment cabinet near existing CCTV east of bridge.
4. Type 2 DMS will be installed on the HOV Ramp and ramp approaches as required.

LEGEND:

- EXISTING RIGHT OF WAY (ROW)
- PROPOSED RIGHT OF WAY (ROW)
- PROPOSED SOUND WALL
- PROPOSED SOUND WALL/RETAINING WALL
- PROPOSED DRAINAGE (PIPES)
- PROP. VDOT ELECT. CONDUIT & F.O. COMM. DUCTBANK (APPROX. LOCATION)
- UPGRADE GUARDRAIL
- PROPOSED MANHOLE (MH)
- PROPOSED INLET
- PROPOSED END SECTION
- REMOVE EXISTING INLET
- ABANDON EXISTING PIPE
- REMOVE EXISTING PIPE
- REMOVE INLET TOP AND SEAL
- PROPOSED LUMINAIRE (SINGLE)
- PROPOSED LUMINAIRE (DOUBLE)
- 100 WATT MH, 15 FT POLE
- CUT/FILL DELINEATION
- PROPOSED O/H SIGN STRUCTURE
- MILL AND OVERLAY (INSTALL FINAL PAV'T MARKING AFTER OVERLAY)
- FULL DEPTH PROPOSED PAVEMENT
- PAVEMENT DEMOLITION
- TRAFFIC SIGNAL POLE WITH 2 HEADS & VIDS
- BRIDGE OUTLINE (ABOVE)

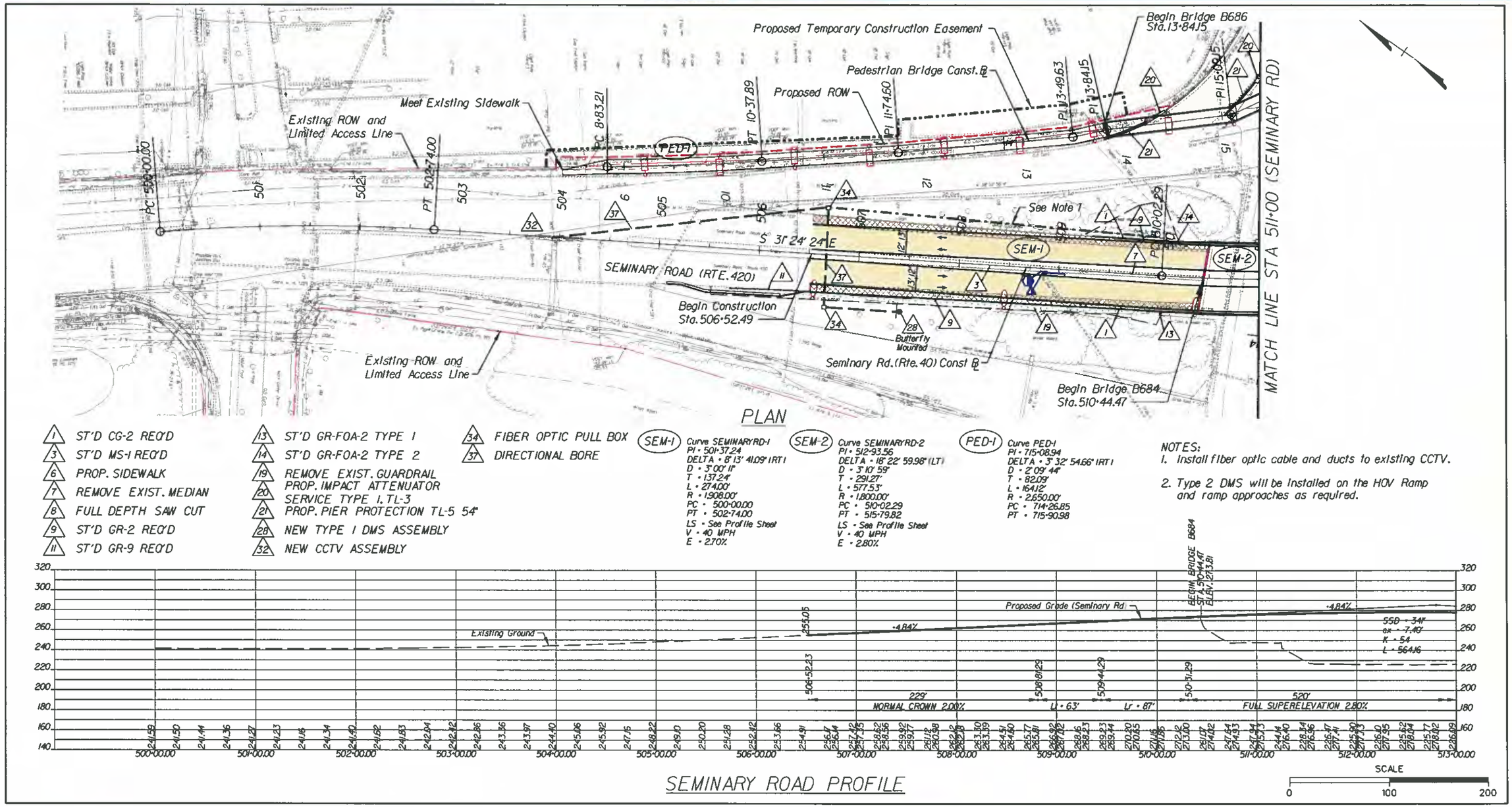
CK CONSTRUCTORS

TECHNICAL PROPOSAL

CONCEPTUAL

PLAN AND PROFILE
SHEET 6 OF 8

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



LEGEND:

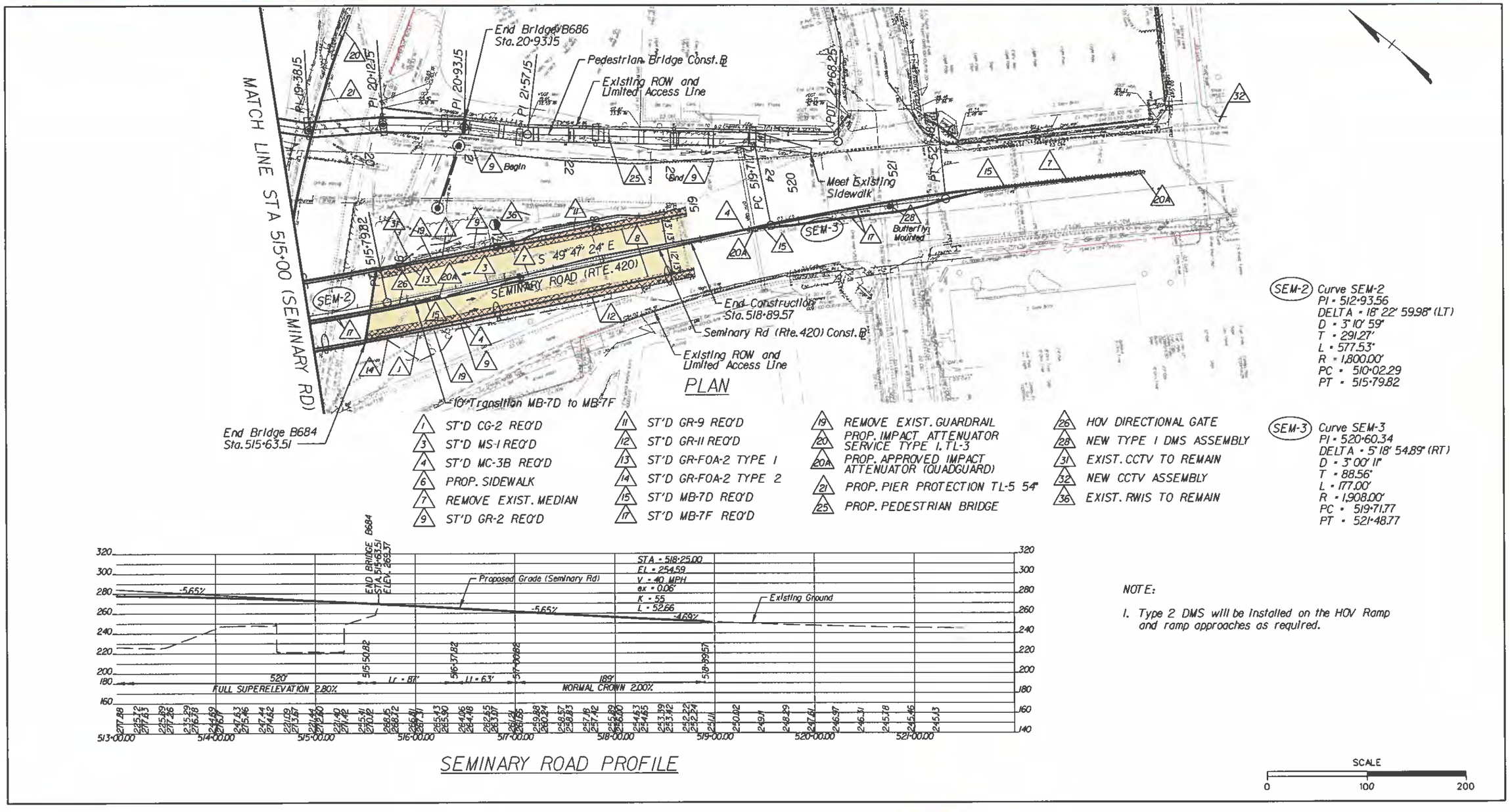
- EXISTING RIGHT OF WAY (ROW)
- PROPOSED RIGHT OF WAY (ROW)
- PROPOSED SOUND WALL
- PROPOSED SOUND WALL/RETAINING WALL
- PROPOSED DRAINAGE (PIPES)
- PROP. VDOT ELECT. CONDUIT & F.O. COMM. DUCTBANK (APPROX. LOCATION)
- PROPOSED MANHOLE (MH)
- PROPOSED INLET
- PROPOSED END SECTION
- REMOVE EXISTING INLET
- ABANDON EXISTING PIPE
- REMOVE EXISTING PIPE
- REMOVE INLET TOP AND SEAL
- PROPOSED LUMINAIRE (SINGLE)
- PROPOSED LUMINAIRE (DOUBLE)
- 100 WATT MH, 15 FT POLE
- C/F CUT/FILL DELINEATION
- PROPOSED O/H SIGN STRUCTURE
- MILL AND OVERLAY (INSTALL FINAL PAV'T MARKING AFTER OVERLAY)
- FULL DEPTH PROPOSED PAVEMENT
- PAVEMENT DEMOLITION
- BRIDGE OUTLINE (ABOVE)

TECHNICAL PROPOSAL

CONCEPTUAL

PLAN AND PROFILE
SHEET 7 OF 8

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



NOTE:

1. Type 2 DMS will be installed on the HOV Ramp and ramp approaches as required.

LEGEND:

- EXISTING RIGHT OF WAY (ROW)
- PROPOSED RIGHT OF WAY (ROW)
- PROPOSED SOUND WALL
- PROPOSED SOUND WALL/RETAINING WALL
- PROPOSED DRAINAGE (PIPES)
- PROP. VDOT ELECT. CONDUIT & F.O. COMM. DUCTBANK (APPROX. LOCATION)
- PROPOSED MANHOLE (MH)
- PROPOSED INLET
- PROPOSED END SECTION
- REMOVE EXISTING INLET
- ABANDON EXISTING PIPE
- REMOVE EXISTING PIPE
- REMOVE INLET TOP AND SEAL
- PROPOSED LUMINAIRE (SINGLE)
- PROPOSED LUMINAIRE (DOUBLE)
- 100 WATT MH, 15 FT POLE
- CUT/FILL DELINEATION
- PROPOSED O/H SIGN STRUCTURE
- MILL AND OVERLAY (INSTALL FINAL PAV'T MARKING AFTER OVERLAY)
- FULL DEPTH PROPOSED PAVEMENT
- PAVEMENT DEMOLITION
- BRIDGE OUTLINE (ABOVE)

