VDOT
Virginia Department of Transportation

Technical Proposal
Volume I

A DESIGN-BUILD PROJECT

I-95 at Temple Avenue Interchange Improvements

From: 0.041 Mi. West of Hamilton Avenue

To: 0.069 Miles East of Existing I-95 Ramp

Colonial Heights, Virginia

American Infrastructure

rda

WALLACE MONTGOMERY

State Project No.: 0095-106-122

Federal Project No.: NH-095-1 (328)

Contract ID No.: C00085623DB74

Date: November 7, 2014

4.0.1.1
Technical Proposal Checklist and Contents

ATTACHMENT 4.0.1.1

I-95 AT TEMPLE AVENUE INTERCHANGE IMPROVEMENTS

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	Section 4.0.1.1
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Section 3.6
Letter of Submittal	NA	Sections 4.1		Pages 1-2
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	Pages 1-2
Offeror's official representative information	NA	Section 4.1.1	yes	Page 2
Authorized representative's original signature	NA	Section 4.1.1	yes	Page 2
Declaration of intent	NA	Section 4.1.2	yes	Page 2
120 day declaration	NA	Section 4.1.3	yes	Page 2
Principal Officer information	NA	Section 4.1.5	yes	Page 2
Final Completion Date	NA	Section 4.1.6	yes	Page 2
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.7	no	Appendix 4.1.7
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.8	no	Appendix 4.1.8
Offeror's Qualifications	NA	Section 4.2		Pages 3-4
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any	NA	Section 4.2.1	yes	Page 3

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	NA	Section 4.2.2	yes	Page 3
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	Page 4
Design Concept	NA	Section 4.3		
Conceptual Roadway Plans and description	NA	Section 4.3.1	yes	Pages 5-10 Vol II Pages 29-40
Project Approach	NA	Section 4.4		Pages 11-19
Utilities	NA	Section 4.4.1	yes	Pages 11-14
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.2	yes	Pages 14-17
Geotechnical	NA	Section 4.4.3	yes	Pages 18-19
Construction of Project	NA	Section 4.5		Pages 20-27
Sequence of Construction	NA	Section 4.5.1	yes	Pages 20-24
Transportation Management Plan	NA	Section 4.5.2	yes	Pages 24-27

ATTACHMENT 4.0.1.1

I-95 AT TEMPLE AVENUE INTERCHANGE IMPROVEMENTS

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Disadvantaged Business Enterprises (DBE)	NA	Section 4.6		Page 28
Written statement of percent DBE participation	NA	Section 4.6	yes	Page 28
DBE subcontracting narrative	NA	Section 4.6	yes	Page 28
Proposal Schedule	NA	Section 4.7		Section 4.7
Proposal Schedule	NA	Section 4.7	no	Section 4.7
Proposal Schedule Narrative	NA	Section 4.7	no	Section 4.7
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.7	no	CD-ROM

Attachment 3.6
Form C-78-RFP

Form C-78-RFP

ATTACHMENT 3.6

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFP NO. *C00085623DB74*

PROJECT NO.: *0095-106-122*

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 July 7, 2014 – RFP
   (Date)
2. Cover letter of Addendum #1- October 17, 2014 – RFP
   (Date)
3. Cover letter of Addendum #2- November 4, 2014 – RFP
   (Date)

SIGNATURE

November 7, 2014
DATE

Aaron T. Myers, Vice President/General Manager
AMERICAN INFRASTRUCTURE-VA, INC.

4.1
Letter of Submittal

301 Concourse Boulevard, Suite 300
Glen Allen, VA 23059
Phone: 804-290-8500 Fax: 804-418-7935
www.americaninfrastructure.com

November 7, 2014

Bryan W. Stevenson, P.E.
Virginia Department of Transportation
Alternative Project Delivery Office
1401 East Broad Street
Annex Building, 8th Floor
Richmond, VA 23219

Letter of Submittal/Technical Proposal:
I-95 at Temple Avenue Interchange Improvements
State Project No.: 0095-106-122
Federal Project No.: NH-095-1(328)
Contract ID Number: C00085623DB74

Dear Mr. Stevenson:

The Team of American Infrastructure (AI), Rinker Design Associates, PC (RDA) and Wallace Montgomery (WM), collectively referred to herein as the AI Team, appreciates being short-listed by the Virginia Department of Transportation (VDOT) and provided the opportunity to present our approach to the design and construction of the I-95 at Temple Avenue Interchange Improvements (the Project). Through our investigations, studies, assessments, and preliminary design efforts, the AI Team has endeavored to present a cost-effective solution which addresses the Request for Proposal (RFP) scope of work.

Our team has an appreciation of the regional transportation needs, the City of Colonial Heights (City) development interests, and the concerns of local residents. Through partnering with VDOT and the project stakeholders and focusing on the project schedule, we will achieve the following specific project goals:

- ***Providing Continuous and Safe Traffic Flow through the Work Zone*:** Roundabouts continue to present driver challenges and constructing a two-lane roundabout under traffic with phased implementation will be especially challenging. The AI Team has developed a clear and concise Transportation Management Plan (TMP) and Sequence of Construction (SOC) that includes proactive and transparent public outreach to foster open communication, limit surprises, and allow local residents to plan for upcoming traffic shifts and avoid delays.
- ***Reducing Construction Impacts:*** Through design refinements described in Section 4.3, we have optimized the vertical profile by lowering the roundabout and approaches resulting in less fill material and fewer dump trucks on local roadways and through the construction area. By performing the utility locating as noted in Section 4.4, we have verified a solution that eliminated impacts to the 24" ARWA water main. Following constructability studies, we have developed a SOC that eliminates any additional temporary signals, thus minimizing potential driver confusion during construction.
- ***Schedule Acceleration:*** Our accelerated schedule reflects beneficial occupancy of the roundabout in July 2017, giving local users time to acclimate to the roundabout operations in advance of the 2017-2018 School Year and Holiday Season. This is accomplished by obtaining advanced Phase I Maintenance of Traffic (MOT) Released for Construction (RFC) documents in July 2015 (as only right-of-way from Parcel 004 is required) and implementing improvements prior to the end of the 2015 construction season. Further, we are focused on utility company coordination, relocation design, P&E approval, and advanced relocation prior to April 2016 to ensure we have unobstructed access to the entire Temple Avenue construction corridor.

- ***Managing Project Risks including Utilities and Geotechnical Concerns:*** As described in Section 4.3, the best way to manage utility risk is to eliminate the conflict. By optimizing our design, we have eliminated impacts to sanitary sewer, gas, and water facilities. To manage potential geotechnical risks, we have eliminated the Ridge Road retaining wall and reduced the roundabout retaining wall height and shifted it to the north, thus replacing the MB-7F/moment slab barrier with guardrail.
- ***Delivering a Cost-Effective Project Solution:*** Through the efforts described in this Technical Proposal, the AI Team has provided detailed, specific, and focused cost saving solutions to deliver the Project to the traveling public safely, within budget, and on-schedule. Further, we are ensuring flexibility in the scheduling and reliability by self-performing paving operations with AI supplied asphalt.

SUBMITTAL REQUIREMENTS

The AI Team submits the following information as requested in Section 4.1 of the RFP:**4.1.1** The full legal name and address of American Infrastructure – VA, Inc. (AI-VA) is as follows:

American Infrastructure – VA, Inc., 301 Concourse Boulevard, Suite 300, Glen Allen, VA 23059.

4.1.2 American Infrastructure – VA, Inc. intends to enter into a contract with VDOT for the Project in accordance with the terms of the RFP.

4.1.3 The offer included in the Technical and Price Proposals remains in full force and effect for one hundred twenty days (120) after the Technical Proposal is submitted to VDOT on November 7, 2014.

4.1.4 Design-Build Project Manager, Ed Hilferty, is the primary point of contact for the AI Team and is responsible for the oversight of the entire AI Team. We are committed to keeping Ed as well as the other key personnel for the Project intact for the duration of design and construction.

Ed Hilferty, Design-Build Project Manager	610-587-2160 (Telephone)
301 Concourse Boulevard, Suite 300	804-418-7935 (Fax)
Glen Allen, VA 23059	ed.hilferty@americaninfrastructure.com

4.1.5 The principal officer of AI-VA with whom a design-build contract with VDOT would be written is:

Aaron Myers, Vice President/General Manager	804-290-8500 (Telephone)
301 Concourse Boulevard, Suite 300	804-418-7935 (Fax)
Glen Allen, VA 23059	aaron.myers@americaninfrastructure.com

4.1.6 The Final Completion date of November 10, 2017 is reflected in the Proposal Schedule and meets the planned Completion Date identified by Section 2.3.1 of the RFP.

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

4.1.8 Certification Regarding Debarment Forms are included in Appendix 4.1.8 for Primary and Lower Tier Covered Transactions.

We appreciate your consideration of our Technical Proposal and trust your review will find our approach to the Project is in alignment with the priorities of VDOT, the City, local residents, and the traveling public. Building upon an established VDOT and AI Team partnership will streamline the design and construction process and present schedule efficiencies that benefit both the City and local residents.

Respectfully,

Aaron T. Myers, Vice President/General Manager
American Infrastructure – VA, Inc.

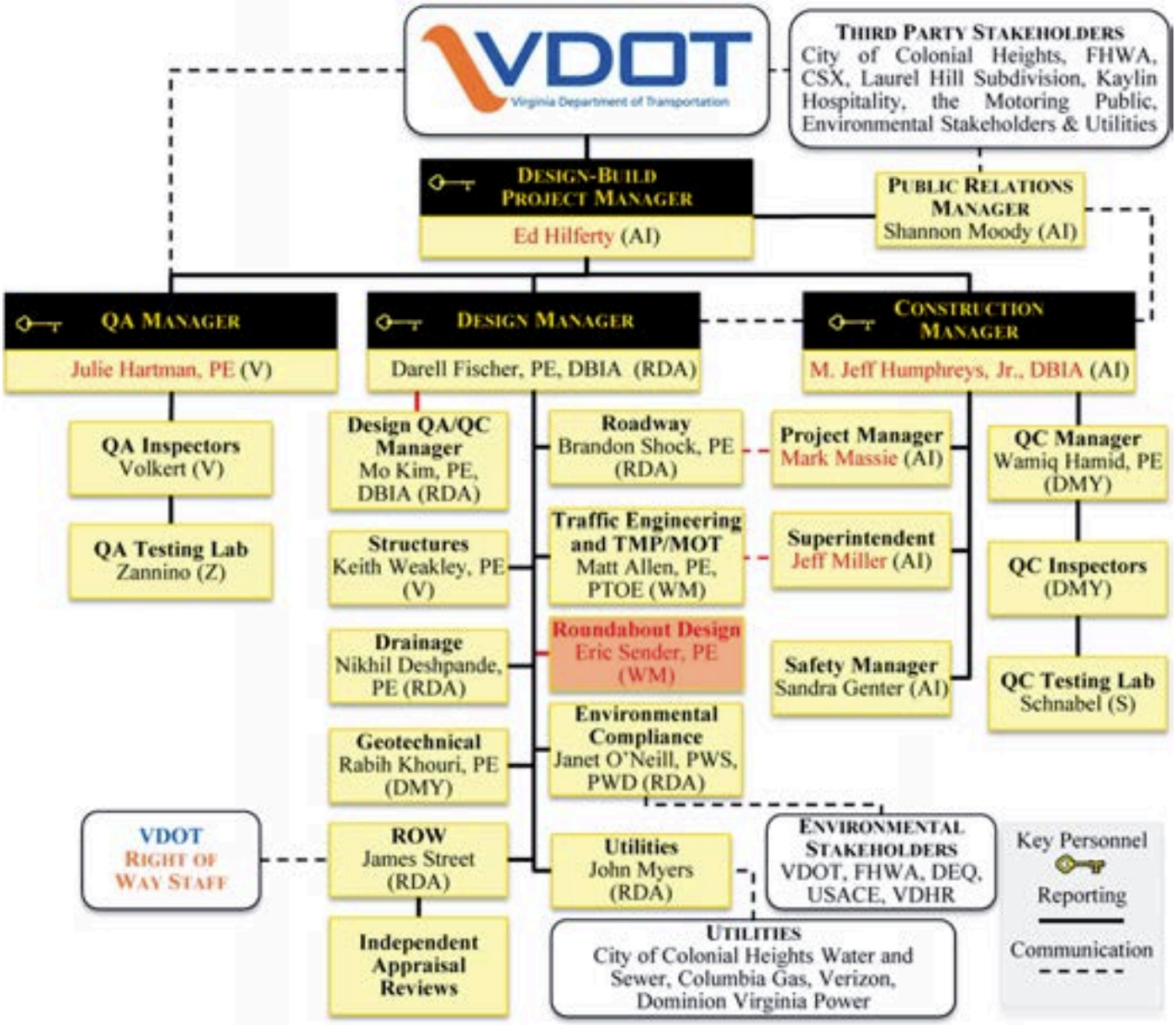
4.2
Qualifications

4.2.1 Confirmation of SOQ Information

Unforeseen employment changes following VDOT's issuance of the Project's short-listing required AI to submit a request for personnel changes. VDOT approved the request on September 19, 2014. All other information from the SOQ remains true and accurate in accordance with Section 11.4 of the RFP.

4.2.2 Organizational Chart and Narrative

Since the submission of our personnel change request, minor changes have been made to our organizational chart and narrative. All changes from the SOQ are highlighted as red text.



American Infrastructure (AI) *Rinker Design Associates (RDA)* *Wallace Montgomery (WM)* *Volkert (V)*
DMY Engineering Consultants (DMY) *Zannino Engineering (Z)* *Schnabel Engineering Consultants (S)*

Roundabout Designer, Eric Sender, PE has been identified because of the challenges posed by the RFP to ensure roundabout design in accordance with the Project's design criteria and the need to ensure MOT/SOC phasing prior to use of the roundabout. Eric has been involved with the design of over ten (10) individual roundabouts, including single and multi-lane roundabouts in urban and rural settings.

Lines of communication have been updated between the roadway designer and construction project manager as well as between the traffic engineer and the construction superintendent. The increases in communication between design and construction are needed as the MOT/SOC is more complex than originally anticipated, especially when considering the AI Team's proposed vertical profile design refinement described in Section 4.3 of this Technical Proposal. Minor rearrangement of the layout of the organizational chart was necessary to accommodate these updates.

The reporting relationship of the Design QA/QC Manager has been clarified to show reporting directly to the Design Manager (DM) and not through the Design Team. This relationship facilitates a structured design QA/QC review process through the Design-Build Project Manager (DBPM), directed by the DM, and supported by technical discipline leaders.

Design-Build Project Management – The DBPM is VDOT's primary point of contact and is supported by the Quality Assurance Manager (QAM), Design Manager (DM), Construction Manager (CM), and Public Relations (PR) Manager. The DBPM will ensure the Project meets VDOT's schedule and commitments.

Quality Assurance –The QAM will report directly to the DBPM with concurrent reporting to VDOT. The QAM is responsible for QA inspection and testing, including monitoring of construction QC to ensure conformance with the "approved for construction" plans and specifications. Volkert's QA inspectors will report to the QAM. QA materials testing will be provided by Zannino Engineering and will be overseen by Volkert's QA Inspectors.

Design – The DM will report to our DBPM and ensure the overall design conforms to the contract documents. All pertinent design disciplines will report to the DM. WM will develop the TMP and DMY will provide geotechnical support. The Design QA/QC Manager will report to the DM and establish and oversee the design QA/QC program. The DM will also coordinate directly with the CM throughout design and construction.

Construction – The CM reports to the DBPM and communicates directly with the DM and PR Manager. The PM, Superintendent, Safety Manager, and DMY's QC Manager will report to the CM. QC materials testing will be provided by Schnabel and will be overseen by DMY's QC Inspectors.

Public Relations – The PR Manager will report to the DBPM and work hand-in-hand with the DM, CM, and VDOT to facilitate public workshops and assist with educating the public about navigating roundabouts.

TEAM COORDINATION – Continuous coordination and open communication within the AI Team and with VDOT and key stakeholders will ensure commitments are met and progress is transparent.

- *Design* – Design coordination will include constructability reviews, design disciplinary reviews, over the shoulder reviews, and comment-resolution meetings with stakeholders.
- *Progress Meetings* – Monthly project progress meetings with VDOT and bi-weekly team meetings will discuss design and construction status, project schedule, ROW acquisition, utility coordination, contract administration, safety, and public relations.
- *Public Outreach* – Public workshops and Roundabout Clinics will address public concerns regarding the Roundabout. "Pardon our Dust" meetings will allow the public to view plans and discuss concerns throughout construction of the Project.
- *Schedule* – Daily coordination between the CM, senior inspectors, and VDOT's onsite representative will maintain open communication. Weekly schedule meetings will include the QA and QC team, design team members, and VDOT representatives as necessary.
- *Safety* – Before and after each shift, field supervisors will review safety issues and successes with their crews. Prior to traffic switches, and on a monthly basis, all project staff will meet to review changing traffic configurations, safety performance, and address any issues or challenges in the upcoming work.

4.3
Design Concept

4.3 DESIGN CONCEPT

The AI Team thoroughly investigated the project site on several occasions and at various times of the day over the past year to review conditions and observe how the existing roads operate. Our design approach focuses on safety, reducing construction impacts, schedule acceleration, design optimization, and providing a cost-efficient solution for both construction and future maintenance. Within this section of the technical proposal, we will focus on specific design optimizations that minimize construction impacts to local residents and the traveling public. The design optimizations being proposed include:

- Lowering the profile to reduce borrow requirements while providing appropriate connections to side streets and entrances, which reduces dump trucks carrying borrow material and improves safety;
- Reconfiguration of the roundabout based on the fastest path and off-tracking to ensure compliance with design standards/guidance and width accommodation of a WB-67 side-by-side with a passenger car;
- Employing a variety of stormwater management options to appropriately convey and treat stormwater runoff from the roadway based on the adjusted profile, including the use of Nutrient Credits and investigation of the use of the quarry for quantity management; and
- Shifting the roundabout retaining wall to the north to reduce the square footage of wall, eliminate the MB-7F with moment slab, and avoid impacts to ARWA's 24" waterline.

The AI Team's design concept for the Project, including these design optimizations, does not deviate from the criteria presented in the RFP and addenda, nor do we propose any Design Waivers or Design Exceptions.

4.3.1 CONCEPTUAL ROADWAY PLANS

Volume II of this Technical Proposal contains the 11"x17" graphics that illustrate our Conceptual Project Plans. Callout boxes throughout the plans demonstrate how the proposed design complies with the RFP requirements and benefits VDOT in future maintenance of the roadway. To explain our concept and each project benefit, we have narratively addressed each element (Items "a" through "j") as described in the RFP.

(a) GENERAL GEOMETRY: The geometric standards to be used in the development of the proposed roadway facility are summarized in *Table 4.3-1 Roadway Geometry* along with number of lanes, lane widths, shoulder widths, use of curb & gutter, and provision for sidewalks (SW) and shared-use paths (SUP).

Table 4.3-1 Roadway Geometry

ROADWAY	GS ST'D	NUMBER AND WIDTH OF LANES	SHOULDERS OR C&G WIDTHS	WIDTH OF SIDEWALKS/ SHARED USE PATHS [3]
Temple Avenue	GS-6	2 Through Lanes in each direction – 12' Width/Lane	CG-6 (CG-7 w/ GR) and/or 8' paved shoulder	No new SW or SUP required but do not preclude future provisions.
Temple Avenue Roundabout	N/A[1]	2 to 3 Lanes (plus bypass lanes) – 16' Width/Lane	CG-7, CG-3, and CG-3 Modified	No SW or SUP required but do not preclude future provisions.
I-95 NB/SB Ramps	GS-R	2 to 3 Lanes each direction 14' width per lane[2]	paved shoulder – 8' right	No SW or SUP required.
I-95 SB Exit Ramp	GS-R	1 Lane – 16' Width	paved shoulder – 4' left, 8' right	No SW or SUP required.
I-95 SB Entrance Ramp	GS-R	1 Lane – 16' Width	paved shoulder – 4' left, 8' right	No SW or SUP required.
Ridge Road	GS-4/GS-8	1 – 10' Lane each direction	CG-6 (CG-7 w/ GR) or 2' graded shoulder	No SW or SUP required.

[1] Roundabout conforms to VDOT's *Road Design Manual* and *NCHRP Report 672, Roundabouts: An Informational Guide*, Second Edition.
[2] Lane widths determined by A Policy on Geometric Design of Highways and Streets, 2011 (6th Edition)
[3] Based on the RFP conceptual plans and the responses to questions, no sidewalks or shared-use paths are anticipated.

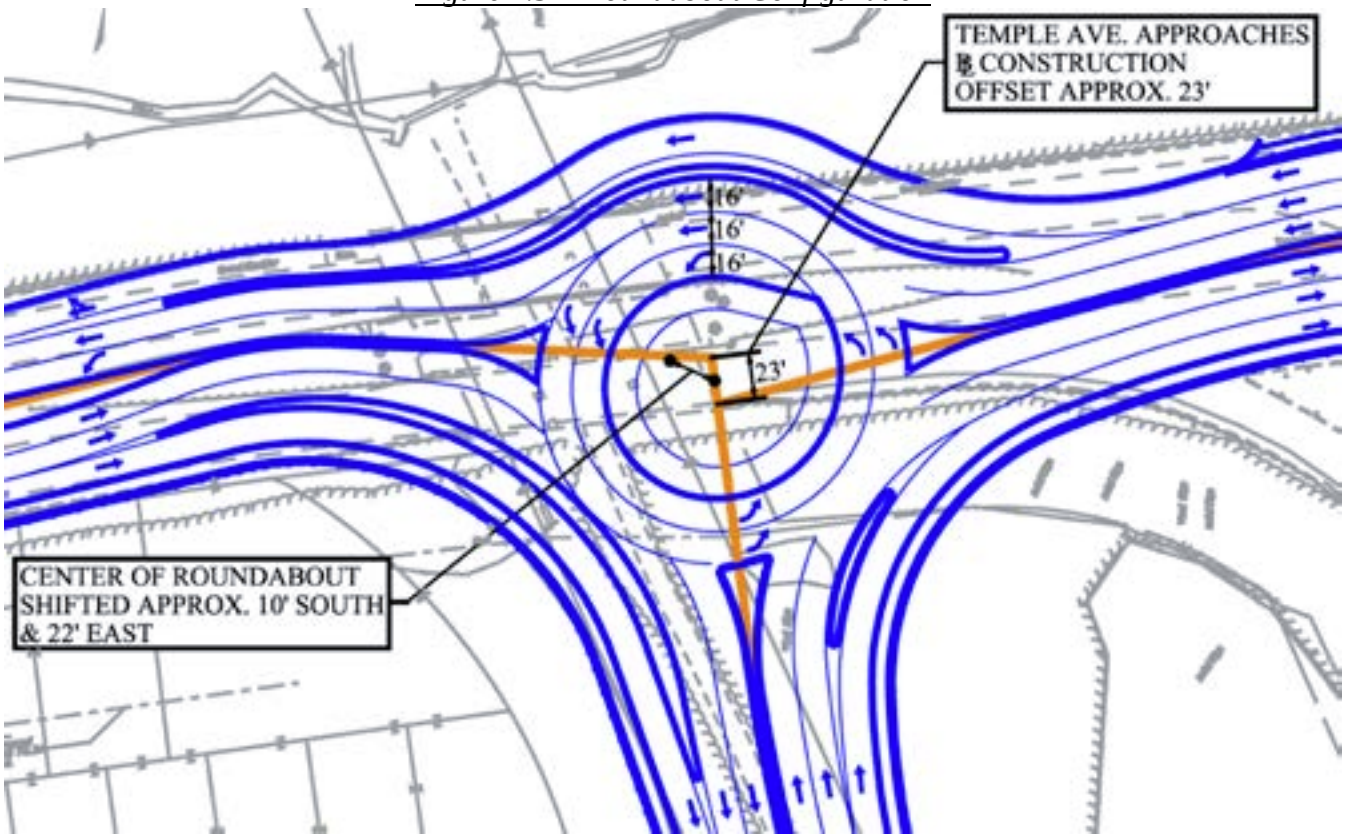
Temple Avenue – Improvements to Temple Avenue will follow the GS-6 Standard for Urban Minor Arterial Streets. Roadway widening will be provided based on the RFP conceptual plans to meet the requirements of the Project. Temple Avenue improvements will extend from west of Hamilton Avenue (Sta. 192+50) to east of the existing intersection with the ramps to I-95 (Sta. 212+81). The project scope includes a roundabout, realignment of Ridge Road opposite Hamilton Avenue, establishment of new ramps to I-95 tying into the proposed roundabout, and demolition/removal of the existing Atlantic Coastline Railroad Corridor bridges.

Temple Avenue Roundabout **–** The AI Team optimized the roundabout design and used SIDRA and HCM methodologies to assess roundabout operations. Our team concurs with the need to provide two lanes from WB Temple Avenue to the I-95 entrance ramp based on the anticipated 2015 and 2037 traffic volumes provided in the IMR, the sensitivity analysis in the RFP, and the Kroger TIA. Project constraints, such as the physical project limits noted in the NEPA CE, available right-of-way and stream/wetland impacts were also considered. Since our design complies with the IMR, a resubmission to FHWA is not required.

Our SIDRA analyses indicate that the most constrained operations occur during the evening peak hour. There are three lanes on the northern portion of the roundabout primarily for lane balance and to reduce the potential for path overlap. The remainder of the roundabout has two lanes. The southern and western legs each provide right turn bypass lanes while the eastern leg has a bypass lane for westbound thru traffic.

Roundabout Geometrics – The roundabout and approach geometry developed by the AI Team differ from the RFP plans but are consistent with Exhibit 1.5a, providing two left-turn lanes from westbound Temple Avenue to the I-95 entrance ramps. The resultant roundabout footprint is slightly larger than the RFP conceptual layout. To minimize impacts, the center of the roundabout was shifted to the southeast as shown in *Figure 4.3-1.* Consistent with roundabout designs standards, the two baselines of construction for the Temple Avenue approaches are offset. Lane markings and an irregular-shaped truck apron will reduce the potential for path overlap.

Figure 4.3-1 Roundabout Configuration

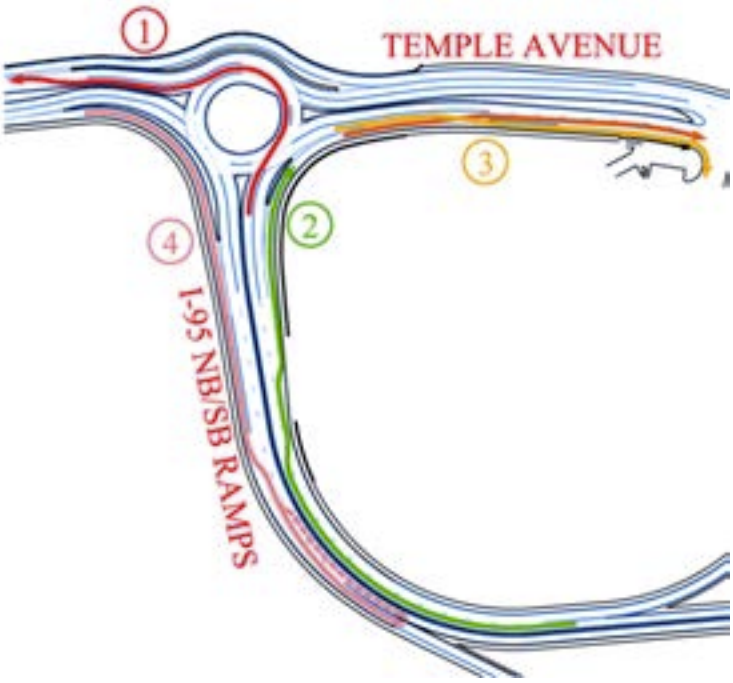


A WB-67 design vehicle and an adjacent passenger vehicle are accommodated on all movements, as dictated by the RFP and VDOT's Road Design Manual. Fastest path speeds were developed for each of the modified roundabout approaches using the methodology in NCHRP 672 and are summarized on Page 33 in Volume II. The maximum speed differential occurs on the WB leg, where the through movement and left turn movement differ by 17.5 mph. The proposed design slightly increases the size of the central island and provides maximum approach deflection to minimize speed differentials through the roundabout.

The IMR states that queues shall not extend back to the I-95 mainline gore during both the design year operations and during all construction phases. All traffic exiting from I-95 enters the roundabout on the NB approach. The queuing analysis indicates that in addition to the two NB left turn lanes, a 300-foot right-turn bypass lane is required (the concept plans accommodate a 200-foot bypass lane). The shift of the center island to the southeast provides flexibility and frees up space to provide a future parallel shared use path, consistent with the current draft of the City of Colonial Heights Comprehensive Plan 2014.

Weave and Merge Analysis – The AI Team recognizes that the operations of the roundabout are greatly affected by the operation and efficiency of four key weave and merge movements along the approach legs leading up to, and departing from, the roundabout as shown in Figure 4.3-2:

Figure 4.3-2 Key Weave and Merge Movements



1. *I-95 Ramps to Westbound Temple Ave.* – Vehicles that have exited the I-95 NB/SB Ramp and travel through the roundabout in the left/inner lane will have to merge one lane to the right upon exiting the roundabout to continue westbound along Temple Ave. A 400-foot weave distance is provided; however, this weave distance will be reduced by queued vehicles at the signal.
2. *I-95 Ramps to Eastbound Temple Ave.* – There will be a significant volume of vehicles that exit I-95 NB and have to weave over to the right two lanes to access the right-turn bypass to eastbound Temple Ave.
3. *Northbound right-turn merging onto Eastbound Temple Ave.* – Traffic from the I-95 NB/SB Ramps heading eastbound must merge into mainline Temple Ave. using a 600-foot merge area between the roundabout and the Kangaroo convenience store driveway. This merge area is also used by motorists along eastbound Temple Ave. that are merging right to access the convenience store and Hardee's restaurant.
4. *Eastbound Right-Turn Merge* – Vehicles traveling eastbound along Temple Ave. and using the right-turn bypass lane to access the I-95 NB/SB Ramps will have to merge one lane if they are destined for I-95 SB, or two lanes if they are destined for I-95 NB (500-foot merge).

Our review of the critical weave/merge movements and completion of HCM analyses indicates that clear and concise signing in advance of and departing from the roundabout will be critical to the safety of the final project. A combination of overhead and ground-mounted guide signs that clearly articulate the destinations of all approach travel lanes will ensure that positive guidance is provided to motorists.

Ramps to/from Interstate 95 – The design of the ramps to/from I-95 utilizes the GS-R Standard for Interchange Ramps with a minimum lane width of 16 feet.

- *I-95 NB/SB Ramps* – The I-95 NB/SB Ramps provide access from the roundabout to/from the individual ramps connecting to I-95. The ramp begins on the existing ramp east of the bridge over I-95 providing access from I-95 NB to Temple Ave. and from Temple Ave. to I-95 NB and ends at the roundabout.
- *I-95 SB Exit Ramp* – This ramp transitions from the existing to proposed alignment tying into the I-95 NB/SB Ramps.
- *I-95 SB Entrance Ramp* – Departing from the SB movement along the I-95 NB/SB Ramps, this ramp provides access from Temple Avenue to I-95 SB.

Ridge Road – Following GS-4/GS-8 Standards for Local Streets, Ridge Road is realigned to intersect with Temple Avenue opposite Hamilton Avenue, eliminating the existing connection east of the intersection.

(b) HORIZONTAL AND VERTICAL ALIGNMENTS: After reviewing and testing our proposed design alternative, we implemented enhancements that modified the RFP design concept to improve safety for the traveling public and reduce construction and future maintenance costs which are described in *Table 4.3-2*.

Table 4.3-2 Proposed Alignment Benefits

FEATURE	SOLUTION	BENEFIT
High Fills	Lowered vertical profile along Temple Ave. and I-95 NB/SB Ramps.	▪ Reduces costs. ▪ Allows alignment shifts to improve roundabout functionality.
Retaining Walls	Lowered Temple Avenue vertical profile.	▪ Reduces wall heights. ▪ Allows use of guardrail versus barrier with a moment slab. ▪ Reduces maintenance costs.
Roundabout Optimization	Shifted roundabout to south and east, increased the number of WB lanes by one and adjusted the shoulder widths.	▪ The shift minimizes potential waterline impacts. ▪ The additional WB lane improves the LOS and functionality. ▪ Shoulder widths provide room for WB-67 off tracking.
Waterline	Shifted roundabout south and east; verified the location of 24" waterline.	▪ Promotes the use of a straight retaining wall north of the roundabout to avoid waterline impacts.
Right of Way	Maintained the outer limit presented in Attachment 1.5a.	▪ Provides flexibility to shift the roundabout and lower the profile.

The proposed improvements comply with the requirements of the RFP. In reviewing the alignment as well as available documentation, we concluded that the horizontal alignment of Temple Avenue (specifically the roundabout location) could be shifted slightly to provide a more cost-effective solution and accommodate future sidewalks/shared-use paths if desired.

Vertical Alignment Adjustments – Minimizing the earthwork required to construct this net-borrow project is important to reduce construction costs, minimize the duration of construction, and limit the number of trucks on the road to haul fill material. This reduction will also minimizes impacts to the local roadway network during off-peak hours. Adjustments in the profiles (lowered 6.5' max) were established by defining the critical tie points along Temple Avenue. The anticipated right-in/right-out entrance for the future Kroger development was used as the westerly tie point while the existing intersection of the I-95 ramps with Temple Avenue was used as the easterly tie point. These limits were also chosen based on maintenance of traffic constraints. As a result, we have reduced earthwork by approximately 6,300 cy of borrow.

(c) MAXIMUM GRADE FOR ALL SEGMENTS AND CONNECTORS: The Project will be built in accordance with the requirements of the RFP and addendum, including the roadway grades as represented in *Table 4.3-3*.

Table 4.3-3 Maximum Roadway Grades

ROADWAY	PROPOSED MAX GRADE %	ALLOWABLE MAX GRADE %
Temple Ave.	5	8 (GS-6)
Temple Ave. Roundabout	1.25	N/A
I-95 NB/SB Ramps	5.33	4-6 (GS-R)
I-95 SB Exit Ramp	4.36	4-6 (GS-R)
I-95 SB Entrance Ramp	4.58	4-6 (GS-R)
Ridge Road	8.24	11 (GS-4/GS-8)

(d) TYPICAL SECTIONS OF THE ROADWAY SEGMENTS: The typical roadway sections included in Volume II on Page 29 and 30 reflect our Team's proposed roadway typical sections which are consistent with the RFP.

(e) PROPOSED RETAINING WALL DESIGNS: The RFP conceptual plans reflect three retaining walls. By lowering the roadway profiles along Temple Avenue and the ramp connections (I-95 NB/SB Ramps), the AI Team's conceptual design reduced the height of the walls along the ramp and along the north side of the roundabout. The wall at Ridge Road has been eliminated through design optimization.

(f) CONCEPTUAL HYDRAULIC AND STORMWATER MANAGEMENT DESIGN: The proposed drainage system is a combination of open and closed drainage systems to convey runoff to existing features and discharge into existing adequate outfalls. Our approach to stormwater management (SWM) is balanced to ensure compliance with VA DEQ pollutant removal requirements and minimize costs for construction and future maintenance. The Project nearly doubles the amount of impervious area over the existing condition; however, placement of proposed facilities allows us to address quantitative needs while simultaneously providing qualitative measures. In order to avoid the need for additional right-of-way (ROW), we will acquire nutrient credits, in accordance with VDOT IIM-251.1, to meet the removal requirements for the Project.

A preliminary SWM analysis indicates the Project is wholly contained in a single DEQ Hydrologic Unit Code (HUC) watershed: VAHUC JA-40 (Appomattox River – Oldtown Creek). In accordance with VDOT IIM-195.8, our team's analysis shows the need to provide 6.45 pounds per year of phosphorus removal. A minimum of 4.58 pounds per year, or 71% of the required pollutant removal, is easily achieved on-site and can be increased through final design efforts. The remaining requirement will be met by nutrient credit offsets obtained through our strategic partner, Falling Springs, Inc. who will provide optimum credit pricing.

(g) PROPOSED RIGHT OF WAY LIMITS: The AI Team will act as an agent on behalf of the Commonwealth of Virginia, providing all ROW acquisition and relocation services for acquisition of fee simple right-of-way (ROW) as well as permanent, temporary, and utility easements. SWM facilities will be contained within the RFP plan ROW limits, and our design will adhere to the ROW limits shown on the RFP plans and Attachment 1.5a including all SWM facilities. Since there are no differences between our ROW and the RFP Plans, we have simply shown the ROW lines on the plans as requested by the RFP.

VDOT has confirmed that Parcels 003, 004, and 012 will be acquired within 60 days of NTP. Following these acquisitions, the AI Team will submit a Phase I MOT plan to facilitate early MOT construction improvements including temporary earth retaining structures to accommodate Temple Avenue EB traffic to the I-95 ramps. ROW Package A consisting of Parcels 001, 002, 005, 009, 010, and 011 will be submitted to allow for clearing of ROW along Ridge Road and the total take of Parcel 005. Phase B will complete the acquisition for the remaining construction features. Pre-acquisition ROW activities for both Phases will run concurrently with Phase A having priority over Phase B including the following:

- ***Total Take*** – There is one total take parcel (Parcel 005 – Phase A – 7.7 acres +/-).
- ***Utility Easements*** – The Proposal Schedule shows utility coordination, UFI, and blue line utility easements preceding FI/ROW Plan approval to ensure all utility easements will be part of the ROW needs and appraised concurrently.
- ***Partial Acquisitions*** – Partial acquisitions include parcels owned by the City, private residents and commercial landowners. Each unique risk related to changes to parcel access will be mitigated by prioritizing them according to construction activity per our phased acquisition.

(h) PROPOSED UTILITY IMPACTS: Given that the Project is within the City limits, all utility impacts are compensable as project cost in accordance with the VDOT Utility Manual, January 2011. There are seven utility owners in and around the project corridor, four of which are being avoided by the proposed optimized design. Utility impacts and avoidance are discussed further in Section 4.4.1.