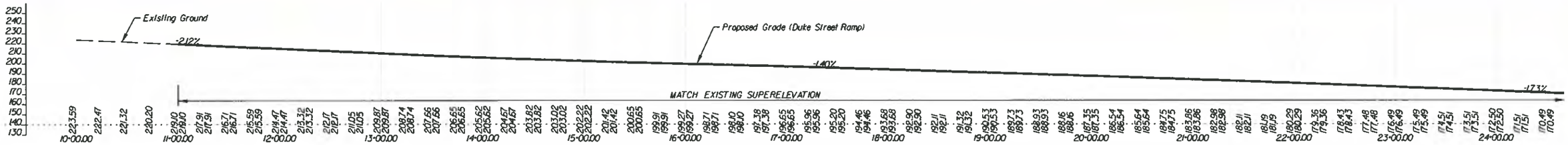
CK CONSTRUCTORS

TECHNICAL PROPOSAL

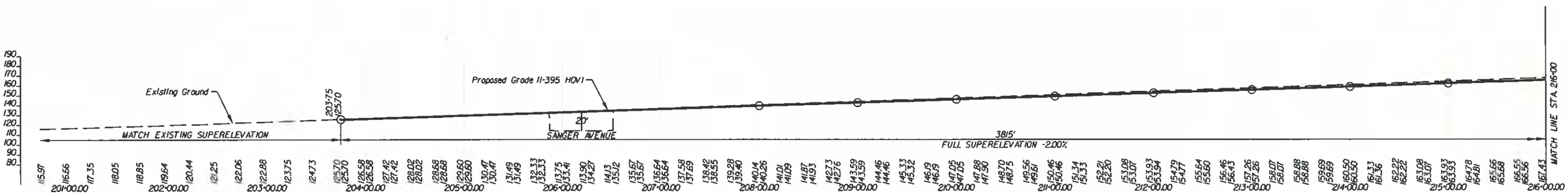
CONCEPTUAL

PLAN AND PROFILE
SHEET 8 OF 8

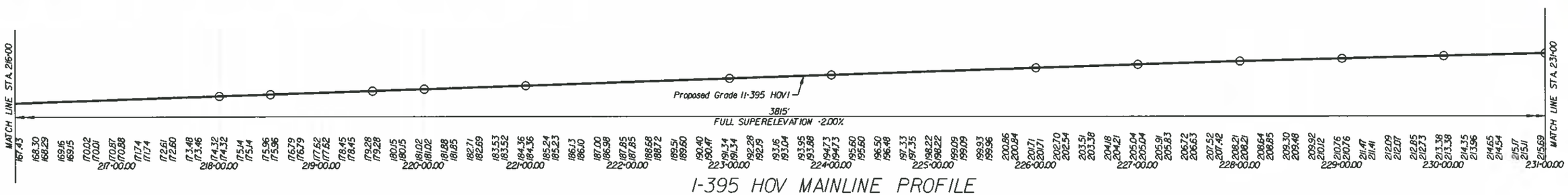
PRELIMINARY PLANS
NOT FOR CONSTRUCTION



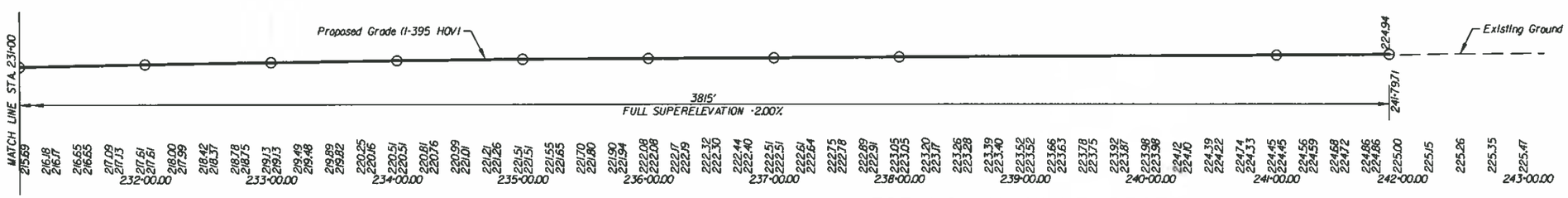
DUKE STREET RAMP PROFILE



I-395 HOV MAINLINE PROFILE



I-395 HOV MAINLINE PROFILE



I-395 HOV MAINLINE PROFILE

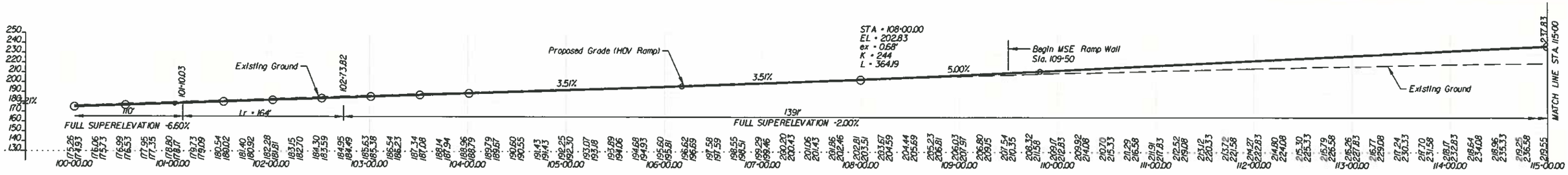
CONCEPTUAL
ADDITIONAL PROFILES
SHEET 1 OF 2

CK CONSTRUCTORS

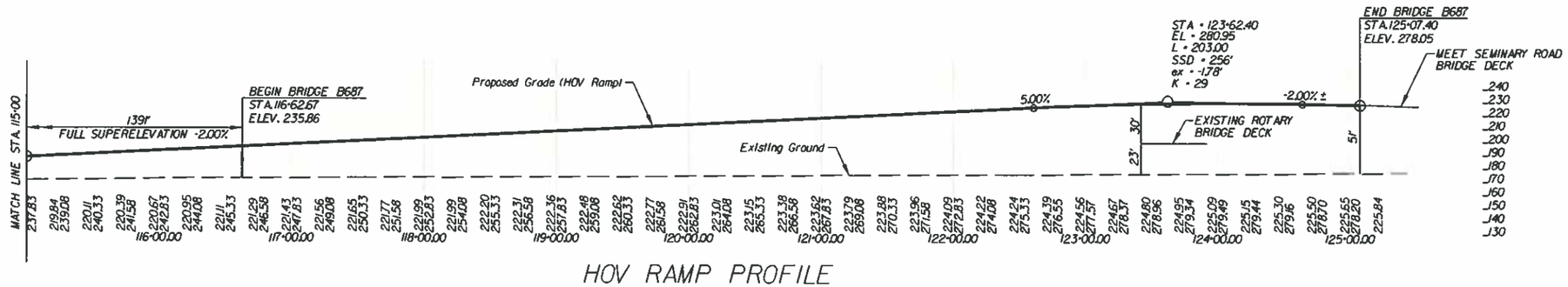
SCALE
0 100 200

TECHNICAL PROPOSAL

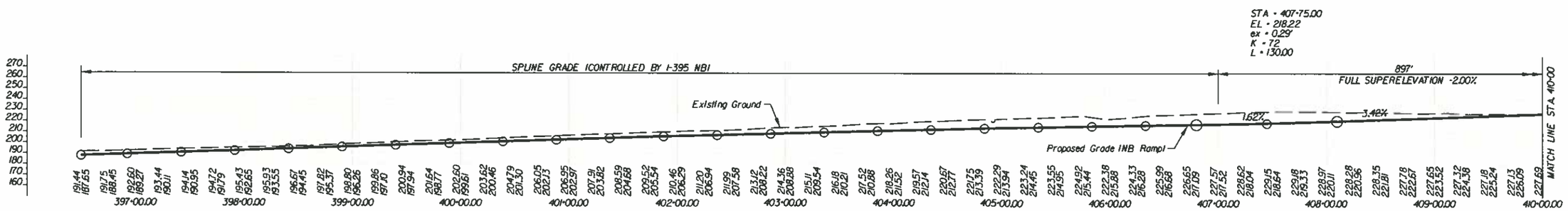
PRELIMINARY PLANS
NOT FOR CONSTRUCTION



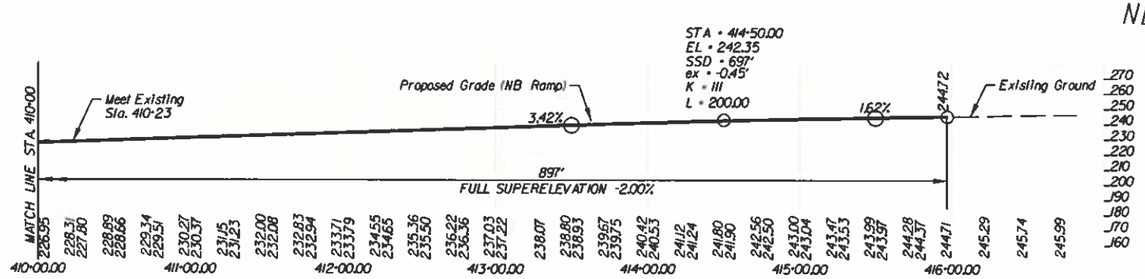
HOV RAMP PROFILE



HOV RAMP PROFILE



NB RAMP PROFILE



NB RAMP PROFILE

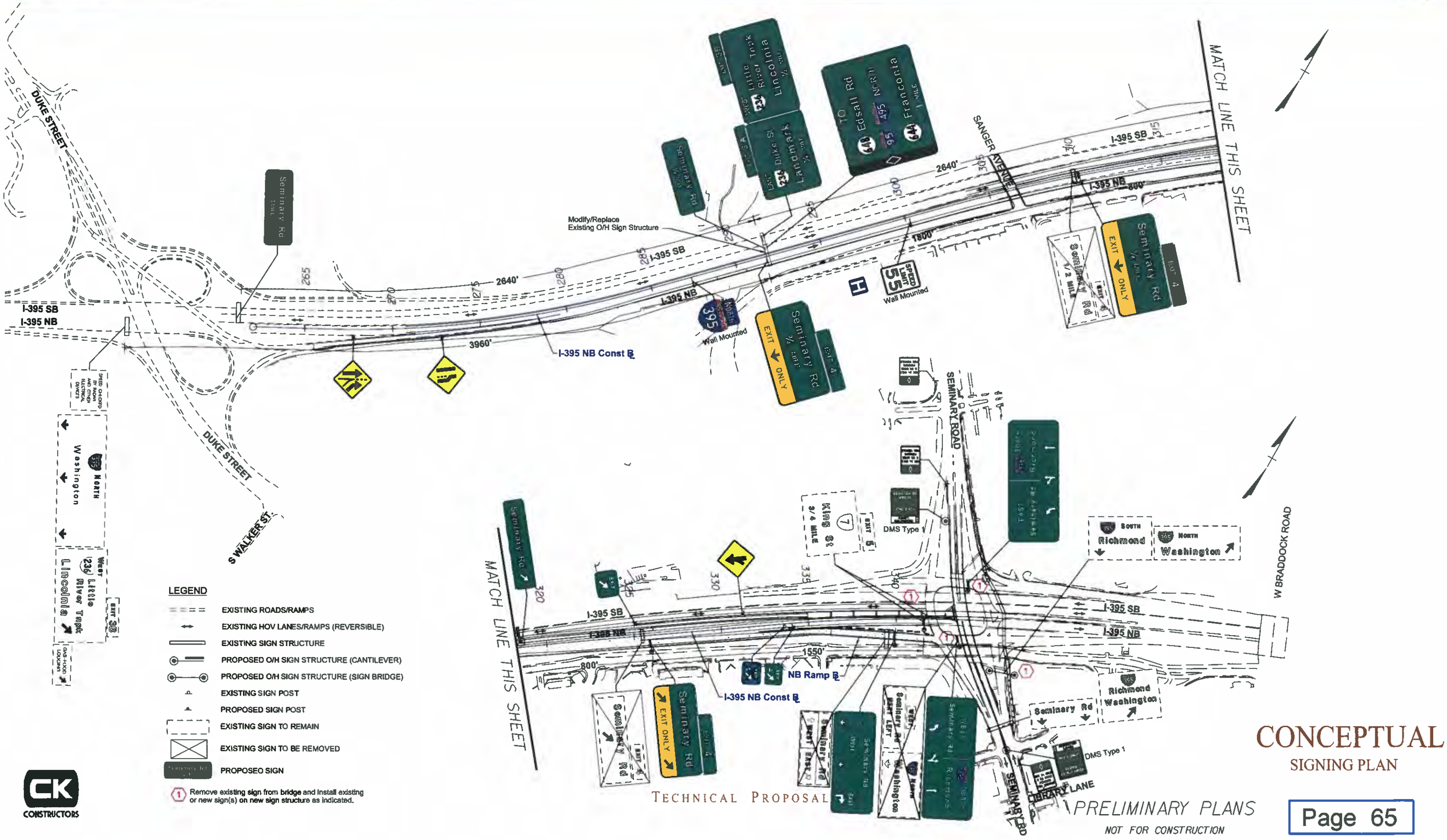
SCALE
0 100 200

CONSTRUCTORS

TECHNICAL PROPOSAL

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CONCEPTUAL
ADDITIONAL PROFILES
SHEET 2 OF 2

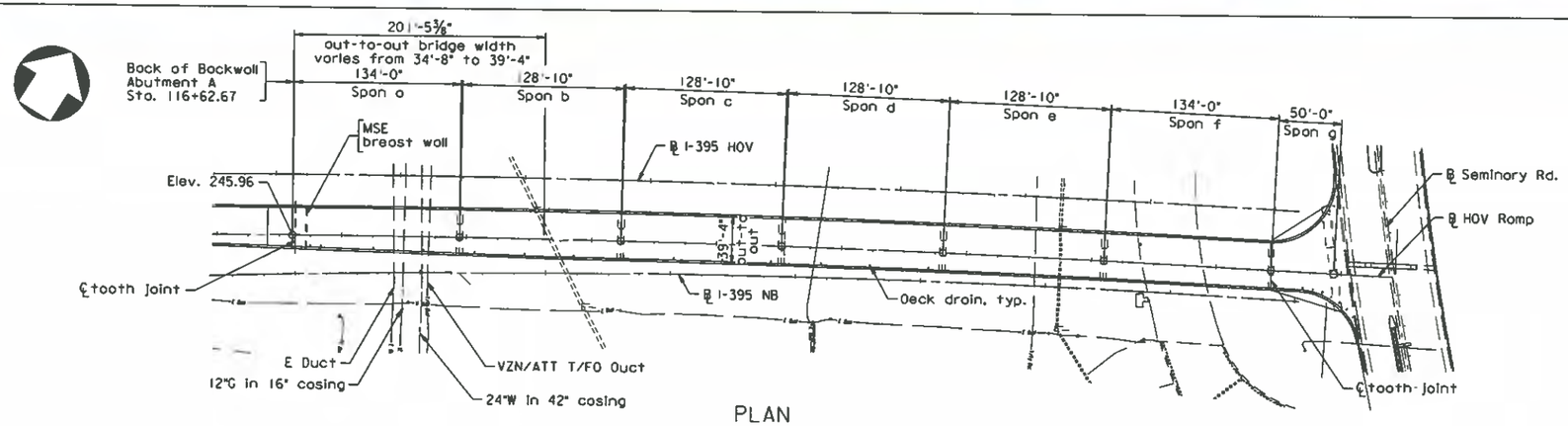


CONCEPTUAL
SIGNING PLAN

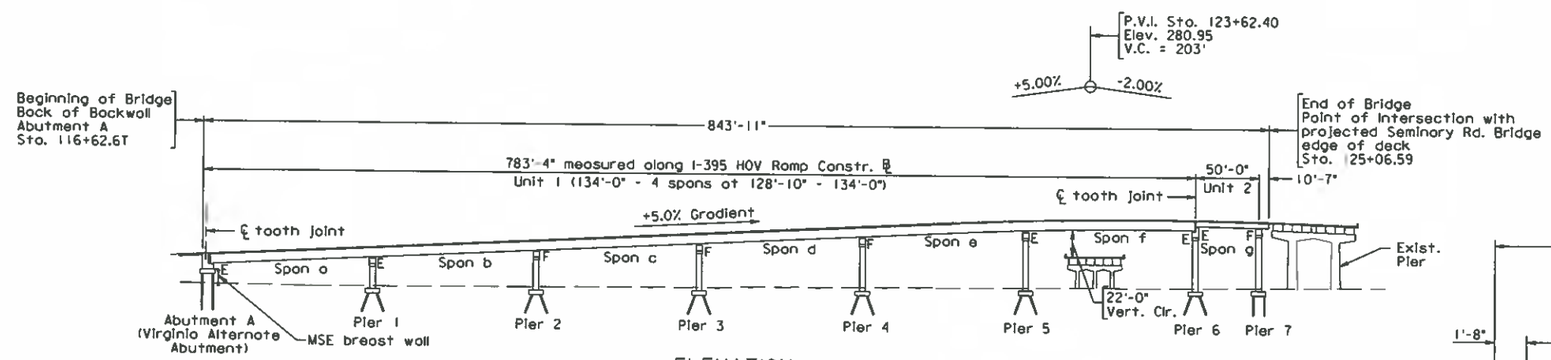
CK CONSTRUCTORS

TECHNICAL PROPOSAL

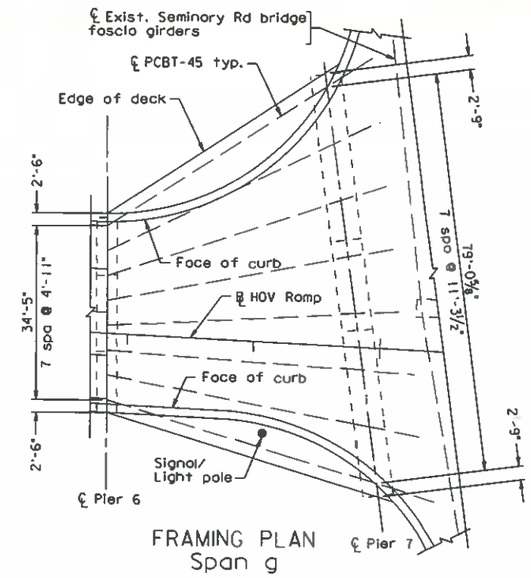
PRELIMINARY PLANS
NOT FOR CONSTRUCTION



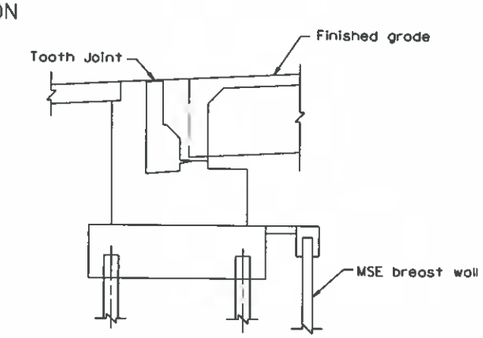
PLAN



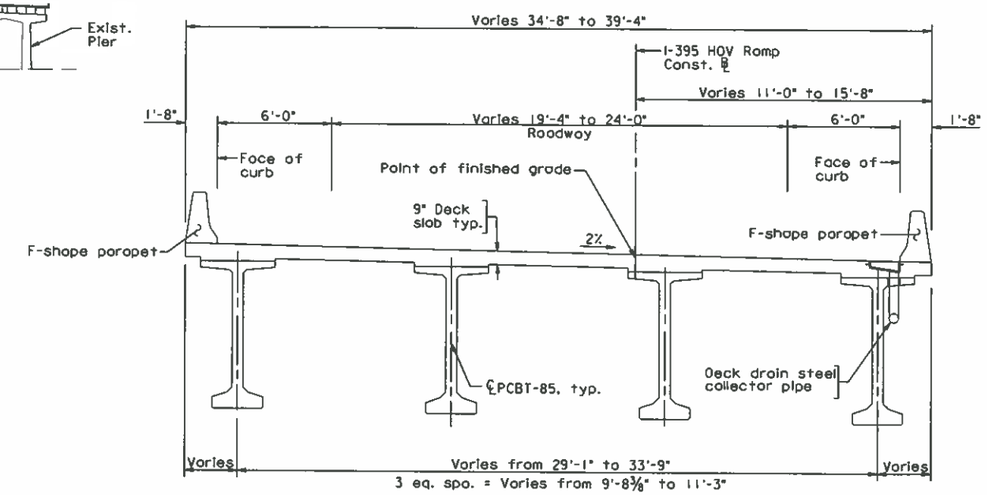
ELEVATION



FRAMING PLAN
Span g



SECTION - ABUTMENT A
VIRGINIA ALTERNATE ABUTMENT



TRANSVERSE SECTION
Spans a-f

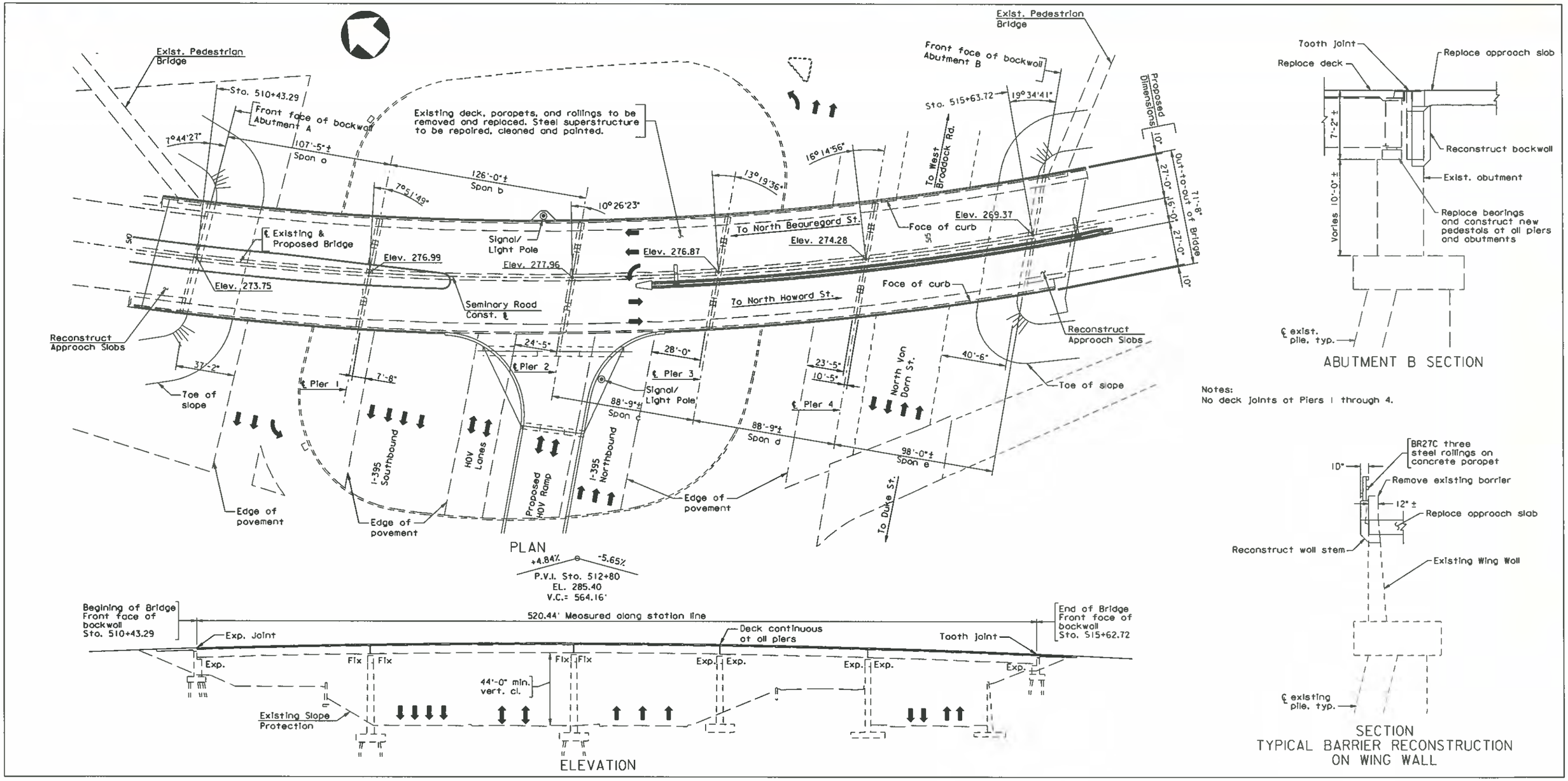
NOTES:

1. Prestressed concrete bulb-T PCBT-85 shall be used in Unit 1 and PCBT-45 in Unit 2.
2. Abutment location has been set as far north as possible to provide sufficient horizontal clearance with I-395 NB.