Impacted Utilities
▪ Dominion Virginia Power
▪ VDOT ITS Fiber Optic
▪ Verizon

(i) SOUNDWALL LOCATIONS: VDOT performed a preliminary noise evaluation and found that no mitigation measures are required for the Project. However, Section 2.4.8 states that if the Offeror proposes a geometric alignment with "substantial" horizontal or vertical deviations from the concept design, the Offeror will have to complete additional noise analyses. The RFP defines a "Substantial Vertical Alteration" as "A project that removes shielding therefore exposing the line-of-sight between the receptor and the traffic noise source. This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor."

As noted throughout this proposal, the AI Team's optimized design lowers the profile of Temple Avenue in the vicinity of the roundabout. Our Noise experts have reviewed the RFP and associated concept design, the VDOT *Highway Traffic Noise Impact Analysis Guidance Manual*, and our preliminary design, and have determined that lowering the profile does constitute a vertical deviation. However, the lower profile does not remove shielding and the lowered profile does not negatively affect the topography between the highway traffic noise source and the receptor when compared to the concept design provided by VDOT. Although a revised analysis will be prepared, no mitigation measures are anticipated.

(j) OTHER KEY PROJECT FEATURES: Our Environmental Compliance Lead, Janet O'Neill, PWS, PWD has over 40 years of experience and will ensure that environmental issues, permits, and compliance are managed to mitigate any inherent risks to the project schedule. We anticipate water quality permits needed to support the initial Phase I MOT construction will include only VPDES and SWPPP permits as there are no waters of the US, including wetlands, present within the existing ROW.

Water Quality Permits Required
▪ USACE Individual permit ▪ DEQ VWP / 401 Certification ▪ VMRC permit ▪ VPDES permit ▪ DEQ SWPP permit

Since construction of the remaining project elements will impact waters of the U.S., including wetlands, their delineations and a resulting Jurisdictional Determination (JD) will be secured from the USACE and permits obtained in December 2015, or earlier. We anticipate that the Project's mitigation needs will be met through the purchase of mitigation bank credits for unavoidable impacts to wetlands and streams.

The design of our ***signing and pavement marking plans***, as shown in Volume II, follows the 2009 MUTCD and 2011 Virginia Supplement to the MUTCD. All existing signage within the project limits will be removed and replaced in accordance with the RFP. Our pavement marking design will provide appropriate lane delineation (including snow-plowable RPMs) for safe and efficient operations. ***Project lighting*** plans have been included in Volume II, as added by the Addenda. Our design provides a continuous lighting system with high pressure sodium luminaires at a maximum mounting height of 45'. The design and complies with the Addenda, VDOT's Traffic Engineering Design Manual, Guides and Informational Instructions, and the American National Standard Practice for Roadway Lighting publication (IES RP-8-00 & DG-19-08).

A variety of ***stakeholders*** will be impacted by the Project requiring a highly-effective public outreach program. To ensure that all stakeholders remain fully informed throughout the duration of the Project, our team is committed to maintaining a constant flow of communication. A key element of our outreach will be the Roundabout clinics proposed in our SOQ. These clinics will educate drivers on the topics included in *Figure 4.3-3*. This program will start early in the design process and be incorporated into public outreach during construction. The success of this program will minimize cost and schedule impacts associated with public safety while driving through the construction zone.

Figure 4.3-3 Roundabout Clinics Topics

Roundabout Clinics will systematically show drivers:
▪ How roundabouts function ▪ Why roundabouts are safer than signals ▪ What lane to be in depending on where you want to go ▪ Who has the "right of way" in and out of the roundabout ▪ What signing and pavement markings to expect and what they mean.

4.4
Project Approach

4.4 PROJECT APPROACH

4.4.1 UTILITIES

The AI Team has contacted all known project utility companies identified in the RFP to provide a comprehensive evaluation of potential utility impacts. This proactive utility coordination will continue for the duration of the Project to maintain up-to-date and accurate information, avoid conflicts, and fast-track required utility relocations to minimize potential impacts to the project schedule.

THE AI TEAM'S APPROACH TO UTILITY COORDINATION, ADJUSTMENTS, AND RELOCATIONS	
✓ *Provide a Team of Utility Experts*	✓ *Identify Locations for Impacted Utilities*
✓ *Coordinate Early to Clearly Define Impacts*	✓ *Sequence Construction to Allow Adequate Time for Adjustments*
✓ *Accelerate Utility Field Inspections*	✓ *Stay on Schedule / Mitigate Unexpected Delays*
✓ *Identify, Avoid and Minimize Utility Impacts*	

PROVIDE A TEAM OF UTILITY EXPERTS – RDA has managed utility coordination on 10 DB projects in Virginia. Their experience includes coordinating with each private utility owner that has facilities on the Project. Lead Utility Coordinator John Myers brings 13 years of VDOT experience as the former VDOT Regional Utility Coordinator for the NOVA District. He will be assisted by Jeremy Spittle who has coordinated with Dominion Virginia Power (DVP) on several DB projects over the last two years.

COORDINATE EARLY TO CLEARLY DEFINE IMPACTS – Following initial utility company contacts, the AI Team coordinated with all utility owners to confirm proper utility identification/evaluation. All utilities impacted by the Project are listed in a utility matrix along with an estimated relocation cost and schedule impact to convey the extent and critical value of each relocation. Relocation cost estimates were developed by assessing historical data, VDOT PCES, and utility companies cost estimates.

Based on conflicting information regarding the ARWA 24" Waterline, the AI Team located the line along Temple Avenue and confirmed impacts were avoided.

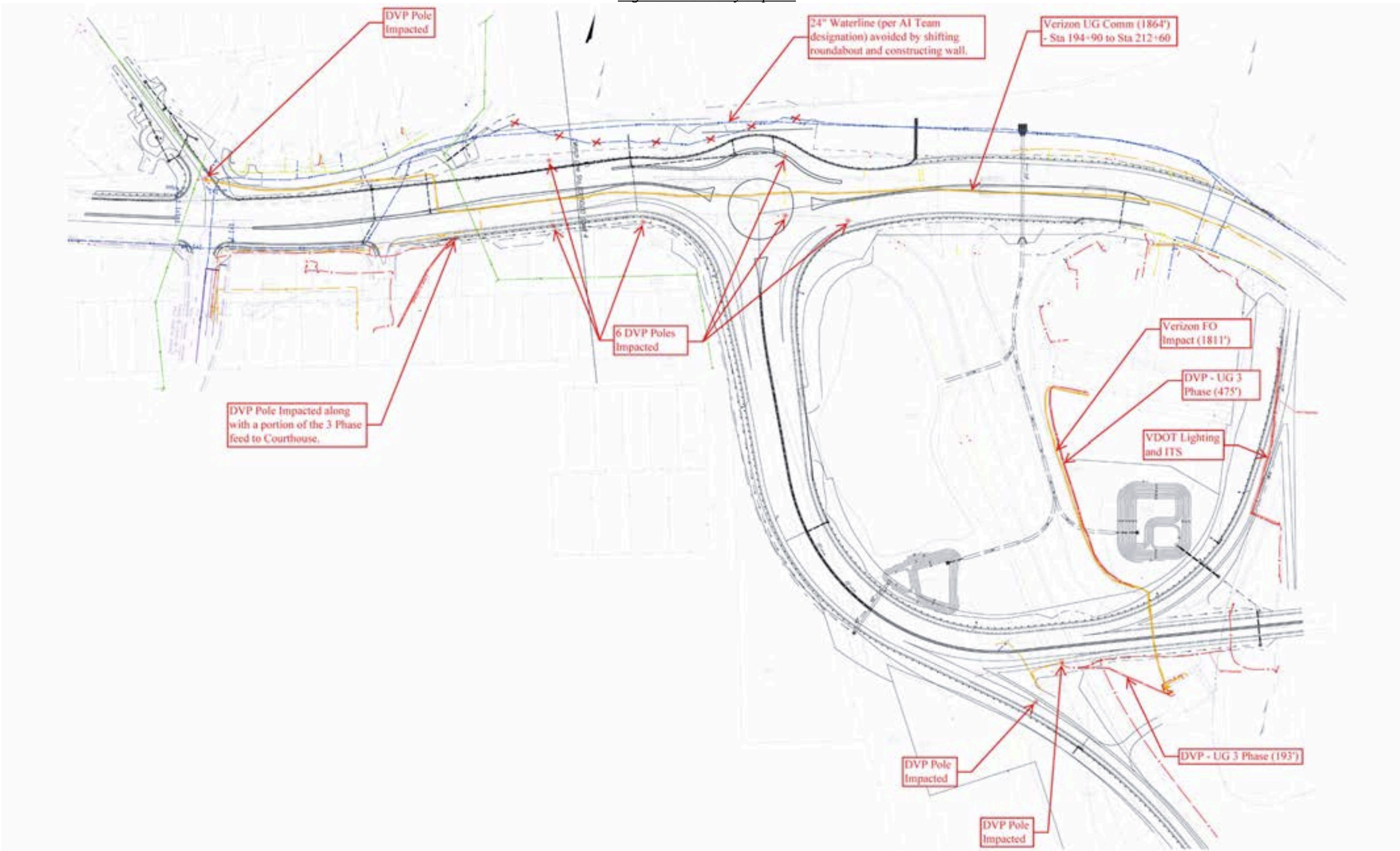
ACCELERATE UTILITY FIELD INSPECTIONS – The AI Team will distribute preliminary design plans to all utility companies early in the design phase (prior to UFI) to assess the impacts. As available, additional details will be provided to minimize potential construction conflicts. This may include depiction of the utilities on cross sections, and supplemental utility plan sheets and details. At the UFI, the Project will be formally presented and the utility companies will be engaged to assess common concerns/goals and facilitate avoidance and relocation where impacts are unavoidable.

IDENTIFY, AVOID, AND MINIMIZE UTILITY IMPACTS – Our complete analysis of aerial and underground utilities will include plotting the existing utilities on the proposed cross sections along with all design features including proposed drainage and all retaining walls. This will allow analysis of the relationships and clearances of the facilities with the project features. For problematic areas, test pitting will confirm exact utility locations and feasible design changes will be implemented to mitigate utility conflicts. Based on our analysis, Table 4.4-1 summarizes the type, location, and extent of potential utility conflicts for the Project which are depicted graphically in Figure 4.4-1.

IDENTIFY LOCATIONS FOR IMPACTED UTILITIES – When utilities cannot be avoided, utilization of all existing available areas will be explored prior to considering purchasing easements. Vacant areas along utility corridors will be considered first to utilize the available ROW and existing easements. New easements will be defined for any remaining utility relocations, if necessary, and will be kept to a minimum. They will be labeled by the current VDOT standards.

SEQUENCE CONSTRUCTION TO ALLOW ADEQUATE TIME FOR ADJUSTMENTS – Each identified utility conflict has been accounted for in estimating the cost and time required for relocating the utility. In developing the RFP Plans, potential conflicts were reviewed with the design and construction personnel to determine the

Figure 4.4-1 Utility Impacts



best resolution approach. Many public utility conflicts were avoided through design optimizations and phasing. The result is that only Dominion Virginia Power and Verizon are impacted. Preliminary schedule durations for coordination, design, adjustment, and relocation have been incorporated into the schedule in Section 4.7 and are summarized in Table 4.4-2. The durations of these activities were gathered through direct input from the utility owners using historical production rates on similar projects. Conflicts with VDOT ITS Fiber Optics will be resolved directly with VDOT and incorporated into the construction schedule.

Table 4.4-1 Conflicts and Potential Location for Utility Relocation

Utility Owner	Type of Utility	Begin Station	End Station	Quantity	Analysis
DVP	Aerial Electric	199+16	-	1 Pole	Slight adjustment to save underground tap.
DVP	Aerial Electric	200+94	206+00	6 Poles	Temporary construction connection to serve customers
DVP	Aerial Electric	106+53 (16'R)	-	1 Pole	In-line pole relocation to limit effect on other poles
DVP	Aerial Electric	106+40 (40' L)	-	1 Pole	Verify clearance to assess pole height requirement
DVP VZN	Aerial Electric and COMM	194+65 (86'L)	-	1 Pole	In-line pole relocation with underground drop to reduce communication line relocation
DVP	UG 3phase	198+00	199+16	193'	DVP to change service connection prior to NTP
DVP	UG 3phase	104+50	106+50	202'	Conduct test holes; adjust grading to avoid conflict
Verizon	UG COMM	194+90	199+90	553'	Relocate due to retaining wall
Verizon	UG COMM	199+90	203+30	352'	Conduct test holes; possible No Conflict
Verizon	UG COMM	203+30	208+90	588'	Relocate from CSXT bridges
Verizon	UG COMM	208+90	212+60	371'	Conduct test holes; possible No Conflict
Verizon	UG COMM	95 Ramp	Temple	1,811'	Conduct test holes; adjust grading to avoid conflict
DVP	UG 3phase	95 Ramp	Temple	475'	Proposed ditch impacts line.

Stay on Schedule/Mitigate Unexpected Delays – John Myers, our team's Utility Coordinator, will communicate regularly with the utility companies, maintain a utility tracking matrix, update RUMS, and provide bi-weekly updates to the VDOT Utility Manager, the DBPM, DM and CM. Following submission of utility P&Es, John will review them for accuracy, completeness and compliance with the requirements of VDOT's Right of Way and Utilities Division Manual. A copy of the P&Es and checklist covering all required items will be provided to the VDOT Utility Manager for approval. John will monitor progress, provide updates regarding potential schedule impacts, assist the utilities in defining recovery strategies, if needed, and work with the team to appropriately adjust project sequencing, if necessary.

The AI Team is prepared to self-perform relocations to expedite progress and partner with utility companies to install conduits, encasement pipes, and other items to reduce utility workloads. This will help expedite relocation work and control the relocation schedule. All options will be explored during the UFI meeting and vetted throughout the design and P&E process.

Table 4.4-2 Utility Schedule Overview

UTILITY	Phase I	Phase II	Phase III
ARWA	No Conflict	No Conflict	No Conflict
City DPW (Sanitary and Water)	No Conflict	No Conflict	No Conflict
DVP and Verizon (Aerial)	9 poles 60 day Design 45 day Construct	Conflicts Resolved	Conflicts Resolved
DVP (Underground)	400 lf 60 day Design 45 day Construct	Conflicts Resolved	Conflicts Resolved
VDOT ITS Fiber Optic	TBD 90 day Design 30 day Construct	Conflicts Resolved	Conflicts Resolved
Verizon (Underground)	4,300 lf 90 day Design 60 day Construct	Conflicts Resolved	Conflicts Resolved
Colonial Gas	No Conflict	No Conflict	No Conflict

The risk associated with unexpected or unknown utilities is diminished by contacting all known utility companies in the area to see if the unknown utility line is their facility. Miss Utility tickets will be called in so that all utilities in the corridor are marked. If any unidentified utilities remain or are identified during construction, the AI Team will follow the specific steps identified in the adjacent callout box.

UNIDENTIFIED UTILITIES PROCESS

- Notify the CM and Safety Manager.
- Identify utility owner (contact Miss Utility, contact utilities, and/or trace the utility).
- Contact Utility Owner (if discernible).
- Designate/locate the utility by test pitting and determine conflict.
- Avoid impact and relocate if required.

4.4.2 QUALITY ASSURANCE/ QUALITY CONTROL (QA/QC)

The AI Team will conform to the Project's quality requirements through focused execution of a Quality Assurance/Quality Control (QA/QC) Plan that ensures all materials and elements of the work will perform satisfactorily for the purpose intended. The QA/QC plan will be developed in accordance with the requirements contained in *VDOT's Minimum Requirements for Quality Assurance & Quality Control on Design-Build and PPTA Projects, January 2012* (VDOT's QA/QC Guide). It will consist of a Quality Control Plan (QCP) and a Quality Assurance Plan (QAP), addressing both design and construction activities.

APPROACH TO QA/QC: The AI Team has been responsible for quality management to VDOT specifications on six DB projects. Our approach to QA/QC on this Project will be derived from this experience, with a focus on continuous QA/QC improvement and the project risks including utility coordination, geotechnical, and safely implementing the roundabout. Implementation of a structured QA/QC plan, communication and integration of QA and QC staff into construction operations, and independent QA and QC processes will ensure that VDOT's QA/QC efforts are limited to reviews and periodic monitoring. Our approach includes:

VDOT Recognition of AI's Quality of Work: *"The VDOT Lynchburg District PM Team was impressed with the quality of work performed by AI…AI also took their time to ensure they were doing things correctly and safety even when unexpected issues arose." VDOT Tye River DB Program Manager*

- Regular communication between the QAM and the Design Team to ensure design deliverable preparation and submissions adhere to the approved QA/QC plan and the contract;
- Open communication during construction between the QAM and CM to make certain all work is completed in accordance with the ACF documents and the contract;
- Preparatory Meetings, Witness Points, and Hold Points incorporated in construction look-ahead schedules to integrate the inspection and testing efforts with operation planning efforts;
- Weekly quality updates that include the CM, QCM and QAM to review project quality and address non-conformance issues and resolution efforts;
- Weekly construction schedule meetings that include the CM, QCM, and Lead QA inspector in addition to Superintendents, Foreman, and Coordinators to schedule inspection staff and testing efforts.
- Periodic audits of the quality inspection efforts by AI to assure that all quality requirements are being followed and improvements to the quality process are identified and addressed within an amended QA/QC Plan for proper implementation.

STAFFING PLAN: The independent QA Team will interface with design and construction staff for the Project's duration and provide direct and concurrent reporting to VDOT and the DBPM. The roles and responsibilities of the quality management team are summarized in *Table 4.4-3*. **QA** will be led by QAM, *Julie Hartman, PE* with support during construction from a full-time Lead QA Inspector and additional QA inspectors, as needed, to account for peaks in construction activity. The QAM will participate in over the shoulder reviews, ensure plan submissions adhere to the contract requirements, and provide adequate QA inspection staff. **Construction QC** will be led by QCM, *Wamiq Hamid, PE* who will work closely with CM, *Jeff Humphreys*, to plan, implement, and document the QC

QAM Julie Hartman, PE is serving in this same role for the AI Team on three other VDOT DB projects.

inspection and testing efforts associated with each construction work element. The QCM will be supported by QC inspectors and technicians to ensure that all construction work is inspected, tested, and approved prior to commencing further construction activities.

Table 4.4-3 QA/QC Staffing Plan and Roles/Responsibilities

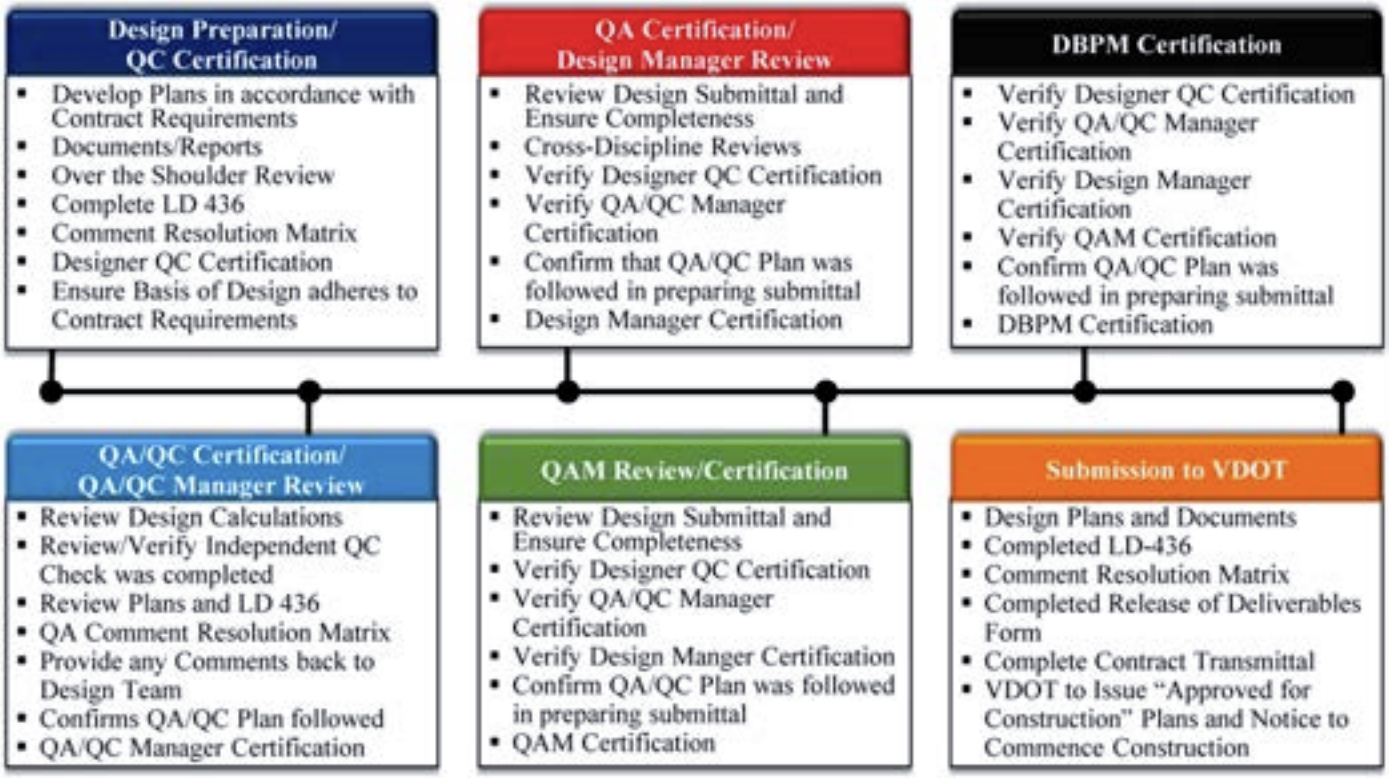
TEAM MEMBER	QA ROLE AND RESPONSIBILITY
DBPM *Ed Hilferty*	Responsible for design and construction quality management and provide direct QA oversight.
QAM *Julie Hartman*	Responsible for the QA inspection and testing of all materials and work performed, oversight of construction QC operations, and maintains the Materials Notebook. Authorized to stop work not meeting contract requirements. Prior to construction, the QAM will establish testing quantities.
Lead QA Inspector	This full-time position reports directly to the QAM. May be supported by VDOT certified QA Inspectors to assist in QA oversight of construction. Works closely with the QCM and lead QC Inspector to ensure QC inspection/testing conforms to the contract requirements.
QA Inspectors	Experienced with the work activity for which they are responsible. Have the authority to act to prevent non-conformities and verify the implementation of solutions for non-conforming work.
TEAM MEMBER	**DESIGN QA/QC ROLE AND RESPONSIBILITY**
DM *Darell Fischer*	Responsible for design management and implementation of the design QA/QC program.
Design QA/QC Manager *Mo Kim*	Reports to the DM, oversees independent Design QA/QC processes, and directs independent technical reviewers to ensure that all required QA/QC reviews are satisfactorily conducted.
Technical Reviewers	Senior engineers in the same discipline but not associated with the Project will review the design for technical compliance and conduct independent reviews of the design elements for the project.
QC Reviewers	Independent of the design team and responsible for evaluation of every design element for adherence to the QA/QC Plan, VDOT design criteria, technical and contract requirements.
QA Reviewers	Design QA Reviewers focus on compliance and will confirm all previous comments have been adequately addressed and meet the requirements of the RFP.
TEAM MEMBER	**CONSTRUCTION QC ROLE AND RESPONSIBILITY**
CM *Jeff Humphreys*	Responsible for ensuring that all construction materials used and work performed, including QC inspection and testing, meet the Contract requirements, the "approved for construction" plans and all appropriate laws and regulations.
Construction QCM *Wamiq Hamid*	Responsible for oversight of construction inspection and testing in accordance with the Contract requirements, the VDOT QA/QC Manual, and the VDOT approved QA/QC Plan.
Construction Team	Support detailed operation planning/implementation. Coordinate with the QCM to execute QC testing/inspection and with the lead QA Inspector for Witness and Hold Points.
QC Inspectors	A lead QC Inspector will be dedicated to the Project for the duration of construction and will maintain all QC records, with support from field QC inspectors and technicians, as needed.
Field Personnel	Responsible for ensuring all work performed and materials incorporated meet VDOT standards and will coordinate daily with inspection staff for construction operations.

DESIGN QUALITY MANAGEMENT: Our approach to design QA/QC facilitates a partnership between designers, construction staff, QC inspectors, and QA staff. These procedures ensure quality designs, plans, and documents in accordance with VDOT's QA/QC Guide and minimizes VDOT's administrative efforts by:

- Designing features that are safe and meet VDOT regulations and Design Manuals;
- Conforming to the standards and reference documents in the RFP;
- Designing elements that are constructible, durable, economical, and minimize maintenance;
- Utilizing cross-discipline reviews to reduce design conflicts being discovered in the field; and
- Providing organized and indexed design calculations, including design criteria and assumptions.

Concurrent with the QAM and DM QA/QC plan presentation and approval, the DM, design discipline leaders, and the Design QA/QC Manager establish the design criteria and checklists for each design element which are distributed to the Design Team for use and implementation. As the design progresses, the team schedules and conducts OTSR's, constructability reviews, QC reviews, and QA verifications in accordance with the approved QA/QC plan. A sample QA/QC process for a plan submittal is detailed in *Figure 4.4-2*.

Figure 4.4-2 Design QA/QC Reviews and Certifications



CONSTRUCTION QUALITY MANAGEMENT: Implementation of the Construction QC program will follow the approved QA/QC Plan. By incorporating quality into operation planning, the AI Team will ensure that VDOT's seven R's of construction are met; installing the **Right Material**, in the **Right Way**, at the **Right Time**, in the **Right Location**, in the **Right Quantity**, verified with the **Right Documentation**, resulting in the **Right Payment**. AI's philosophy of **Safe Production Done Right** uses a Production System approach that incorporates Quality, Safety, and Production into comprehensive operation planning. This process promotes inclusion where the Construction Team, QC staff, safety and field managers collectively review and provide feedback into operation plans. *Table 4.4-4* highlights the benefits of the AI Production System.

Table 4.4-4 AI Construction QC Approach

AI PRODUCTION SYSTEM GUIDING PRINCIPLES	BENEFITS TO THE PROJECT
Get quality right the first time by building it into operational plans and empower employees to quickly correct any defects.	✓ Quality planned into all operations ✓ Prompt resolution of any quality issues that may arise
Collectively plan for and create safe, delay-free work areas.	✓ Reduced safety and schedule risks
Ensure continuous improvement by standardizing operations and relentlessly examining them for further improvements	✓ Consistent quality construction ✓ Transparent communication

DESIGN QA/QC ELEMENT – MOT PHASE 1: In order to reconstruct Temple Avenue in-place while lowering the profile to accommodate our optimized design, Maintenance of Traffic (MOT) will be a critical element to the success of the Project, especially during Phase 1 construction. Phase I includes construction of temporary earth retaining structures between the existing bridges to provide eastbound Temple Avenue traffic access to the existing I-95 ramps while two westbound and one eastbound lane will be accommodated on the existing westbound bridge. Construction of the temporary earth retaining structures requires acquisition of the CSXT Parcel 004 (which will be provided by VDOT within 60 days of NTP), confirmations that the temporary wall will not affect the existing bridge/foundations, and verification that the existing westbound bridge can carry

three continuous lanes of traffic safely. This will require phased plan submissions to obtain a Phase I MOT "Released for Construction (RFC)" plans which will include:

- Phase I MOT / Utility Relocation Plans;
- Temporary earth retaining plans and approved shop drawings;
- Signing, Signal Modification, and Markings; and,
- Detailed Plans for clearing, grubbing, and E&S control devices.

Phase I MOT Plans become a QA/QC element because approvals are granted without reviewing all other aspects of the Project. The AI Team counteracts this challenge in two ways: strict adherence to the QA/QC procedures outlined above, and conducting formal cross-discipline reviews before every submission to VDOT. Regardless of the scope of the RFC plans, every discipline reviewer will review and sign off on every submission to VDOT. Inevitably, an unanticipated conflict may be found, and addressed, through these reviews.

Cross-discipline reviews before every submission ensure no conflicts exist prior to VDOT's review, reducing the need for additional reviews.

In order to document this review and clearly inform the VDOT reviewer that these reviews were conducted, a cross-discipline QA/QC form will be sent in with every submission to VDOT with the signature of every discipline lead that confirms that there are no conflicts or design related issues with the RFC plans. These forms will accompany the QA certification form. The QAM is responsible to ensure the process is followed.

CONSTRUCTION QA/QC FOR MAINTENANCE OF TRAFFIC: In this heavily traveled corridor, proper implementation of a well-designed MOT plan is the first line of defense to minimize risk to the public, construction staff, and our team. Alignment adjustments (horizontal and vertical) will streamline the implementation effort as it allows for discrete phasing within the roundabout, continuous access to local businesses, residents, and uninterrupted access to the I-95 ramps. As with all of our DB projects, MOT design, phasing, and implementation are integral to our QA/QC program; however, for this DB Project the MOT Preconstruction and Construction QA/QC effort will focus on the following:

1. Constructability Reviews will be held with the DM, CM and MOT Coordinator(s) to optimize phasing, minimize impacts to traffic, and best suit construction means and methods.
2. As a Hold Point in the schedule prior to initial MOT implementation, a Preparatory Meeting will be held with the Construction Team, QAM, QCM, and VDOT to review and confirm:
   - Site-specific safety concerns;
   - Supervisor and crew certifications (VDOT Work Zone Traffic Control Training, at a minimum, as well as ATSSA Traffic Control Technicians/Supervisors);
   - Review MOT Inspection checklists for installation and maintenance of traffic patterns;
   - Approval of the MOT design documents;
   - Public outreach has been assigned and is being properly conducted; and
   - Submittal and approval of C-25 Source of Material for all MOT materials.
3. Inspection checklists will be completed for lane closures by the QCM and DMY's QC inspectors for all temporary TCDs, including: Signs, Pavement Markings, Type III Barricades, Group II Channelizing Devices, Barrier Service, Arrow Boards, and Portable Changeable Message Signs.
4. QC Inspections will include daily maintenance by AI's MOT Coordinator and daily compliance checks by DMY's QC Inspector. Any deficiencies will be immediately corrected. The QAM designee will verify all QC control functions are occurring and will complete independent inspections.
   - All deficiencies will be logged by the QC team, provided to the QAM and corrected immediately.
   - The QAM will provide VDOT with a copy of all inspections and logs.

4.4.3 GEOTECHNICAL

A thorough subsurface investigation is important to properly characterize subsurface conditions, evaluate and assess geotechnical risks, and recommend solutions to mitigate these risks. We have evaluated VDOT's GDR findings, supplemented it with general characteristics of the region, and developed strategies to address the risks associated with stability of the existing structures, unsuitable materials, and settlement associated with high fills. During the design, our Geotechnical Engineer, Paul Zhang (DMY), will prepare and share a supplemental geotechnical investigation program with VDOT for review and comment to ensure that the final design level GDR meets or exceeds Chapter 3 of the VDOT Manual of Instructions for Materials Division.

GEOTECHNICAL APPROACH TO MITIGATING RISKS

Stability of the Existing Structures – Understanding of the existing bridge structures and their current conditions is critical in determining optimal construction approach. Our team has reviewed the available as-built drawings and the current bridge inspection reports in order to assess MOT phasing activities to ensure stability of these structures and their foundations prior to demolition. Based on the available data, it appears that the phased MOT can be accomplished; however, a comprehensive site reconnaissance will be conducted to assess the existing structures, determine supplemental data and analysis necessary to support this assertion, and visually assess site conditions relative to the proposed construction.

The AI Team has developed a design concept which will avoid placing fill under or against the substructures of either actively used bridge. Our approach involves building temporary retaining structures to support a temporary roadway between the existing structures. This approach has been evaluated based on the available geotechnical data and as-built bridge foundation plans. The foundations of the temporary walls will be embedded 2 to 3 feet to clear the 1H: 1V stress projection line relative to the adjacent bridge footings to ensure no additional load is applied to the existing bridge foundations.

Unsuitable Materials – Unsuitable materials for the Project include soils that have excessive moisture, high plasticity (LL>50), high swell (>5%), low SPT N-values (generally less than 5 bpf), and soils that contain excessive debris or organics. These soils are not allowed for placement in roadway embankments or beneath retaining walls or other structures. Based on the GDR, unsuitable soils may be encountered in Table 4.4-6:

Table 4.4-6 Unsuitable Soils Locations

LOCATION	UNSUITABLE SOILS	REFERENCE BORINGS/SOUNDINGS
Temple Avenue, Left 194+75 to 199+50	Soft/Loose, Wet	CPT-010, CPT-014
I-95 SB Entrance Ramp, Left 109+25 to 110+50	Soft/Loose, Wet	BH-012, CPT-012, CPT-017, CPT-018, CPT-019
I-95 SB Exit Ramp/I-95 NB Ramp, Right 105+00 to 106+25 and 108+00 to 110+50	Wet	CPT-020, CPT-016, CPT-006, CPT-007, BH-007

Subgrade soils with a CBR value less than the GDR recommended design CBR value of 4 are also considered unsuitable. Only one CBR test was performed in the GDR with a CBR value of 12.6. Considering the types of soils encountered in the GDR borings, we expect that the vast majority of the onsite soils will be able to achieve a CBR value of 4 or greater. Subgrade soils with low CBR values may be present in uninvestigated areas and if present may be mitigated by methods shown in Table 4.4-7.

Table 4.4-7 Mitigation of Unsuitable Soils

SOIL CHARACTERISTICS	MITIGATION STRATEGY
High plasticity, high swell, low CBR value, or high organic and debris content	Undercut and replacement with suitable backfill materials.
Excessive moisture	Drying with lime or mechanical means
Low SPT N-values	Mechanically densify in-place or stabilize in-place with cement and/or geotextiles.

Settlement associated with High Fills – The AI Team's design lowers the profile and thereby reduces both the extent and height of fill areas. Table 4.4-8 summarizes where high fills are expected.

Table 4.4-8 Geotechnical Features

VDOT Concept Plans Geotechnical Features	AI Team's Design Geotechnical Features	Location	Reference VDOT Borings/Soundings
Fill Retaining Wall(about 5 to 25 feet in height)	Fill Retaining Wall (0 to 15 feet in height) **About 5 to 10 feet fill height reduction; Potential elimination of retaining wall**	Temple Avenue, LT 203+00 to 206+00	BH-001, CPT-001, CPT-002
Fill Retaining Wall (about 5 to 15 feet in height)	Fill Retaining Wall (0 to 5 feet in height) **About 5 to 10 feet fill height reduction; Potential elimination of retaining wall**	I-95 SB Exit Ramp, RT, 112+50 to 114+50	CPT-006, CPT-018, BH-012, CPT-012
Fill Retaining Wall (about 10 feet in height)	Fill Retaining Wall (about 10 feet in height)	Ridge Road, Right 10+72 to 11+46	CPT-014
Fill Slope (about 15 to 30 feet in height)	Fill Slope (about 12 to 20 feet in height) **About 2 to 10 feet fill height reduction**	Temple Avenue, RT 200+00 to 206+00	CPT-009, CPT-015, CPT-007, BH-007
Fill Slope (15 to 20 feet in height)	Fill Slope (15 to 20 feet in height)	I-95 SB Exit Ramp, Middle & Right 101+00 to 104+00	CPT-013, BH-013, CPT-020.
Fill Slope (15 to 30 feet in height)	Fill Slope (about 5 to 25 feet in height) **About 5 to 10 feet fill height reduction**	I-95 SB Exit Ramp, Left & Right 114+00 to 117+00	CPT-006, CPT-009, CPT-018, CPT-007, BH-007

The main geotechnical challenges in the retaining wall and high fill slope locations include loose/soft foundation soils varying from 4 to 28 feet. Based upon the GDR, we anticipate that loose/soft soils may be encountered at locations listed in the Table 4.4-9:

Table 4.4-9 Locations of Loose/Soft Soils

Geotechnical Features	Location	Reference VDOT Borings/Soundings
Fill Retaining Wall	Temple Avenue, Left 203+50 to 204+50	BH-001, CPT-001, CPT-002
Fill Retaining Wall	I-95 SB Exit Ramp, Right 112+50 to 114+50	CPT-006, CPT-007, BH-007
Fill Slope	I-95 SB Exit Ramp, Left 106+25 to 113+00	BH-012, CPT-012, CPT-017, CPT-018, CPT-019

Based on the limited GDR data, we estimate that the total amount of settlement in the high fill areas could exceed 8 inches. Considering that the majority of the soils encountered in the GDR borings were sandy soil underlying the high fill areas, we expect most of the settlement will occur during the time of embankment fill placement. Most of the remaining settlement is anticipated to occur in about 30 days after embankment fill completion. We anticipate that ground improvement measure involving undercut/replacement to limited depths in isolated areas can be implemented to control the estimated settlement within the allowable limits. These settlement estimates will be refined and adjusted during the earliest stages of design when the full geotechnical subsurface investigation has been completed.

If the final geotechnical investigation proves that greater amount and time of settlement would occur, additional ground improvement measures would be implemented to control the settlement. The additional ground improvement measures will likely involve more extensive undercut/replacement. Although the GDR data suggest this is unlikely, other ground improvement measures are available to further reduce/accelerate settlement and to enhance slope and retaining wall stability such as geogrid reinforcement, preloading, and drilled aggregate piers. Alternatively or combined with ground improvement measures, a waiting period up to an additional 30 days may be applied between embankment fill placement and pavement construction to allow the underlying soils to complete its settlement. The impacts of additional settlement periods and other improvement measures have been adequately accounted for in the overall project schedule. If appropriate, implementation of a Settlement Monitoring Program during construction will allow our Team to document requisite settlement amounts and ensure the future pavement performance in accordance with the RFP.