3. For location of bridge mounted light poles, see sheet Page 60.

CONCEPTUAL

I-395 HOV RAMP BRIDGE
PLAN, ELEVATION AND SECTIONS

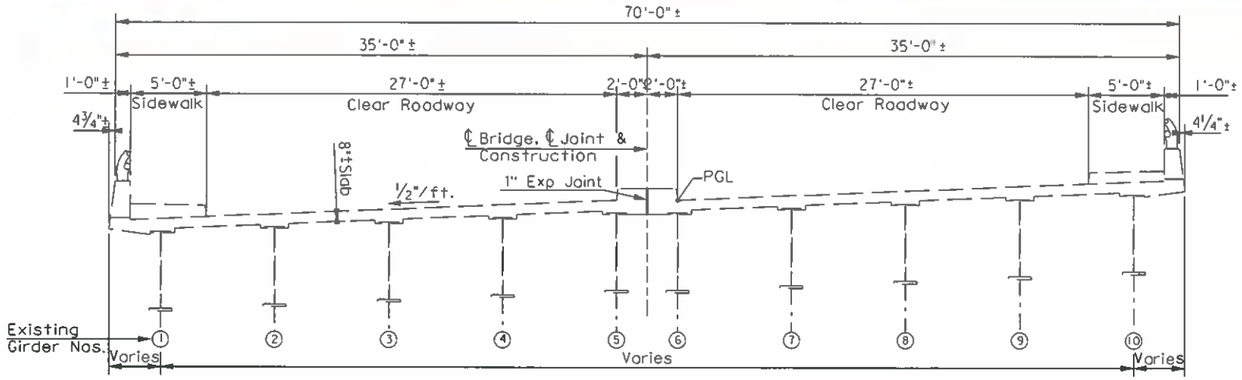
PRELIMINARY PLANS
NOT FOR CONSTRUCTION



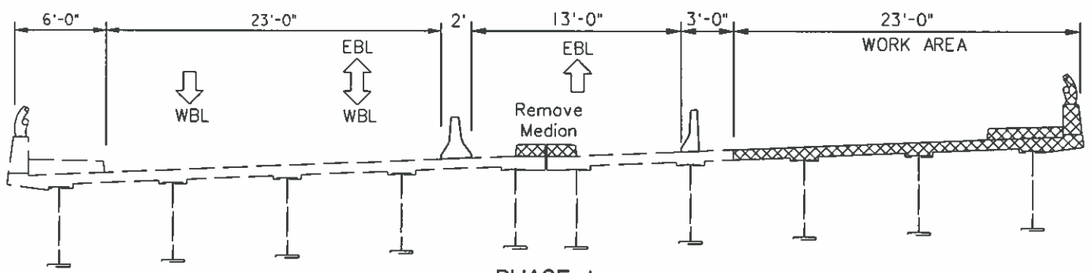
CONCEPTUAL

SEMINARY ROAD BRIDGE OVER I-395
PLAN, ELEVATION AND SECTIONS

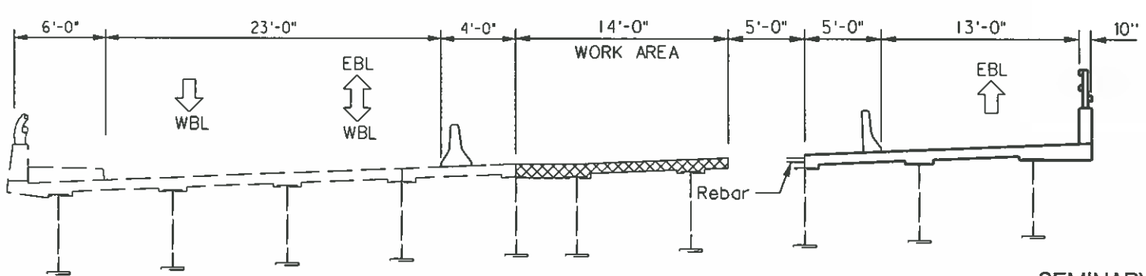
PRELIMINARY PLANS
NOT FOR CONSTRUCTION



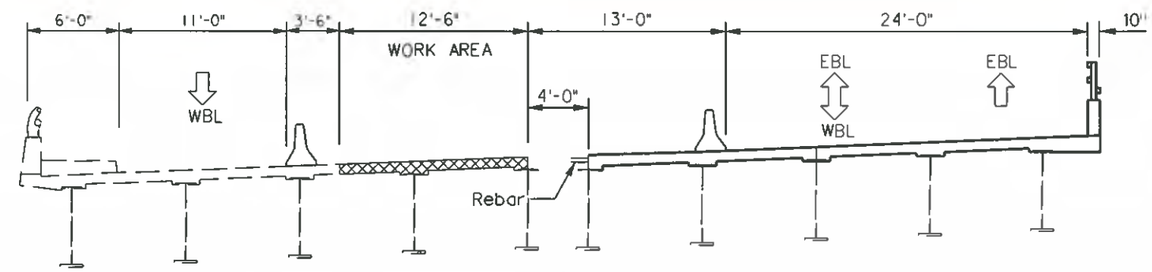
EXISTING TYPICAL SECTION
(LOOKING EAST)



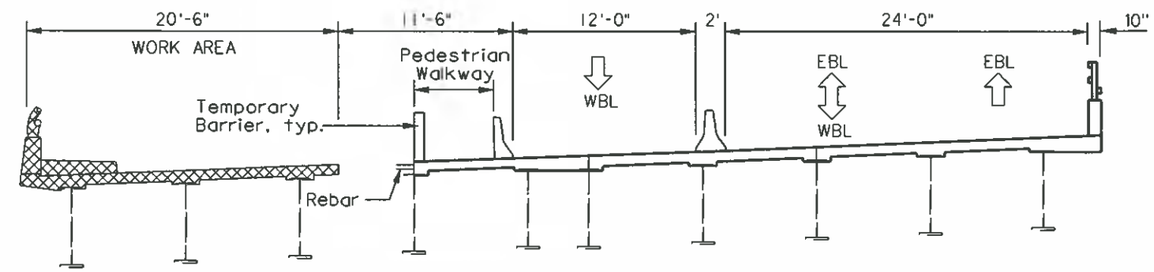
PHASE 1



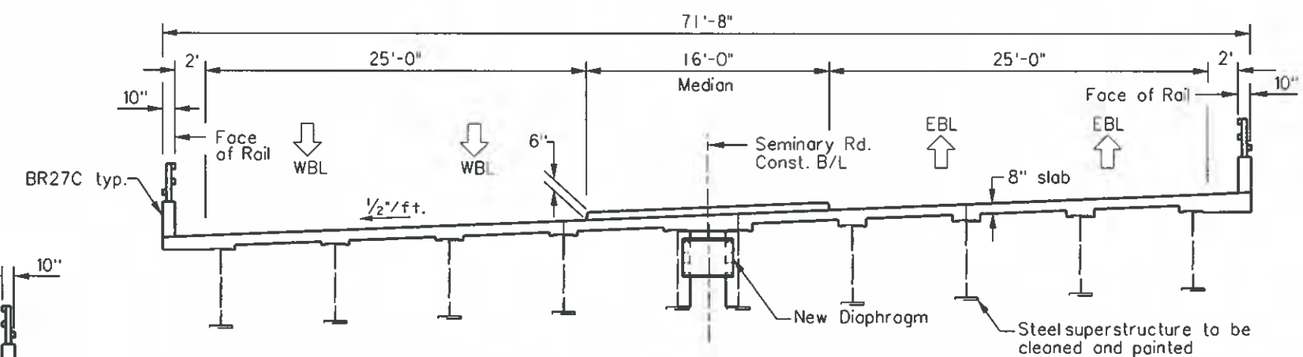
PHASE 2



PHASE 3



PHASE 4



PROPOSED TYPICAL SECTION
(LOOKING EAST)

SEMINARY ROAD BRIDGE
DECK REPLACEMENT PHASING
MAINTAIN 3 LANES

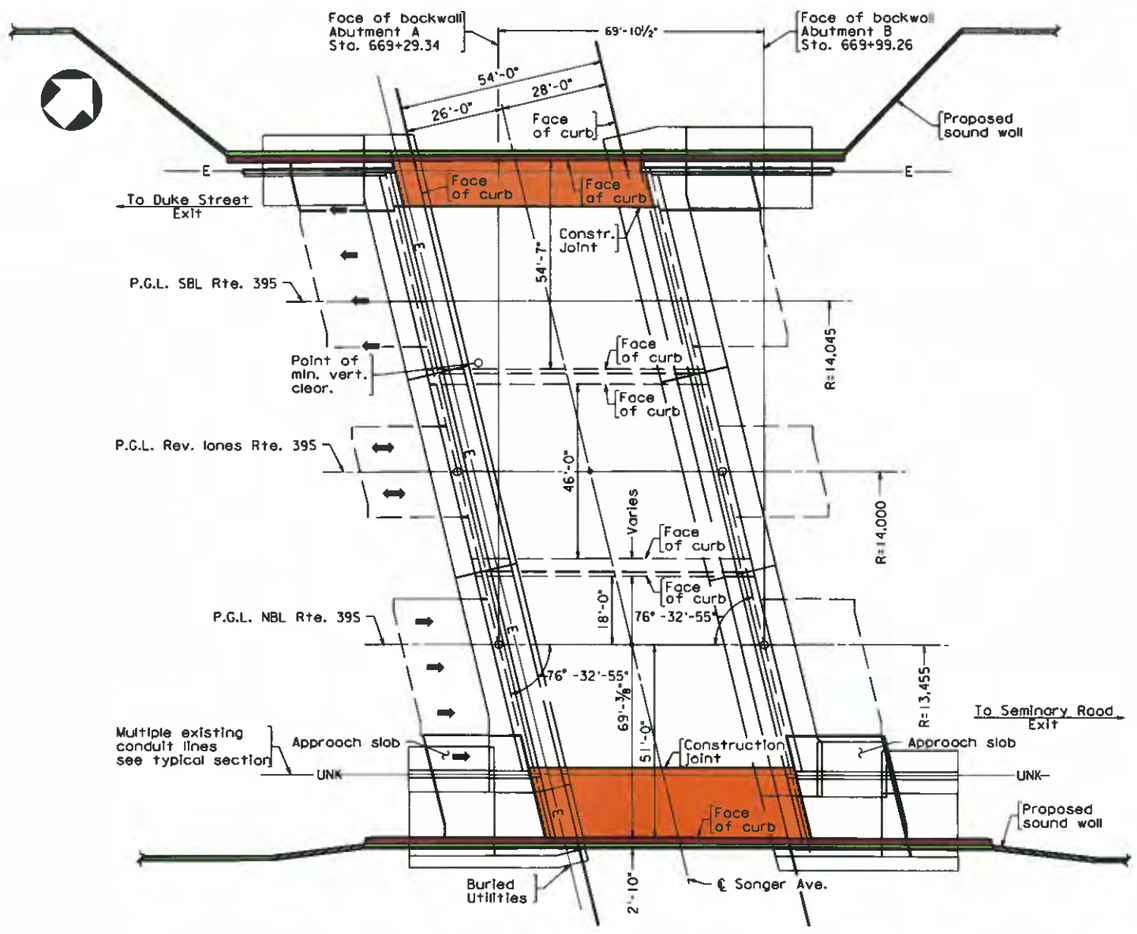
LEGEND:
- LIMIT OF CONCRETE DECK REMOVAL
- NEW STRUCTURE
- EXISTING STRUCTURE
- EBL / WBL — CENTER LANE

TECHNICAL PROPOSAL

CONCEPTUAL
SEMINARY RD BRIDGE OVER I-395
TYPICAL SECTION AND PHASING

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CK CONSTRUCTORS



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

CONCEPTUAL

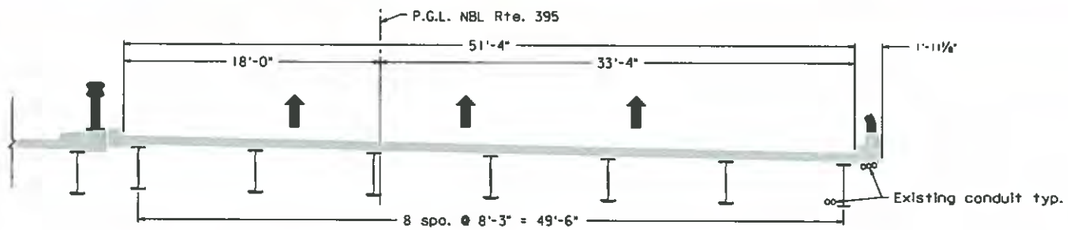
I-395 BRIDGE OVER SANGER AVE
GENERAL PLAN AND ELEVATION

TECHNICAL PROPOSAL

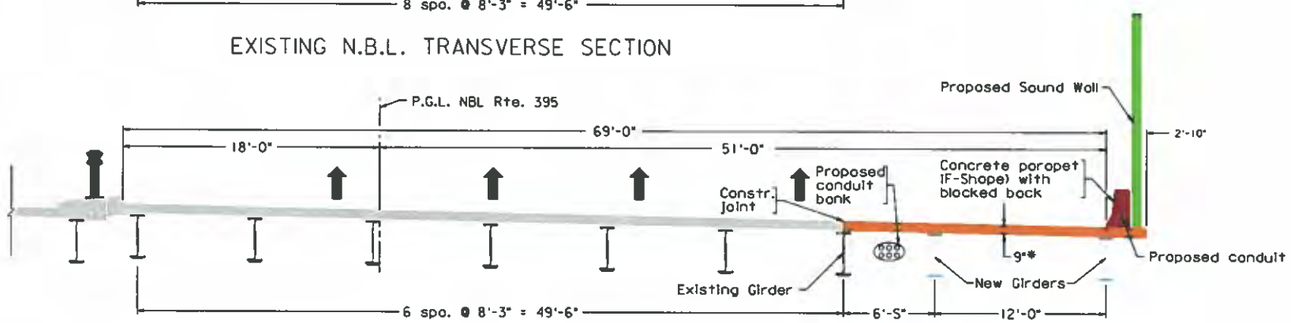
Scale: 1" = 20'

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

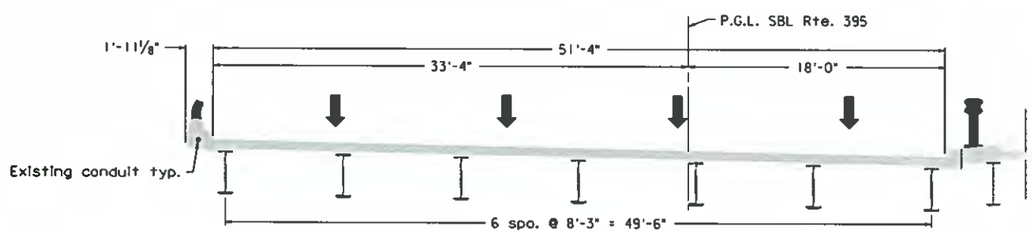


EXISTING N.B.L. TRANSVERSE SECTION

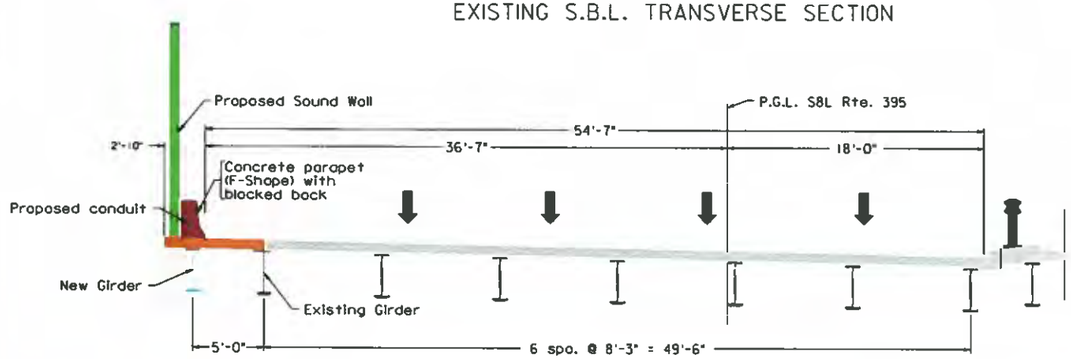


N.B.L. FINAL CONDITION

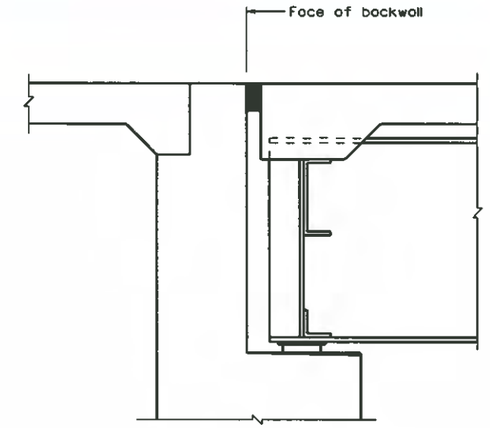
*Deck thickness increased in widening due to 12'-0" beam spacing.



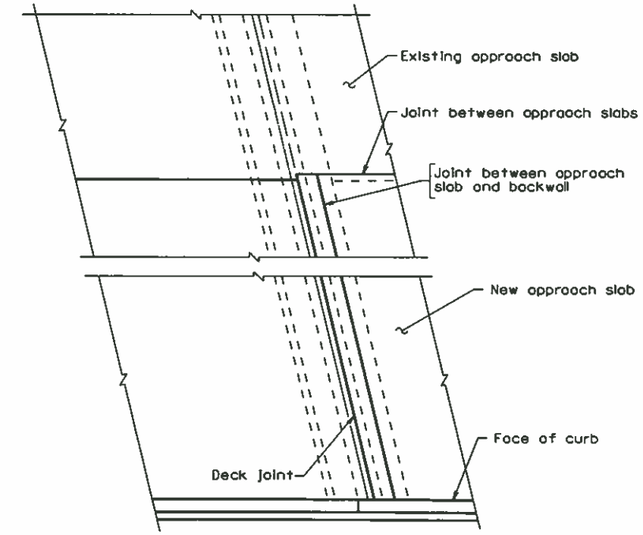
EXISTING S.B.L. TRANSVERSE SECTION



S.B.L. FINAL CONDITION



PARTIAL SECTION THRU WIDENED ABUTMENT
Scale: ¾" = 1'-0"



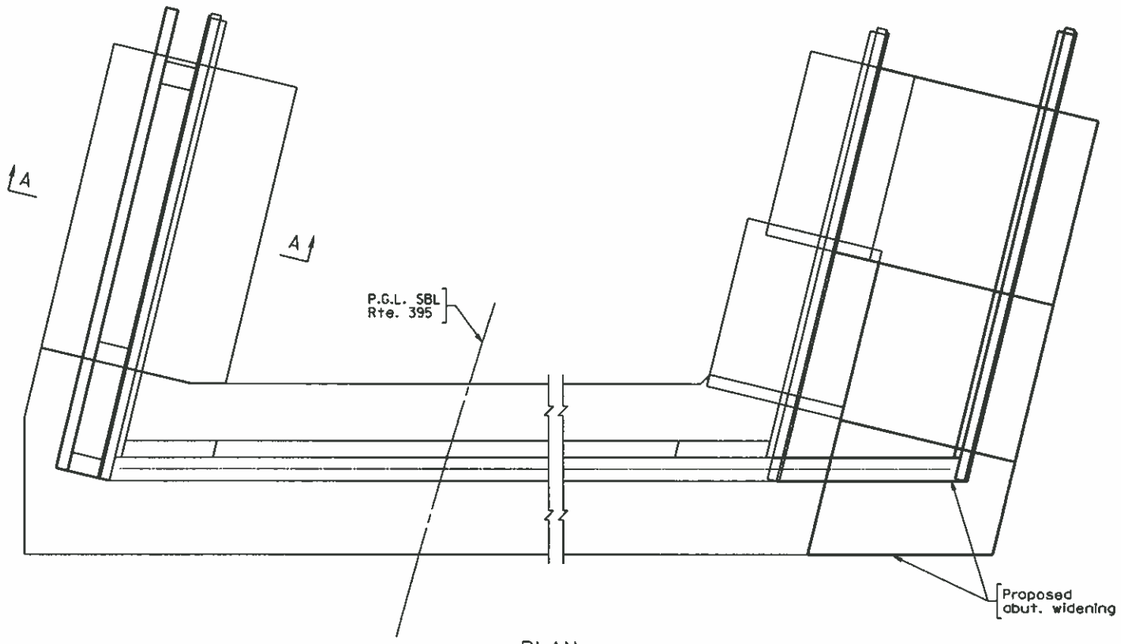
PARTIAL VIEW SHOWN @ ABUTMENT A NBL
JOINT AT ABUTMENT
Scale: ¾" = 1'-0"