4.5
Construction of Project

4.5 CONSTRUCTION OF PROJECT

The AI Team's Sequence of Construction (SOC) and Transportation Management Plan (TMP) were developed to provide safe and continuous traffic flow, minimize construction impacts, and accelerate the project schedule to provide beneficial occupancy of the roundabout in July 2017. Early beneficial occupancy, combined with phased implementation of the roundabout will provide local users time to acclimate to the roundabout operations in advance of the 2017-2018 School Year and Holiday Season.

4.5.1 SEQUENCE OF CONSTRUCTION

Construction phasing for the Project was developed to accommodate an optimized roadway profile that minimizes ROW impacts and temporary measures required for construction. The AI Team's approach is to use the existing roadway to limit temporary pavement and support of excavation between phases. By doing so, the number of traffic shifts during construction are minimized which provides a more predictable drive for the traveling public. We will also introduce the roundabout movements on Temple Avenue prior to opening the new ramps to help motorists to become familiar with the roundabout before opening it for all movements.

SEQUENCE OF CONSTRUCTION: The AI Team understands the importance of completing the Project by the Final Completion date of November 10, 2017 to minimize impacts to Southpark Mall during the holiday shopping season. We believe that it will be beneficial for motorists to become well accustomed to the new traffic pattern before traffic volumes increase due to holiday shopping; therefore, the AI Team has developed this sequence of construction to provide beneficial occupancy by July 2017. To accomplish this, we plan to build the project in four (4) main phases of construction, as described below and shown on *Figure 4.5-1*:

Phase I – Reconstruct the shoulders on the north side of Temple Avenue and shift WB traffic to the north. Construct temporary earth retaining structures between the bridges and backfill to the existing grade of Temple Avenue. Construct temporary approach roadways within the existing Temple Avenue median while concurrently constructing the new I-95 ramps south of Temple Avenue and west of the existing I-95 ramps. Construct the new Ridge Road approach to the Temple/Hamilton intersection – modify the signal appropriately. Build the new turn-around and remove the existing Ridge Road access at Temple Avenue.

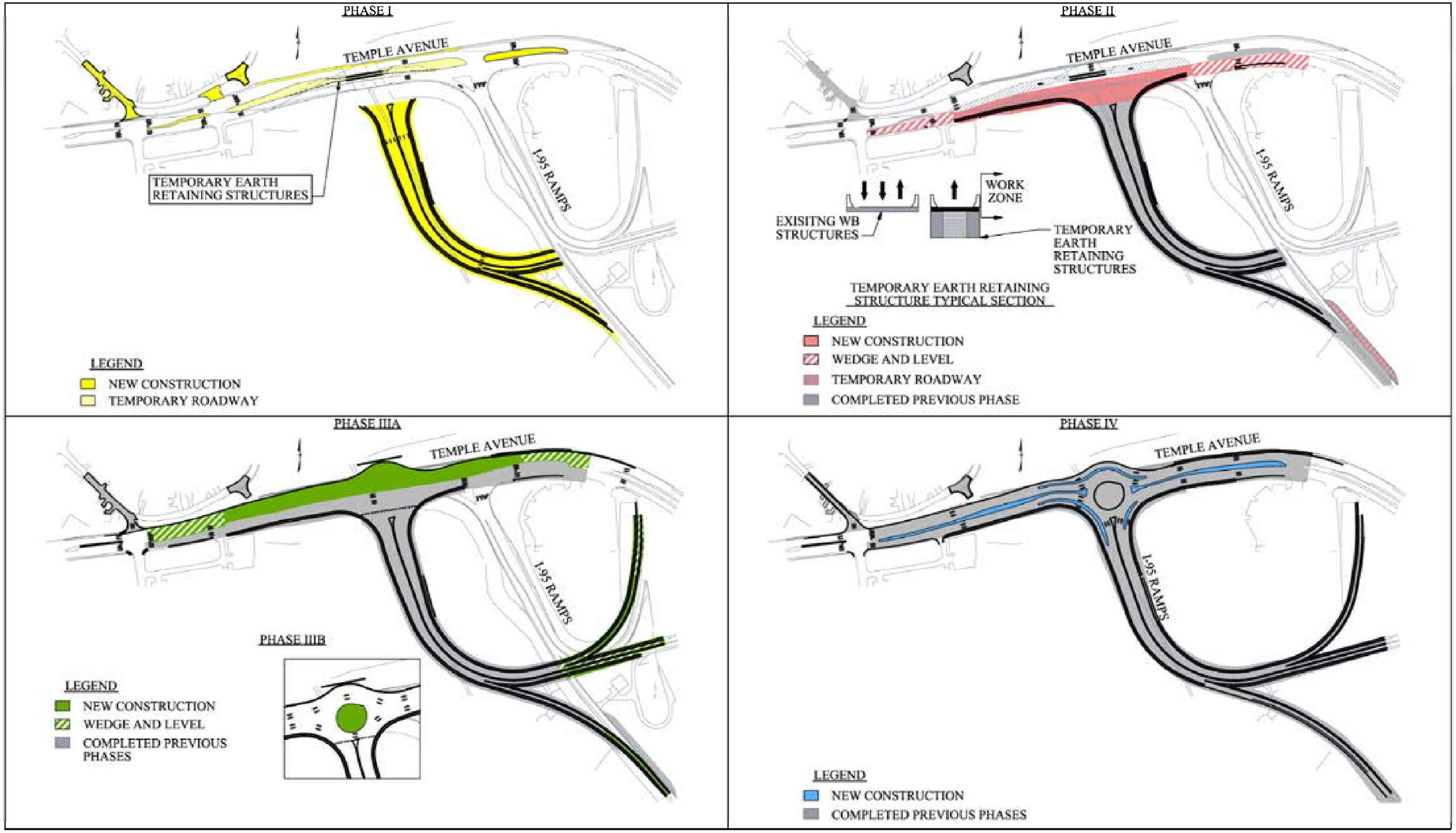
Phase II – Demolish the existing EB Bridge and widen the south side of Temple Avenue. To accomplish this, shift EB Temple Avenue traffic to the north onto the temporary pavement placed in the median in Phase I. Traffic to/from I-95 will continue to utilize the existing ramps.

The AI Team's design includes a phased implementation of the I-95 Ramps such that a temporary signal is not required.

Phase III – Widening Temple Avenue and realigning the I-95 ramps, not including the medians/islands and the final surface course. Temple Avenue traffic will be shifted to the south onto the newly completed roadway from Phase II. After demolition of the WB Bridge and construction of the retaining wall on the north side of Temple Avenue, the northern portion of the roundabout and approach roadways will be constructed. Upon completion of the new pavement, WB traffic will be shifted to the north and all Temple Avenue traffic will be routed around the outside of the roundabout for construction of the central island and apron. Phasing construction in this manner allows motorists on Temple Avenue to become familiar with the upcoming change from a traditional signalized intersection to the new roundabout before shifting traffic onto the new ramps.

Phase IV – Temple Avenue will be restriped into the final configuration and channelizing devices will be set in place of the proposed medians and splitter islands. Traffic will be maintained in this pattern for a few days before opening the new ramps to allow motorists to become more familiar with the traffic operations prior to opening the roundabout for all movements. At that time, traffic will be shifted onto the new ramps to make the roundabout fully operational. Traffic operations at the roundabout will be closely monitored prior to utilizing nighttime lane closures to construct the splitter islands and medians. The abandoned portions of the I-95 ramps will be removed and nighttime lane closures will be used to place the final surface course and striping throughout the Project.

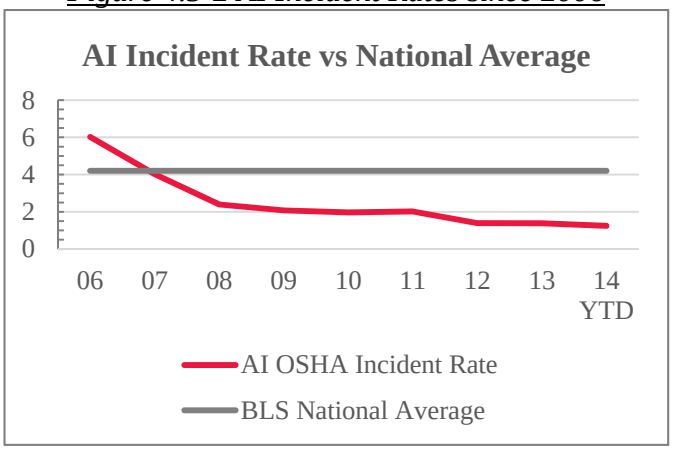
Figure 4.5-1 Sequence of Construction



SAFETY AND OPERATIONS: At AI, safety is recognized as an inseparable element of each construction operation. Our focus includes the traveling public, construction personnel, inspection staff, VDOT personnel, and all individuals that enter the work zone. AI's *Home Safe Tonight* program is a commitment, both personal and organizational, to create an existence absent of incident and injury. It is a mindset intolerant of any level, frequency, or severity of injury. Since implementation of *Home Safe Tonight* in 2008, AI has reduced its recordable incident rate by 70% to a *Best in Class* rate of 1.24 as shown in *Figure 4.5-2*.

The AI Team has evaluated construction impacts to vehicular, pedestrian, and bicycle traffic as well as public transportation and will not degrade the existing level of service provided. The same number of through lanes and all critical movements will be maintained throughout construction. Our MOT plan utilizes the existing signal at Temple Avenue for all I-95 movements until the ramps and roundabout are ready to accommodate all I-95 traffic. Maintaining movements familiar to users helps them to negotiate safely through the work area.

Figure 4.5-2 AI Incident Rates since 2006



Our team has identified several potential safety risks for the Project and outlined mitigation strategies for managing these risks in Table 4.5-1.

Table 4.5-1 Potential Safety Risks for the Project

Safety Program	Risk Description	Mitigation Strategies
Traffic	Working adjacent to traffic along Temple Avenue and I-95 ramps	▪ Develop/ implement an effective TMP/MOT to minimize traffic disruptions. ▪ Provide ATSSA and VDOT Work Zone Safety certified traffic personnel. ▪ Effectively implement traffic control to reduce the likelihood of incidents.
Construction Access	Traffic accessing work zone including construction vehicles	▪ Design access according to VDOT standards, address local site conditions. ▪ Clear delineation of entrances and closure during non-work hours. ▪ Provide safe access for construction vehicles accessing staging/storage yards.
Night Operations	Reduced visibility, increased likelihood of incidents.	▪ Proper illumination/retroreflectivity of vehicles and employees. ▪ Lighted work zones and utilization of police support, as needed.
Demolition	Overhead work, Hazardous Materials	▪ Properly delineating and securing demolition areas. ▪ Develop and implement a Hazardous Materials disposal plan. ▪ Follow chain of custody protocols to document proper material disposal.
Fall Protection	Bridge demolition and retaining wall construction.	▪ Fall Hazard training for field personnel. ▪ Use of custom designed fall protection system on girders

GEOTECHNICAL CONSTRAINTS: Geotechnical constraints including stability of the existing Temple Avenue bridges, possible unsuitable materials, and settlement associated with high fills have been evaluated and accounted for in the sequence of construction and schedule. To mitigate potential schedule delays due to geotechnical constraints, we will continue to refine our approach and strategy, described in Section 4.4, for these critical elements prior to issuance of Approved for Construction plans focusing on the following:

- ***Stability of the Existing Structures*** – Additional lateral loads on the existing structures will be avoided by locating the temporary wall foundations at a depth of 2 to 3 feet to clear the stress projection line.
- ***Unsuitable Materials*** – Mitigation strategies including undercut and replacement, mechanical or lime drying, and in-place densification/stabilization in order to maintain the project schedule.
- ***Settlement associated with High Fills*** – Lowering the profile by 6.5 feet at the CSXT limits the potential for settlement on Temple Avenue/Roundabout and the NB/SB I-95 Ramps. Ground improvement measures will be implemented should anticipated settlement times exceed 30 to 60 days.

ENVIRONMENTAL IMPACTS: Environmental impacts associated with wetlands adjacent to the existing quarry remnant and other contiguous wetlands will require joint permit approval for unavoidable impacts to waters of the US. Our Proposal Schedule includes all environmental activities to obtain approval of the Joint Permit Application in December 2015. Approval from VMRC, USACE and DEQ which apply only to Package A and B plans, since the Phase I MOT plans will not affect regulated waters of the US. As the Phase I MOT plans will require only the VPDES certification, the SWPPP sheets, and approved E&S plans, AFC plans are anticipated in July 2015 with initial MOT construction completed before close of the pavement season in November 2015. Appropriate hold points and coordination with the VDOT District Archaeologist are included in the schedule for the historic Atlantic Coastline Railroad Corridor (Section 106/Section 4(f) property) to ensure all conditions of the MOA are addressed. Other permits including the VPDES certification and SWPPP sheets for each of the three major Project phases for which "Approved For Construction (AFC)" and "Released for Construction (RFC)" plans will be requested (Phase I MOT, Package A, and Package B) are also included.

RIGHT OF WAY ACQUISITION: The Proposal Schedule shows that FI/ROW plans and ROW Acquisition are on the critical path. To mitigate potential acquisition risks and impacts to the critical path, the design schedule was developed to streamline the ROW acquisition effort and ease the burden on VDOT staff through successive parcel appraisal reviews and approvals in lieu of concurrent efforts. Integration of risk mitigation measures including the following will assist in streamlining acquisition and managing this critical path item:

- Phase I MOT Plans have been designed to avoid additional ROW requirements aside from existing VDOT ROW, thus not requiring an early ROW Acquisition Package;
- Package A FI/ROW plans and associated ROW acquisition focuses on the Ridge Road construction elements and requires acquisition of Parcels 002, 005, 009, 010 and 011. Parcel 005 is identified as a total take thus inclusion within Parcel A will streamline the acquisition effort. Package A has been scheduled to allow for incorporation of utility easements within the Package A FI/ROW plans;
- Package B focuses on the I-95 ramp construction effort and requires acquisition of the remaining Parcels, specifically Parcels 001, 006, 007, 008 and 013, including utility relocation and any temporary or permanent easements. As with Package A, the Package B FI/ROW plan schedule allows for incorporation of all utility and other easements;
- Advance utility company coordination and UFI activities ensure any utility easements are included with the FI/ROW submittal mentioned above such that bonafide property offers are complete; and
- Initiate appraisals with submission of the FI/RW submittal and/or refresh, as needed, to ensure they are accurate for 60 days prior to Notice to Commence ROW.

STAGING AND STORAGE AREAS: The AI Team has reviewed the project corridor and has identified three potential locations for staging and storage areas which have been evaluated for safe ingress/egress, environmental issues and clearing requirements. Based on our review, it is clear that the Project presents several opportunities to develop adequate staging and storing sites to minimize potential delays to construction or expediting the work. Following initial design efforts and work area assessments, a preferred site will be selected and secured in advance of construction. Possible site opportunities include:

- ***VDOT property between I-95 and the SB Entrance Ramp*** – This site is clear, flat and easily accessed from I-95 SB and Temple Avenue (via the I-95 SB entrance ramp) utilizing the cell tower access roads.
- ***VDOT property between the I-95 NB Exit and Entrance Ramp*** – This site is easily accessed from the I-95 NB exit ramp and could be accessed from the I-95 NB entrance ramp with minor modifications.
- ***Private Property south of Hardees / Kangaroo Gas Station (parcel 006)*** – As the property will be acquired for SWM, private discussion between AI and the owners may prove mutually beneficial.

PUBLIC INVOLVEMENT/STAKEHOLDER COORDINATION AND GOVERNMENT APPROVALS: The AI Team will coordinate and maintain open lines of communication with all stakeholders and government entities throughout the design and construction of the Project. Periodic feedback on design efforts, especially maintenance of traffic and construction sequencing will be requested through over-the-shoulder reviews to streamline input/approvals. We will request the participation of VDOT, FHWA, the City of Colonial Heights, environmental stakeholders, utility companies, and community representatives in a formal partnering process facilitated by our team. Design submittals will be sent concurrently to VDOT and the City for review and comment. AI will use portable message signs on the approaches to the Project to notify motorists of new and pending traffic pattern changes and will conduct periodic public meetings to educate users how to properly navigate the traffic pattern changes. This will be especially critical before shifting traffic into the roundabout.

4.5.2 TRANSPORTATION MANAGEMENT PLAN

The AI Team is fully committed to VDOT's goal of reducing work zone incidents and improving travel time through work zones. Temple Avenue is a vital link connecting Colonial Heights residences and businesses with the I-95 and I-295 corridors. As such, any construction activity must preserve access and throughput along the Temple Avenue corridor. To provide safe and efficient movement of motorized and non-motorized traffic through or around the Temple Avenue work zone, we will focus on roadway visibility, positive motorist guidance, and functional temporary traffic control throughout all phases of construction.

The Transportation Management Plan (TMP) will be developed to efficiently handle traffic during construction in accordance with VDOT's Instructional and Informational Memorandum (IIM) No. LD-241. Per this IIM, the project is classified as a Type C, Category V project; meaning that the Project is anticipated to cause sustained and substantial work zone impacts. The major components of Type C Projects TMP are a Temporary Traffic Control Plan, a Transportation Operations Plan, and a Public Communications Plan.

MAINTENANCE OF TRAFFIC: The Temporary Traffic Control Plan section of the TMP contains phase-specific MOT plans, details, and typical sections. Traffic will be maintained through all phases of construction, with the majority of traffic disruptions occurring during traffic/phase switches and final paving operations. TMP/MOT Coordinator, Matthew Allen, PE, PTOE will work closely with AI's MOT Coordinator to ensure the design reflects the construction sequence and all work can be implemented safely.

All work will be designed and performed in accordance with the FHWA Manual of Uniform Traffic Control Devices (MUTCD) and the Virginia Work Area Protection Manual (VWAPM). Our detailed MOT plans will include clear and concise sequence of construction notes, type and location of all temporary traffic control devices (markings, signs, channelization devices, temporary barriers, etc.) for each work zone and all detour routes. Safe work zone access for construction personnel and equipment/material deliveries will be identified.

In developing a preliminary SOC and MOT plans, the AI Team has identified the following critical construction operations/areas that will require increased scrutiny during design development of the TMP/MOT: (1) Maintaining Access to the I-95 Ramps; (2) Lowering the Profile of Temple Ave.; and (3) Utilizing Temporary Pavement.

Maintaining Access to the I-95 Ramps – While the EB Temple Avenue bridge is removed (Phase II), the RFP acknowledges that three travel lanes can be maintained along Temple Ave. (2 WB and 1 EB), as long as a separate and dedicated EB right-turn lane is provided to the I-95 ramps. After identifying and evaluating alternatives to provide a separate right-turn lane to the I-95 ramps, our approach includes constructing a temporary roadway supported by temporary earth retaining structures between the bridges on Temple Avenue.

Benefits of Utilizing Temporary Retaining Structures

- Maintains current access to I-95
- Provides more room for lane changes approaching the I-95 ramps intersection
- Eliminates crossing open travel lanes to access the work area
- Minimizes temporary sheeting/ shoring to support excavation
- Accelerates schedule by building up the roadway before relocation of utility lines

This alternative improves public and worker safety by maintaining all I-95 ramp traffic on the existing ramps; providing an approach to the I-95 ramps that is similar to existing conditions; keeping the EB lanes together longer to give motorists more room for lane changes as they approach the ramps; and maintaining traffic on one side of the work area thus eliminating the need to cross open travel lanes to access the work area. In addition, the need for extensive sheeting/shoring along the south side of Temple Avenue is eliminated and conflicts are avoided with the overhead utility lines along the south side of Temple Avenue.

Lowering the Profile of Temple Avenue – Adjusting the roadway profile requires extensive scrutiny to the MOT plans to ensure that proper horizontal and vertical transitions are provided and no extreme pavement drop-offs are created. Each construction phase will include sufficient work area for construction of transition areas as well as adequate space for support of excavation and fill/material placement. Vertical differences have been carefully considered during development of the MOT concept plans. As noted previously, extensive sheeting and shoring to maintain a travel lane along the south side of Temple Avenue was avoided by developing an alternative plan. The tie-in points on Temple Avenue were critical in determining the appropriate final grade of the roundabout and approaches, specifically to maintain the grade at the existing I-95 Ramps/Temple Avenue intersection and ensure all movements are maintained at this intersection. Special attention was also given at the tie-in points on the ramps to ensure traffic can be maintained on the existing ramps while the new ramps are completed. As a result of this scrutiny, the AI Team has developed a cost-effective solution that allows construction to be completed safely and with minimal traffic impacts.

Utilizing Temporary Pavement – Some temporary pavement will be required to provide adequate throughput while maintaining safe access to adjacent properties. In addition to the temporary roadway in the median of Temple Avenue, we anticipate installing temporary pavement along the existing I-95 ramps to maintain traffic while tying in the new ramp alignments. This is critical for tying in the new ramp to I-95 SB due to the super-elevation of the new ramp at the tie-in point. Our design calls for the new ramps to cross the existing ramps close to grade so these tie-ins can be constructed under traffic using lane shifts and flaggers. Temporary striping and Type III Channelizing devices will be used to maintain traffic on the existing ramps until it is time to switch all traffic to the new roundabout.

CONSTRUCTION IMPACTS – Our MOT plans will comply with the requirements of the RFP for number of lanes, minimum lane widths, timing of temporary lane closures as well as work time restrictions.

I-95 Ramps – Traffic will be maintained on the existing I-95 ramps throughout the Project. Occasional nighttime stoppages will be required to tie-in temporary asphalt for the new ramps. We do not anticipate any of these stoppages to be of such duration as to require detouring traffic to the Southpark Boulevard interchange (Exit 53). The SB exit ramp will need to be narrowed and the shoulders closed for a few days to tie in the new ramp.

Temple Avenue – Although traffic will be shifted to accommodate Temple Avenue/roundabout construction, we will maintain all of the existing through and critical movements throughout construction. Lane widths on Temple Avenue will be reduced to 11’ and shoulders will be closed; however, AI will maintain a safe work zone for all users by expecting to maintain the 35 mph posted speed. Two-way traffic (2 WB lanes and 1 EB lane) separated by a double yellow centerline and flexible post delineators is expected on the existing WB bridge provided the structural stability analysis reinforces that the existing bridge can support the additional load. A second EB lane will be provided on the temporary retained fill roadway between the EB and WB Temple Avenue bridges.

OVERVIEW OF TRAFFIC IMPACTS
Closures
▪ Nighttime lane closures on I-95 Ramps and Temple Ave
▪ Short-term stoppages for overhead sign erection
Temporary Detours
▪ Access to Ridge Road from Temple Avenue via North Temple Ave. during construction of new Ridge Rd. connector
Time of Day Restrictions
▪ I-95 Ramps 8pm and 6am
▪ EB Temple 830-6am
▪ WB Temple 830-7am
Flagging Operations
▪ I-95 Ramp Tie-Ins
▪ Ridge Rd. turnaround construction
▪ Overhead sign erection
Minimum Lane Widths
▪ 11’ on Temple Avenue
▪ 12’ on I-95 Ramps
Work Zone Speeds
▪ No speed reductions

This second lane will convey EB traffic to the existing I-95 ramp signal either using the slip ramp or become signal controlled, if that best serves the traffic demand at the intersection.

Ridge Road – Traffic on Ridge Road will be flagged during construction of the hammerhead turnaround. When the turnaround is complete the road will be permanently closed for construction of the new connection at Hamilton Avenue. Access to Ridge Road from Temple Avenue will be detoured via N. Temple Avenue when work begins on the temporary roadway in the median of Temple Avenue since the new connector at Hamilton Avenue is not anticipated to be complete at this time.

Roundabout – As noted previously, traffic will be maintained on the existing I-95 Ramps until the roundabout is ready to be fully opened. Temple Avenue traffic will be routed around the central island of the roundabout for a short period while the new I-95 Ramps are being tied into the existing ramps. The AI Team has planned this condition to help motorists become more familiar with the roundabout before opening it for all movements. Once traffic has become accustomed to the roundabout after it is fully opened we will use nighttime lane closures to construct the permanent channelizing islands at the roundabout.

STAKEHOLDER IMPACTS: The Project presents an opportunity for VDOT and its Partners to provide exceptional service and proactive communication surrounding a congestion relief and increased capacity effort. A highly-effective public outreach and communication plan will provide project stakeholders with the important information they need in a timely, consistent, and complete manner. To ensure that stakeholders remain fully informed, our team will maintain constant communication to meet the goals in *Table 4.5-2*.

Table 4.5-2 Communication Goals for the Project

Effectively engage the community to minimize negative impressions and maximize positive outcomes.
▪ Increase the number of motorists who have a greater understanding of the Project. ▪ Create trust through a transparent and open environment of information sharing. ▪ Offer two-way communications channels.
Maintain a successful partnership between VDOT, the City of Colonial Heights, and the greater community.
▪ Commit to formal and informal information sharing with project partners and stakeholders. ▪ Ensure that stakeholders have or can access information regarding the Project easily and quickly.
Proactively manage project risks by anticipating and addressing community issues.
▪ Work closely with VDOT and the City to educate motorists on how to navigate the new roundabout design. ▪ Provide multiple opportunities for community input and track for trends and key messages such as the Pardon Our Dust meetings, VDOT social media channels, and the Project website.

The impacts to project stakeholders due to construction of the Project include temporary and permanent traffic configuration changes, temporary construction traffic and motorist delays, coordination of community events, emergency response routes and timing, and access to/from Interstate 95. The project stakeholders include:

- VDOT Richmond District
- City of Colonial Heights
- Virginia State Police
- Southpark Mall tenants, patrons, and management
- Hardee's and Kangaroo Gas
- Kroger Mid-Atlantic Development Team
- Virginia State University
- CSXT
- Local residents and motorists, such as those in the Gregory community

Our team will work closely with VDOT Richmond District on all aspects of the project, including appropriate and timely communications to and from motorists. We will coordinate with ***VDOT's Richmond District*** and the ***City of Colonial Heights*** throughout the Project to deliver an accurate and consistent message to all stakeholders. Our team will keep City leadership informed of construction plans and coordinate closely on community issues. We will coordinate closely with the ***Virginia State Police*** and ***City of Colonial Heights Police and Fire Departments*** for efficient/effective MOT. We will also coordinate with City fire, police and rescue agencies on traffic impacts and emergency routes and will facilitate open communication with the Virginia State Police regarding impacts to Interstate 95.

Local residents and motorists that travel this area must be kept informed of the construction schedule and its impacts to travel such as detours, delays, etc. This is especially true of the residents of the ***Gregory community*** adjacent to the project area. As the project area is an alternative approach to Southpark Mall, our team will communicate regularly regarding traffic impacts and construction plans that may impact ***Southpark Mall tenants, patrons, and management***.

Hardee's and Kangaroo* Gas** east of intersection are two key property owners within the project area, open lines of communication regarding construction and traffic impacts will be established. The ***Kroger Mid-Atlantic Development Team is constructing a new store adjacent to the project area and construction on the Temple Avenue interchange will be coordinated with Kroger's development team. The Temple Avenue exit is the advertised approach to ***Virginia State University*** from the north. Our team will communicate traffic impacts and construction plans with the university so to limit any negative impacts to the school for special events. A property owner in the project area, we expect the impacts to ***CSXT*** to be limited; however, we will communicate to keep them informed regarding the Project.

Coordination and Public Outreach – The protocols and guidelines described in VDOT's *Policy Manual for Public Participation in Transportation Projects* will be used as the source for handling matters that center around public information and communication. Regular public outreach meetings are essential to staying coordinated and keeping public impacts to a minimum. Internet and social media tools are the primary means by which the public seeks information about transportation projects. Our team will create and provide clear, current, frequent, and accessible content including visuals, images, and key milestones for the VDOT project webpage and VDOT's social media tools such as Facebook, Twitter, YouTube, and Flickr sites. These outreach tools will be especially important through construction for traffic alerts. All project media will be coordinated with VDOT to ensure project messages are thoroughly and accurately presented to the media.

Roundabout Clinics – One of the concerns raised from the local community is the navigation of the new roundabout design. Addressing this concern is a cornerstone of the public outreach effort for the Project. In addition to the constant communication throughout construction, our team will work with VDOT to educate the community on the simplicity of the roundabout to relieve any anxiety or uncertainty – specifically how to drive the roundabout, safety benefits of the roundabout, roundabout policy and benefits, and FAQs. This education may be accomplished through the offering of a Roundabout Clinic, presentation at the Colonial Heights Chamber of Commerce, media outreach, and materials posted to the VDOT project webpage.

The education effort may also include a segment on how to follow the thorough signage plan that will be implemented as part of the design. The signage will tell motorists what lane to be in, for what movement, and for what destination. The signs will precede the roundabout so motorists will have advance notice of where they need to be to reach their intended destination.

Safety is of primary concern in roundabout design. It is imperative that motorists have knowledge of how to navigate this new design feature safely and efficiently. VDOT has begun this educational effort through public meetings, video and media outreach on the Project. Our team will work with VDOT to build upon these accomplishments in order to promote the ease motorists feel in navigating the roundabout.

Collaborative Input – In addition to the public outreach efforts outlined above, our team understands the potential opportunities that exist for landscaping the some of the raised grass median, specifically where the median is 8' or wider. The ***City of Colonial Heights*** and other stakeholders may wish to pursue an opportunity for landscaping, concrete patterning or color, or a combination of these treatments. As this may require additional funding to complete, our team will work with the City and other interested stakeholders to determine available options and define the desired design plan for the most aesthetically pleasing selection. In conjunction with VDOT, the City and other identified and invited key stakeholders, may participate in monthly progress meetings during the Project design and construction phase to provide input and feedback.

4.6
Disadvantaged Business Enterprises

4.6 DISADVANTAGED BUSINESS ENTERPRISES

DBE PARTICIPATION

American Infrastructure is committed to achieving a twelve percent (12%) DBE participation goal for the entire value of the contract. The following DBE subcontracting narrative outlines the procedures to achieve this goal for design and construction.

AI consistently meets or exceeds the DBE participation goals on our projects. In selecting subconsultants and subcontractors, the AI Team will select qualified and skilled DBE firms to achieve the project goal. Wherever possible we will use DBE firms that we've worked with in the past and have performed well. A summary of the DBE subcontracting plan for the Project is provided below specifying the means of soliciting DBE firms during the pre-construction phase. Our DBE Coordinator will be responsible for assisting our estimating department in the solicitation of DBE firms and the compliance to the DBE goals and standards set forth by the Commonwealth.

Overview – To facilitate achieving the DBE goal for the Project, AI will:

- Determine items which may be subcontracted and quantify based on estimated dollar amounts.
- Identify a pool of VDOT certified DBE subcontractors/suppliers.
- Validate the qualifications and assess the expertise of certified DBE subcontractors/suppliers to determine if they are capable of performing the scopes of work identified in the contract.
- Direct and assist certified and capable DBE subcontractors/suppliers to complete the AI subcontractor pre-qualification process if they are not already prequalified through previous projects with AI.
- Solicit price/scope quotes from certified and capable DBE subcontractors/ suppliers.
- Document the DBE solicitation process for Good Faith purposes including all modes of communication such as phone, fax, email, visits and pre-bid solicitation meetings.
- The project's Lead Estimator, in cooperation with the DBE Coordinator, is responsible for:
  - Ensuring that DBE participation is solicited, recorded and documented in accordance with DBE compliance and utilization policies and procedures.
  - Investigating all contract provisions to identify all requirements to satisfy Municipal, County, State or Federal obligations, including training and reporting.
  - Ensuring AI's commitment to proactively utilizing certified DBEs and to using all reasonable efforts to meet or exceed mandated DBE requirements is upheld.

DBE Solicitation – AI's Estimating Team solicits price/scope quotes from certified and capable DBE subcontractors/suppliers while determining pre-qualification status. Certified and capable DBE subcontractors/suppliers have been identified through searching DBE Directory web sites, attending project pre-bid meeting, and mass advertisements. The following elements will be included in the solicitation, or in any advertisement placed as a general solicitation to DBEs:

- The company name, address, telephone number, fax number and email address.
- The project location and a description of the work for which the bid is being solicited.
- Our FTP Site for Subcontractors to view plans and specifications.
- The name of the Lead Estimator and DBE Coordinator who will be available to answer questions about the Project.
- How to respond to the solicitation.
- The date, time, and location where bids are to be submitted.

4.7
Proposal Schedule

4.7 PROPOSAL SCHEDULE

SEQUENCE OF WORK

The project milestones have been setup to support the AI Team's commitment to deliver the Project by the RFP specified completion date of November 10, 2017. The following table summarizes key milestones that facilitate early beneficial occupancy of the roundabout.

KEY PROJECT MILESTONE	SCHEDULE
Quality Assurance/Quality Control Plan Approval	April 2015
Released for Construction Plans – Phase 1 MOT	July 2015
Begin Phase 1 MOT/Temporary Wall Construction	July 2015
Final Geotechnical Report & Recommendations Approval	October 2015
Complete Temporary Wall and Switch Temple Ave Traffic	November 2015
Initiate Phase 1 Construction	January 2016
Released for Construction Plans – Package A	February 2016
Released for Construction Plans – Package C	February 2016
Released for Construction Plans – Package B	March 2016
All Utility Relocations Complete	April 2016
Hamilton Avenue/Ridge Road Complete	August 2016
Beneficial Occupancy of Roundabout	July 2017
Project Substantial Completion	September 2017
Project Final Completion	November 2017

DESIGN-BUILD ADVANCED ACTIVITIES – To achieve the project milestones, our team will proactively begin certain design phase activities at risk.

- Following VDOT issuance of the Notice of Intent to Award/Contract Execution, we will (1) review and verify the RFP design, (2) prepare the Soil Boring Plan, (3) develop the QA/QC Plan, and (4) initiate contact and coordination with utility companies, and (5) prepare site investigation notification letters.
- Following Notice to Proceed (NTP) and in addition to all identified schedule activities, we will complete the schedule critical activities such as (1) submit to VDOT for review and approval the QA/QC Plan, Soil Boring Plan, and Site Investigation Letters (2) initiate field studies and design activities, including an inspection/assessment of existing pavement and drainage and inventory existing signing, lighting, and landscape items, (3) establish a list of stakeholders for the project, (4) perform ROW research, initiate preparation of FI/RW Plans, and prepare ROW Acquisition Plans and (5) develop site-specific safety and hazardous material management plans.

At a high level, post-Notice to Proceed, the priorities are with preconstruction activities that support utility relocations, ROW acquisition, and MOT/Temporary Construction design.

The Project was divided into three major work areas – Temple Avenue, the I-95 Ramps, and the Ridge Road intersection – to provide flexibility in scheduling and phasing, meet traffic maintenance requirements, and accelerate work in specific locations. Generally, construction activities prioritize work on Temple Avenue due to the need to complete the work in this area in multiple phases.

The AI Team was able to produce a plan to deliver Beneficial Occupancy of the roundabout in July 2017, giving motorists an opportunity to adjust to the new traffic pattern prior to the 2017 holiday shopping season. A detailed sequence of construction is provided in Section 4.5.

WORK BREAKDOWN STRUCTURE

The Proposal Schedule is organized using a hierarchical Work Breakdown Structure (WBS) and is broken down by major scopes of work as shown below. For preconstruction scope areas, the WBS further details major work efforts. For construction, the WBS is broken down by geographical segmentation. The

segmentation was strategically chosen to provide manageable work areas as well as maximum flexibility with phasing and maintenance of traffic considerations.

PROJECT MILESTONES – The Project Milestones section includes key points in the schedule that will be the basis of high-level schedule monitoring.

PROJECT ADMINISTRATION – The project administration section includes activities related to the overall management of the Project. Subsections of this WBS are:

- Project Startup: Mobilization activities are included here.
- Management Submittals: This section includes activities related to project management submittals such as the Site-Specific Safety & Emergency Plan, Spill Prevention, Control, and Countermeasure Plan, etc.
- Quality Assurance/Quality Control (QA/QC): This section tracks the submission of the QA/QC Plan and contractually required Hold Points, specifically Preparatory Meetings for each major scope of work and required QA/QC plan approval in advance of submission of design packages.
- Archaeological Study: This section contains activities related to the archaeological investigation of Parcel 004, including coordination with the District Archaeologist, documentation of findings, and mobilization/demobilization of equipment for the investigation.
- Construction Submittals: This section includes tracking pre-construction working drawings, shop drawings, structure load rating reports and demolition plans.
- Project Closeout: This section currently includes punchlist and demobilization items, but will later be used to track any identified project closeout activities.

SCOPE VALIDATION PERIOD – The Scope Validation Period is 120 days from Notice to Proceed. This schedule section includes activities related to scope validation investigations, submittals and negotiations (if necessary).

PUBLIC INVOLVEMENT – The Public Involvement section includes activities related to the Project's stakeholder involvement and coordination with VDOT's Office of Public Affairs.

DESIGN – The Design section includes activities related to the Design efforts needed to commence construction. Subsections of this WBS are:

- General Design Efforts: This section includes design support activities such as reviewing final contract requirements, finalizing any optimization alternatives and assessing additional data requirements that need to be obtained through additional field investigations, borings and evaluations.
- Design Survey: This section includes activities related to obtaining additional data for design advancement through field survey and investigations.
- Geotechnical: This section includes activities related to performing additional soil borings, laboratory analyses, geotechnical analysis and design.
- FI/RW Plans: This section includes activities related to the preparation, submission, and approval of the FI/RW Plans. These plans will be packaged by Area to reduce schedule risk and provide flexibility in planning. FI/RW Plans are divided into subsections based on the design packages with which they are associated.
- Roadway Design: This section includes activities related to the preparation, submission and approval of construction plans. The final plans will be broken into packages to reduce schedule risk and provide flexibility in planning. Final roadway plans submissions will include final drainage and SWM reports and confirmation of purchase of offsite nutrient credit offsets, if necessary. The design packages are reflected in the WBS as the following four subsections:
    - "Phase 1 – MOT Plans and Details," includes temporary construction/roadway widening, clearing and E&S for temporary construction, temporary pavement, signing, striping, and

signal configurations for MOT, and construction of the Ridge Road turnaround. This package is expected to have no ROW impacts outside of Parcel 004, which will be acquired by VDOT; therefore, that scope of work is able to take place earlier in the Project without dependency on ROW acquisition.