CONCEPTUAL

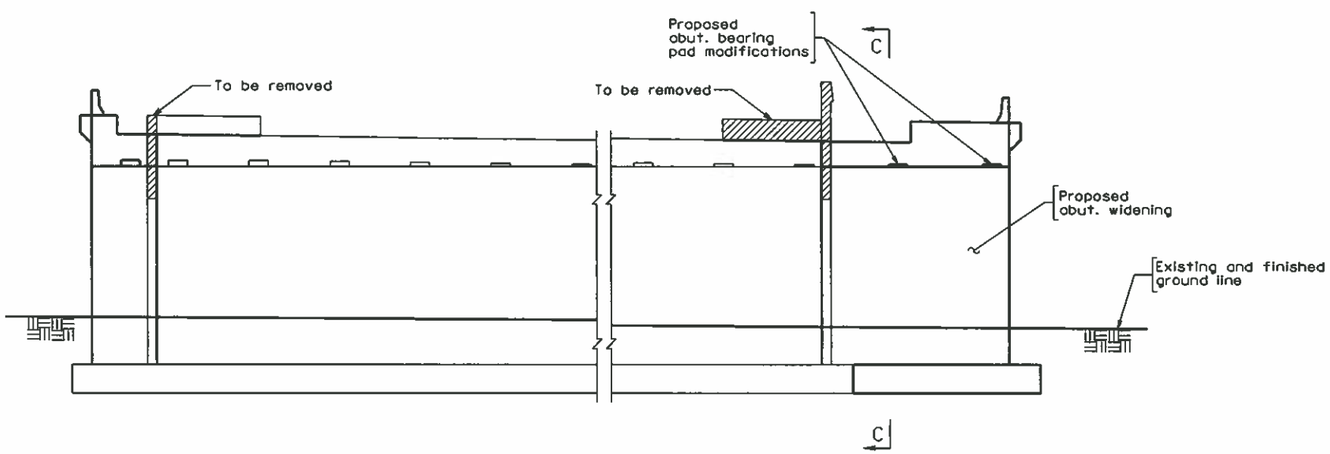
I-395 BRIDGE OVER SANGER AV
TRANSVERSE SECTIONS

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

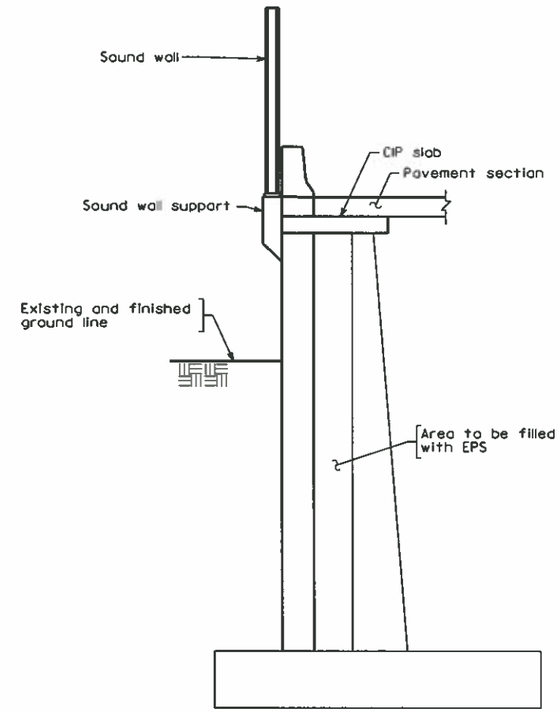
Scale: 3/16" = 1'-0" unless otherwise noted



PLAN

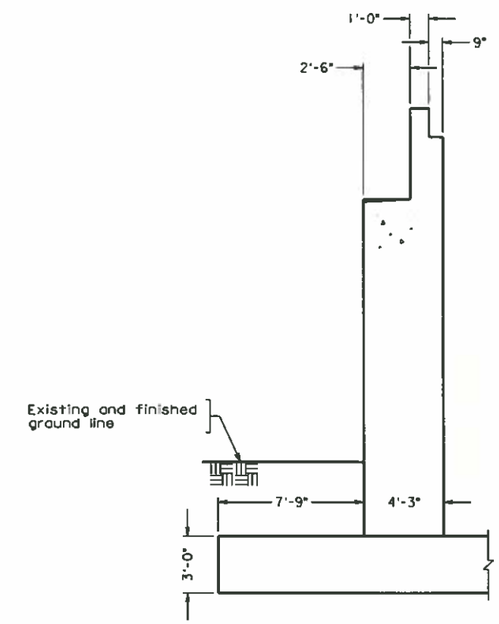


ELEVATION



SECTION A-A

Scale: 1/4" = 1'-0"



SECTION C-C

Scale: 1/4" = 1'-0"

CONCEPTUAL

I-395 BRIDGE OVER SANGER AVE
NORTH ABUTMENT

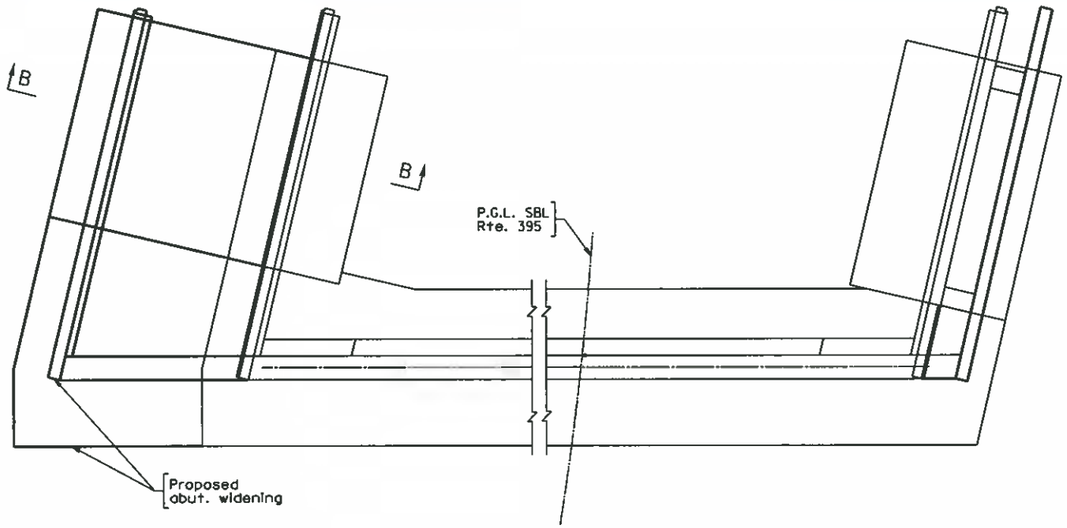
CK CONSTRUCTORS

TECHNICAL PROPOSAL

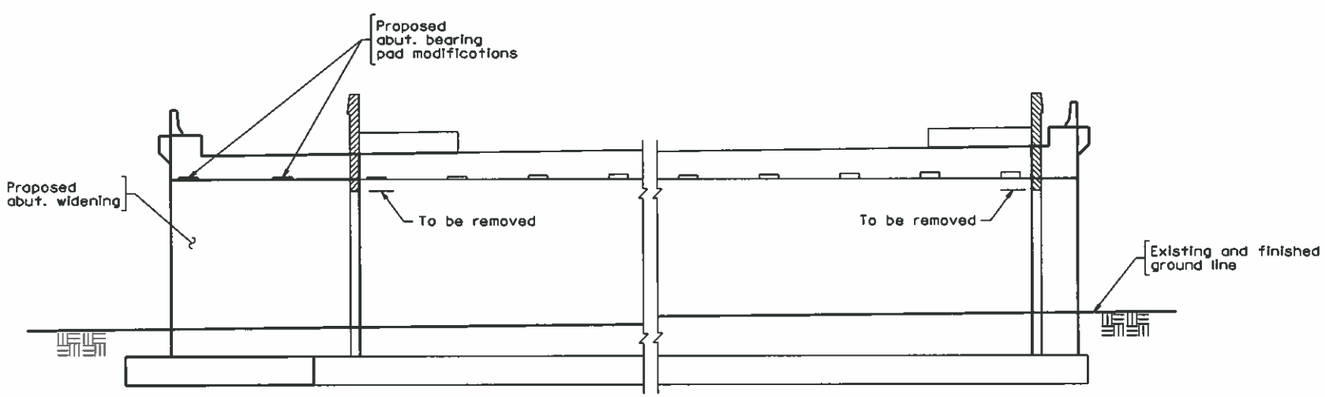
Scale: 1/8" = 1'-0" unless otherwise noted

PRELIMINARY PLANS

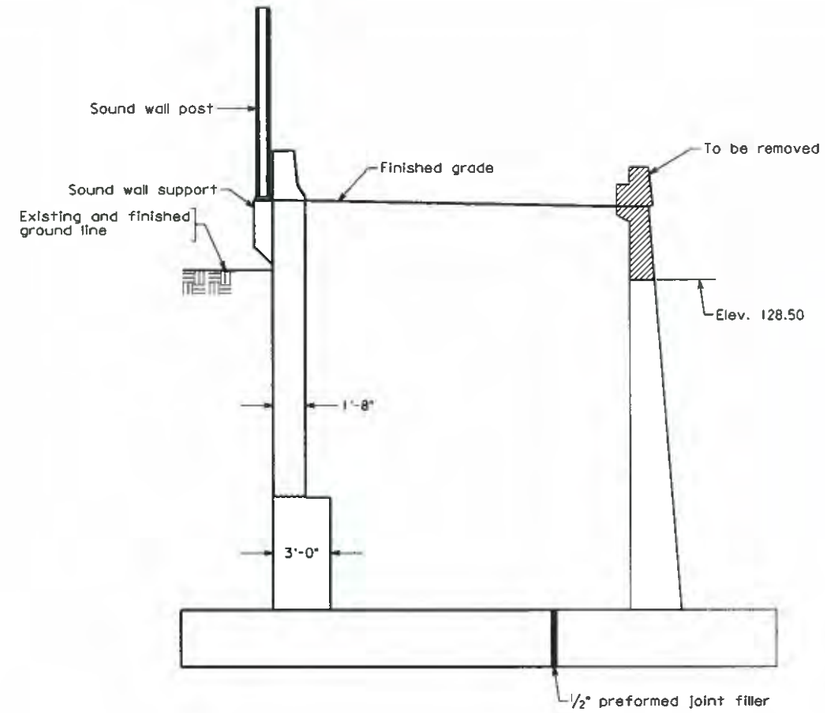
NOT FOR CONSTRUCTION



PLAN



ELEVATION



SECTION B-B
Scale: 1/4" = 1'-0"

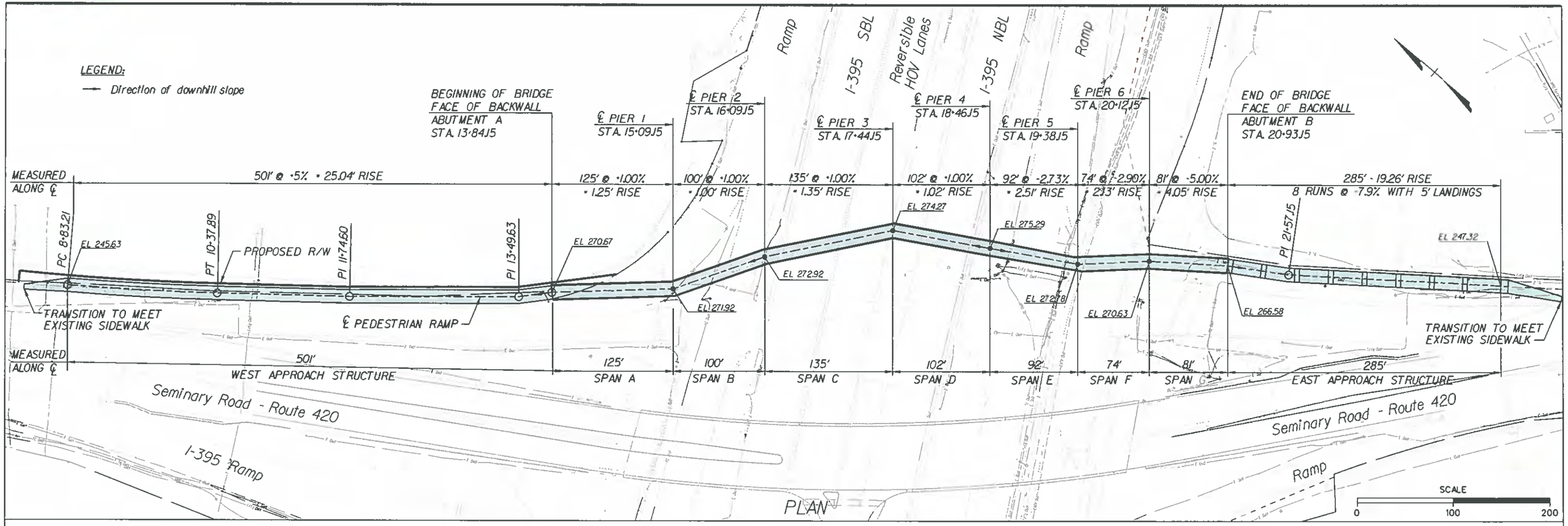
CONCEPTUAL
I-395 BRIDGE OVER SANGER AVE
SOUTH ABUTMENT

CK CONSTRUCTORS

TECHNICAL PROPOSAL

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

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

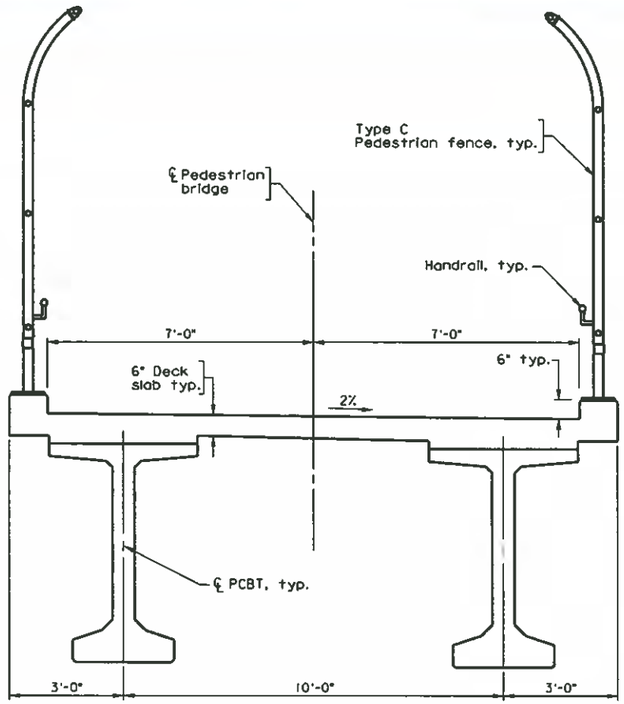


CONCEPTUAL
PEDESTRIAN BRIDGE
PLAN AND ELEVATION

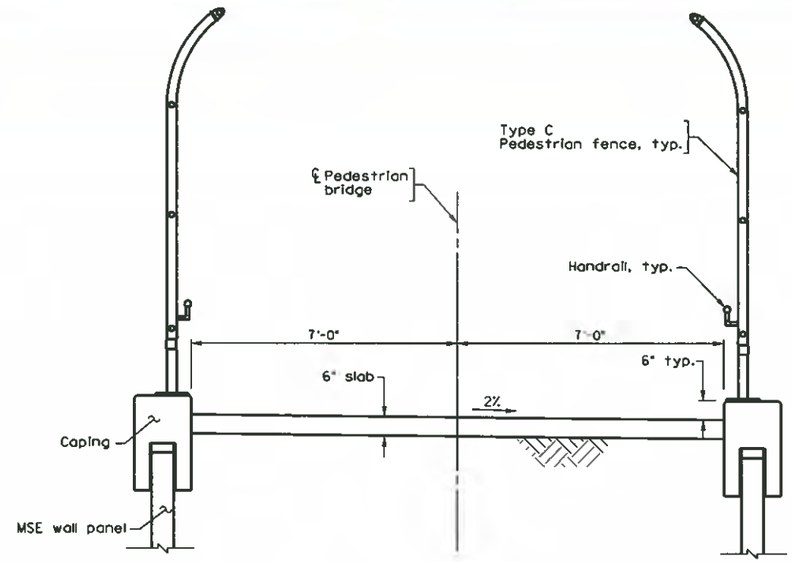
CK CONSTRUCTORS

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

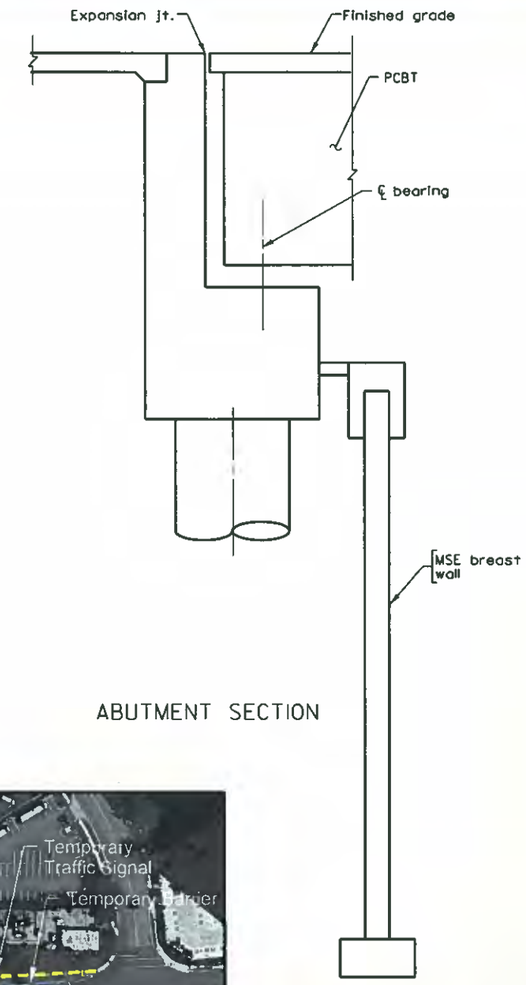
SPAN	GIRDER
A	PCBT-61
B	PCBT-53
C	PCBT-69
D	PCBT-53
E	PCBT-45
F	PCBT-37
G	PCBT-37



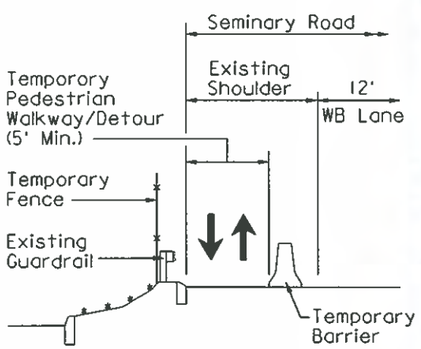
TYPICAL SECTION



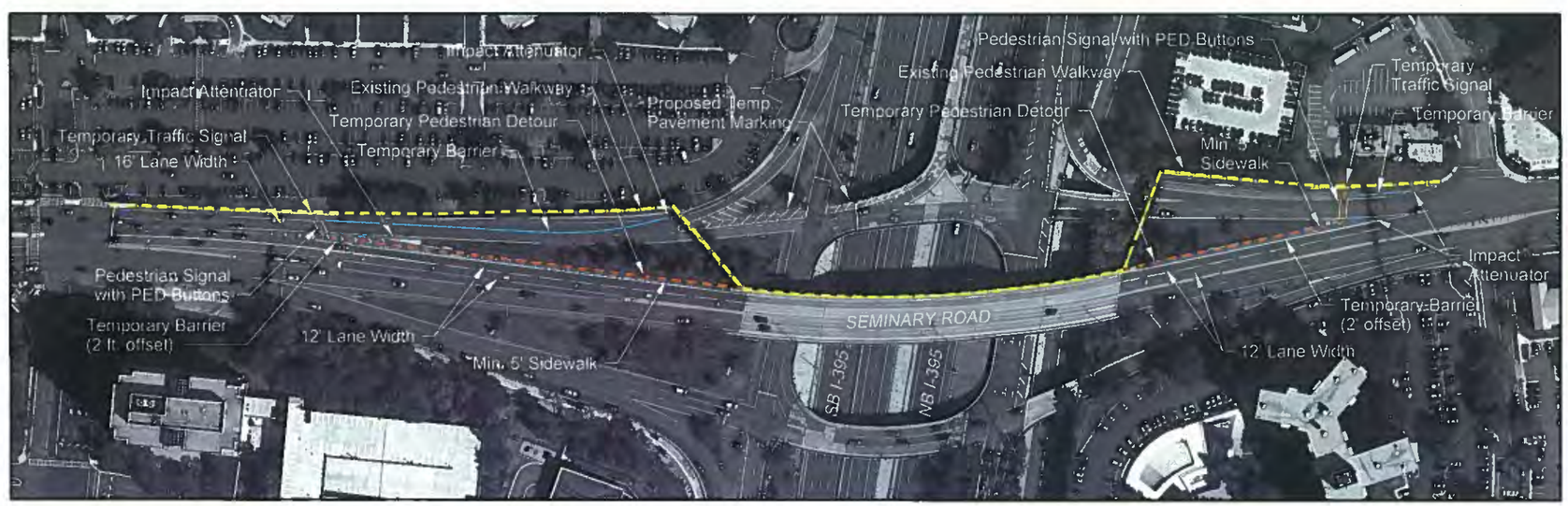
TYPICAL SECTION
THROUGH APPROACH RAMP



ABUTMENT SECTION



TYPICAL SECTION
LOOKING EAST



PEDESTRIAN MOT PLAN

LEGEND:
- Existing Pedestrian Walkway
- Proposed Pedestrian Detour During Construction of Pedestrian Bridge