- "Package A" addresses work north of the proposed Temple Avenue curb line, including clearing, grubbing, grading, drainage, paving, and utility relocations for Ridge Road construction and design of the retaining wall supporting the proposed roundabout.
- "Package B" addresses remaining work on Temple Avenue and work on the I-95 Ramps, including clearing, grubbing, grading, drainage, stormwater management facilities, roundabout construction, and improvements to Temple Avenue.
- "Package C" includes permanent signing, signals, pavement marking, and landscaping.

PERMITTING/ENVIRONMENTAL – The Permitting/Environmental section includes activities related to the efforts needed to obtain necessary environmental permits and address specific environmental concerns for the Project. Subsections of this WBS are:

- VPDES Permitting: This section includes activities related to obtaining VPDES permit coverage. Separate registrations are planned for each design package in order to accelerate work in critical areas as design is completed.
- SWPPP Permitting: This section includes activities related to gaining approval of the SWPPP Certification forms for the individual design packages.
- Hazardous Materials Management: This section includes activities related to asbestos sampling/testing.
- Individual Wetlands Permit: This section includes activities related to the preparation, submission and approval of the Individual Wetlands Permit. This will include wetland delineations, avoidance and minimization studies, and coordination with the permitting agencies. This section includes activities for agency public notice, draft permit issuance for review by the AI Team and procurement of requisite wetland and stream credits.

RIGHT-OF-WAY – The Right-of-Way (ROW) section includes activities related to the efforts needed to acquire ROW and temporary utility and construction easements required to commence construction of the Project. Affected parcels have been grouped into two packages, with Package A containing the parcels necessary to begin Phase 1 construction (Parcels 002, 009, 010, and 011), and Package B containing the remaining parcels. This section also addresses the acquisition of Parcels 003, 004, and 012 by VDOT, preventing work on these parcels from progressing until they have been cleared. Subsections of this WBS are:

- Management Submittals: This section includes activities related to the submission and approval of the Acquisition and Relocation Plan.
- Site Assessments/Survey/Research: This section includes activities related to site investigations and research for parcels potentially affected by the Project.
- Right of Way Package A: This section includes activities related to acquisition of parcels associated with the work in Design Package A.
- Right of Way Package B: This section includes activities related to acquisition of parcels associated with the work in Design Package B.

UTILITIES – The Utilities section includes activities related to the efforts needed to relocate utilities in conflict with the final design. Subsections of this WBS are:

- Utility Coordination/Planning: This section includes activities related to early coordination and reporting.

- Utility Field Inspections: This section includes activities related to field investigations and development of Utility Relocation Plans.
- Plan & Estimates: This section includes activities related to development and approval of Plan & Estimates and development of relocation plans.
- Utility Relocations: This section includes activities related to the physical relocation of utilities.

PROCUREMENT – The Procurement section includes activities related to relationships between AI and its vendors and subcontractors. Subsections of this WBS are:

- Vendor Procurement: This section includes activities related to procurement of material vendors and subcontractors needed to construct the approved design.
- Fabrication: This section includes activities related to the lead times of major materials.

CONSTRUCTION – The Construction section includes activities related to the efforts needed to construct the approved design. This WBS section is broken down by geographical areas as shown below. Subsections of this WBS are:

- Entire Project: Temple Avenue, the I-95 Ramps, Ridge Road, Hamilton Avenue, and other areas generally impacted by construction activities
    - *MOT/Traffic Switches:* Project-wide, includes installation of temporary barrier, eradication/striping, and signal reconfiguration to shift traffic for each phase of construction
    - *SWM Facilities:* Includes construction of SWM facilities and installation of associated drainage
    - *E&S/Clearing and Grubbing:* Project-wide, includes installation of perimeter controls and phased adjustments to erosion controls
- Temple Avenue (Rte 144): Temple Avenue from the intersection with Hamilton Avenue to the existing I-95 Ramps
    - *Site Preparation:* Clearing, grubbing, and installation of initial E&S controls
    - *Str. 8006:* Existing bridge carrying eastbound traffic over the abandoned CSXT property
    - *Str. 8009:* Existing bridge carrying westbound traffic over the abandoned CSXT property
    - *Roadway*: Temple Avenue roadway, including the proposed roundabout at the intersection with the I-95 ramps
        - Below Subgrade: Retaining wall construction, fills, drainage, etc., to subgrade elevation
        - Above Subgrade: Subgrade, stone, asphalt, topsoil/seeding, curb, guardrail, etc. from subgrade elevation to finishes
- I-95 Interchange Ramps: Existing and proposed I-95 ramps from the project limits to the intersection with Temple Avenue
    - *Site Preparation:* Clearing, grubbing, and installation of initial E&S controls
    - *Existing I-95 Ramps:* Old ramp alignment to be abandoned
    - *Proposed I-95 Ramps:* Proposed alignment of the new I-95 ramps and tie-ins
        - Below Subgrade: Retaining wall construction, fills, drainage, etc., to subgrade elevation
        - Above Subgrade: Subgrade, stone, asphalt, topsoil/seeding, curb, guardrail, etc. from subgrade elevation to finishes
- Ridge Road/Hamilton Avenue Intersection: New connection of Ridge Road to Temple Avenue at the existing Hamilton Avenue/Temple Avenue Intersection

- *Site Preparation:* Clearing, grubbing, and installation of initial E&S controls
- *Below Subgrade:* Retaining wall construction, fills, drainage, etc., to subgrade elevation
- *Above Subgrade:* Subgrade, stone, asphalt, topsoil/seeding, curb, guardrail, etc. from subgrade elevation to finishes

CRITICAL PATH

The critical path, as represented by the project schedule, includes the following activities in order of progression from Notice to Proceed (February 25, 2015) through the Project Completion Date (November 10, 2017) and is as follows:

- Notice to Proceed
- FI/RW Plans – Package B
- Right of Way Acquisition – Package B
- Released for Construction Plans – Package B
- Utility Relocations – I-95 Ramps
- Ridge Road Construction
- Demolition & Construction – Temple Ave EB
- Demolition & Construction – Temple Ave WB
- Implementation of Roundabout Traffic Pattern on Temple Ave
- Completion of the I-95 Ramp Tie-Ins
- Final Paving & Guardrail Installation – I-95 Ramps
- Permanent Striping – Entire Project
- Demobilization/Closeout
- Final Completion

In addition to the full project schedule provided, we have included a print out of the longest path layout.

REVIEWS AND APPROVALS

For each major deliverable in the schedule, there are activities for the preparation/submission of the item as well as the review and comment/approval of said deliverable. In order to further clarify the reviewer's responsibilities, review activities are labeled with either "R/C" or "R/A" to indicate "Review and Comment" or "Review and Approve", respectively.

Upon award, the AI Team will utilize the activity code "C00085623DB74 – Responsible Stakeholder" to identify the reviewing party on each of the "R/C" and "R/A" activities. This code will be utilized to identify which key stakeholder is responsible for the preparation, submission, and review of each deliverable identified in the schedule. Known stakeholders that will have review and approval responsibilities include, but are not limited to, VDOT, the City of Colonial Heights, RDA/WM, FHWA, and various environmental agencies.

In addition to standard deliverable reviews and approvals, major hold points have been represented in the schedule – specifically the Preparatory Meetings required by the QA/QC Program. In the Proposal Schedule, there is one Preparatory Meeting shown for each major scope area. Post-award, some of these hold points may be duplicated if major scopes of work are going to stop and start with great gaps of time between. Likewise, the team may choose to have separate Preparatory Meetings if different vendors are involved in the operations.

SUBCONTRACTORS AND SUPPLIERS

Lessons learned from schedule management on previous design-build projects have led to the inclusion of a Procurement section in the project schedule. This section of the WBS captures the activities needed to execute

contracts with various subcontractors and suppliers once the design is approved. This section also contains activities for the fabrication and delivery of major materials that typically have longer lead times such as MSE wall materials, overhead structures, and lighting/signalization materials.

In addition, post-award, Primavera's role and resource functions may be used to monitor and track the number of vendor resources needed in the construction phase of the Project. Prior to the procurement phase of the Project, roles would be set up and defined to show what types of subcontractors and suppliers would be needed for each construction activity. Once a specific vendor is procured, a resource would be assigned to that role to represent the specific firm procured. For example, a paving activity would be assigned the role, "Paving Contractor" pre-procurement. Post-procurement, the activity would be assigned a specific resource with the firm's name, "ABC Paving Company". These assignments would allow the procurement and construction management staff to strategically plan with all resource availability considerations in mind.

MEANS AND METHODS

The durations in the proposal schedule were calculated based on estimated quantities known at the time of proposal as well as historical average productions experienced on similar projects. As design progresses and quantities are finalized, the construction schedule will be reviewed and monitored. Any major modifications to the design or design quantities will be reviewed with VDOT and reflected in potential revisions to the project schedule.

UTILITY CONFLICT COORDINATION / RESOLUTION

There are seven utility owners in and around the project corridor. Impacts to four of the seven utilities are being avoided through the proposed optimized design and phasing. The two remaining public utility owners, Dominion Virginia Power and Verizon, are addressed in the proposal schedule. Preliminary schedule durations for coordination, design, adjustment, and relocation have been incorporated into the schedule to ensure that the final design adequately addresses easement needs and that the relocation work can be completed in advance of construction operations to avoid delays. Conflicts with VDOT ITS Fiber Optics will be resolved directly with VDOT and incorporated into the construction schedule.

In order to minimize the chance of delays while waiting for utility crews to be available to perform relocations, relocation work in all project areas has been scheduled to occur at once, in the spring of 2016. Waiting until after the winter months also reduces the likelihood of crews being redirected from the project to deal with emergencies during inclement winter weather.

MAINTENANCE OF CONSTRUCTION / ACCELERATED PHASE I MOT

Adjusting to a new traffic pattern can be challenging for drivers, and learning to navigate in a two-lane roundabout in an active work zone will be especially challenging. Maintaining a safe work zone while constructing the phased roundabout under traffic will require strong emphasis on planning and public education. The AI Team has developed a clear and concise Transportation Management Plan (TMP) and Sequence of Construction (SOC) that includes proactive and transparent public outreach to foster open communication, limit surprises, and allow local residents to plan for upcoming traffic shifts and avoid delays.

BENEFICIAL OCCUPANCY OF THE ROUNDABOUT

Early beneficial occupancy, combined with phased implementation of the roundabout will provide interchange users time to acclimate to the roundabout operations in advance of the 2017-2018 School Year and Holiday Season.

SCHEDULE ASSUMPTIONS

To properly manage the schedule, it is important to understand the scope of the work and interdisciplinary dependencies. In addition, it is important to understand the technical capabilities of the schedule management software. Care has been given to the setup of the Primavera Schedule to ease future schedule management

and to properly account for schedule risks to reduce potential impacts. The proposal schedule does not include potential provisions for replacement of existing concrete pavement as this will be evaluated post award.

CALENDARS – Project-specific calendars have been set up in Primavera to represent various restrictions and assumptions that must be applied to the project activities.

- Primary Calendars:
  - C00085623DB74 – 5-day Office:
    - This calendar allows work five days per week except standard state holidays.
    - It is assigned all preconstruction activities that are not dependent on weather and would be primarily performed in an office.
  - C00104905DB75 – 5-day Field:
    - This calendar allows work five days per week except standard state holidays. It also accounts for normal weather patterns that would affect field activities, such as precipitation histories.
    - It is assigned to field activities that may be affected by weather or precipitation events.
  - C00104905DB75 – 5-day Temperature/Winter:
    - This calendar allows work five days per week except standard state holidays. In addition to accounting for normal weather patterns, as shown in the "5-day Field" calendar, it also prohibits work from taking place from Christmas each year to March 1 of the following year.
    - It is assigned to all field activities that may be affected by temperatures in order to be installed per specification, such as paving and striping activities.
  - C00104905DB75 – 7-day:
    - This calendar allows work seven days per week.
    - It is assigned to any activity whose duration is based on calendar days.

CONSISTENCY OF ACTIVITY NAMES AND IDS – Care has been made to maintain consistency throughout the proposal schedule in terms of each activity's name and ID. Each Activity ID is ten digits long. The first six digits of the Activity ID mirror the WBS code in which the activity is located. Likewise, activities of similar type are named consistently. Activities for subbase are consistently named "Install Stone & Grade for Asphalt" throughout the schedule rather than "Install Stone & Grade for Asphalt" in one location or "Place Stone & Grade for Asphalt" in another. In addition, Activities that are duplicative in multiple areas of the Project, have a suffix for the specific location or detail that is applicable. For example, there are six activities in the proposal schedule for "Install Base & Intermediate Asphalt". To avoid confusion about the scope of each activity, each of those activities is labeled with the Location, i.e. "Install Base & Intermediate Asphalt – Temple Ave WB".

ACTIVITY CODES – Project-specific activity codes have been set up to provide greater flexibility in future sorting and analysis of the schedule.

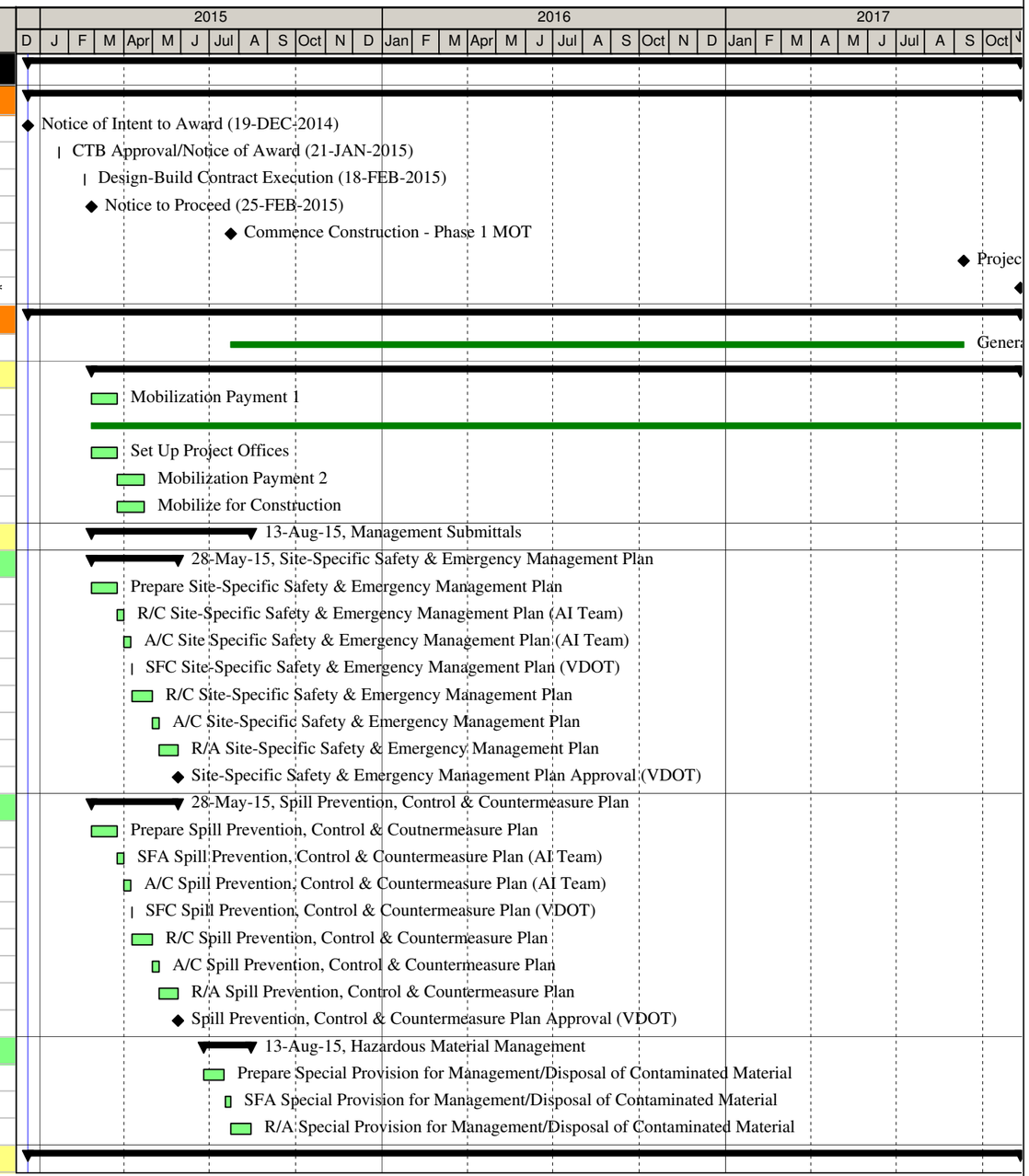
- C00085623DB74 – Phase:
  - The Phase codes correspond to the expected phasing described in the project approach.
  - By utilizing activity codes for phasing rather than the WBS, flexibility is added to the schedule. In the case that a more time-effective phasing scheme is developed, the activity coding can be easily modified to model said change.
- C00085623DB74 – Responsible Stakeholder:
  - As previously described, the Responsible Stakeholder activity code will be used to track and sort activities by reviewing party.

- C00085623DB74 – Type of Work:
  - The Type of Work code is setup to allow grouping and sorting by major scope sections. Initially, codes have been set up at a macro level such as "Structure Demolition", "Retaining Wall Construction" and "Final Paving". However, as the design progresses, these codes will be able to be broken down into more detail to allow for more efficient schedule management.

SCHEDULE ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

AC *or* A/C	Address Comments
ACM	Asbestos-Containing Material
AFC	Approved for Construction
CTB	Commonwealth Transportation Board
DEQ	Department of Environmental Quality
DM	Design Manager
DVP	Dominion Virginia Power
EB	Eastbound
E&S	Erosion & Sedimentation
FHWA	Federal Highway Administration
FI/RW	Field Inspection/Right-of-Way
ITS	Intelligent Transportation System
MOT	Maintenance of Traffic
NB	Northbound
NTP	Notice to Proceed
OTSR	Over-the-shoulder Review
QAM	Quality Assurance Manager
QA/QC	Quality Assurance/Quality Control
RA *or* R/A	Review and Approve
RC *or* R/C	Review and Comment
RFP	Request for Proposals
ROW	Right-of-way
SB	Southbound
SFA	Submit for Approval
SFC	Submit for Comment
SOC	Sequence of Construction
SWM	Stormwater Management
SWPPP	Stormwater Pollution Prevention Plans
VDOT	Virginia Department of Transportation
VPDES	Virginia Pollutant Discharge Elimination System
WB	Westbound

Activity ID	Activity Name	Original Duration	Start	Finish
I95 at Temple Ave Interchange Improvements - UPC 85623		**750**	**19-Dec-14**	**10-Nov-17**
Project Milestones		**750**	**19-Dec-14**	**10-Nov-17**
MI00001000	Notice of Intent to Award (19-DEC-2014)	0	19-Dec-14*	
MI00001010	CTB Approval/Notice of Award (21-JAN-2015)	1	21-Jan-15*	21-Jan-15
MI00001020	Design-Build Contract Execution (18-FEB-2015)	1	18-Feb-15*	18-Feb-15
MI00001030	Notice to Proceed (25-FEB-2015)	0	25-Feb-15*	
MI00001040	Commence Construction - Phase 1 MOT	0	24-Jul-15	
MI00001050	Project Substantial Completion	0		11-Sep-17
MI00001060	Project Final Completion (10-NOV-2017)	0		10-Nov-17*
Project Administration		**750**	**19-Dec-14**	**10-Nov-17**
PA00001000	General Conditions: Survey through Substantial Completion	528	24-Jul-15	11-Sep-17
Project Startup		**708**	**25-Feb-15**	**10-Nov-17**
PAPS001000	Mobilization Payment 1	20	25-Feb-15	24-Mar-15
PAPS001010	General Conditions: Project Management through Final Completion	675	25-Feb-15	10-Nov-17
PAPS001020	Set Up Project Offices	20	25-Feb-15	24-Mar-15
PAPS001030	Mobilization Payment 2	20	25-Mar-15	22-Apr-15
PAPS001040	Mobilize for Construction	20	25-Mar-15	22-Apr-15
Management Submittals		**122**	**25-Feb-15**	**13-Aug-15**
Site-Specific Safety & Emergency Management Plan		**67**	**25-Feb-15**	**28-May-15**
PAMSA01000	Prepare Site-Specific Safety & Emergency Management Plan	20	25-Feb-15	24-Mar-15
PAMSA01010	R/C Site-Specific Safety & Emergency Management Plan (AI Team)	5	25-Mar-15	31-Mar-15
PAMSA01020	A/C Site Specific Safety & Emergency Management Plan (AI Team)	5	01-Apr-15	08-Apr-15
PAMSA01030	SFC Site-Specific Safety & Emergency Management Plan (VDOT)	1	09-Apr-15	09-Apr-15
PAMSA01040	R/C Site-Specific Safety & Emergency Management Plan	21	10-Apr-15	30-Apr-15
PAMSA01050	A/C Site-Specific Safety & Emergency Management Plan	5	01-May-15	07-May-15
PAMSA01060	R/A Site-Specific Safety & Emergency Management Plan	21	08-May-15	28-May-15
PAMSA01070	Site-Specific Safety & Emergency Management Plan Approval (VDOT)	0		28-May-15
Spill Prevention, Control & Countermeasure Plan		**67**	**25-Feb-15**	**28-May-15**
PAMSB01000	Prepare Spill Prevention, Control & Coutnermeasure Plan	20	25-Feb-15	24-Mar-15
PAMSB01010	SFA Spill Prevention, Control & Countermeasure Plan (AI Team)	5	25-Mar-15	31-Mar-15
PAMSB01020	A/C Spill Prevention, Control & Countermeasure Plan (AI Team)	5	01-Apr-15	08-Apr-15
PAMSB01030	SFC Spill Prevention, Control & Countermeasure Plan (VDOT)	1	09-Apr-15	09-Apr-15
PAMSB01040	R/C Spill Prevention, Control & Countermeasure Plan	21	10-Apr-15	30-Apr-15
PAMSB01050	A/C Spill Prevention, Control & Countermeasure Plan	5	01-May-15	07-May-15
PAMSB01060	R/A Spill Prevention, Control & Countermeasure Plan	21	08-May-15	28-May-15
PAMSB01070	Spill Prevention, Control & Countermeasure Plan Approval (VDOT)	0		28-May-15
Hazardous Material Management		**36**	**25-Jun-15**	**13-Aug-15**
PAMSC01000	Prepare Special Provision for Management/Disposal of Contaminated Material	15	25-Jun-15	16-Jul-15
PAMSC01010	SFA Special Provision for Management/Disposal of Contaminated Material	5	17-Jul-15	23-Jul-15
PAMSC01020	R/A Special Provision for Management/Disposal of Contaminated Material	21	24-Jul-15	13-Aug-15
Quality Assurance/Quality Control (QA/QC)		**750**	**19-Dec-14**	**10-Nov-17**



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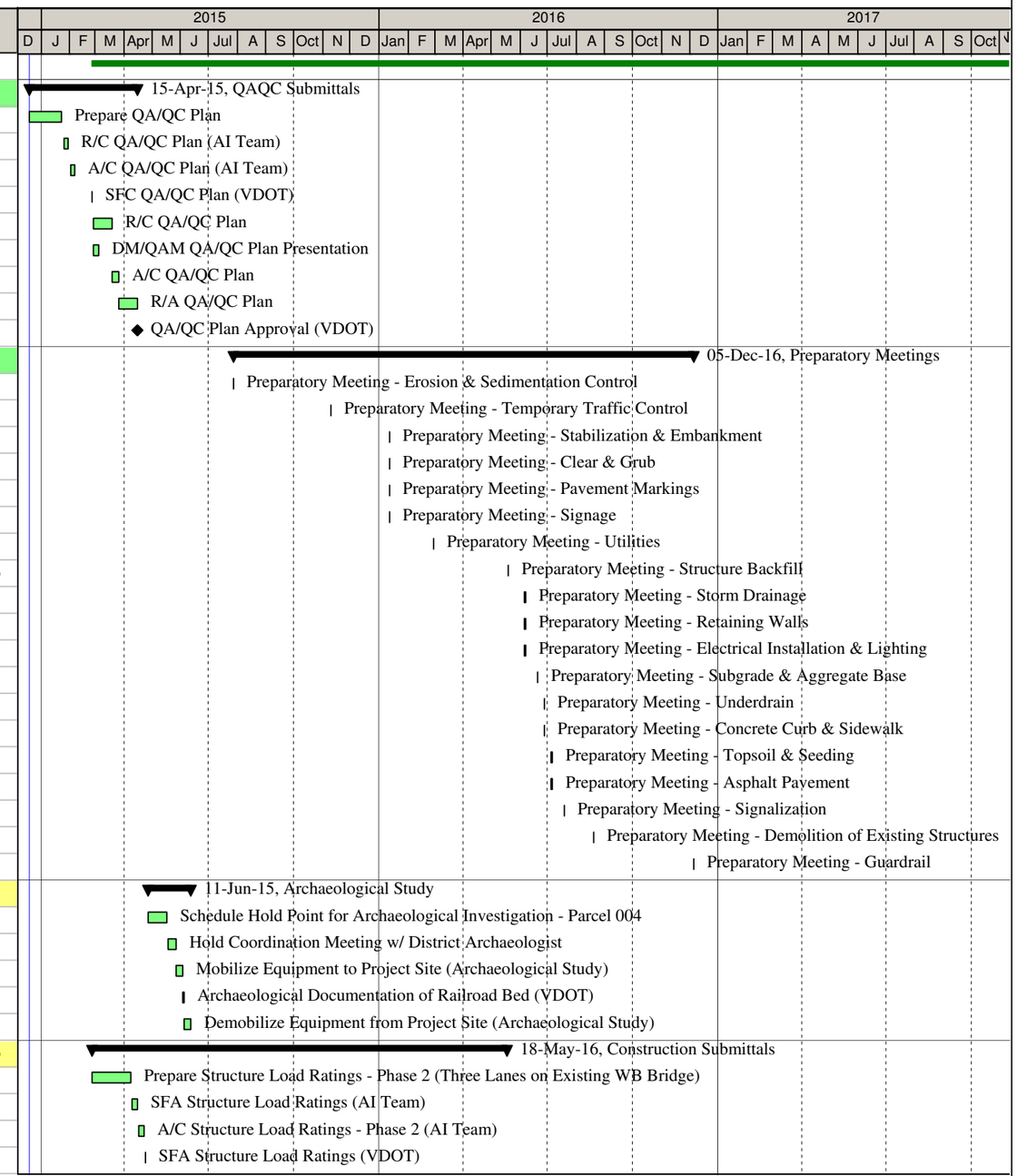
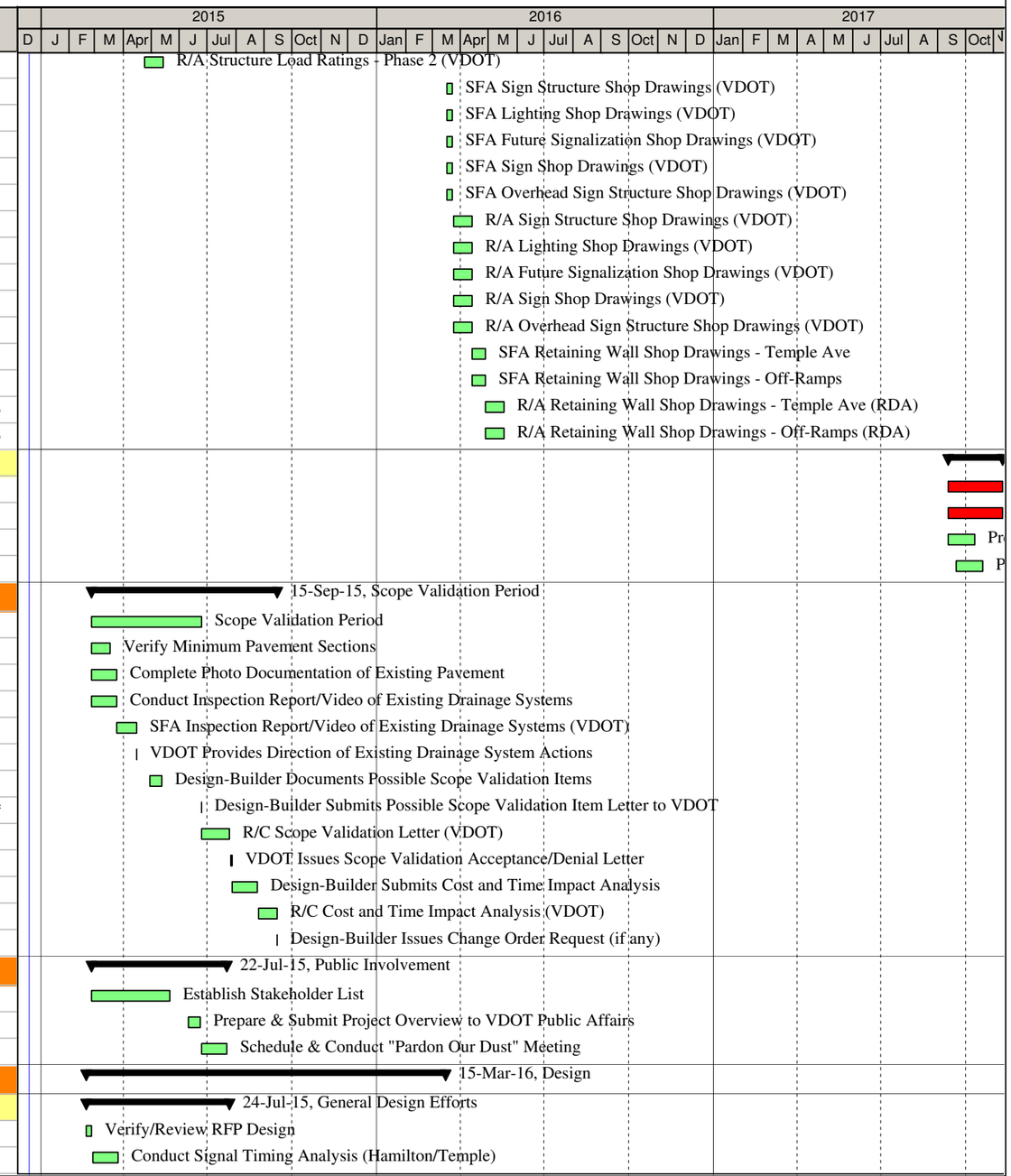
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
PAQA001000	General Conditions: QA/QC through Final Completion	675	25-Feb-15	10-Nov-17
QAQC Submittals		78	19-Dec-14	15-Apr-15
PAQAA01000	Prepare QA/QC Plan	20	19-Dec-14	23-Jan-15
PAQAA01010	R/C QA/QC Plan (AI Team)	5	26-Jan-15	30-Jan-15
PAQAA01020	A/C QA/QC Plan (AI Team)	5	02-Feb-15	06-Feb-15
PAQAA01030	SFC QA/QC Plan (VDOT)	1	25-Feb-15	25-Feb-15
PAQAA01040	R/C QA/QC Plan	21	26-Feb-15	18-Mar-15
PAQAA01050	DM/QAM QA/QC Plan Presentation	5	26-Feb-15	04-Mar-15
PAQAA01060	A/C QA/QC Plan	5	19-Mar-15	25-Mar-15
PAQAA01070	R/A QA/QC Plan	21	26-Mar-15	15-Apr-15
PAQAA01080	QA/QC Plan Approval (VDOT)	0		15-Apr-15
Preparatory Meetings		355	28-Jul-15	05-Dec-16
PAQAB01020	Preparatory Meeting - Erosion & Sedimentation Control	1	28-Jul-15	28-Jul-15
PAQAB01010	Preparatory Meeting - Temporary Traffic Control	1	10-Nov-15	10-Nov-15
PAQAB01050	Preparatory Meeting - Stabilization & Embankment	1	12-Jan-16	12-Jan-16
PAQAB01030	Preparatory Meeting - Clear & Grub	1	12-Jan-16	12-Jan-16
PAQAB01180	Preparatory Meeting - Pavement Markings	1	12-Jan-16	12-Jan-16
PAQAB01170	Preparatory Meeting - Signage	1	12-Jan-16	12-Jan-16
PAQAB01000	Preparatory Meeting - Utilities	1	29-Feb-16	29-Feb-16
PAQAB01060	Preparatory Meeting - Structure Backfill	1	19-May-16	19-May-16
PAQAB01040	Preparatory Meeting - Storm Drainage	1	06-Jun-16	06-Jun-16
PAQAB01070	Preparatory Meeting - Retaining Walls	1	06-Jun-16	06-Jun-16
PAQAB01090	Preparatory Meeting - Electrical Installation & Lighting	1	06-Jun-16	06-Jun-16
PAQAB01080	Preparatory Meeting - Subgrade & Aggregate Base	1	20-Jun-16	20-Jun-16
PAQAB01100	Preparatory Meeting - Underdrain	1	27-Jun-16	27-Jun-16
PAQAB01110	Preparatory Meeting - Concrete Curb & Sidewalk	1	27-Jun-16	27-Jun-16
PAQAB01130	Preparatory Meeting - Topsoil & Seeding	1	05-Jul-16	05-Jul-16
PAQAB01120	Preparatory Meeting - Asphalt Pavement	1	05-Jul-16	05-Jul-16
PAQAB01140	Preparatory Meeting - Signalization	1	19-Jul-16	19-Jul-16
PAQAB01160	Preparatory Meeting - Demolition of Existing Structures	1	19-Aug-16	19-Aug-16
PAQAB01150	Preparatory Meeting - Guardrail	1	05-Dec-16	05-Dec-16
Archaeological Study		34	26-Apr-15	11-Jun-15
PAAS001000	Schedule Hold Point for Archaeological Investigation - Parcel 004	21	26-Apr-15	16-May-15
PAAS001010	Hold Coordination Meeting w/ District Archaeologist	5	18-May-15	26-May-15
PAAS001020	Mobilize Equipment to Project Site (Archaeological Study)	5	27-May-15	02-Jun-15
PAAS001030	Archaeological Documentation of Railroad Bed (VDOT)	2	03-Jun-15	04-Jun-15
PAAS001040	Demobilize Equipment from Project Site (Archaeological Study)	5	05-Jun-15	11-Jun-15
Construction Submittals		321	25-Feb-15	18-May-16
PACS001000	Prepare Structure Load Ratings - Phase 2 (Three Lanes on Existing WB Bridge)	30	25-Feb-15	08-Apr-15
PACS001010	SFA Structure Load Ratings (AI Team)	5	09-Apr-15	15-Apr-15
PACS001020	A/C Structure Load Ratings - Phase 2 (AI Team)	5	16-Apr-15	22-Apr-15
PACS001030	SFA Structure Load Ratings (VDOT)	1	23-Apr-15	23-Apr-15



Activity ID	Activity Name	Original Duration	Start	Finish
PACS001040	R/A Structure Load Ratings - Phase 2 (VDOT)	21	24-Apr-15	14-May-15
PACS001050	SFA Sign Structure Shop Drawings (VDOT)	5	17-Mar-16	23-Mar-16
PACS001060	SFA Lighting Shop Drawings (VDOT)	5	17-Mar-16	23-Mar-16
PACS001070	SFA Future Signalization Shop Drawings (VDOT)	5	17-Mar-16	23-Mar-16
PACS001080	SFA Sign Shop Drawings (VDOT)	5	17-Mar-16	23-Mar-16
PACS001090	SFA Overhead Sign Structure Shop Drawings (VDOT)	5	17-Mar-16	23-Mar-16
PACS001100	R/A Sign Structure Shop Drawings (VDOT)	21	24-Mar-16	13-Apr-16
PACS001110	R/A Lighting Shop Drawings (VDOT)	21	24-Mar-16	13-Apr-16
PACS001120	R/A Future Signalization Shop Drawings (VDOT)	21	24-Mar-16	13-Apr-16
PACS001130	R/A Sign Shop Drawings (VDOT)	21	24-Mar-16	13-Apr-16
PACS001140	R/A Overhead Sign Structure Shop Drawings (VDOT)	21	24-Mar-16	13-Apr-16
PACS001150	SFA Retaining Wall Shop Drawings - Temple Ave	10	14-Apr-16	27-Apr-16
PACS001160	SFA Retaining Wall Shop Drawings - Off-Ramps	10	14-Apr-16	27-Apr-16
PACS001170	R/A Retaining Wall Shop Drawings - Temple Ave (RDA)	21	28-Apr-16	18-May-16
PACS001180	R/A Retaining Wall Shop Drawings - Off-Ramps (RDA)	21	28-Apr-16	18-May-16
Project Closeout		44	12-Sep-17	10-Nov-17
PAPC001000	Demobilization	60	12-Sep-17	10-Nov-17
PAPC001010	Closeout Documentation	60	12-Sep-17	10-Nov-17
PAPC001020	Prepare & Submit As-Built Drawings	30	12-Sep-17	11-Oct-17
PAPC001030	Punchlist/Cleanup for Final Completion	30	21-Sep-17	20-Oct-17
Scope Validation Period		145	25-Feb-15	15-Sep-15
SV00001000	Scope Validation Period	120	25-Feb-15	24-Jun-15
SV00001010	Verify Minimum Pavement Sections	15	25-Feb-15	17-Mar-15
SV00001020	Complete Photo Documentation of Existing Pavement	20	25-Feb-15	24-Mar-15
SV00001030	Conduct Inspection Report/Video of Existing Drainage Systems	20	25-Feb-15	24-Mar-15
SV00001040	SFA Inspection Report/Video of Existing Drainage Systems (VDOT)	21	25-Mar-15	14-Apr-15
SV00001050	VDOT Provides Direction of Existing Drainage System Actions	1	15-Apr-15	15-Apr-15
SV00001060	Design-Builder Documents Possible Scope Validation Items	10	29-Apr-15	12-May-15
SV00001070	Design-Builder Submits Possible Scope Validation Item Letter to VDOT	1	24-Jun-15	24-Jun-15*
SV00001080	R/C Scope Validation Letter (VDOT)	21	25-Jun-15	24-Jul-15
SV00001090	VDOT Issues Scope Validation Acceptance/Denial Letter	1	27-Jul-15	27-Jul-15
SV00001100	Design-Builder Submits Cost and Time Impact Analysis	20	28-Jul-15	24-Aug-15
SV00001110	R/C Cost and Time Impact Analysis (VDOT)	21	25-Aug-15	14-Sep-15
SV00001120	Design-Builder Issues Change Order Request (if any)	1	15-Sep-15	15-Sep-15
Public Involvement		106	25-Feb-15	22-Jul-15
PI00001000	Establish Stakeholder List	60	25-Feb-15	20-May-15
PI00001010	Prepare & Submit Project Overview to VDOT Public Affairs	10	10-Jun-15	23-Jun-15
PI00001020	Schedule & Conduct "Pardon Our Dust" Meeting	20	24-Jun-15	22-Jul-15
Design		279	19-Feb-15	15-Mar-16
General Design Efforts		112	19-Feb-15	24-Jul-15
DNGD001000	Verify/Review RFP Design	5	19-Feb-15	25-Feb-15
DNGD001010	Conduct Signal Timing Analysis (Hamilton/Temple)	20	26-Feb-15	25-Mar-15



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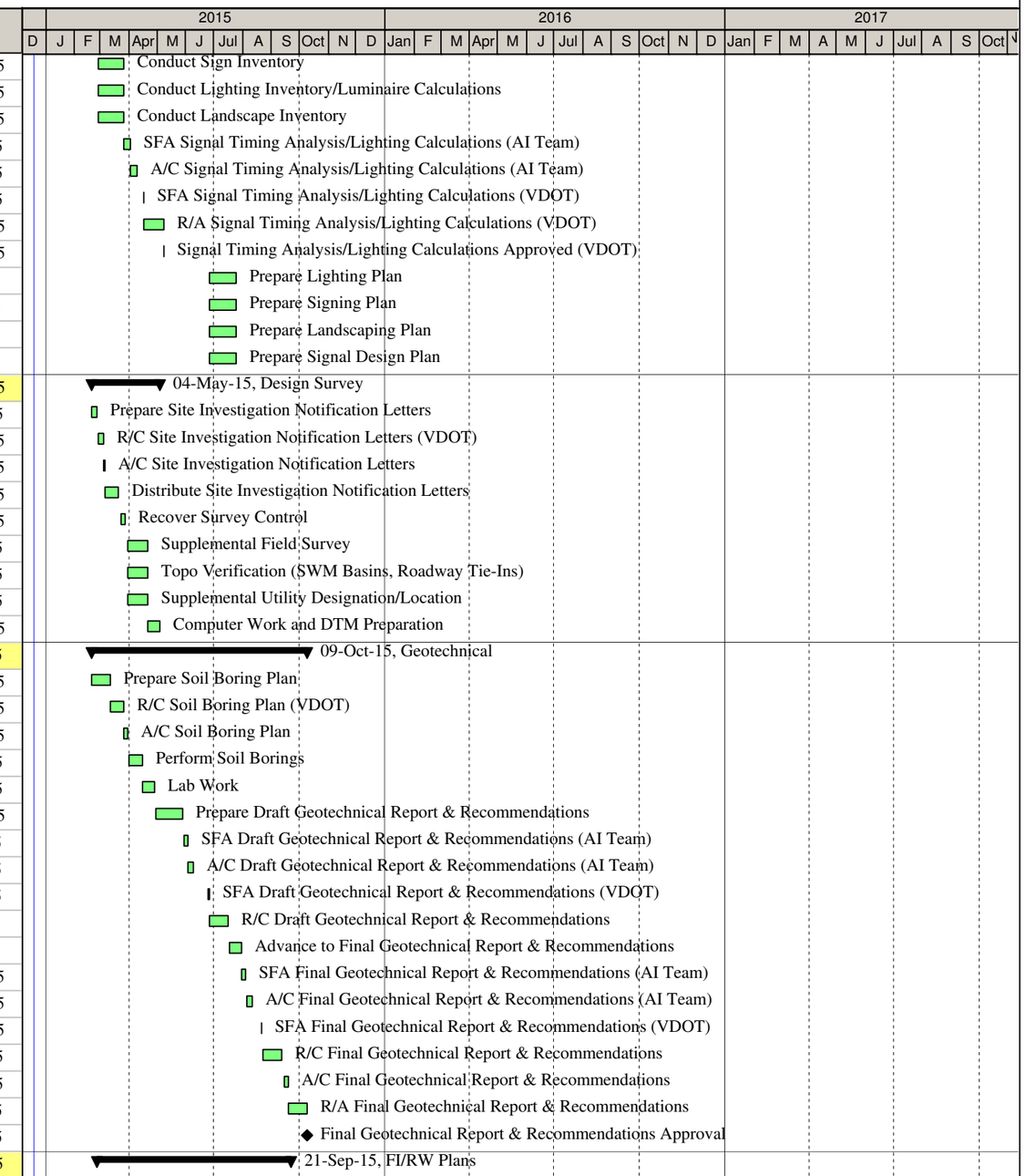
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
DNGD001020	Conduct Sign Inventory	20	26-Feb-15	25-Mar-15
DNGD001030	Conduct Lighting Inventory/Luminaire Calculations	20	26-Feb-15	25-Mar-15
DNGD001040	Conduct Landscape Inventory	20	26-Feb-15	25-Mar-15
DNGD001050	SFA Signal Timing Analysis/Lighting Calculations (AI Team)	5	26-Mar-15	01-Apr-15
DNGD001060	A/C Signal Timing Analysis/Lighting Calculations (AI Team)	5	02-Apr-15	09-Apr-15
DNGD001070	SFA Signal Timing Analysis/Lighting Calculations (VDOT)	1	16-Apr-15	16-Apr-15
DNGD001080	R/A Signal Timing Analysis/Lighting Calculations (VDOT)	21	17-Apr-15	07-May-15
DNGD001090	Signal Timing Analysis/Lighting Calculations Approved (VDOT)	1	08-May-15	08-May-15
DNGD001100	Prepare Lighting Plan	20	26-Jun-15	24-Jul-15
DNGD001110	Prepare Signing Plan	20	26-Jun-15	24-Jul-15
DNGD001120	Prepare Landscaping Plan	20	26-Jun-15	24-Jul-15
DNGD001130	Prepare Signal Design Plan	20	26-Jun-15	24-Jul-15
Design Survey		53	19-Feb-15	04-May-15
DNDS001000	Prepare Site Investigation Notification Letters	5	19-Feb-15	25-Feb-15
DNDS001010	R/C Site Investigation Notification Letters (VDOT)	7	26-Feb-15	04-Mar-15
DNDS001020	A/C Site Investigation Notification Letters	1	05-Mar-15	05-Mar-15
DNDS001030	Distribute Site Investigation Notification Letters	15	06-Mar-15	20-Mar-15
DNDS001040	Recover Survey Control	5	23-Mar-15	27-Mar-15
DNDS001050	Supplemental Field Survey	15	30-Mar-15	20-Apr-15
DNDS001060	Topo Verification (SWM Basins, Roadway Tie-Ins)	15	30-Mar-15	20-Apr-15
DNDS001070	Supplemental Utility Designation/Location	15	30-Mar-15	20-Apr-15
DNDS001080	Computer Work and DTM Preparation	10	21-Apr-15	04-May-15
Geotechnical		167	19-Feb-15	09-Oct-15
DNGE001000	Prepare Soil Boring Plan	15	19-Feb-15	11-Mar-15
DNGE001010	R/C Soil Boring Plan (VDOT)	10	12-Mar-15	25-Mar-15
DNGE001020	A/C Soil Boring Plan	3	26-Mar-15	30-Mar-15
DNGE001030	Perform Soil Borings	10	31-Mar-15	14-Apr-15
DNGE001040	Lab Work	10	15-Apr-15	28-Apr-15
DNGE001050	Prepare Draft Geotechnical Report & Recommendations	20	29-Apr-15	28-May-15
DNGE001060	SFA Draft Geotechnical Report & Recommendations (AI Team)	3	29-May-15	02-Jun-15
DNGE001070	A/C Draft Geotechnical Report & Recommendations (AI Team)	5	03-Jun-15	09-Jun-15
DNGE001080	SFA Draft Geotechnical Report & Recommendations (VDOT)	1	25-Jun-15	25-Jun-15
DNGE001090	R/C Draft Geotechnical Report & Recommendations	21	26-Jun-15	16-Jul-15
DNGE001100	Advance to Final Geotechnical Report & Recommendations	10	17-Jul-15	30-Jul-15
DNGE001110	SFA Final Geotechnical Report & Recommendations (AI Team)	3	31-Jul-15	04-Aug-15
DNGE001120	A/C Final Geotechnical Report & Recommendations (AI Team)	5	05-Aug-15	11-Aug-15
DNGE001130	SFA Final Geotechnical Report & Recommendations (VDOT)	1	21-Aug-15	21-Aug-15
DNGE001140	R/C Final Geotechnical Report & Recommendations	21	22-Aug-15	11-Sep-15
DNGE001150	A/C Final Geotechnical Report & Recommendations	5	14-Sep-15	18-Sep-15
DNGE001160	R/A Final Geotechnical Report & Recommendations	21	19-Sep-15	09-Oct-15
DNGE001170	Final Geotechnical Report & Recommendations Approval	0		09-Oct-15
FI/RW Plans		149	25-Feb-15	21-Sep-15



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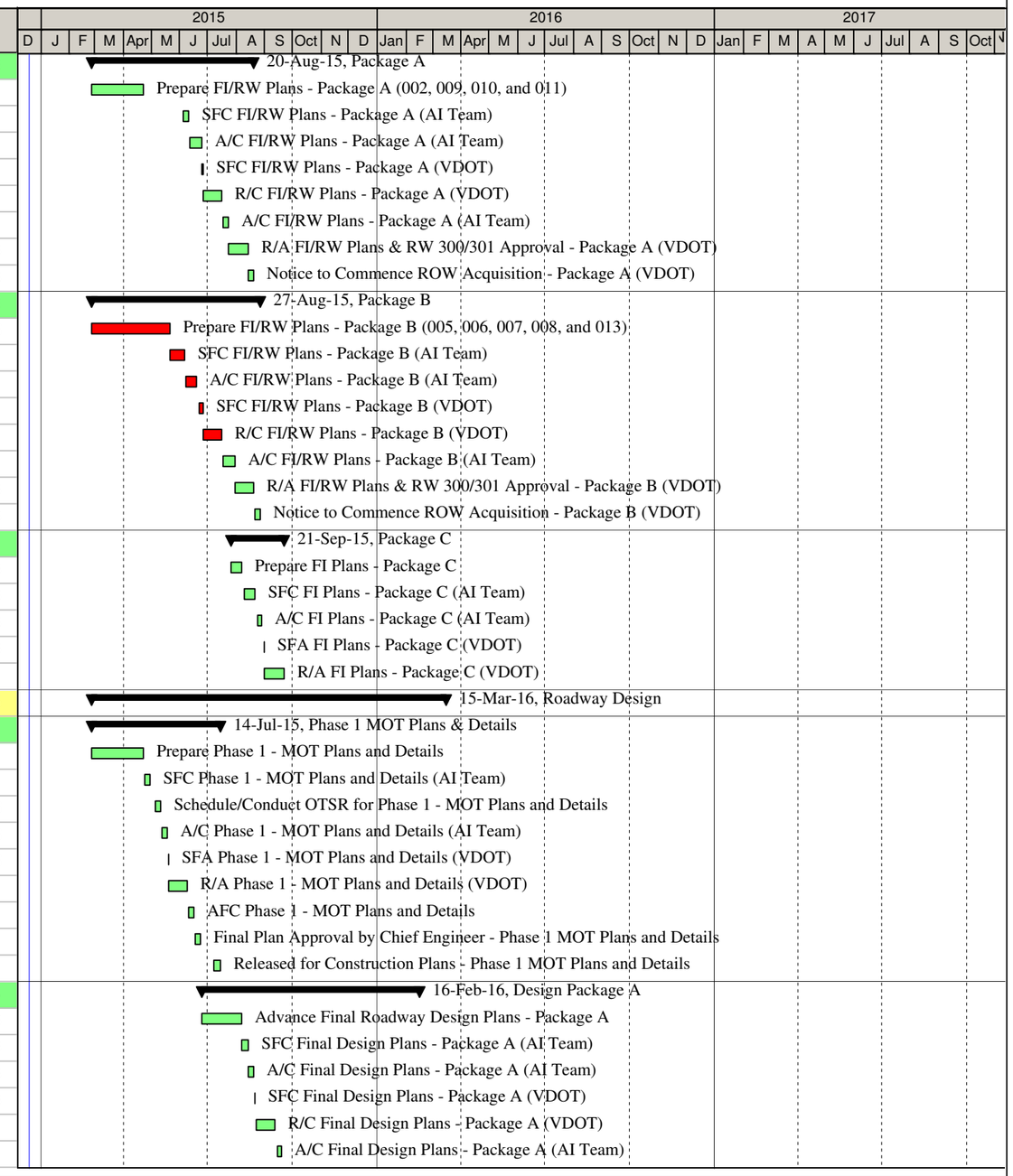
Actual Level of Effort | Remaining Work | Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
Package A		127	25-Feb-15	20-Aug-15
DNFRA01000	Prepare FI/RW Plans - Package A (002, 009, 010, and 011)	40	25-Feb-15	22-Apr-15
DNFRA01010	SFC FI/RW Plans - Package A (AI Team)	5	04-Jun-15	10-Jun-15
DNFRA01020	A/C FI/RW Plans - Package A (AI Team)	10	11-Jun-15	24-Jun-15
DNFRA01030	SFC FI/RW Plans - Package A (VDOT)	1	25-Jun-15	25-Jun-15
DNFRA01040	R/C FI/RW Plans - Package A (VDOT)	21	26-Jun-15	16-Jul-15
DNFRA01050	A/C FI/RW Plans - Package A (AI Team)	5	17-Jul-15	23-Jul-15
DNFRA01060	R/A FI/RW Plans & RW 300/301 Approval - Package A (VDOT)	21	24-Jul-15	13-Aug-15
DNFRA01070	Notice to Commence ROW Acquisition - Package A (VDOT)	5	14-Aug-15	20-Aug-15
Package B		132	25-Feb-15	27-Aug-15
DNFRB01000	Prepare FI/RW Plans - Package B (005, 006, 007, 008, and 013)	60	25-Feb-15	20-May-15
DNFRB01010	SFC FI/RW Plans - Package B (AI Team)	10	21-May-15	05-Jun-15
DNFRB01020	A/C FI/RW Plans - Package B (AI Team)	10	08-Jun-15	19-Jun-15
DNFRB01030	SFC FI/RW Plans - Package B (VDOT)	4	22-Jun-15	25-Jun-15
DNFRB01040	R/C FI/RW Plans - Package B (VDOT)	21	26-Jun-15	16-Jul-15
DNFRB01050	A/C FI/RW Plans - Package B (AI Team)	10	17-Jul-15	30-Jul-15
DNFRB01060	R/A FI/RW Plans & RW 300/301 Approval - Package B (VDOT)	21	31-Jul-15	20-Aug-15
DNFRB01070	Notice to Commence ROW Acquisition - Package B (VDOT)	5	21-Aug-15	27-Aug-15
Package C		41	27-Jul-15	21-Sep-15
DNFRC01000	Prepare FI Plans - Package C	10	27-Jul-15	07-Aug-15
DNFRC01010	SFC FI Plans - Package C (AI Team)	10	10-Aug-15	21-Aug-15
DNFRC01020	A/C FI Plans - Package C (AI Team)	5	24-Aug-15	28-Aug-15
DNFRC01030	SFA FI Plans - Package C (VDOT)	1	31-Aug-15	31-Aug-15
DNFRC01040	R/A FI Plans - Package C (VDOT)	21	01-Sep-15	21-Sep-15
Roadway Design		275	25-Feb-15	15-Mar-16
Phase 1 MOT Plans & Details		100	25-Feb-15	14-Jul-15
DNRDD01000	Prepare Phase 1 - MOT Plans and Details	40	25-Feb-15	22-Apr-15
DNRDD01010	SFC Phase 1 - MOT Plans and Details (AI Team)	5	23-Apr-15	29-Apr-15
DNRDD01020	Schedule/Conduct OTSR for Phase 1 - MOT Plans and Details	5	05-May-15	11-May-15
DNRDD01030	A/C Phase 1 - MOT Plans and Details (AI Team)	5	12-May-15	18-May-15
DNRDD01040	SFA Phase 1 - MOT Plans and Details (VDOT)	1	19-May-15	19-May-15
DNRDD01050	R/A Phase 1 - MOT Plans and Details (VDOT)	21	20-May-15	09-Jun-15
DNRDD01060	AFC Phase 1 - MOT Plans and Details	7	10-Jun-15	16-Jun-15
DNRDD01070	Final Plan Approval by Chief Engineer - Phase 1 MOT Plans and Details	7	17-Jun-15	23-Jun-15
DNRDD01080	Released for Construction Plans - Phase 1 MOT Plans and Details	7	08-Jul-15	14-Jul-15
Design Package A		169	25-Jun-15	16-Feb-16
DNRDA01000	Advance Final Roadway Design Plans - Package A	30	25-Jun-15	06-Aug-15
DNRDA01010	SFC Final Design Plans - Package A (AI Team)	5	07-Aug-15	13-Aug-15
DNRDA01020	A/C Final Design Plans - Package A (AI Team)	5	14-Aug-15	20-Aug-15
DNRDA01030	SFC Final Design Plans - Package A (VDOT)	1	21-Aug-15	21-Aug-15
DNRDA01040	R/C Final Design Plans - Package A (VDOT)	21	22-Aug-15	11-Sep-15
DNRDA01050	A/C Final Design Plans - Package A (AI Team)	5	14-Sep-15	18-Sep-15



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

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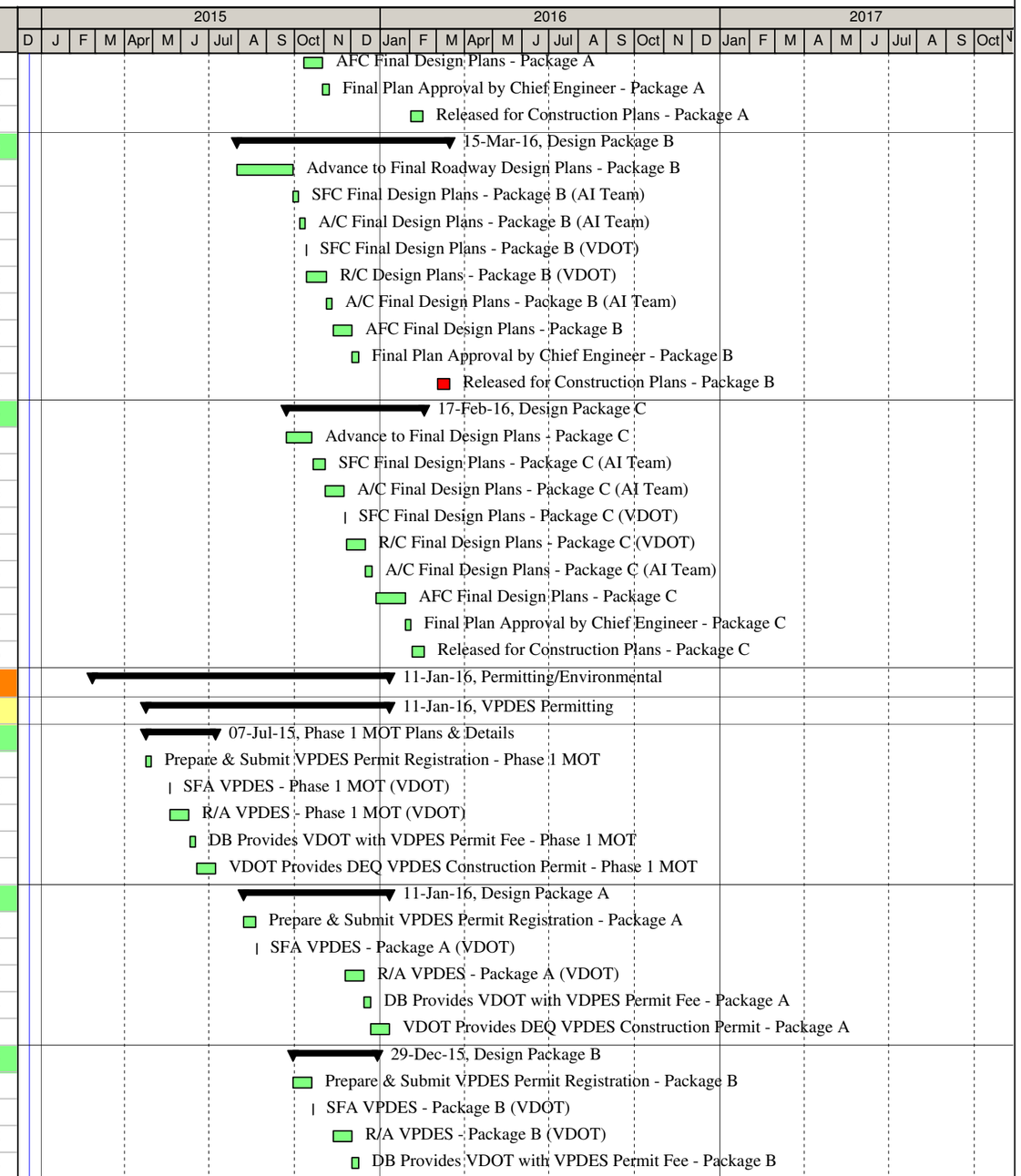
Activity ID	Activity Name	Original Duration	Start	Finish
DNRDA01060	AFC Final Design Plans - Package A	21	10-Oct-15	30-Oct-15
DNRDA01070	Final Plan Approval by Chief Engineer - Package A	7	31-Oct-15	06-Nov-15
DNRDA01080	Released for Construction Plans - Package A	14	03-Feb-16	16-Feb-16
Design Package B		163	31-Jul-15	15-Mar-16
DNRDB01000	Advance to Final Roadway Design Plans - Package B	40	31-Jul-15	28-Sep-15
DNRDB01010	SFC Final Design Plans - Package B (AI Team)	5	29-Sep-15	05-Oct-15
DNRDB01020	A/C Final Design Plans - Package B (AI Team)	5	06-Oct-15	12-Oct-15
DNRDB01030	SFC Final Design Plans - Package B (VDOT)	1	13-Oct-15	13-Oct-15
DNRDB01040	R/C Design Plans - Package B (VDOT)	21	14-Oct-15	03-Nov-15
DNRDB01050	A/C Final Design Plans - Package B (AI Team)	5	04-Nov-15	10-Nov-15
DNRDB01060	AFC Final Design Plans - Package B	21	11-Nov-15	01-Dec-15
DNRDB01070	Final Plan Approval by Chief Engineer - Package B	7	02-Dec-15	08-Dec-15
DNRDB01080	Released for Construction Plans - Package B	14	02-Mar-16	15-Mar-16
Design Package C		107	22-Sep-15	17-Feb-16
DNRDC01000	Advance to Final Design Plans - Package C	20	22-Sep-15	19-Oct-15
DNRDC01010	SFC Final Design Plans - Package C (AI Team)	10	20-Oct-15	02-Nov-15
DNRDC01020	A/C Final Design Plans - Package C (AI Team)	15	03-Nov-15	23-Nov-15
DNRDC01030	SFC Final Design Plans - Package C (VDOT)	1	24-Nov-15	24-Nov-15
DNRDC01040	R/C Final Design Plans - Package C (VDOT)	21	25-Nov-15	15-Dec-15
DNRDC01050	A/C Final Design Plans - Package C (AI Team)	5	16-Dec-15	22-Dec-15
DNRDC01060	AFC Final Design Plans - Package C	21	28-Dec-15	27-Jan-16
DNRDC01070	Final Plan Approval by Chief Engineer - Package C	7	28-Jan-16	03-Feb-16
DNRDC01080	Released for Construction Plans - Package C	14	04-Feb-16	17-Feb-16
Permitting/Environmental		229	25-Feb-15	11-Jan-16
VPDES Permitting		188	23-Apr-15	11-Jan-16
Phase 1 MOT Plans & Details		54	23-Apr-15	07-Jul-15
PEVPD01000	Prepare & Submit VPDES Permit Registration - Phase 1 MOT	5	23-Apr-15	29-Apr-15
PEVPD01010	SFA VPDES - Phase 1 MOT (VDOT)	1	19-May-15	19-May-15
PEVPD01020	R/A VPDES - Phase 1 MOT (VDOT)	21	20-May-15	09-Jun-15
PEVPD01030	DB Provides VDOT with VDPES Permit Fee - Phase 1 MOT	5	10-Jun-15	16-Jun-15
PEVPD01040	VDOT Provides DEQ VPDES Construction Permit - Phase 1 MOT	21	17-Jun-15	07-Jul-15
Design Package A		112	07-Aug-15	11-Jan-16
PEVPA01000	Prepare & Submit VPDES Permit Registration - Package A	10	07-Aug-15	20-Aug-15
PEVPA01010	SFA VPDES - Package A (VDOT)	1	21-Aug-15	21-Aug-15
PEVPA01020	R/A VPDES - Package A (VDOT)	21	24-Nov-15	14-Dec-15
PEVPA01030	DB Provides VDOT with VDPES Permit Fee - Package A	5	15-Dec-15	21-Dec-15
PEVPA01040	VDOT Provides DEQ VPDES Construction Permit - Package A	21	22-Dec-15	11-Jan-16
Design Package B		66	29-Sep-15	29-Dec-15
PEVPB01000	Prepare & Submit VPDES Permit Registration - Package B	15	29-Sep-15	19-Oct-15
PEVPB01010	SFA VPDES - Package B (VDOT)	1	20-Oct-15	20-Oct-15
PEVPB01020	R/A VPDES - Package B (VDOT)	21	11-Nov-15	01-Dec-15
PEVPB01030	DB Provides VDOT with VDPES Permit Fee - Package B	5	02-Dec-15	08-Dec-15



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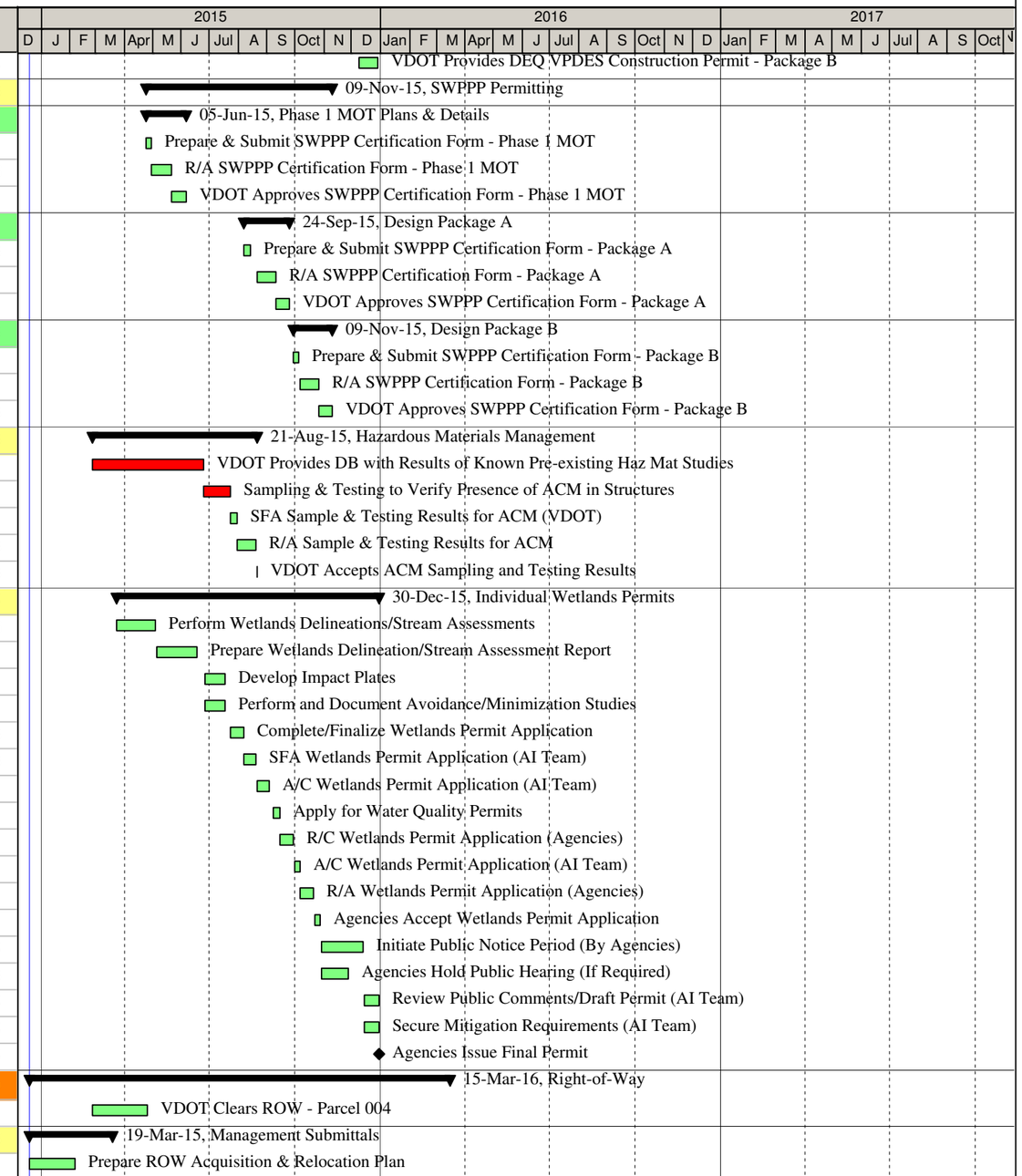
Activity ID	Activity Name	Original Duration	Start	Finish
PEVPB01040	VDOT Provides DEQ VPDES Construction Permit - Package B	21	09-Dec-15	29-Dec-15
SWPPP Permitting		143	23-Apr-15	09-Nov-15
Phase 1 MOT Plans & Details		32	23-Apr-15	05-Jun-15
PESPD01000	Prepare & Submit SWPPP Certification Form - Phase 1 MOT	5	23-Apr-15	29-Apr-15
PESPD01010	R/A SWPPP Certification Form - Phase 1 MOT	21	30-Apr-15	20-May-15
PESPD01020	VDOT Approves SWPPP Certification Form - Phase 1 MOT	10	21-May-15	05-Jun-15
Design Package A		35	07-Aug-15	24-Sep-15
PESPA01000	Prepare & Submit SWPPP Certification Form - Package A	5	07-Aug-15	13-Aug-15
PESPA01010	R/A SWPPP Certification Form - Package A	21	21-Aug-15	10-Sep-15
PESPA01020	VDOT Approves SWPPP Certification Form - Package A	10	11-Sep-15	24-Sep-15
Design Package B		30	29-Sep-15	09-Nov-15
PESPB01000	Prepare & Submit SWPPP Certification Form - Package B	5	29-Sep-15	05-Oct-15
PESPB01010	R/A SWPPP Certification Form - Package B	21	06-Oct-15	26-Oct-15
PESPB01020	VDOT Approves SWPPP Certification Form - Package B	10	27-Oct-15	09-Nov-15
Hazardous Materials Management		128	25-Feb-15	21-Aug-15
PEHM001000	VDOT Provides DB with Results of Known Pre-existing Haz Mat Studies	120	25-Feb-15	24-Jun-15
PEHM001010	Sampling & Testing to Verify Presence of ACM in Structures	20	25-Jun-15	23-Jul-15
PEHM001020	SFA Sample & Testing Results for ACM (VDOT)	5	24-Jul-15	30-Jul-15
PEHM001030	R/A Sample & Testing Results for ACM	21	31-Jul-15	20-Aug-15
PEHM001040	VDOT Accepts ACM Sampling and Testing Results	1	21-Aug-15	21-Aug-15
Individual Wetlands Permits		203	23-Mar-15	30-Dec-15
PEWP001000	Perform Wetlands Delineations/Stream Assessments	30	23-Mar-15	04-May-15
PEWP001010	Prepare Wetlands Delineation/Stream Assessment Report	30	05-May-15	17-Jun-15
PEWP001020	Develop Impact Plates	15	26-Jun-15	17-Jul-15
PEWP001030	Perform and Document Avoidance/Minimization Studies	15	26-Jun-15	17-Jul-15
PEWP001040	Complete/Finalize Wetlands Permit Application	10	24-Jul-15	06-Aug-15
PEWP001050	SFA Wetlands Permit Application (AI Team)	10	07-Aug-15	20-Aug-15
PEWP001060	A/C Wetlands Permit Application (AI Team)	10	21-Aug-15	03-Sep-15
PEWP001070	Apply for Water Quality Permits	5	08-Sep-15	14-Sep-15
PEWP001080	R/C Wetlands Permit Application (Agencies)	15	15-Sep-15	29-Sep-15
PEWP001090	A/C Wetlands Permit Application (AI Team)	5	30-Sep-15	06-Oct-15
PEWP001100	R/A Wetlands Permit Application (Agencies)	15	07-Oct-15	21-Oct-15
PEWP001110	Agencies Accept Wetlands Permit Application	5	22-Oct-15	28-Oct-15
PEWP001120	Initiate Public Notice Period (By Agencies)	45	29-Oct-15	12-Dec-15
PEWP001130	Agencies Hold Public Hearing (If Required)	30	29-Oct-15	27-Nov-15
PEWP001140	Review Public Comments/Draft Permit (AI Team)	10	14-Dec-15	30-Dec-15
PEWP001150	Secure Mitigation Requirements (AI Team)	10	14-Dec-15	30-Dec-15
PEWP001160	Agencies Issue Final Permit	0		30-Dec-15
Right-of-Way		317	19-Dec-14	15-Mar-16
RWRE001000	VDOT Clears ROW - Parcel 004	60	25-Feb-15	25-Apr-15
Management Submittals		59	19-Dec-14	19-Mar-15
RWMS001000	Prepare ROW Acquisition & Relocation Plan	30	19-Dec-14	06-Feb-15