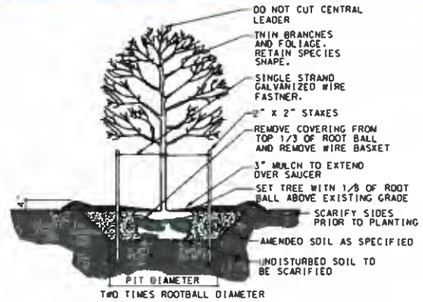
CONCEPTUAL

PEDESTRIAN BRIDGE SECTIONS AND MOT

TECHNICAL PROPOSAL

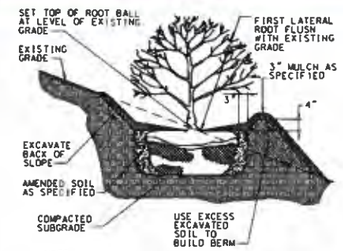
CK CONSTRUCTORS

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



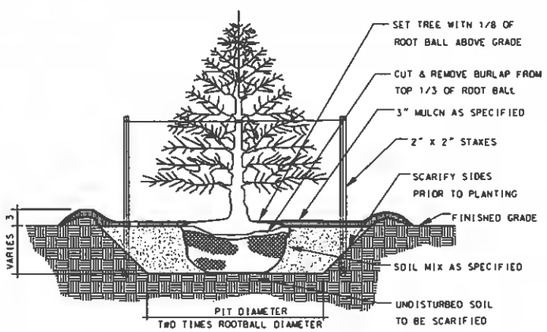
TYPICAL TREE PLANTING

NOT TO SCALE



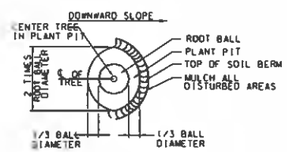
SHRUBS ON SLOPE

NOT TO SCALE



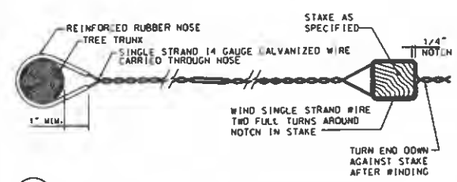
TYPICAL EVERGREEN TREE PLANTING

NOT TO SCALE



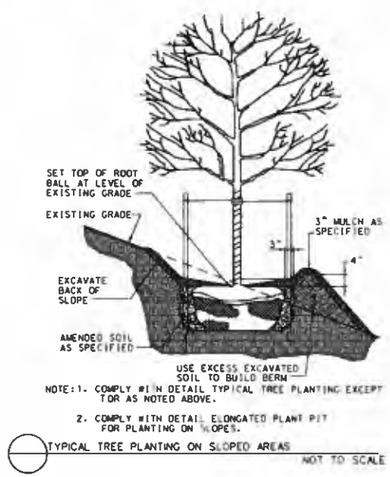
PLAN VIEW – ENLONGATED PLANT PIT FOR PLANTING ON SLOPES

NOT TO SCALE



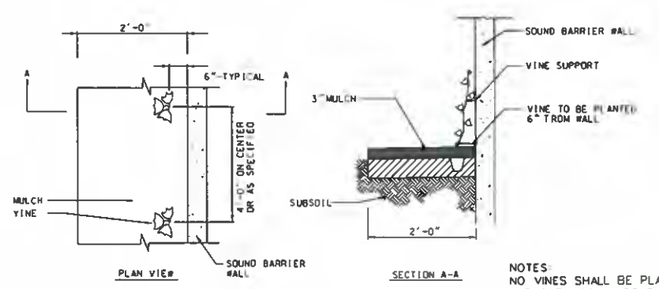
SINGLE STRAND GALVANIZED WIRE FASTENER

NOT TO SCALE



TYPICAL TREE PLANTING ON SLOPED AREAS

NOT TO SCALE



NOTES:
NO VINES SHALL BE PLANTED ALONG FANWALL LOCATIONS

VINE PLANTING ALONG SOUND BARRIER WALL

NOT TO SCALE

LANDSCAPE NOTES

1 LANDSCAPING SHALL BE PROVIDED ALONG THE PROPOSED GROUND MOUNT SOUND WALL (SOUND WALL 11 ALONG I-395 NORTHBOUND, STATION 315+50 TO STATION 338+80.5 IN ACCORDANCE WITH THE RFP ADDENDUM 1 SECTION 2.B LANDSCAPING

- ALONG WEST SIDE OF PROPOSED SOUND WALL FACING I-395- REFORESTATION PLANTING OF 5 FOOT HEIGHT DECIDUOUS TREES SHALL BE PLANTED 5 FEET OFF OF THE PROPOSED GUARDRAIL TO 10 FEET OFF OF THE NORTH SIDE OF THE GROUND MOUNT SOUND WALL WITH APPROXIMATE SPACING OF 20-30 FEET ON CENTER.

- ALONG EAST SIDE OF PROPOSED SOUND WALL FACING VAN DORN STREET-
2 INCH CALIPER DECIDUOUS TREES, 7 FEET IN HEIGHT EVERGREEN TREES, AND 6-8 FEET IN HEIGHT FLOWERING TREES SHALL BE PLANTED IN THE AREA BETWEEN THE FACE OF CURB ON VAN DORN STREET AND 10 FEET OFF OF THE SOUTH SIDE OF THE PROPOSED SOUND WALL WHERE ADEQUATE PLANTING SPACE IS AVAILABLE THE RATIO OF DECIDUOUS TREES TO FLOWERING TREES AND EVERGREEN TREES SHALL BE 3:1 REFER TO PROPOSED PLANT SCHEDULE FOR ON CENTER SPACINGS

- FOR AREAS ALONG THE VAN DORN STREET SIDE OF THE PROPOSED SOUND WALL THAT WILL MAINTAIN EXISITING SIDEWALKS, 2 INCH CALIPER TREES SHALL BE PLANTED 10 FEET OFF OF SIDEWALK SPACED 30 FEET ON CENTER WHERE ADEQUATE SPACE IS AVAILABLE

2 ALONG EAST SIDE OF DUKE STREET RAMP BETWEEN STATION 268+00 TO 278+00-
SHRUB PLANTING OF 2-4 FOOT HEIGHT SHRUBS SHALL BE PLANTED 3 FEET OFF OF THE PROPOSED GUARDRAIL TO THE PROPOSED CUT DELINEATION LINE WITH APPROXIMATE SPACING OF 4 FEET ON CENTER WHERE ADEQUATE PLANTING SPACE IS AVAILABLE.

3. ALONG PROPOSED SOUND WALL NO.1 BETWEEN STATION 280+74 TO STATION 315+50 PLANT VINES ON EAST SIDE OF THE SOUND WALL AT 4 FEET ON CENTER WHERE ADEQUATE PLANTING SPACE IS AVAILABLE

4 BETWEEN I-395 NORTHBOUND AND I-395 NORTHBOUND RAMP FROM STATION 337+00 +/- TO 342+00 -
SHRUB PLANTING OF 2-4 FOOT HEIGHT SHRUBS SHALL BE PLANTED 3 FEET OFF OF THE PROPOSED RETAINING WALL AT I-395 NORTHBOUND TO 3 FEET OFF OF THE PROPOSED GUARDRAIL AT I-395 NORTHBOUND RAMP WITH APPROXIMATE SPACING OF 4 FEET ON CENTER.

5. ALONG PROPOSED SOUND WALL NO.2 ALONG I-395 SOUTHBOUND BETWEEN STATION 300+72.5 TO STATION 309+68 +/- PLANT VINES ON BOTH SIDES OF THE SOUND WALL AT 4 FEET ON CENTER.

6. ALONG PROPOSED SOUND WALL NO.3 BETWEEN STATION 322+83+/- TO STATION 333+71.25 PLANT VINES ON BOTH SIDES OF THE PROPOSED SOUND WALL AT 4 FEET ON CENTER.

7. THE DESIGN BUILDER SHALL PROVIDE DENSELY PLANTED SHRUBS WHERE AREAS ARE TOO SMALL OR STEEP (SLOPES AT OR GREATER THEN 2:1) FOR ADEQUATE TREE GROWTH.

8. ALL PLANTING SHALL BE SET BACK 10 FEET FROM ALL UTILITIES WITHIN THE PROJECT LIMITS.

9. TREES SHALL BE PROVIDED FOR SCREENING AND FOR REPLACEMENT OF TREES IMPACTED BY THE PROJECT. FOR EVERY TREE 6 INCHES OR GREATER IN CALIPER THAT IS REMOVED, THE DESIGN-BUILDER SHALL PLANT A 2 INCH CALIPER TREE FOR EVERY 6 INCH IN CALIPER OF THE TREE THAT IS REMOVED

10. FOR INVASIVE PLANT SPECIES CONTROL DURING CONSTRUCTION:

- MINIMIZE THE CONSTRUCTION FOOTPRINT LIMIT OF DISTURBANCE.

- REVEGETATE WITH DESIRABLE SPECIES AS SOON AS POSSIBLE FOLLOWING DISTURBANCE.

- PROMPT SEEDING ADHERENCE TO THE VIRGINIA SEED LAW AND VDOT SPECIFICATIONS.

PROPOSED PLANT SCHEDULE

BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
REFORESTATION TREES			
Acer rubrum	Red Maple	5 FT. HT.	20-30 FT. ON CENTER
Platanus occidentalis	Sycamore	5 FT. HT.	20-30 FT. ON CENTER
Quercus alba	White Oak	5 FT. HT.	20-30 FT. ON CENTER
Liquidambar styraciflua	Sweetgum	5 FT. HT.	20-30 FT. ON CENTER
Quercus prinus	Chestnut Oak	5 FT. HT.	20-30 FT. ON CENTER
Quercus rubra	Red Oak	5 FT. HT.	20-30 FT. ON CENTER
DECIDUOUS TREES			
Acer rubrum 'Armstrong'	Armstrong Red Maple	2 IN. CAL.	20-30 FT. ON CENTER
Carpinus caroliniana	American Hornbeam	2 IN. CAL.	20-30 FT. ON CENTER
Quercus alba	White Oak	2 IN. CAL.	20-30 FT. ON CENTER
EVERGREEN TREES			
Juniperus virginiana	Eastern Redcedar	7 FT. HT.	15-25 FT. ON CENTER
Pinus virginiana	Virginia Pine	7 FT. HT.	15-25 FT. ON CENTER
FLOWERING TREES			
Amelanchier canadensis	Shadblow Serviceberry	6-8 FT. HT.	10-15 FT. ON CENTER
Cercis canadensis	Eastern Redbud	6-8 FT. HT.	10-15 FT. ON CENTER
Chionanthus virginicus	White Fringetree	6-8 FT. HT.	10-15 FT. ON CENTER
Cornus kousa	Kousa Dogwood	6-8 FT. HT.	10-15 FT. ON CENTER
SHRUBS			
Cornus sericea	Redosier Dogwood	2-4 FT. HT.	4 FT. ON CENTER
Rhus aromatica	Fragrant Sumac	2-4 FT. HT.	4 FT. ON CENTER
Rhus copallina	Shining Sumac	2-4 FT. HT.	4 FT. ON CENTER
Sambucus nigra	Elderberry	2-4 FT. HT.	4 FT. ON CENTER
VINES			
Parthenocissus quinquefolia	Virginia Creeper	4 IN. POT	4 FT. ON CENTER

CONCEPTUAL

LANDSCAPE DETAILS & PLANTING SCHEDULE

CK
CONSTRUCTORS