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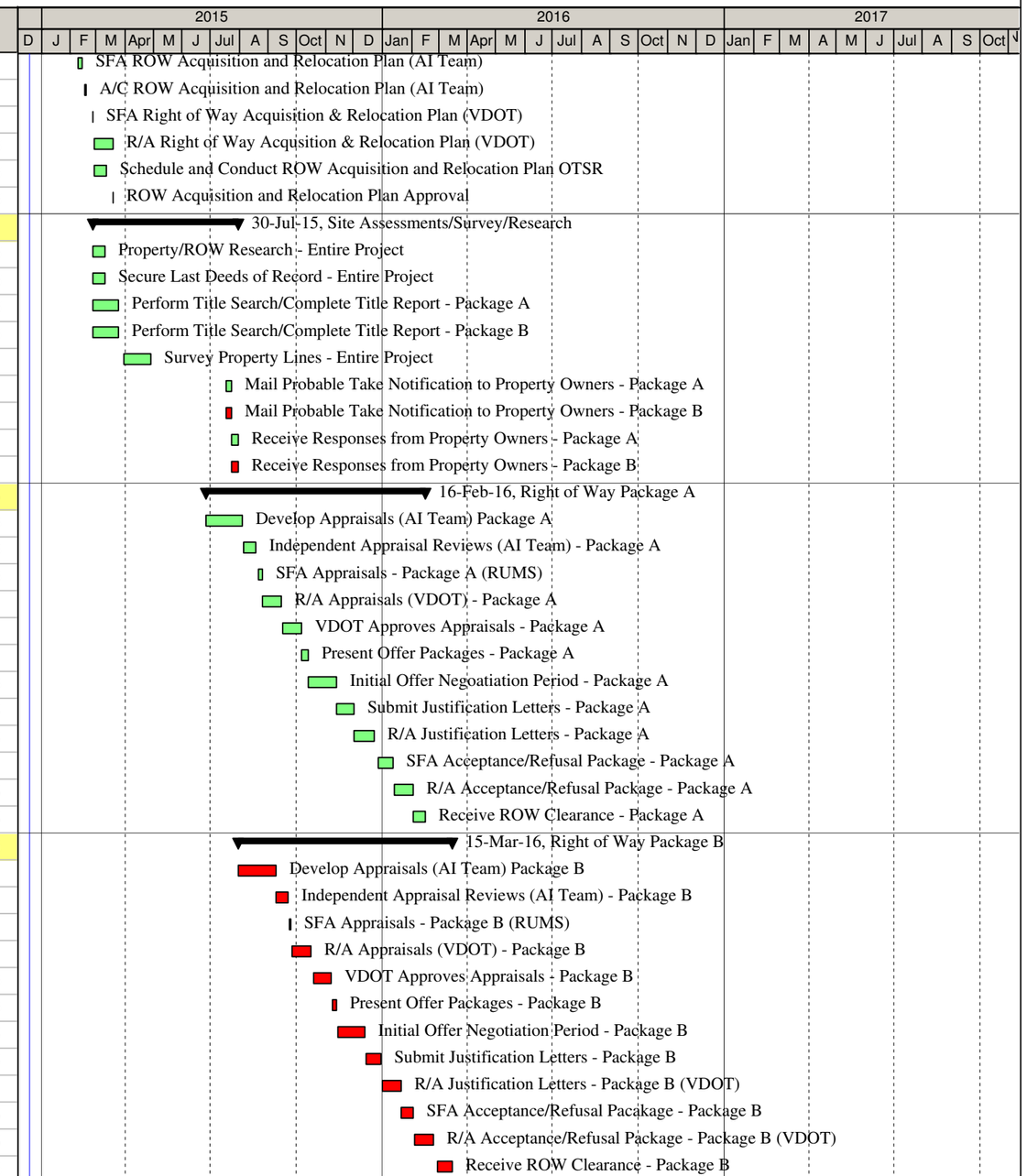
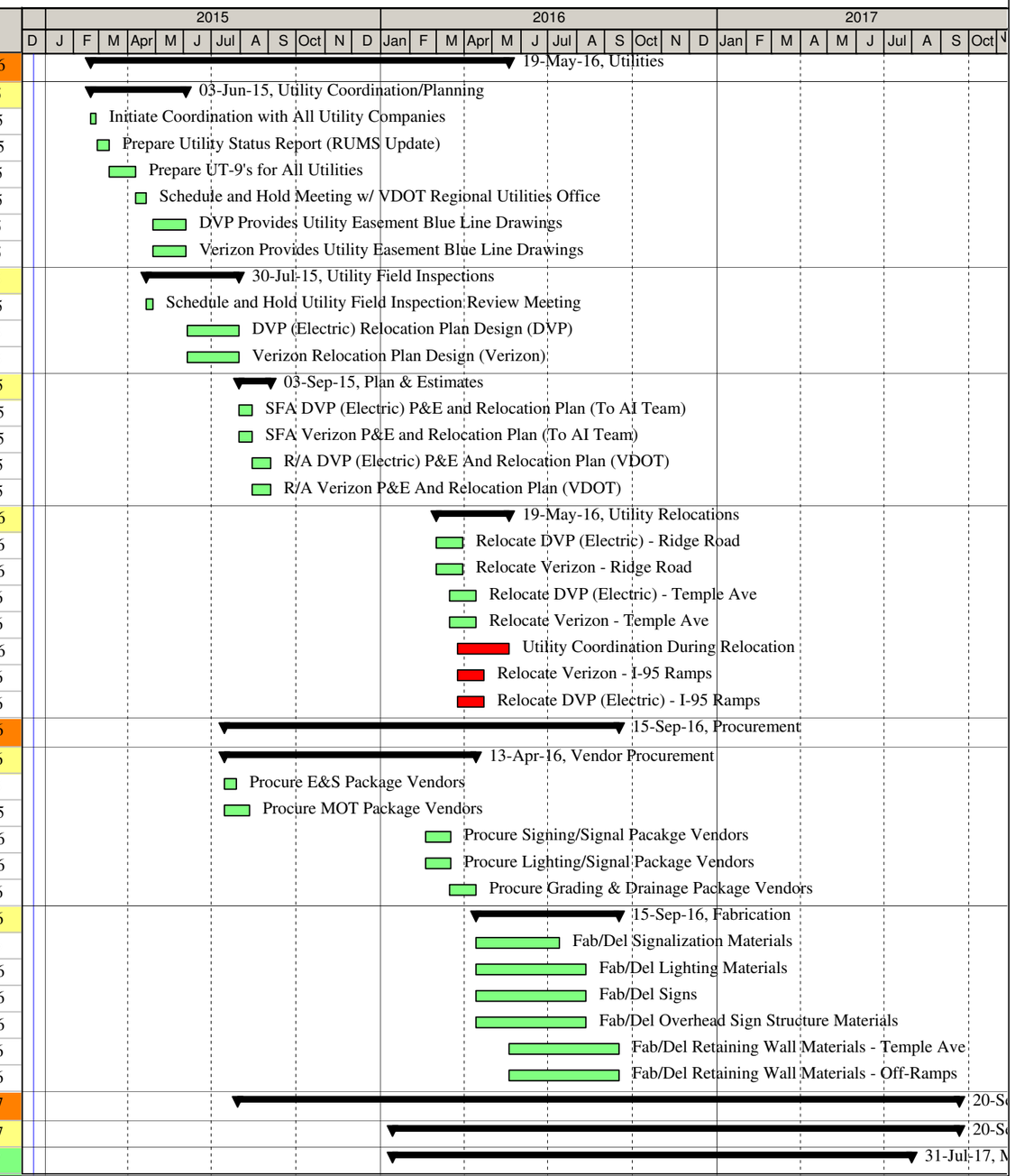
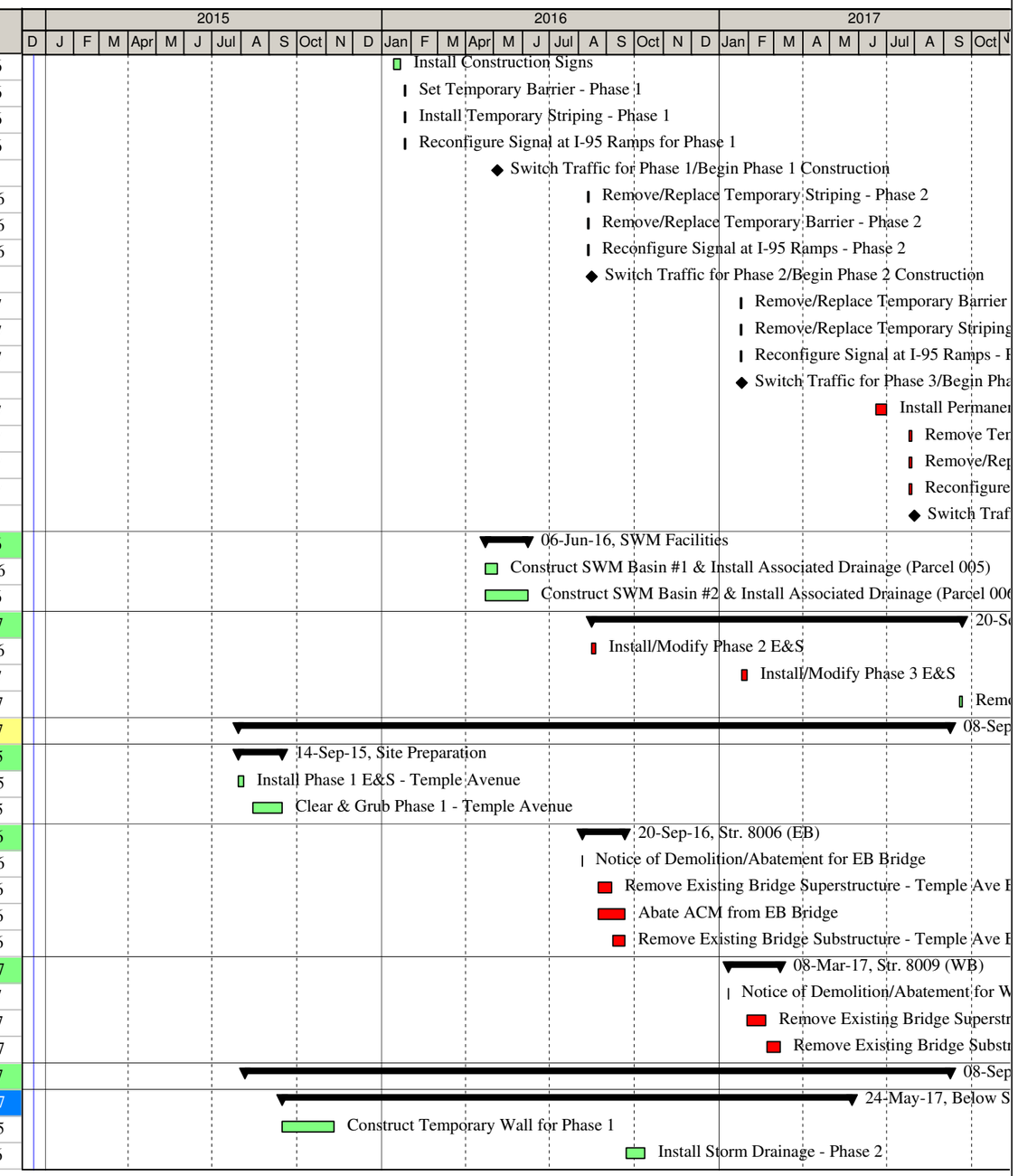
Activity ID	Activity Name	Original Duration	Start	Finish
RWMS001010	SFA ROW Acquisition and Relocation Plan (AI Team)	5	09-Feb-15	13-Feb-15
RWMS001020	A/C ROW Acquisition and Relocation Plan (AI Team)	3	16-Feb-15	18-Feb-15
RWMS001030	SFA Right of Way Acquisition & Relocation Plan (VDOT)	1	25-Feb-15	25-Feb-15
RWMS001040	R/A Right of Way Acqusition & Relocation Plan (VDOT)	21	26-Feb-15	18-Mar-15
RWMS001050	Schedule and Conduct ROW Acquisition and Relocation Plan OTSR	10	26-Feb-15	11-Mar-15
RWMS001060	ROW Acquisition and Relocation Plan Approval	1	19-Mar-15	19-Mar-15
Site Assessments/Survey/Research		**112**	**25-Feb-15**	**30-Jul-15**
RWSA001000	Property/ROW Research - Entire Project	10	25-Feb-15	10-Mar-15
RWSA001010	Secure Last Deeds of Record - Entire Project	10	25-Feb-15	10-Mar-15
RWSA001020	Perform Title Search/Complete Title Report - Package A	20	25-Feb-15	24-Mar-15
RWSA001030	Perform Title Search/Complete Title Report - Package B	20	25-Feb-15	24-Mar-15
RWSA001040	Survey Property Lines - Entire Project	20	30-Mar-15	27-Apr-15
RWSA001050	Mail Probable Take Notification to Property Owners - Package A	5	17-Jul-15	23-Jul-15
RWSA001060	Mail Probable Take Notification to Property Owners - Package B	5	17-Jul-15	23-Jul-15
RWSA001070	Receive Responses from Property Owners - Package A	7	24-Jul-15	30-Jul-15
RWSA001080	Receive Responses from Property Owners - Package B	7	24-Jul-15	30-Jul-15
Right of Way Package A		**168**	**26-Jun-15**	**16-Feb-16**
RWPA001000	Develop Appraisals (AI Team) Package A	40	26-Jun-15	04-Aug-15
RWPA001010	Independent Appraisal Reviews (AI Team) - Package A	10	05-Aug-15	18-Aug-15
RWPA001020	SFA Appraisals - Package A (RUMS)	3	21-Aug-15	25-Aug-15
RWPA001030	R/A Appraisals (VDOT) - Package A	21	26-Aug-15	15-Sep-15
RWPA001040	VDOT Approves Appraisals - Package A	15	16-Sep-15	06-Oct-15
RWPA001050	Present Offer Packages - Package A	5	07-Oct-15	13-Oct-15
RWPA001060	Initial Offer Negoatiation Period - Package A	30	14-Oct-15	12-Nov-15
RWPA001070	Submit Justification Letters - Package A	10	13-Nov-15	01-Dec-15
RWPA001080	R/A Justification Letters - Package A	21	02-Dec-15	22-Dec-15
RWPA001090	SFA Acceptance/Refusal Package - Package A	10	28-Dec-15	12-Jan-16
RWPA001100	R/A Acceptance/Refusal Package - Package A	21	13-Jan-16	02-Feb-16
RWPA001110	Receive ROW Clearance - Package A	10	03-Feb-16	16-Feb-16
Right of Way Package B		**163**	**31-Jul-15**	**15-Mar-16**
RWPB001000	Develop Appraisals (AI Team) Package B	40	31-Jul-15	08-Sep-15
RWPB001010	Independent Appraisal Reviews (AI Team) - Package B	10	09-Sep-15	22-Sep-15
RWPB001020	SFA Appraisals - Package B (RUMS)	3	23-Sep-15	25-Sep-15
RWPB001030	R/A Appraisals (VDOT) - Package B	21	26-Sep-15	16-Oct-15
RWPB001040	VDOT Approves Appraisals - Package B	15	19-Oct-15	06-Nov-15
RWPB001050	Present Offer Packages - Package B	5	09-Nov-15	13-Nov-15
RWPB001060	Initial Offer Negotiation Period - Package B	30	14-Nov-15	13-Dec-15
RWPB001070	Submit Justification Letters - Package B	10	14-Dec-15	30-Dec-15
RWPB001080	R/A Justification Letters - Package B (VDOT)	21	31-Dec-15	20-Jan-16
RWPB001090	SFA Acceptance/Refusal Pacakage - Package B	10	21-Jan-16	03-Feb-16
RWPB001100	R/A Acceptance/Refusal Package - Package B (VDOT)	21	04-Feb-16	24-Feb-16
RWPB001110	Receive ROW Clearance - Package B	10	29-Feb-16	15-Mar-16



Activity ID	Activity Name	Original Duration	Start	Finish
Utilities		326	19-Feb-15	19-May-16
Utility Coordination/Planning		75	19-Feb-15	03-Jun-15
UTCP001000	Initiate Coordination with All Utility Companies	5	19-Feb-15	25-Feb-15
UTCP001010	Prepare Utility Status Report (RUMS Update)	10	26-Feb-15	11-Mar-15
UTCP001020	Prepare UT-9's for All Utilities	20	12-Mar-15	09-Apr-15
UTCP001030	Schedule and Hold Meeting w/ VDOT Regional Utilities Office	7	10-Apr-15	20-Apr-15
UTCP001040	DVP Provides Utility Easement Blue Line Drawings	25	28-Apr-15	03-Jun-15
UTCP001050	Verizon Provides Utility Easement Blue Line Drawings	25	28-Apr-15	03-Jun-15
Utility Field Inspections		73	21-Apr-15	30-Jul-15
UTFI001000	Schedule and Hold Utility Field Inspection Review Meeting	5	21-Apr-15	27-Apr-15
UTFI001010	DVP (Electric) Relocation Plan Design (DVP)	40	04-Jun-15	30-Jul-15
UTFI001020	Verizon Relocation Plan Design (Verizon)	40	04-Jun-15	30-Jul-15
Plan & Estimates		25	31-Jul-15	03-Sep-15
UTPE001000	SFA DVP (Electric) P&E and Relocation Plan (To AI Team)	10	31-Jul-15	13-Aug-15
UTPE001010	SFA Verizon P&E and Relocation Plan (To AI Team)	10	31-Jul-15	13-Aug-15
UTPE001020	R/A DVP (Electric) P&E And Relocation Plan (VDOT)	21	14-Aug-15	03-Sep-15
UTPE001030	R/A Verizon P&E And Relocation Plan (VDOT)	21	14-Aug-15	03-Sep-15
Utility Relocations		58	01-Mar-16	19-May-16
UTUR001000	Relocate DVP (Electric) - Ridge Road	20	01-Mar-16	29-Mar-16
UTUR001010	Relocate Verizon - Ridge Road	20	01-Mar-16	29-Mar-16
UTUR001020	Relocate DVP (Electric) - Temple Ave	20	16-Mar-16	13-Apr-16
UTUR001030	Relocate Verizon - Temple Ave	20	16-Mar-16	13-Apr-16
UTUR001040	Utility Coordination During Relocation	40	24-Mar-16	19-May-16
UTUR001050	Relocate Verizon - I-95 Ramps	20	24-Mar-16	21-Apr-16
UTUR001060	Relocate DVP (Electric) - I-95 Ramps	20	24-Mar-16	21-Apr-16
Procurement		307	15-Jul-15	15-Sep-16
Vendor Procurement		196	15-Jul-15	13-Apr-16
PRVP001000	Procure E&S Package Vendors	10	15-Jul-15	28-Jul-15
PRVP001010	Procure MOT Package Vendors	20	15-Jul-15	11-Aug-15
PRVP001020	Procure Signing/Signal Pacakge Vendors	20	18-Feb-16	16-Mar-16
PRVP001030	Procure Lighting/Signal Package Vendors	20	18-Feb-16	16-Mar-16
PRVP001040	Procure Grading & Drainage Package Vendors	20	16-Mar-16	13-Apr-16
Fabrication		111	14-Apr-16	15-Sep-16
PRFB001000	Fab/Del Signalization Materials	90	14-Apr-16	12-Jul-16
PRFB001010	Fab/Del Lighting Materials	120	14-Apr-16	11-Aug-16
PRFB001020	Fab/Del Signs	120	14-Apr-16	11-Aug-16
PRFB001030	Fab/Del Overhead Sign Structure Materials	120	14-Apr-16	11-Aug-16
PRFB001040	Fab/Del Retaining Wall Materials - Temple Ave	120	19-May-16	15-Sep-16
PRFB001050	Fab/Del Retaining Wall Materials - Off-Ramps	120	19-May-16	15-Sep-16
Construction		561	29-Jul-15	20-Sep-17
Entire Project		441	13-Jan-16	20-Sep-17
MOT/Traffic Switches		403	13-Jan-16	31-Jul-17



Activity ID	Activity Name	Original Duration	Start	Finish
CNEPA01000	Install Construction Signs	5	13-Jan-16	21-Jan-16
CNEPA01010	Set Temporary Barrier - Phase 1	2	25-Jan-16	26-Jan-16
CNEPA01020	Install Temporary Striping - Phase 1	2	25-Jan-16	26-Jan-16
CNEPA01030	Reconfigure Signal at I-95 Ramps for Phase 1	2	25-Jan-16	26-Jan-16
CNEPA01040	Switch Traffic for Phase 1/Begin Phase 1 Construction	0	04-May-16	
CNEPA01050	Remove/Replace Temporary Striping - Phase 2	2	11-Aug-16	12-Aug-16
CNEPA01060	Remove/Replace Temporary Barrier - Phase 2	2	11-Aug-16	12-Aug-16
CNEPA01070	Reconfigure Signal at I-95 Ramps - Phase 2	2	11-Aug-16	12-Aug-16
CNEPA01080	Switch Traffic for Phase 2/Begin Phase 2 Construction	0	15-Aug-16	
CNEPA01090	Remove/Replace Temporary Barrier - Phase 3	2	23-Jan-17	24-Jan-17
CNEPA01100	Remove/Replace Temporary Striping - Phase 3	2	23-Jan-17	24-Jan-17
CNEPA01110	Reconfigure Signal at I-95 Ramps - Phase 3	2	23-Jan-17	24-Jan-17
CNEPA01120	Switch Traffic for Phase 3/Begin Phase 3 Construction	0	25-Jan-17	
CNEPA01130	Install Permanent Signs	10	19-Jun-17	30-Jun-17
CNEPA01140	Remove Temporary Barrier Service	3	26-Jul-17	28-Jul-17
CNEPA01150	Remove/Replace Temporary Striping - Phase 4	3	26-Jul-17	28-Jul-17
CNEPA01160	Reconfigure Signal at I-95 Ramps - Phase 4	3	26-Jul-17	28-Jul-17
CNEPA01170	Switch Traffic for Phase 4/Begin Phase 4 Construction	0	31-Jul-17	
SWM Facilities		32	22-Apr-16	06-Jun-16
CNEPB01000	Construct SWM Basin #1 & Install Associated Drainage (Parcel 005)	10	22-Apr-16	05-May-16
CNEPB01010	Construct SWM Basin #2 & Install Associated Drainage (Parcel 006)	30	22-Apr-16	06-Jun-16
E&S/Clearing and Grubbing		288	15-Aug-16	20-Sep-17
CNEPC01000	Install/Modify Phase 2 E&S	5	15-Aug-16	19-Aug-16
CNEPC01010	Install/Modify Phase 3 E&S	3	25-Jan-17	30-Jan-17
CNEPC01020	Remove Project E&S Controls	3	18-Sep-17	20-Sep-17
Temple Avenue (Rte 144)		553	29-Jul-15	08-Sep-17
Site Preparation		34	29-Jul-15	14-Sep-15
CNTAD01000	Install Phase 1 E&S - Temple Avenue	5	29-Jul-15	04-Aug-15
CNTAD01010	Clear & Grub Phase 1 - Temple Avenue	20	14-Aug-15	14-Sep-15
Str. 8006 (EB)		33	05-Aug-16	20-Sep-16
CNTAA01000	Notice of Demolition/Abatement for EB Bridge	1	05-Aug-16	05-Aug-16
CNTAA01010	Remove Existing Bridge Superstructure - Temple Ave EB	10	22-Aug-16	06-Sep-16
CNTAA01020	Abate ACM from EB Bridge	20	22-Aug-16	20-Sep-16
CNTAA01030	Remove Existing Bridge Substructure - Temple Ave EB	10	07-Sep-16	20-Sep-16
Str. 8009 (WB)		42	10-Jan-17	08-Mar-17
CNTAB01000	Notice of Demolition/Abatement for WB Bridge	1	10-Jan-17	10-Jan-17
CNTAB01010	Remove Existing Bridge Superstructure - Temple Ave WB	10	31-Jan-17	20-Feb-17
CNTAB01020	Remove Existing Bridge Substructure - Temple Ave WB	10	21-Feb-17	08-Mar-17
Roadway		548	05-Aug-15	08-Sep-17
Below Subgrade		442	15-Sep-15	24-May-17
CNTACA1000	Construct Temporary Wall for Phase 1	35	15-Sep-15	10-Nov-15
CNTACA1010	Install Storm Drainage - Phase 2	15	21-Sep-16	12-Oct-16



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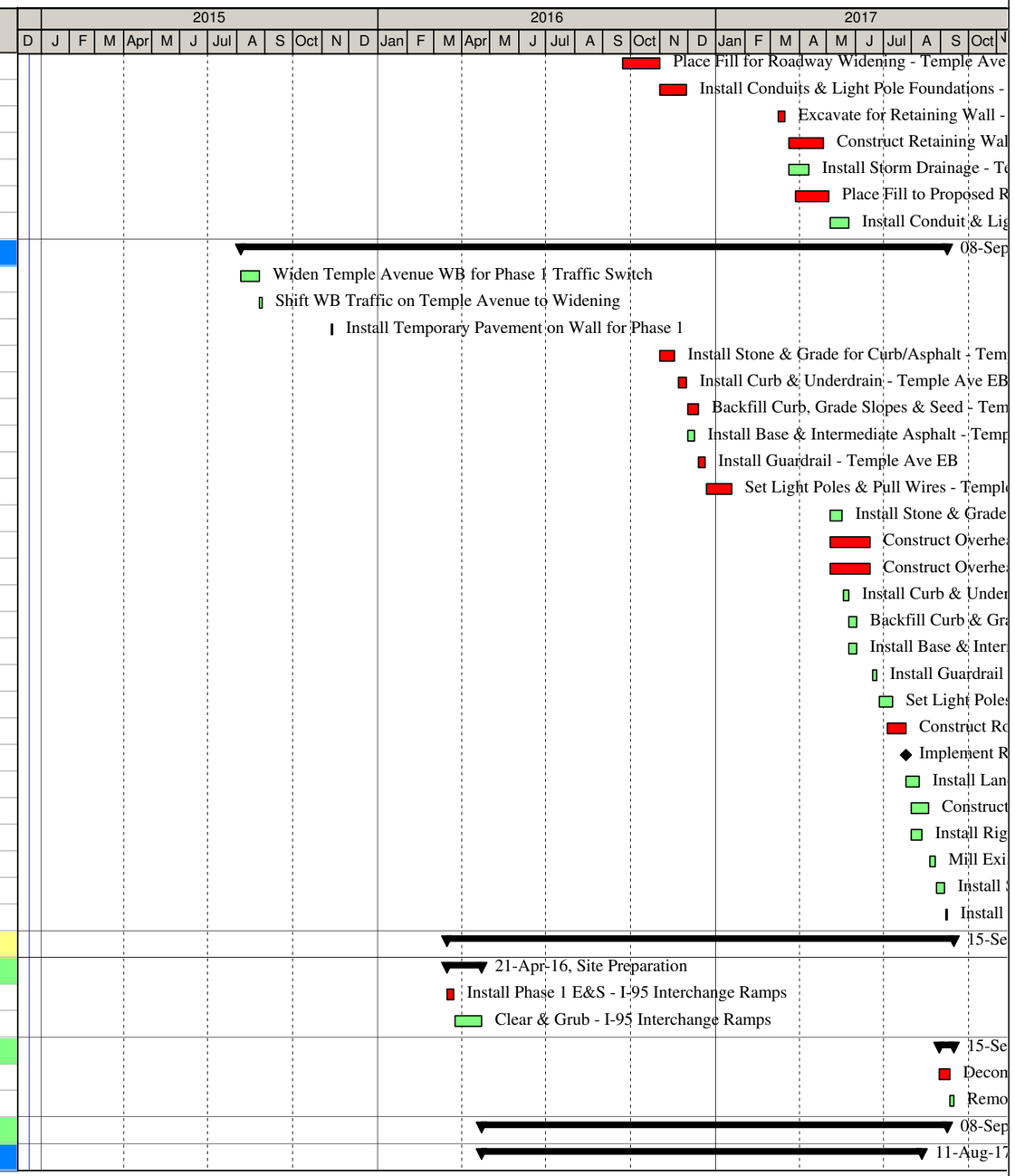
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
CNTACA1020	Place Fill for Roadway Widening - Temple Ave EB	25	21-Sep-16	31-Oct-16
CNTACA1030	Install Conduits & Light Pole Foundations - Temple Ave EB	15	01-Nov-16	30-Nov-16
CNTACA1040	Excavate for Retaining Wall - Temple Ave WB	5	09-Mar-17	16-Mar-17
CNTACA1050	Construct Retaining Wall - Temple Ave WB	25	20-Mar-17	26-Apr-17
CNTACA1060	Install Storm Drainage - Temple Ave WB	15	20-Mar-17	11-Apr-17
CNTACA1070	Place Fill to Proposed Roundabout Subgrade - WB Temple Ave	25	28-Mar-17	03-May-17
CNTACA1080	Install Conduit & Light Pole Foundations - Temple Ave WB	15	04-May-17	24-May-17
Above Subgrade		548	05-Aug-15	08-Sep-17
CNTACB1000	Widen Temple Avenue WB for Phase 1 Traffic Switch	15	05-Aug-15	25-Aug-15
CNTACB1010	Shift WB Traffic on Temple Avenue to Widening	3	26-Aug-15	28-Aug-15
CNTACB1020	Install Temporary Pavement on Wall for Phase 1	3	11-Nov-15	13-Nov-15
CNTACB1030	Install Stone & Grade for Curb/Asphalt - Temple Ave EB	10	01-Nov-16	16-Nov-16
CNTACB1040	Install Curb & Underdrain - Temple Ave EB	5	21-Nov-16	30-Nov-16
CNTACB1050	Backfill Curb, Grade Slopes & Seed - Temple Ave EB	5	01-Dec-16	12-Dec-16
CNTACB1060	Install Base & Intermediate Asphalt - Temple Ave EB	6	01-Dec-16	08-Dec-16
CNTACB1070	Install Guardrail - Temple Ave EB	5	13-Dec-16	20-Dec-16
CNTACB1080	Set Light Poles & Pull Wires - Temple Ave EB	10	21-Dec-16	18-Jan-17
CNTACB1090	Install Stone & Grade for Asphalt - Temple Ave WB	10	04-May-17	17-May-17
CNTACB1100	Construct Overhead Sign Structure - Temple Ave WB	30	04-May-17	16-Jun-17
CNTACB1110	Construct Overhead Sign Structure - Temple Ave EB	30	04-May-17	16-Jun-17
CNTACB1120	Install Curb & Underdrain - WB Temple Ave.	5	18-May-17	24-May-17
CNTACB1130	Backfill Curb & Grade Green Areas - Temple Ave WB	5	25-May-17	02-Jun-17
CNTACB1140	Install Base & Intermediate Asphalt - Temple Ave WB	5	25-May-17	02-Jun-17
CNTACB1150	Install Guardrail - Temple Ave WB	5	19-Jun-17	23-Jun-17
CNTACB1160	Set Light Poles & Pull Wires - Temple Ave WB	10	26-Jun-17	11-Jul-17
CNTACB1170	Construct Roundabout Truck Apron	15	05-Jul-17	25-Jul-17
CNTACB1180	Implement Roundabout Traffic Pattern on Temple Ave	0		25-Jul-17
CNTACB1190	Install Landscaping - Temple Ave	10	26-Jul-17	08-Aug-17
CNTACB1200	Construct Traffic Separators & Splitter Islands - Temple Ave	15	31-Jul-17	18-Aug-17
CNTACB1210	Install Right of Way Monument	10	31-Jul-17	11-Aug-17
CNTACB1220	Mill Existing Temple Ave Asphalt	5	21-Aug-17	25-Aug-17
CNTACB1230	Install Surface Pavement - Temple Ave & Ridge Road	5	28-Aug-17	05-Sep-17
CNTACB1240	Install Permanent Striping - Temple Ave & Ridge Road	3	06-Sep-17	08-Sep-17
I-95 Interchange Ramps		393	16-Mar-16	15-Sep-17
Site Preparation		27	16-Mar-16	21-Apr-16
CNIRC01000	Install Phase 1 E&S - I-95 Interchange Ramps	5	16-Mar-16	23-Mar-16
CNIRC01010	Clear & Grub - I-95 Interchange Ramps	20	24-Mar-16	21-Apr-16
Existing I-95 Ramps		12	31-Aug-17	15-Sep-17
CNIRA01000	Decommission Traffic Signal at Existing I-95 Ramps	6	31-Aug-17	11-Sep-17
CNIRA01010	Remove Existing Pavement at Old I-95 Ramps	5	11-Sep-17	15-Sep-17
Proposed I-95 Ramps		361	22-Apr-16	08-Sep-17
Below Subgrade		341	22-Apr-16	11-Aug-17



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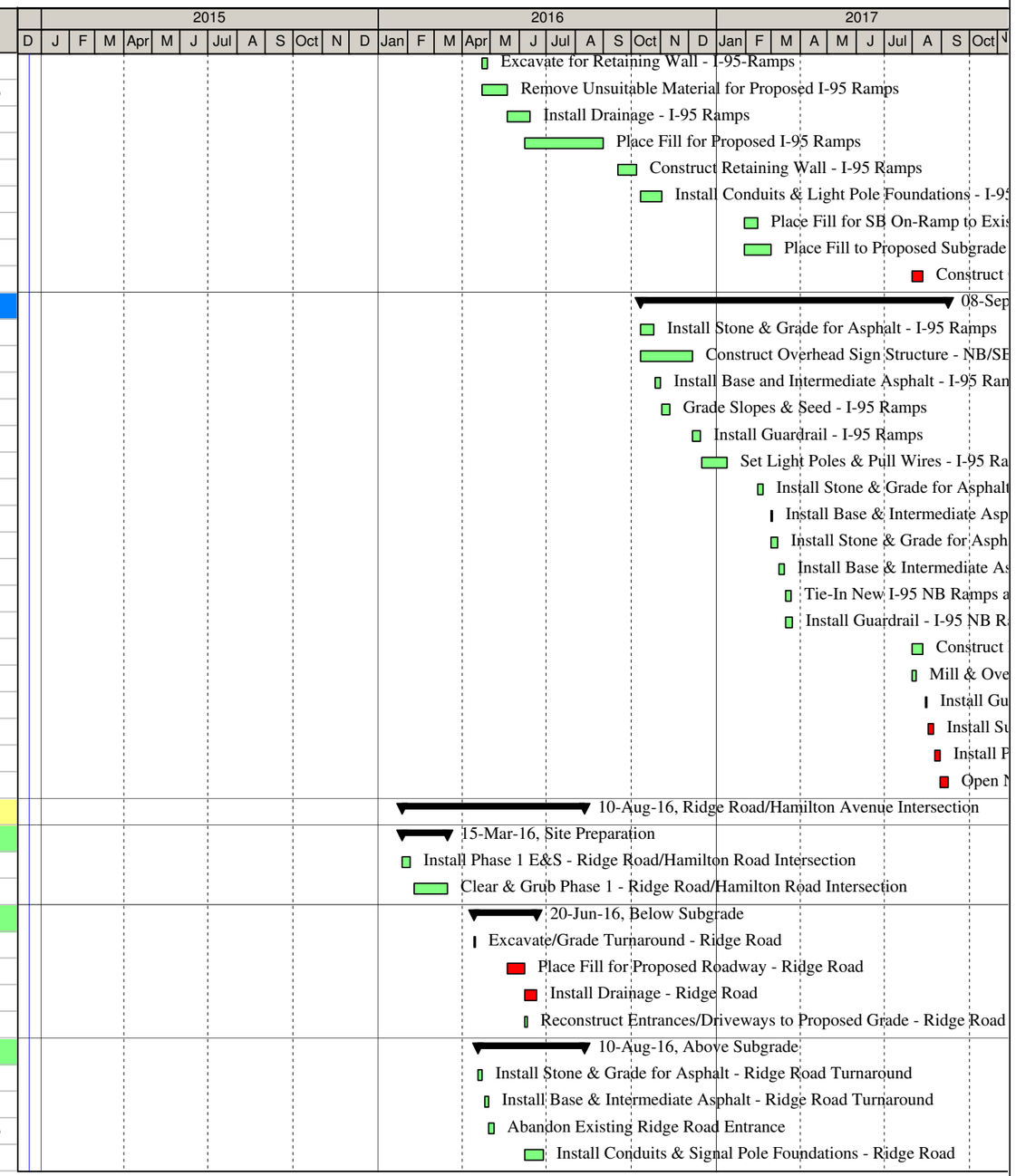
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
CNIRBA1000	Excavate for Retaining Wall - I-95-Ramps	5	22-Apr-16	28-Apr-16
CNIRBA1010	Remove Unsuitable Material for Proposed I-95 Ramps	20	22-Apr-16	19-May-16
CNIRBA1020	Install Drainage - I-95 Ramps	15	20-May-16	13-Jun-16
CNIRBA1030	Place Fill for Proposed I-95 Ramps	60	07-Jun-16	30-Aug-16
CNIRBA1040	Construct Retaining Wall - I-95 Ramps	15	16-Sep-16	06-Oct-16
CNIRBA1050	Install Conduits & Light Pole Foundations - I-95 Ramps	15	10-Oct-16	02-Nov-16
CNIRBA1060	Place Fill for SB On-Ramp to Existing	7	31-Jan-17	13-Feb-17
CNIRBA1070	Place Fill to Proposed Subgrade - I-95 NB Ramps and SB Exit Ramp	15	31-Jan-17	28-Feb-17
CNIRBA1080	Construct Connection to SB On-Ramp	10	31-Jul-17	11-Aug-17
Above Subgrade		240	10-Oct-16	08-Sep-17
CNIRBB1000	Install Stone & Grade for Asphalt - I-95 Ramps	10	10-Oct-16	25-Oct-16
CNIRBB1010	Construct Overhead Sign Structure - NB/SB Ramp Split	30	10-Oct-16	05-Dec-16
CNIRBB1020	Install Base and Intermediate Asphalt - I-95 Ramps	5	26-Oct-16	01-Nov-16
CNIRBB1030	Grade Slopes & Seed - I-95 Ramps	5	03-Nov-16	10-Nov-16
CNIRBB1040	Install Guardrail - I-95 Ramps	5	06-Dec-16	14-Dec-16
CNIRBB1050	Set Light Poles & Pull Wires - I-95 Ramps	10	15-Dec-16	12-Jan-17
CNIRBB1060	Install Stone & Grade for Asphalt at SB On-Ramp	3	14-Feb-17	20-Feb-17
CNIRBB1070	Install Base & Intermediate Asphalt - SB On-Ramp	2	01-Mar-17	02-Mar-17
CNIRBB1080	Install Stone & Grade for Asphalt - I-95 NB Ramps and SB Exit Ramp	5	01-Mar-17	08-Mar-17
CNIRBB1090	Install Base & Intermediate Asphalt - I-95 NB Ramps and SB Exit Ramp	5	09-Mar-17	15-Mar-17
CNIRBB1100	Tie-In New I-95 NB Ramps and SB Exit Ramp	5	16-Mar-17	22-Mar-17
CNIRBB1110	Install Guardrail - I-95 NB Ramps and SB Exit Ramp	5	16-Mar-17	23-Mar-17
CNIRBB1120	Construct Median - I-95 Ramps	10	31-Jul-17	11-Aug-17
CNIRBB1130	Mill & Overlay Existing I-95 Ramps	5	31-Jul-17	04-Aug-17
CNIRBB1140	Install Guardrail - SB On-Ramp	3	14-Aug-17	16-Aug-17
CNIRBB1150	Install Surface Pavement at New I-95 Ramps	5	17-Aug-17	23-Aug-17
CNIRBB1160	Install Permanent Striping - I-95 Ramps	5	24-Aug-17	30-Aug-17
CNIRBB1170	Open New I-95 Ramps to Traffic	5	31-Aug-17	08-Sep-17
Ridge Road/Hamilton Avenue Intersection		141	27-Jan-16	10-Aug-16
Site Preparation		35	27-Jan-16	15-Mar-16
CNRRC01000	Install Phase 1 E&S - Ridge Road/Hamilton Road Intersection	5	27-Jan-16	04-Feb-16
CNRRC01010	Clear & Grub Phase 1 - Ridge Road/Hamilton Road Intersection	20	08-Feb-16	15-Mar-16
Below Subgrade		48	14-Apr-16	20-Jun-16
CNRRA01010	Excavate/Grade Turnaround - Ridge Road	2	14-Apr-16	15-Apr-16
CNRRA01020	Place Fill for Proposed Roadway - Ridge Road	10	20-May-16	06-Jun-16
CNRRA01030	Install Drainage - Ridge Road	10	07-Jun-16	20-Jun-16
CNRRA01040	Reconstruct Entrances/Driveways to Proposed Grade - Ridge Road	3	07-Jun-16	09-Jun-16
Above Subgrade		83	18-Apr-16	10-Aug-16
CNRRB01000	Install Stone & Grade for Asphalt - Ridge Road Turnaround	5	18-Apr-16	22-Apr-16
CNRRB01010	Install Base & Intermediate Asphalt - Ridge Road Turnaround	5	25-Apr-16	29-Apr-16
CNRRB01020	Abandon Existing Ridge Road Entrance	3	29-Apr-16	04-May-16
CNRRB01030	Install Conduits & Signal Pole Foundations - Ridge Road	15	07-Jun-16	27-Jun-16



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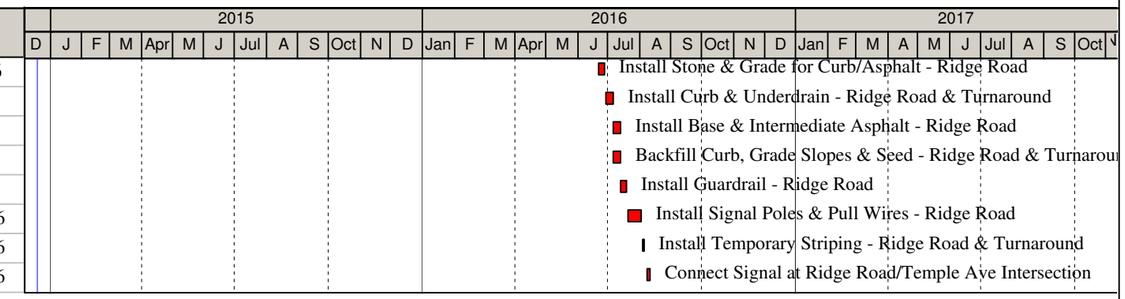
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | ◆ Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
CNRRB01040	Install Stone & Grade for Curb/Asphalt - Ridge Road	5	21-Jun-16	27-Jun-16
CNRRB01050	Install Curb & Underdrain - Ridge Road & Turnaround	5	28-Jun-16	05-Jul-16
CNRRB01060	Install Base & Intermediate Asphalt - Ridge Road	5	06-Jul-16	12-Jul-16
CNRRB01070	Backfill Curb, Grade Slopes & Seed - Ridge Road & Turnaround	5	06-Jul-16	12-Jul-16
CNRRB01080	Install Guardrail - Ridge Road	5	13-Jul-16	19-Jul-16
CNRRB01090	Install Signal Poles & Pull Wires - Ridge Road	10	20-Jul-16	02-Aug-16
CNRRB01100	Install Temporary Striping - Ridge Road & Turnaround	3	03-Aug-16	05-Aug-16
CNRRB01110	Connect Signal at Ridge Road/Temple Ave Intersection	3	08-Aug-16	10-Aug-16



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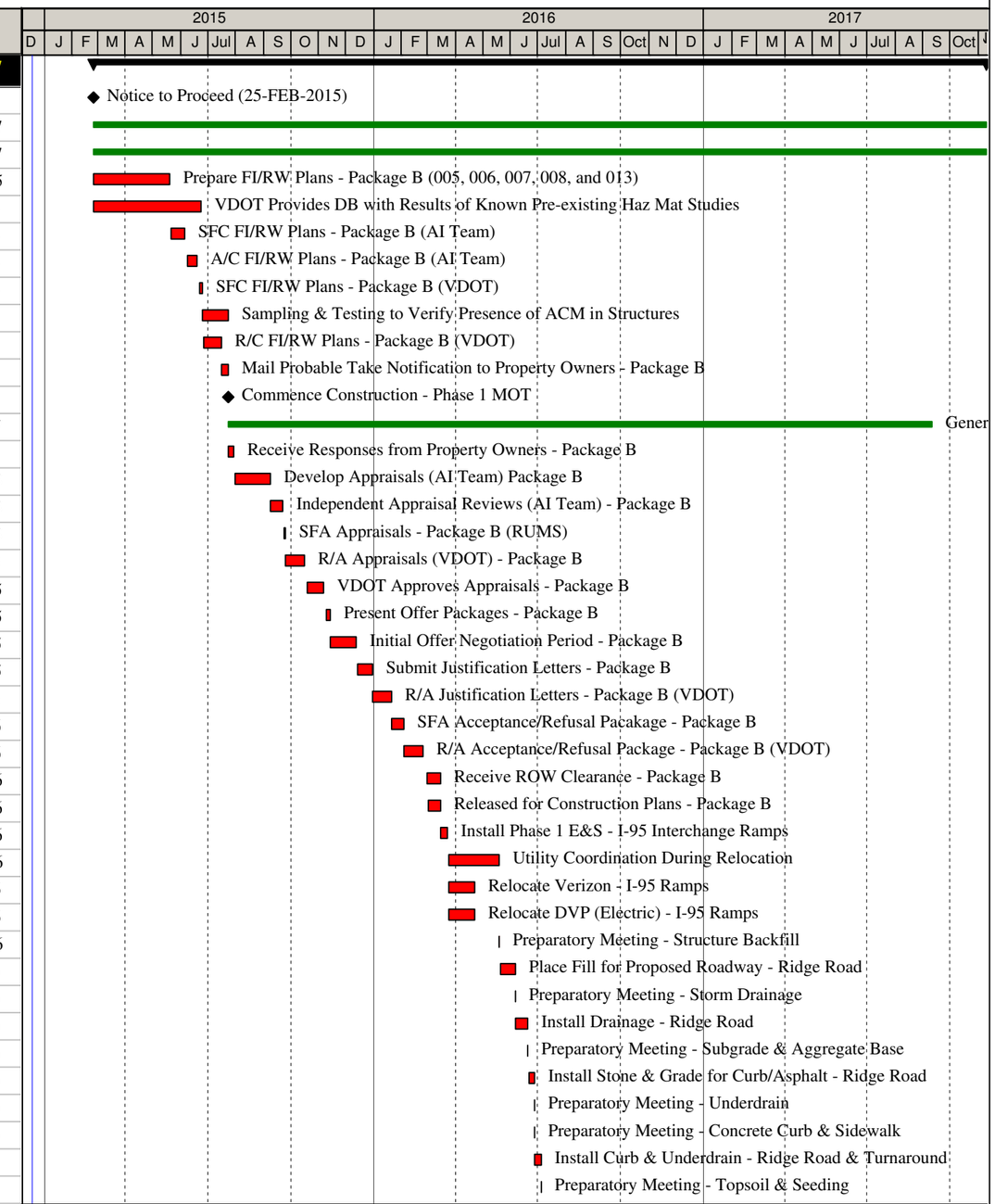
Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
I95 at Temple Ave Interchange Improvements - UPC 85623		**708**	**25-Feb-15**	**10-Nov-17**
MI00001030	Notice to Proceed (25-FEB-2015)	0	25-Feb-15*	
PAPS001010	General Conditions: Project Management through Final Completion	675	25-Feb-15	10-Nov-17
PAQA001000	General Conditions: QA/QC through Final Completion	675	25-Feb-15	10-Nov-17
DNFRB01000	Prepare FI/RW Plans - Package B (005, 006, 007, 008, and 013)	60	25-Feb-15	20-May-15
PEHM001000	VDOT Provides DB with Results of Known Pre-existing Haz Mat Studies	120	25-Feb-15	24-Jun-15
DNFRB01010	SFC FI/RW Plans - Package B (AI Team)	10	21-May-15	05-Jun-15
DNFRB01020	A/C FI/RW Plans - Package B (AI Team)	10	08-Jun-15	19-Jun-15
DNFRB01030	SFC FI/RW Plans - Package B (VDOT)	4	22-Jun-15	25-Jun-15
PEHM001010	Sampling & Testing to Verify Presence of ACM in Structures	20	25-Jun-15	23-Jul-15
DNFRB01040	R/C FI/RW Plans - Package B (VDOT)	21	26-Jun-15	16-Jul-15
RWSA001060	Mail Probable Take Notification to Property Owners - Package B	5	17-Jul-15	23-Jul-15
MI00001040	Commence Construction - Phase 1 MOT	0	24-Jul-15	
PA00001000	General Conditions: Survey through Substantial Completion	528	24-Jul-15	11-Sep-17
RWSA001080	Receive Responses from Property Owners - Package B	7	24-Jul-15	30-Jul-15
RWPB001000	Develop Appraisals (AI Team) Package B	40	31-Jul-15	08-Sep-15
RWPB001010	Independent Appraisal Reviews (AI Team) - Package B	10	09-Sep-15	22-Sep-15
RWPB001020	SFA Appraisals - Package B (RUMS)	3	23-Sep-15	25-Sep-15
RWPB001030	R/A Appraisals (VDOT) - Package B	21	26-Sep-15	16-Oct-15
RWPB001040	VDOT Approves Appraisals - Package B	15	19-Oct-15	06-Nov-15
RWPB001050	Present Offer Packages - Package B	5	09-Nov-15	13-Nov-15
RWPB001060	Initial Offer Negotiation Period - Package B	30	14-Nov-15	13-Dec-15
RWPB001070	Submit Justification Letters - Package B	10	14-Dec-15	30-Dec-15
RWPB001080	R/A Justification Letters - Package B (VDOT)	21	31-Dec-15	20-Jan-16
RWPB001090	SFA Acceptance/Refusal Pacakage - Package B	10	21-Jan-16	03-Feb-16
RWPB001100	R/A Acceptance/Refusal Package - Package B (VDOT)	21	04-Feb-16	24-Feb-16
RWPB001110	Receive ROW Clearance - Package B	10	29-Feb-16	15-Mar-16
DNRDB01080	Released for Construction Plans - Package B	14	02-Mar-16	15-Mar-16
CNIRC01000	Install Phase 1 E&S - I-95 Interchange Ramps	5	16-Mar-16	23-Mar-16
UTUR001040	Utility Coordination During Relocation	40	24-Mar-16	19-May-16
UTUR001050	Relocate Verizon - I-95 Ramps	20	24-Mar-16	21-Apr-16
UTUR001060	Relocate DVP (Electric) - I-95 Ramps	20	24-Mar-16	21-Apr-16
PAQAB01060	Preparatory Meeting - Structure Backfill	1	19-May-16	19-May-16
CNRRA01020	Place Fill for Proposed Roadway - Ridge Road	10	20-May-16	06-Jun-16
PAQAB01040	Preparatory Meeting - Storm Drainage	1	06-Jun-16	06-Jun-16
CNRRA01030	Install Drainage - Ridge Road	10	07-Jun-16	20-Jun-16
PAQAB01080	Preparatory Meeting - Subgrade & Aggregate Base	1	20-Jun-16	20-Jun-16
CNRRB01040	Install Stone & Grade for Curb/Asphalt - Ridge Road	5	21-Jun-16	27-Jun-16
PAQAB01100	Preparatory Meeting - Underdrain	1	27-Jun-16	27-Jun-16
PAQAB01110	Preparatory Meeting - Concrete Curb & Sidewalk	1	27-Jun-16	27-Jun-16
CNRRB01050	Install Curb & Underdrain - Ridge Road & Turnaround	5	28-Jun-16	05-Jul-16
PAQAB01130	Preparatory Meeting - Topsoil & Seeding	1	05-Jul-16	05-Jul-16



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

Activity ID	Activity Name	Original Duration	Start	Finish
PAQAB01120	Preparatory Meeting - Asphalt Pavement	1	05-Jul-16	05-Jul-16
CNRRB01060	Install Base & Intermediate Asphalt - Ridge Road	5	06-Jul-16	12-Jul-16
CNRRB01070	Backfill Curb, Grade Slopes & Seed - Ridge Road & Turnaround	5	06-Jul-16	12-Jul-16
CNRRB01080	Install Guardrail - Ridge Road	5	13-Jul-16	19-Jul-16
PAQAB01140	Preparatory Meeting - Signalization	1	19-Jul-16	19-Jul-16
CNRRB01090	Install Signal Poles & Pull Wires - Ridge Road	10	20-Jul-16	02-Aug-16
CNRRB01100	Install Temporary Striping - Ridge Road & Turnaround	3	03-Aug-16	05-Aug-16
CNTAA01000	Notice of Demolition/Abatement for EB Bridge	1	05-Aug-16	05-Aug-16
CNRRB01110	Connect Signal at Ridge Road/Temple Ave Intersection	3	08-Aug-16	10-Aug-16
CNEPA01050	Remove/Replace Temporary Striping - Phase 2	2	11-Aug-16	12-Aug-16
CNEPA01060	Remove/Replace Temporary Barrier - Phase 2	2	11-Aug-16	12-Aug-16
CNEPA01070	Reconfigure Signal at I-95 Ramps - Phase 2	2	11-Aug-16	12-Aug-16
CNEPA01080	Switch Traffic for Phase 2/Begin Phase 2 Construction	0	15-Aug-16	
CNEPC01000	Install/Modify Phase 2 E&S	5	15-Aug-16	19-Aug-16
PAQAB01160	Preparatory Meeting - Demolition of Existing Structures	1	19-Aug-16	19-Aug-16
CNTAA01010	Remove Existing Bridge Superstructure - Temple Ave EB	10	22-Aug-16	06-Sep-16
CNTAA01020	Abate ACM from EB Bridge	20	22-Aug-16	20-Sep-16
CNTAA01030	Remove Existing Bridge Substructure - Temple Ave EB	10	07-Sep-16	20-Sep-16
CNTACA1020	Place Fill for Roadway Widening - Temple Ave EB	25	21-Sep-16	31-Oct-16
CNTACB1030	Install Stone & Grade for Curb/Asphalt - Temple Ave EB	10	01-Nov-16	16-Nov-16
CNTACA1030	Install Conduits & Light Pole Foundations - Temple Ave EB	15	01-Nov-16	30-Nov-16
CNTACB1040	Install Curb & Underdrain - Temple Ave EB	5	21-Nov-16	30-Nov-16
CNTACB1050	Backfill Curb, Grade Slopes & Seed - Temple Ave EB	5	01-Dec-16	12-Dec-16
CNTACB1070	Install Guardrail - Temple Ave EB	5	13-Dec-16	20-Dec-16
CNTACB1080	Set Light Poles & Pull Wires - Temple Ave EB	10	21-Dec-16	18-Jan-17
CNTAB01000	Notice of Demolition/Abatement for WB Bridge	1	10-Jan-17	10-Jan-17
CNEPA01090	Remove/Replace Temporary Barrier - Phase 3	2	23-Jan-17	24-Jan-17
CNEPA01100	Remove/Replace Temporary Striping - Phase 3	2	23-Jan-17	24-Jan-17
CNEPA01110	Reconfigure Signal at I-95 Ramps - Phase 3	2	23-Jan-17	24-Jan-17
CNEPA01120	Switch Traffic for Phase 3/Begin Phase 3 Construction	0	25-Jan-17	
CNEPC01010	Install/Modify Phase 3 E&S	3	25-Jan-17	30-Jan-17
CNTAB01010	Remove Existing Bridge Superstructure - Temple Ave WB	10	31-Jan-17	20-Feb-17
CNTAB01020	Remove Existing Bridge Substructure - Temple Ave WB	10	21-Feb-17	08-Mar-17
CNTACA1040	Excavate for Retaining Wall - Temple Ave WB	5	09-Mar-17	16-Mar-17
CNTACA1050	Construct Retaining Wall - Temple Ave WB	25	20-Mar-17	26-Apr-17
CNTACA1070	Place Fill to Proposed Roundabout Subgrade - WB Temple Ave	25	28-Mar-17	03-May-17
CNTACB1100	Construct Overhead Sign Structure - Temple Ave WB	30	04-May-17	16-Jun-17
CNTACB1110	Construct Overhead Sign Structure - Temple Ave EB	30	04-May-17	16-Jun-17
CNEPA01130	Install Permanent Signs	10	19-Jun-17	30-Jun-17
CNTACB1170	Construct Roundabout Truck Apron	15	05-Jul-17	25-Jul-17
CNTACB1180	Implement Roundabout Traffic Pattern on Temple Ave	0		25-Jul-17
CNEPA01140	Remove Temporary Barrier Service	3	26-Jul-17	28-Jul-17

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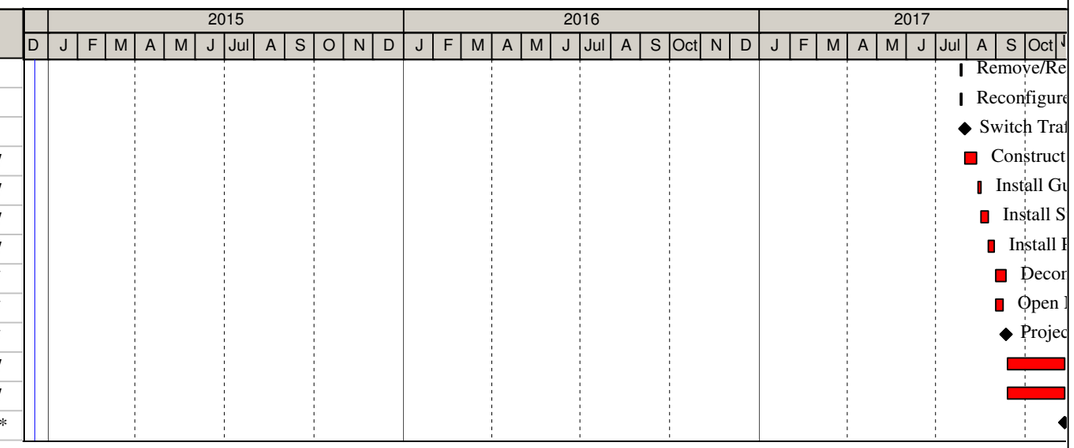
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
CNEPA01150	Remove/Replace Temporary Striping - Phase 4	3	26-Jul-17	28-Jul-17
CNEPA01160	Reconfigure Signal at I-95 Ramps - Phase 4	3	26-Jul-17	28-Jul-17
CNEPA01170	Switch Traffic for Phase 4/Begin Phase 4 Construction	0	31-Jul-17	
CNIRBA1080	Construct Connection to SB On-Ramp	10	31-Jul-17	11-Aug-17
CNIRBB1140	Install Guardrail - SB On-Ramp	3	14-Aug-17	16-Aug-17
CNIRBB1150	Install Surface Pavement at New I-95 Ramps	5	17-Aug-17	23-Aug-17
CNIRBB1160	Install Permanent Striping - I-95 Ramps	5	24-Aug-17	30-Aug-17
CNIRA01000	Decommission Traffic Signal at Existing I-95 Ramps	6	31-Aug-17	11-Sep-17
CNIRBB1170	Open New I-95 Ramps to Traffic	5	31-Aug-17	08-Sep-17
MI00001050	Project Substantial Completion	0		11-Sep-17
PAPC001000	Demobilization	60	12-Sep-17	10-Nov-17
PAPC001010	Closeout Documentation	60	12-Sep-17	10-Nov-17
MI00001060	Project Final Completion (10-NOV-2017)	0		10-Nov-17*



Appendix 4.1.7
Proposal Payment Agreement

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this "Agreement") is made and entered into as of this 7th day of November, 2014, by and between the Virginia Department of Transportation ("VDOT"), and American Infrastructure-VA, Inc. ("Offeror").

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs") pursuant to VDOT's **October 15, 2013** Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the **I-95 at Temple Avenue Interchange Improvements, Project No. 0095-106-122** ("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 **twenty thousand and 00/100 Dollars ($20,000.00)** ("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: _____

AMERICAN INFRASTRUCTURE-VA, INC.

By: _____

Name: Aaron T. Myers

Title: Vice President/General Manager

Appendix 4.1.8
Certification Regarding Debarment Forms

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: 0095-106-122

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.

	11/07/2014	Vice President/General Manager
Signature	Date	Title

AMERICAN INFRASTRUCTURE-VA, INC.
Name of Firm

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

Project No.: 0095-106-122

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

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

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

	9/3/2014	Vice President
Signature	Date	Title

DMY Engineering Consultants Inc.
Name of Firm

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

Project No.: 0095-106-122

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

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

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

	9/12/2014	General Manager/Principal
Signature	Date	Title

Rinker Design Associates, P.C.
Name of Firm

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

Project No.: 0095-106-122

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

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

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

Edward G. Drahos	September 3, 2014	Senior Vice President
Signature	Date	Title

Schnabel Engineering Consultants, Inc.
Name of Firm

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

Project No.: 0095-106-122

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

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

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

Dennis C. Morrison 9/3/14 Senior Vice President
Signature Date Title

Volkert, Inc.
Name of Firm

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

Project No.: 0095-106-122

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

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

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

	9/8/14	Partner
Signature	Date	Title

Wallace Montgomery & Associates, LLP
Name of Firm

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

Project No.: 0095-106-122

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

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

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

Thomas L Zannino 9-8-14 President

Signature Date Title

Zannino Engineering Inc.

Name of Firm

American Infrastructure-VA, Inc.
301 Concourse Blvd.
Suite 300
Glen Allen, VA 23059
804-290-8500

Rinker Design Associates, P.C.
4301 Dominion Blvd.
Suite 100
Glen Allen, VA 23060
804-612-0665

Wallace Montgomery
8000 Westpark Drive
Suite 125
Tysons, VA 22102
571-395-8100

American Infrastructure

WALLACE MONTGOMERY

VDOT
Virginia Department of Transportation

Technical Proposal Volume II

A DESIGN-BUILD PROJECT

I-95 at Temple Avenue Interchange Improvements

From: 0.041 Mi. West of Hamilton Avenue

To: 0.069 Miles East of Existing I-95 Ramp

Colonial Heights, Virginia

State Project No.: 0095-106-122

Federal Project No.: NH-095-1 (328)

Contract ID No.: C00085623DB74

Date: November 7, 2014

4.3.1
Conceptual
Roadway Plans

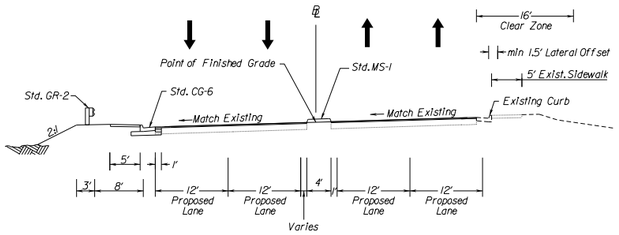
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	2A

Temple Ave and Southbound Ramps

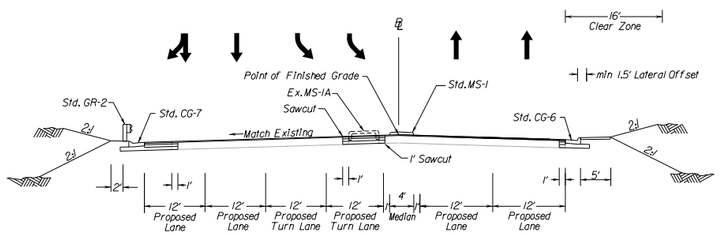
TYPICAL SECTIONS

TEMPLE AVENUE (WEST)
Urban Minor Arterial GS-6
Design Speed = 40 mph

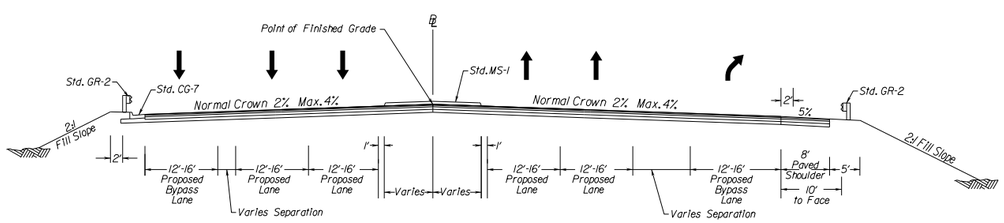
Station 192+50.00 to Station 195+00.00



Station 195+00.00 to Station 198+25.00

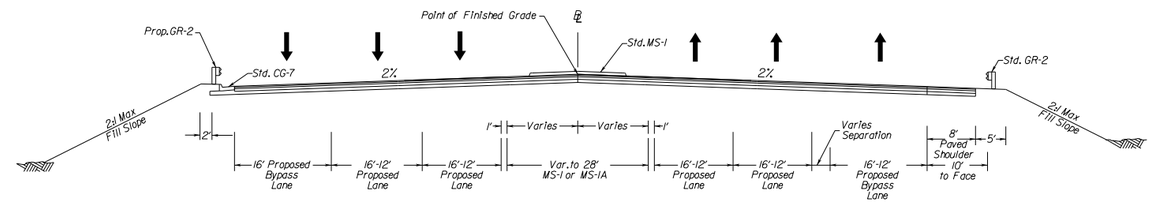


Station 198+25.00 to Station 203+59.00
(Connection with Roundabout)

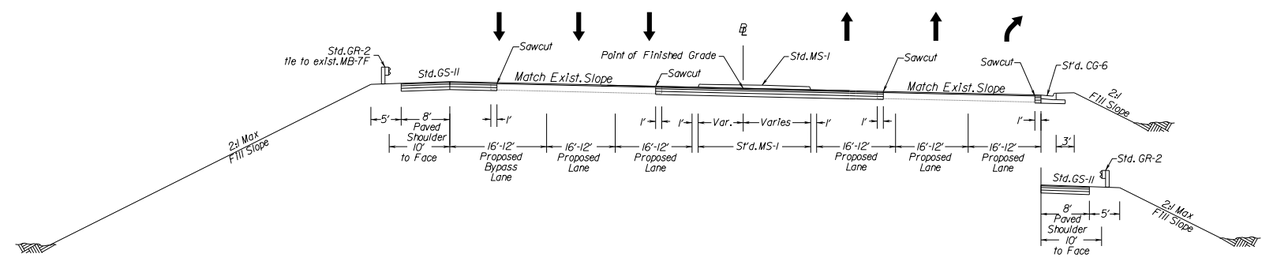


TEMPLE AVENUE (EAST)
Urban Minor Arterial GS-6
Design Speed = 40 mph

Station 205+50.00 (Connection with Roundabout) to Station 208+00.00

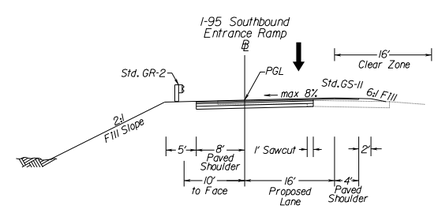


Station 208+00.00 to Station 212+00.00



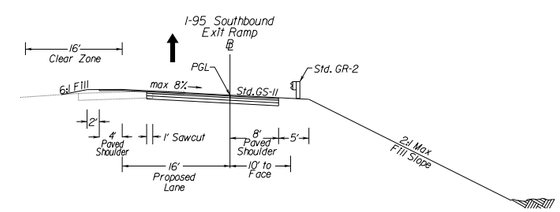
I-95 SOUTHBOUND ENTRANCE RAMP
Interchange Ramp GS-R
Design Speed = 35 mph

From Station 100+00.00 to Station 108+64.02

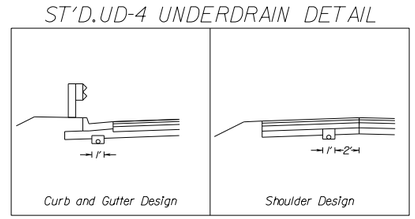


I-95 SOUTHBOUND EXIT RAMP
Interchange Ramp GS-R
Design Speed = 35 mph

From Station 98+50.00 to Station 106+00.19



ST'D. UD-4 UNDERDRAIN DETAIL



AI TEAM CONCEPT PLAN

American Infrastructure

Rinker Design Associates

WALLACE MONTGOMERY

Not to Scale	PROJECT 0095-106-122	SHEET NO. 2A

11/5/2014

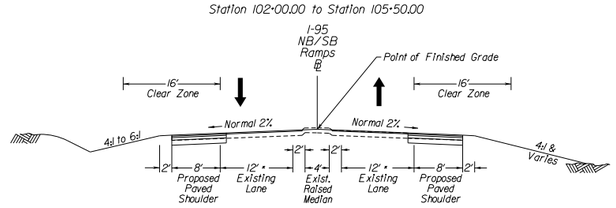
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	2B

Northbound Ramps and Roundabout

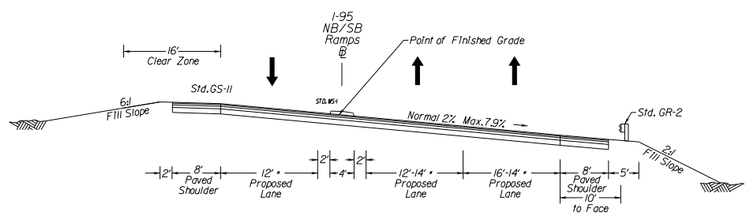
TYPICAL SECTIONS

I-95 NB/SB RAMPS
Interchange Ramp GS-R
Design Speed = 35 mph

Station 102+00.00 to Station 105+50.00



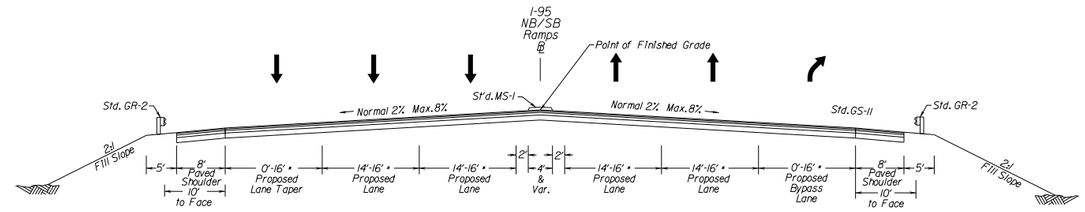
I-95 NB/SB Ramps
From Station 105+50.00 to Station 108+50.00



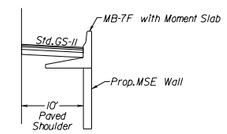
* Lane widths for multi-lane ramps shall comply with minimum AASHTO standards for turning roadways, as shown in 2011 Green Book pg. 3-103.

I-95 NB/SB RAMPS
Interchange Ramp GS-R
Design Speed = 35 mph

Station 108+50.00 to Station 117+00.00



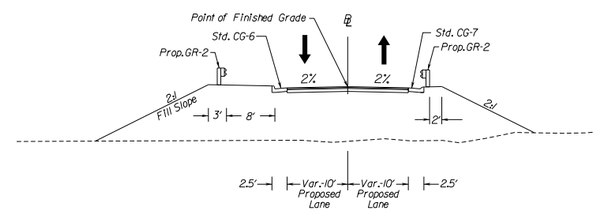
* Lane widths for multi-lane ramps shall comply with minimum AASHTO standards for turning roadways, as shown in 2011 Green Book pg. 3-103.



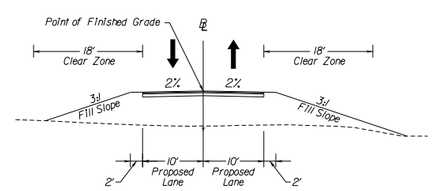
Station 112+90.65 to Station 114+25.29

RIDGE ROAD
Design Speed = 20 mph

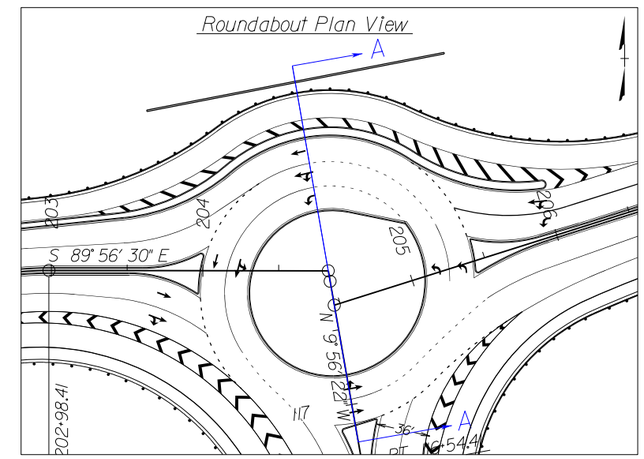
Urban Local Road GS-8
Ridge Road
Station 10+50.00 to Station 11+31.00



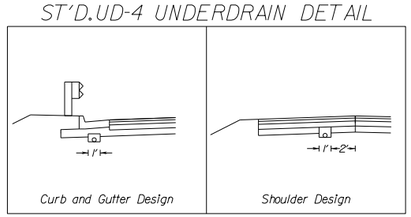
Rural Local Road GS-4
Ridge Road
Station 11+31.00 to Station 13+45.00



Roundabout Plan View

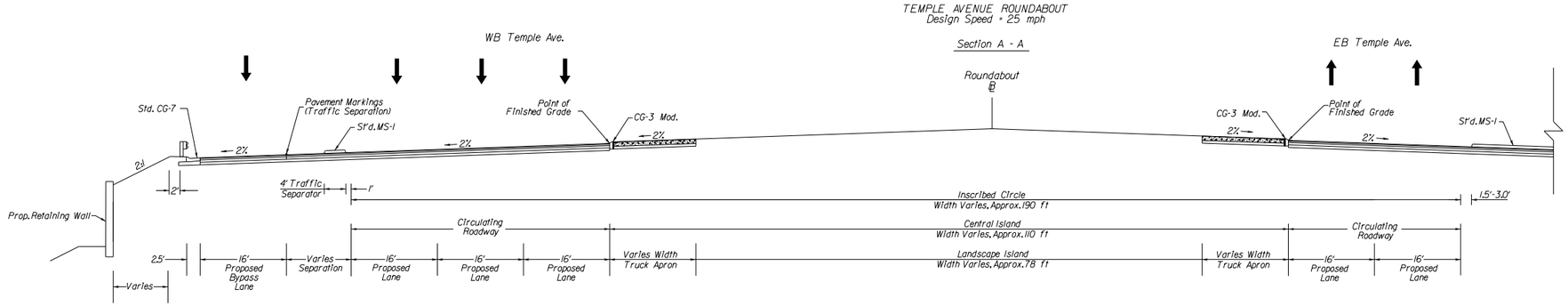


ST'D.UD-4 UNDERDRAIN DETAIL



TEMPLE AVENUE ROUNDABOUT
Design Speed = 25 mph

Section A - A



AI TEAM CONCEPT PLAN

American Infrastructure

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WALLACE MONTGOMERY

Not to Scale	PROJECT 0095-106-122	SHEET NO. 2B

11/5/2014

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	3

VDOT RFP Concept
Additional fire hydrant to be added in accordance with RFP

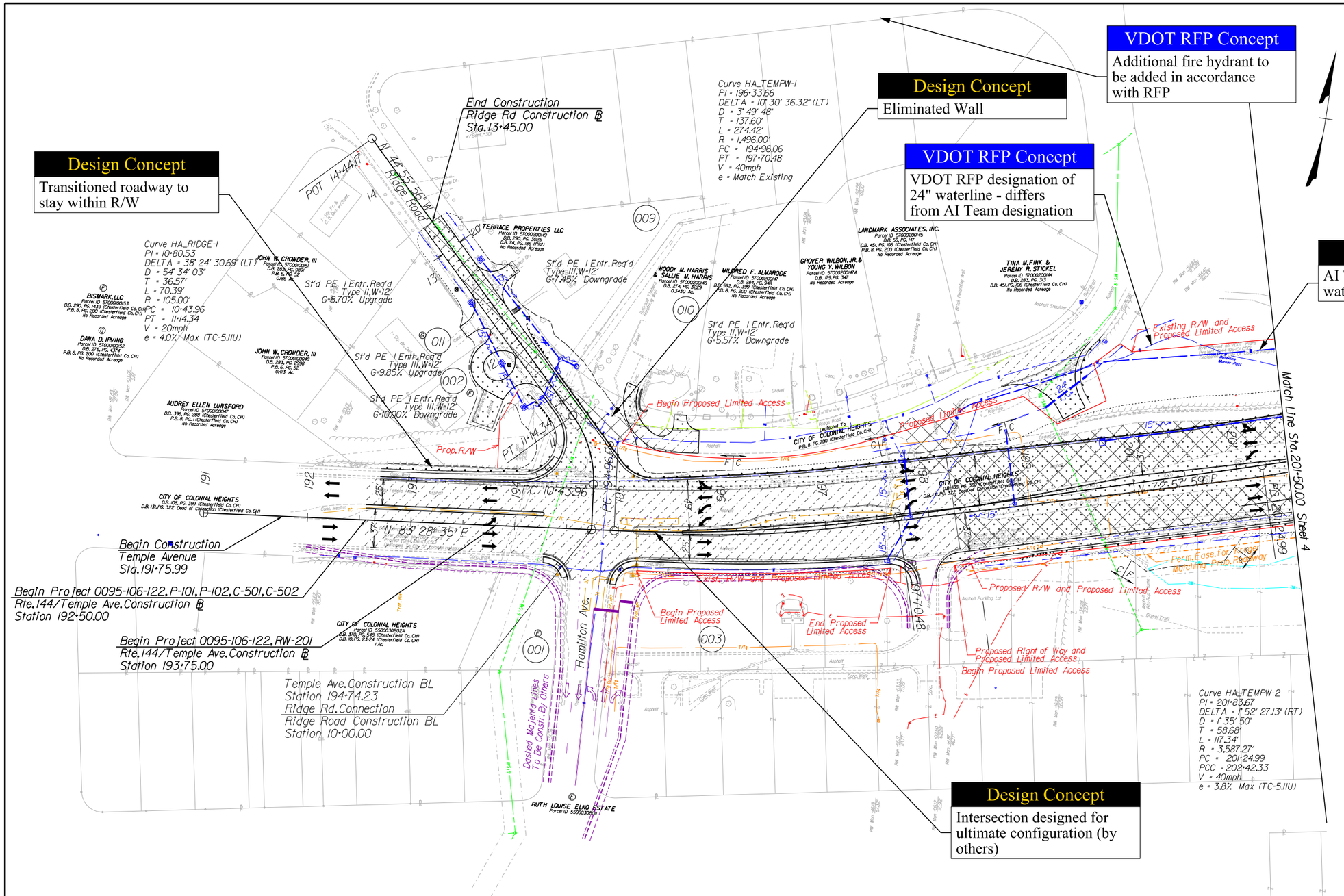
Design Concept
Eliminated Wall

VDOT RFP Concept
VDOT RFP designation of 24" waterline - differs from AI Team designation

Design Concept
Transitioned roadway to stay within R/W

Design Concept
AI Team designation of 24" waterline

Design Concept
Intersection designed for ultimate configuration (by others)



LEGEND

- Denotes Milling & Overlay
- Denotes Proposed New Pavement
- Denotes Demolition of Pavement
- Dot - Dot - Dashed Lines Denote Temporary Easements
- Dot - Dashed Lines Denote Permanent Easements
- Solid Lines Denote Right of Way
- C..... Denotes Construction Limits In Cuts
- F____ Denotes Construction Limits In Fills

AI TEAM CONCEPT PLAN

American Infrastructure

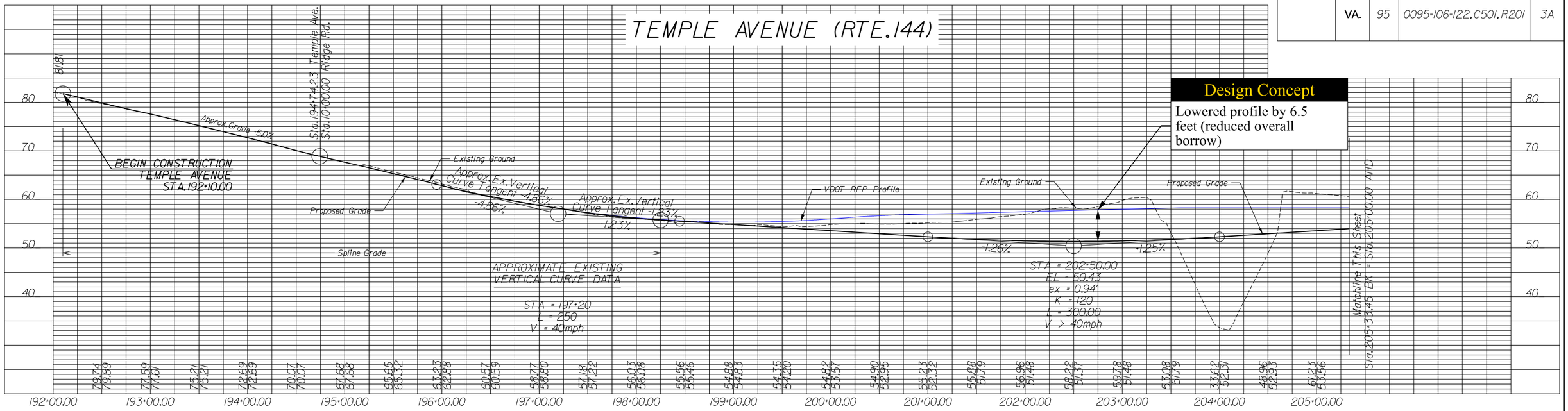
Rinker Design Associates

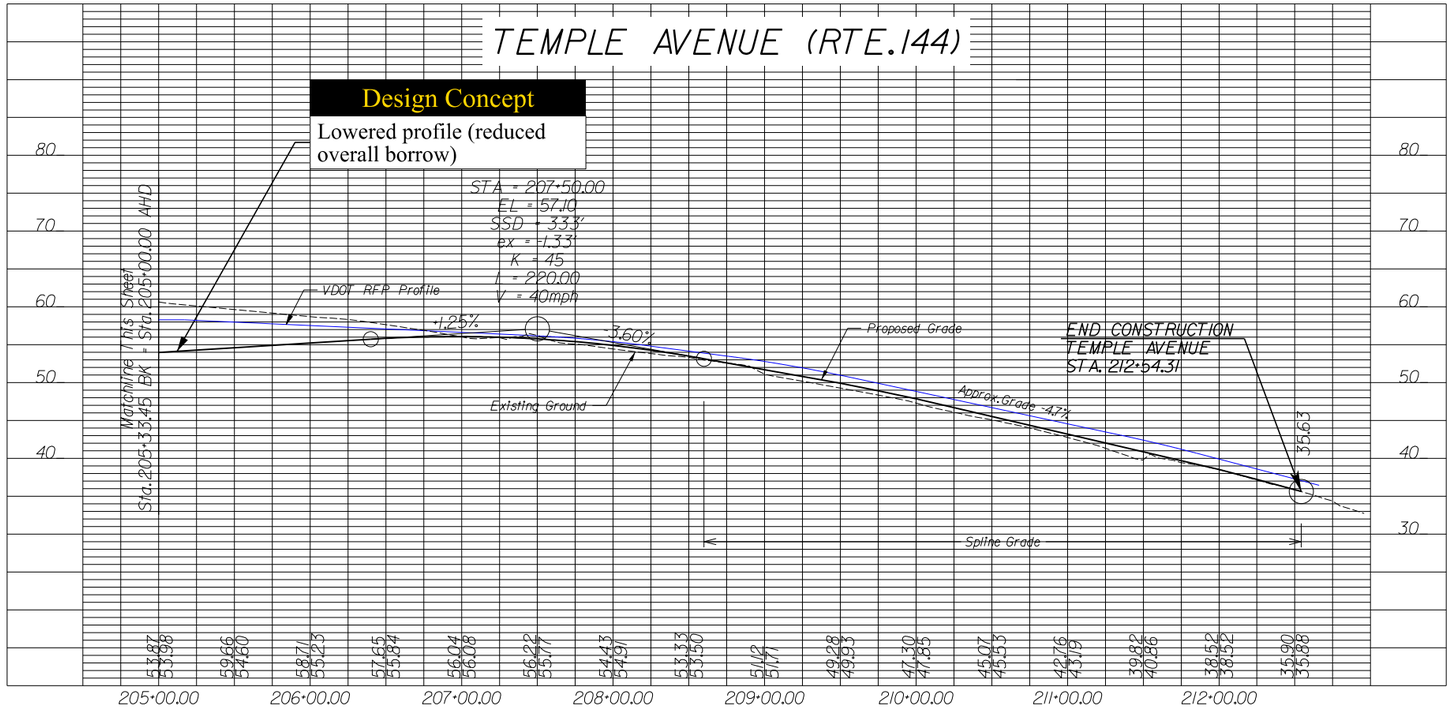
WALLACE MONTGOMERY

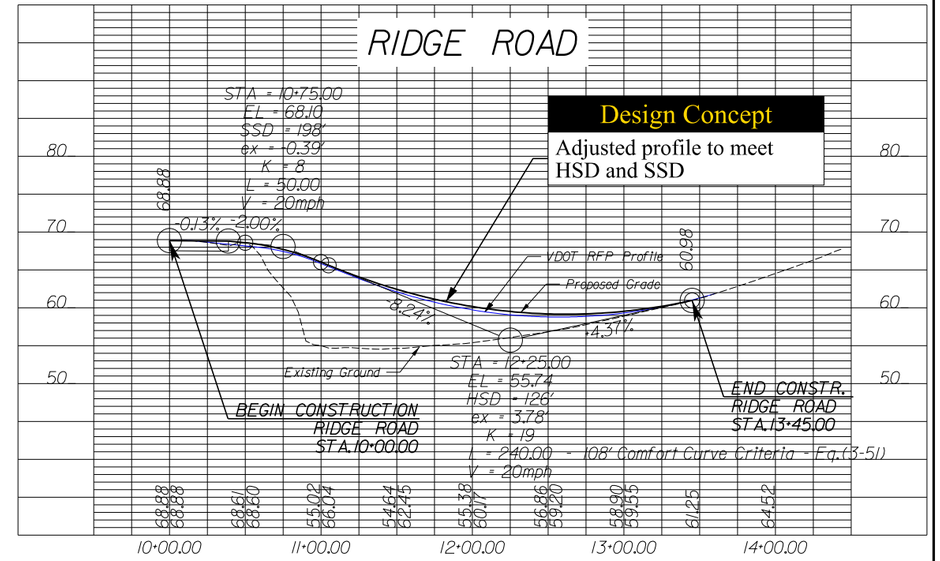
SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-106-122	3

11/5/2014

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	3A







AI TEAM CONCEPT PLAN

American Infrastructure

Rinker Design Associates

WALLACE MONTGOMERY

1"= 10' Vertical
1"= 50' Horizontal

PROJECT	SHEET NO.
0095-106-122	3A

11/5/2014

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	4

FASTEST PATHS - AASHTO SPEED-RADIUS RELATIONSHIP

DIRECTION	R1 RADIUS (FT/MPH)	R2 RADIUS (FT/MPH)	R3 RADIUS (FT/MPH)	R4 RADIUS (FT/MPH)	R5 RADIUS (FT/MPH)	NOTES
EB APPROACH	202.0/26.7	157.9/22.2	262.0/29.5	N/A	243.3/28.7	
WB APPROACH	186.5/25.9	588.3/36.0	221.3/27.7	96.6/18.5	N/A	MAX. SPEED DIFF. - 17.5 MPH
NB APPROACH	N/A	N/A	N/A	101.0/18.9	218.6/27.5	

VDOT RFP Concept

VDOT RFP designation of 24" waterline

Design Concept

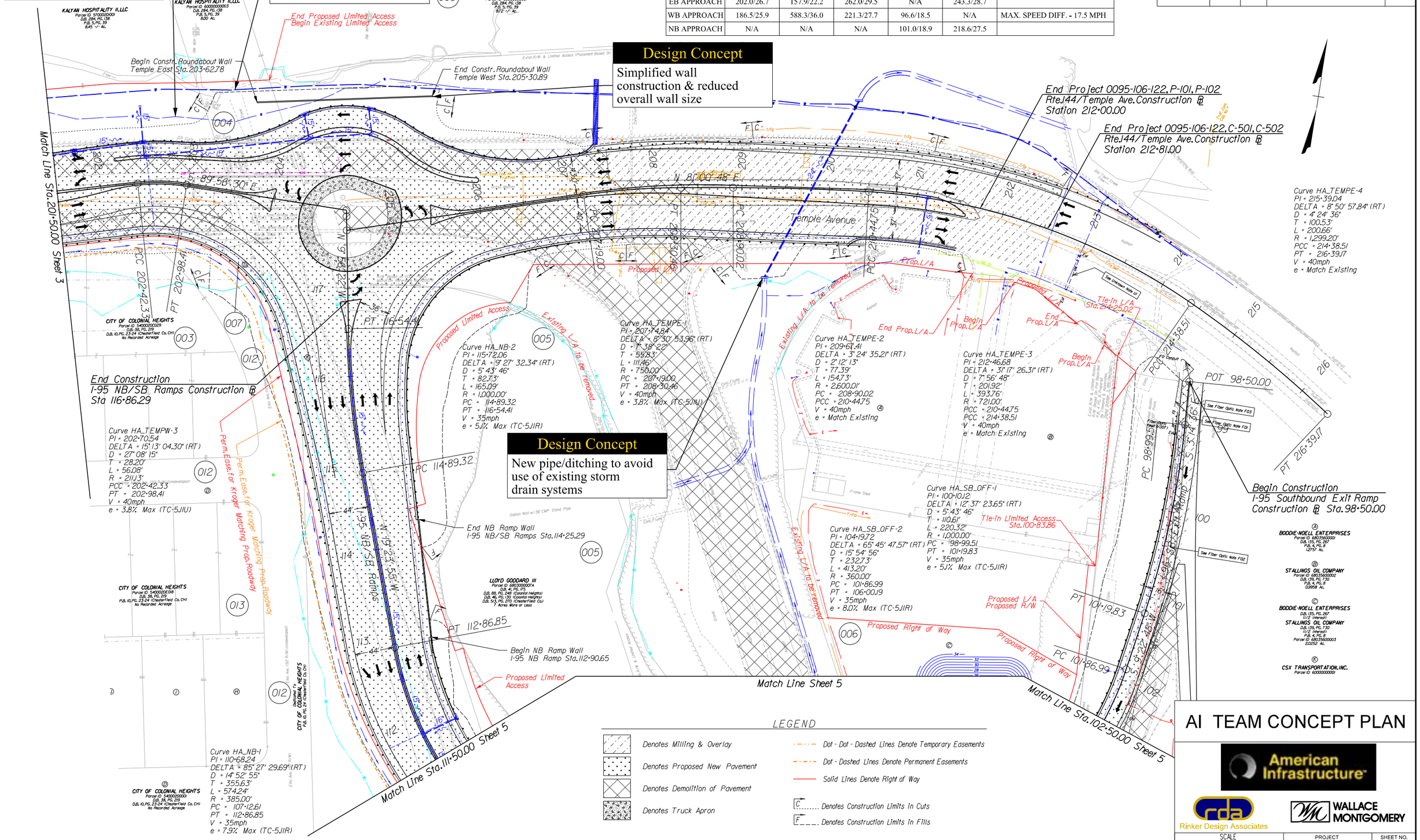
AI Team designation of 24" waterline

Design Concept

Simplified wall construction & reduced overall wall size

Design Concept

New pipe/ditching to avoid use of existing storm drain systems



AI TEAM CONCEPT PLAN

American Infrastructure

Rinker Design Associates

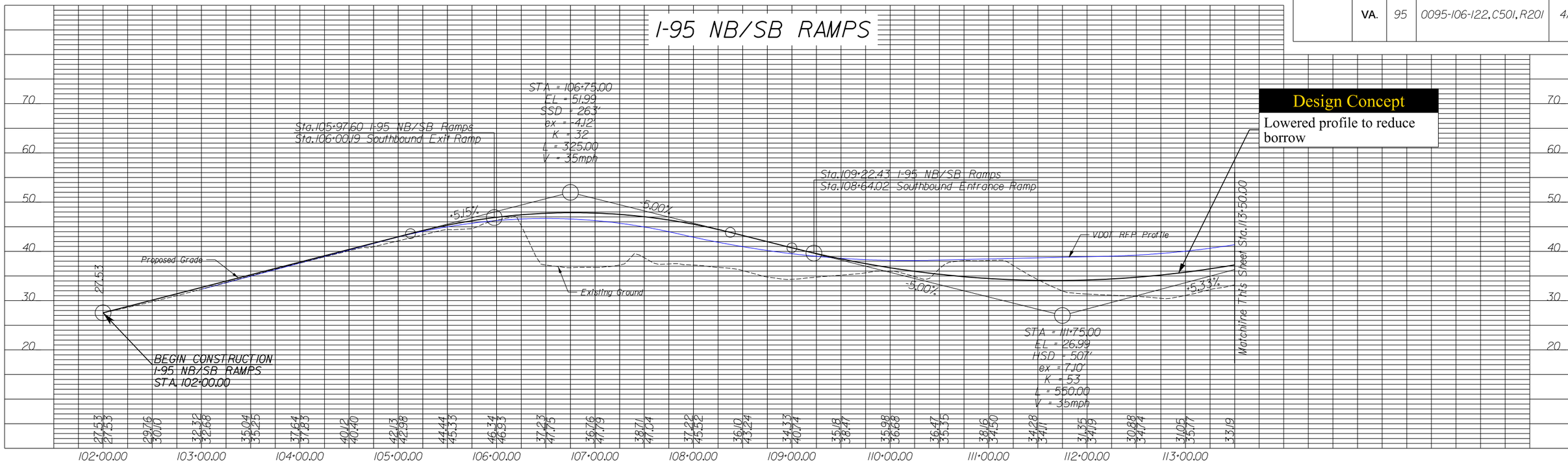
WALLACE MONTGOMERY

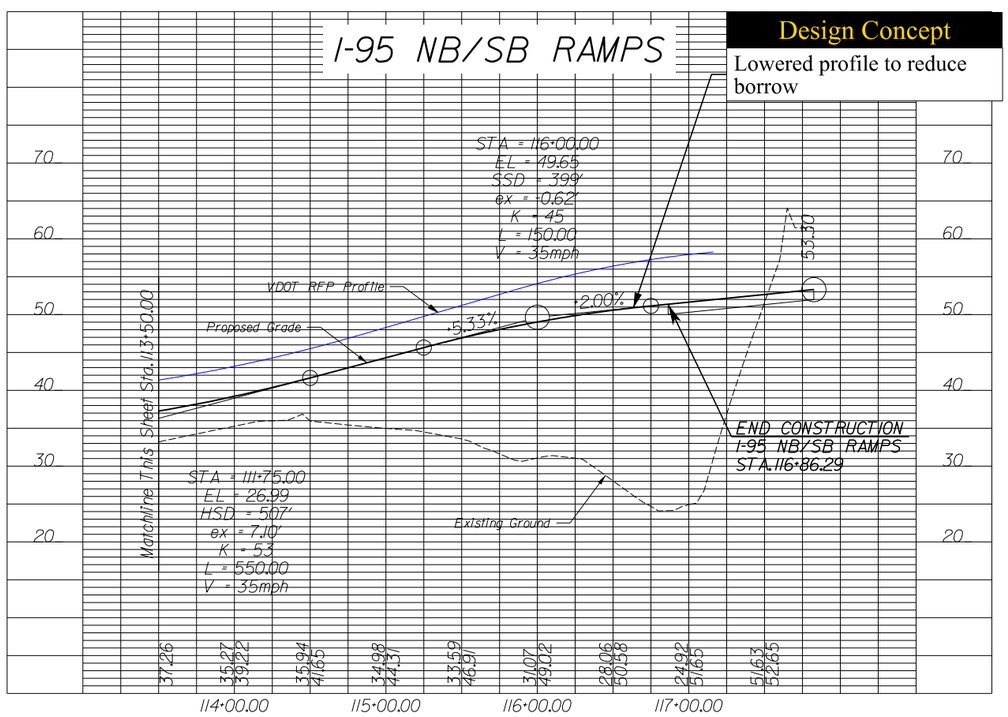
SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-106-122	4

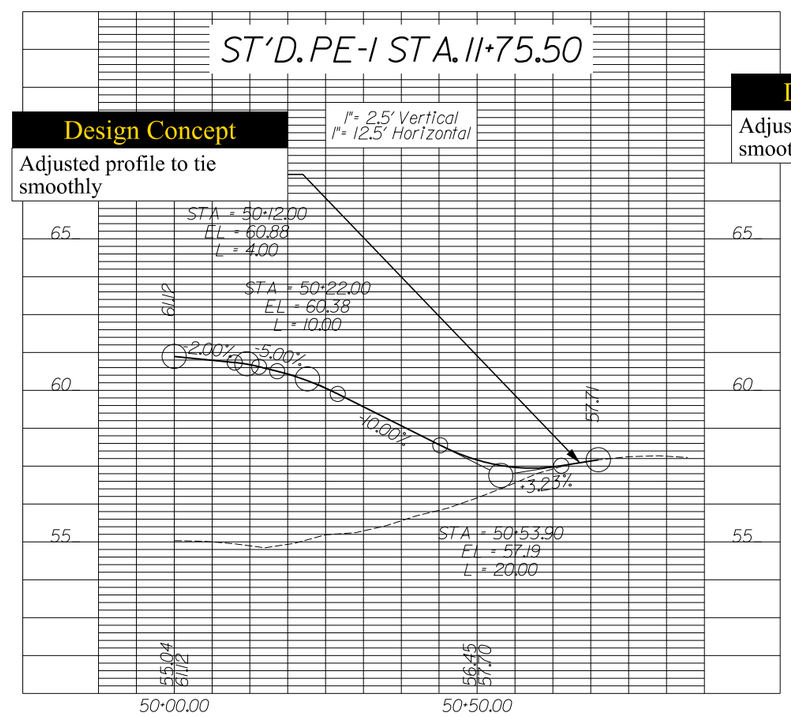
11/5/2014

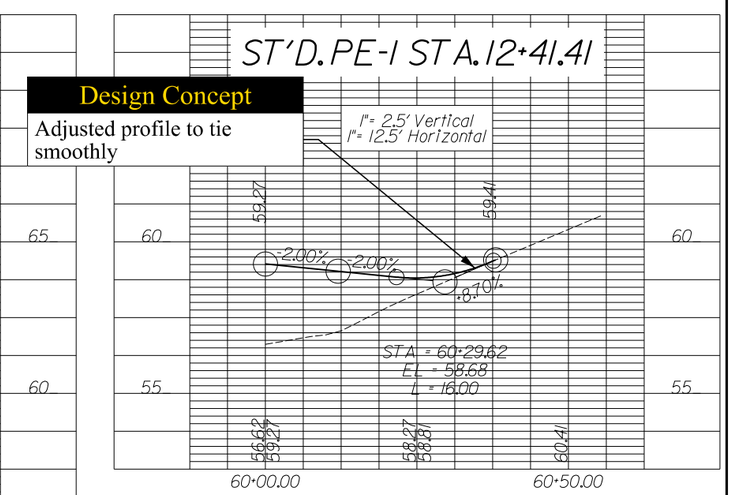
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	4A

I-95 NB/SB RAMPS









1"= 10' Vertical
1"= 50' Horizontal

AI TEAM CONCEPT PLAN

American Infrastructure

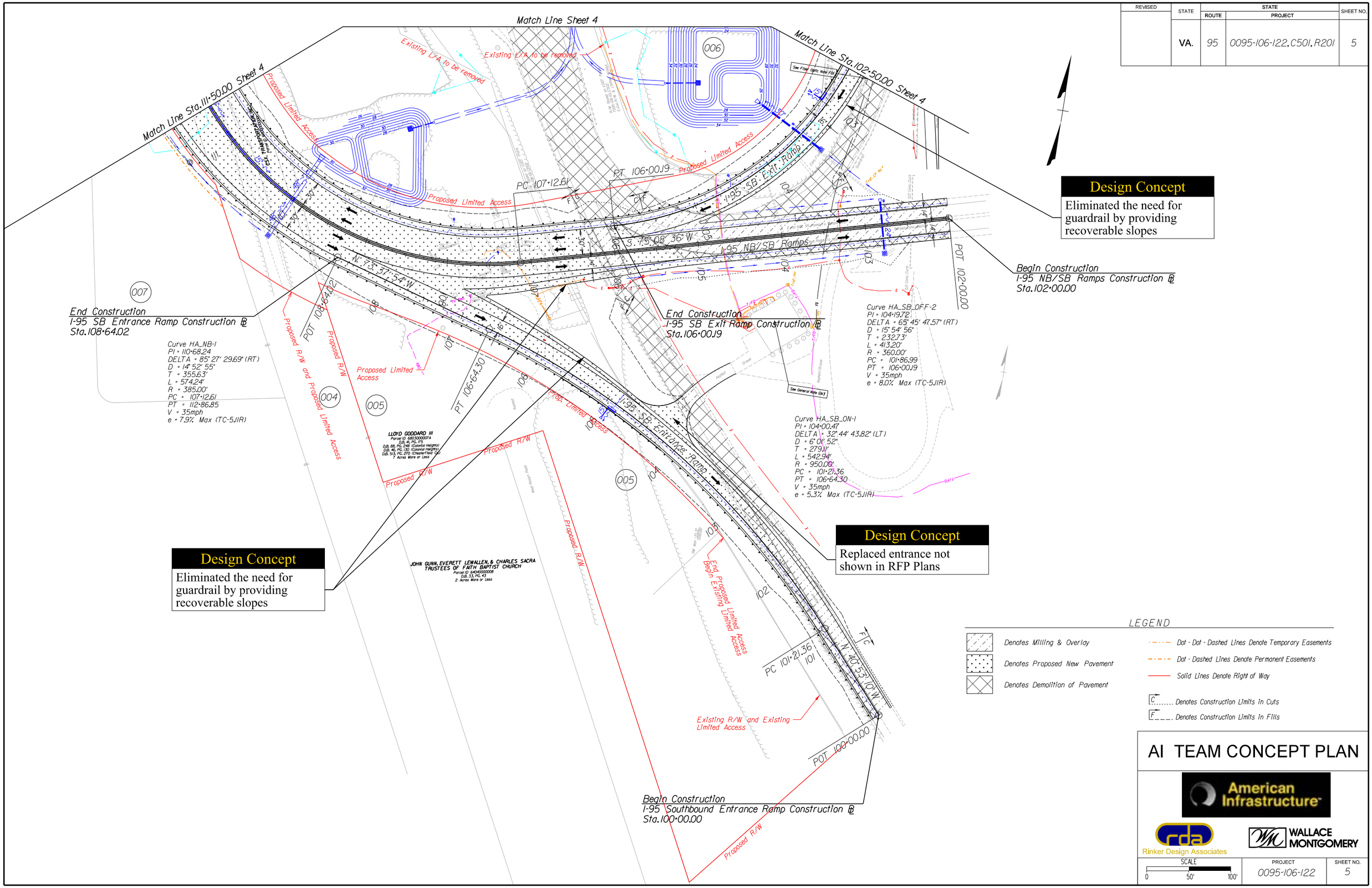
Rinker Design Associates

WALLACE MONTGOMERY

PROJECT	SHEET NO.
0095-106-122	4A

11/5/2014

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	5



Design Concept

Eliminated the need for guardrail by providing recoverable slopes

Design Concept

Eliminated the need for guardrail by providing recoverable slopes

Design Concept

Replaced entrance not shown in RFP Plans

AI TEAM CONCEPT PLAN

American Infrastructure

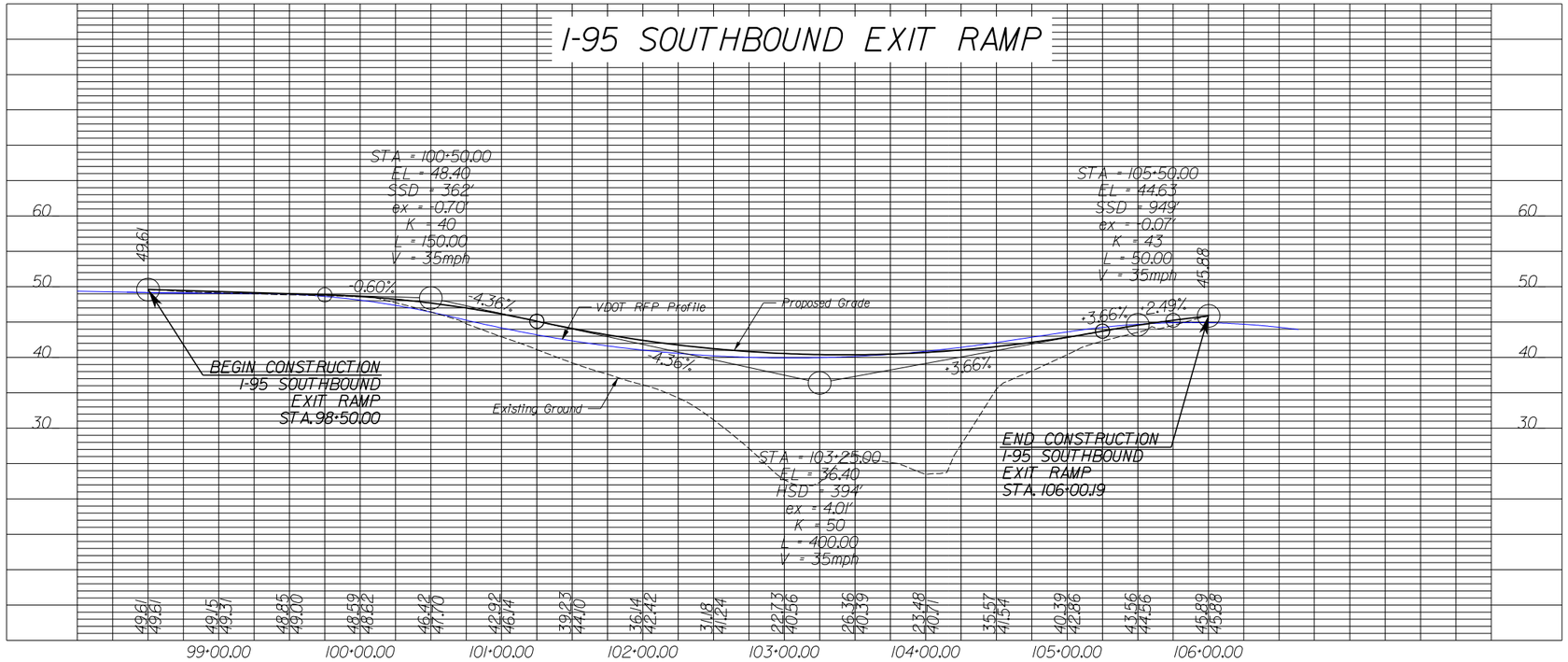
Rinker Design Associates

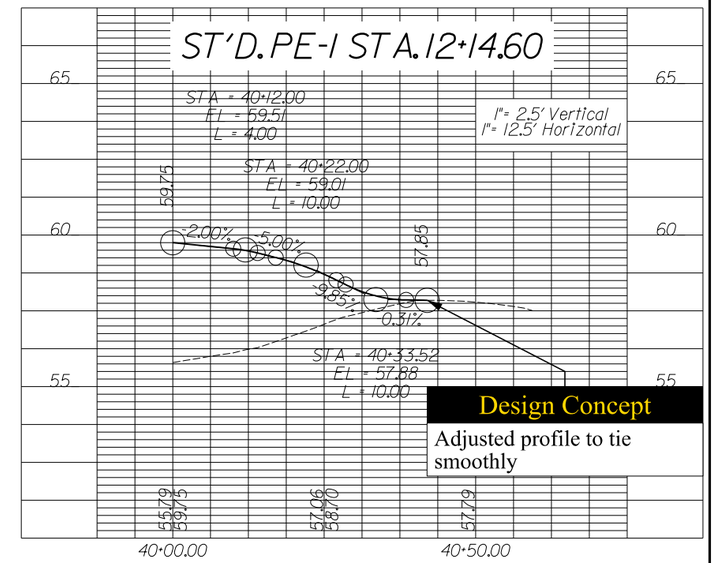
WALLACE MONTGOMERY

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-106-122	5

11/5/2014

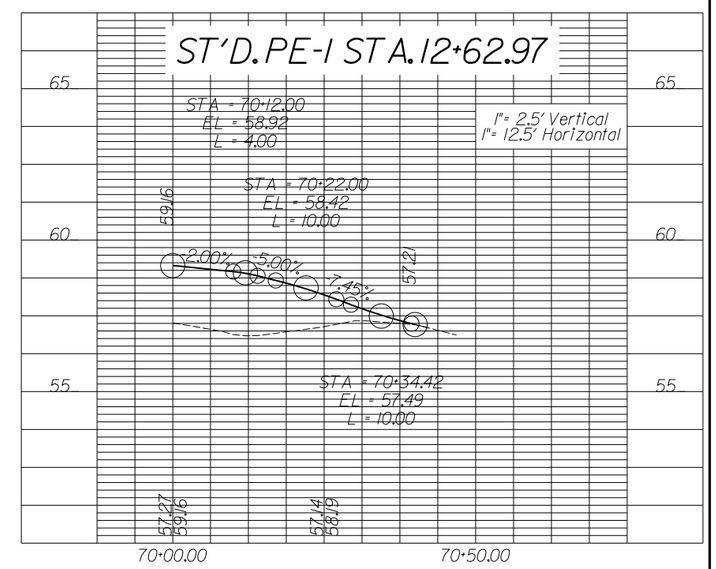
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	5A

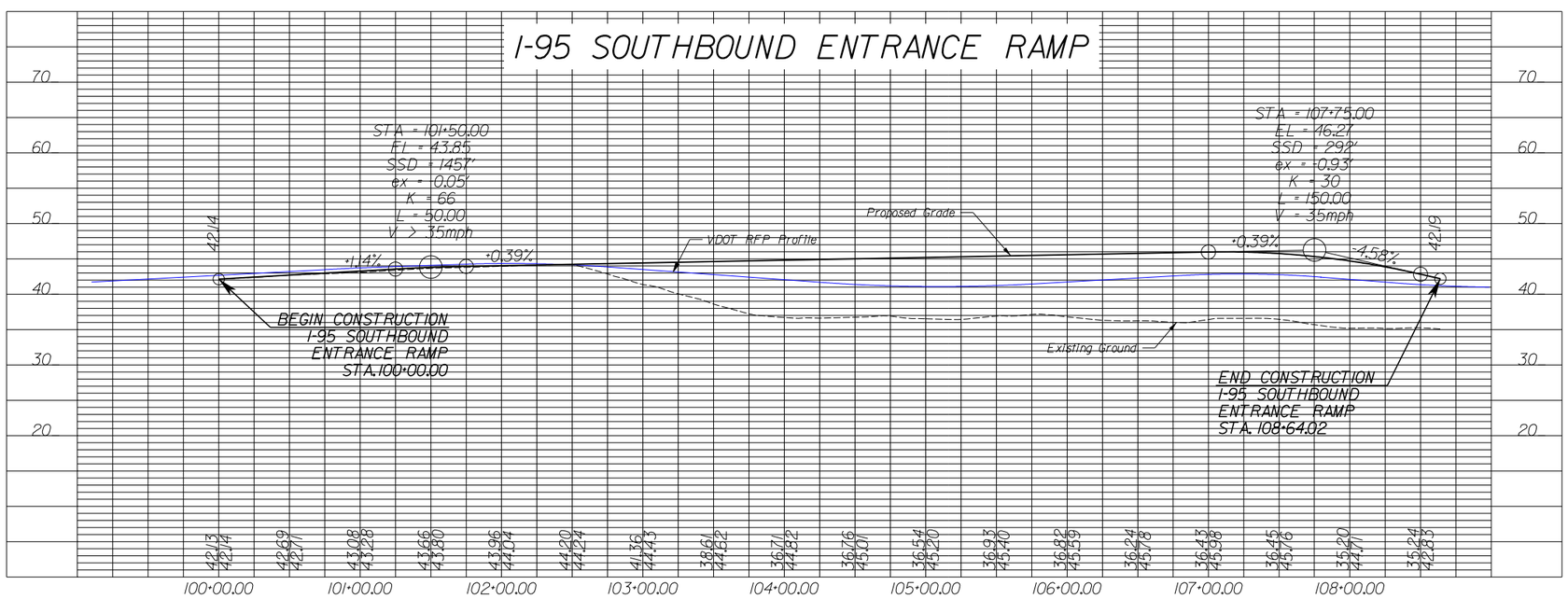




Design Concept

Adjusted profile to tie smoothly





1"= 10' Vertical
1"= 50' Horizontal

AI TEAM CONCEPT PLAN

American Infrastructure

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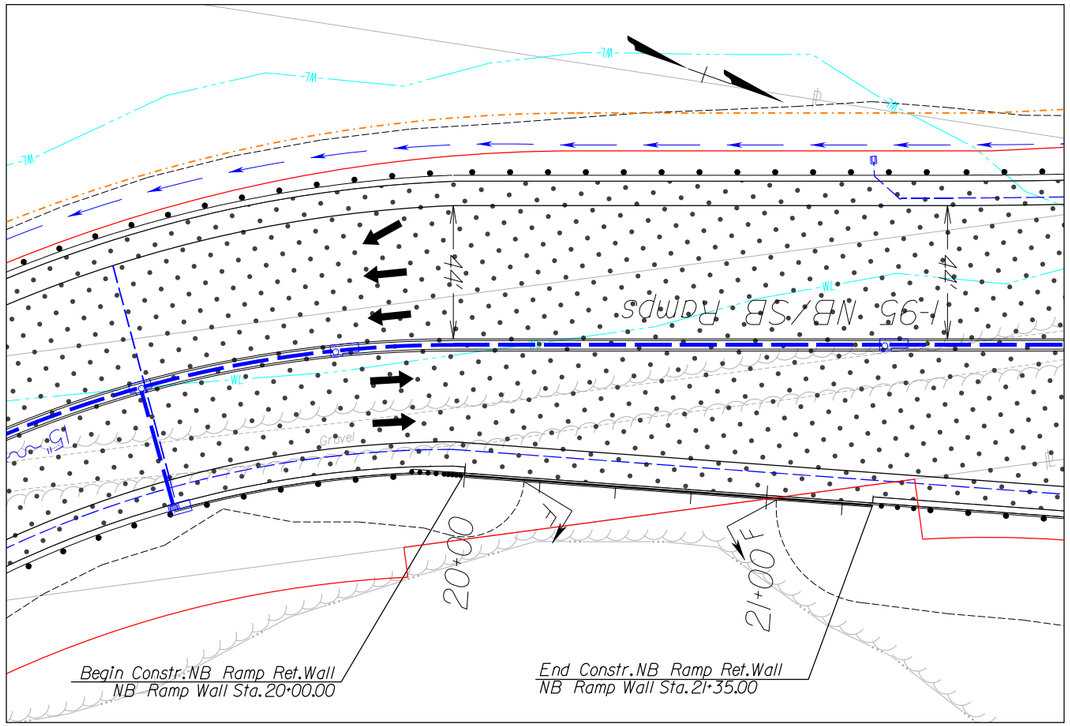
WALLACE MONTGOMERY

PROJECT	SHEET NO.
0095-106-122	5A

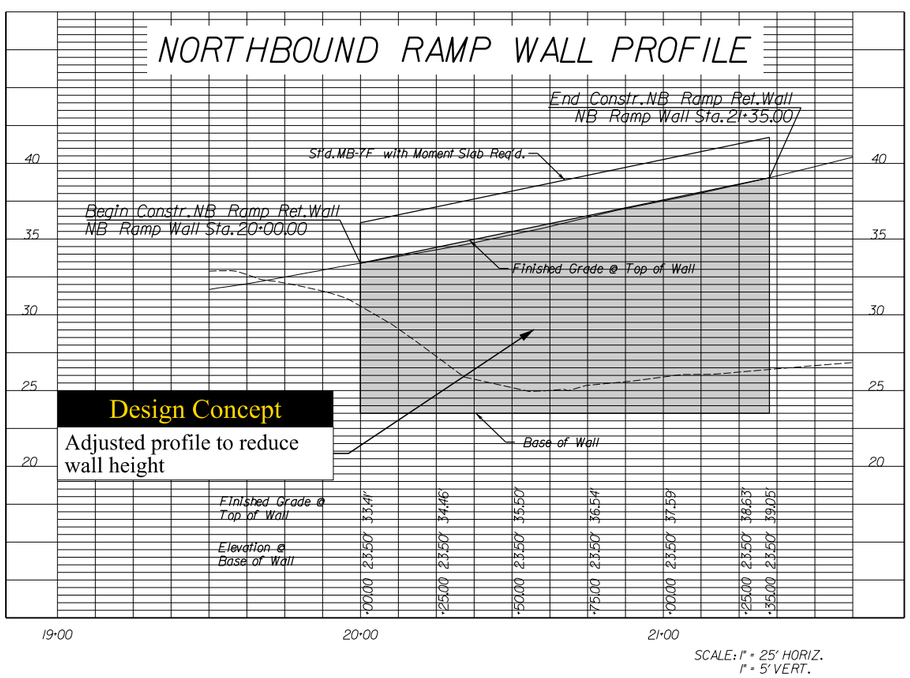
11/5/2014

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122,C501,R201	6

NORTHBOUND RAMP WALL (MSE WALL)



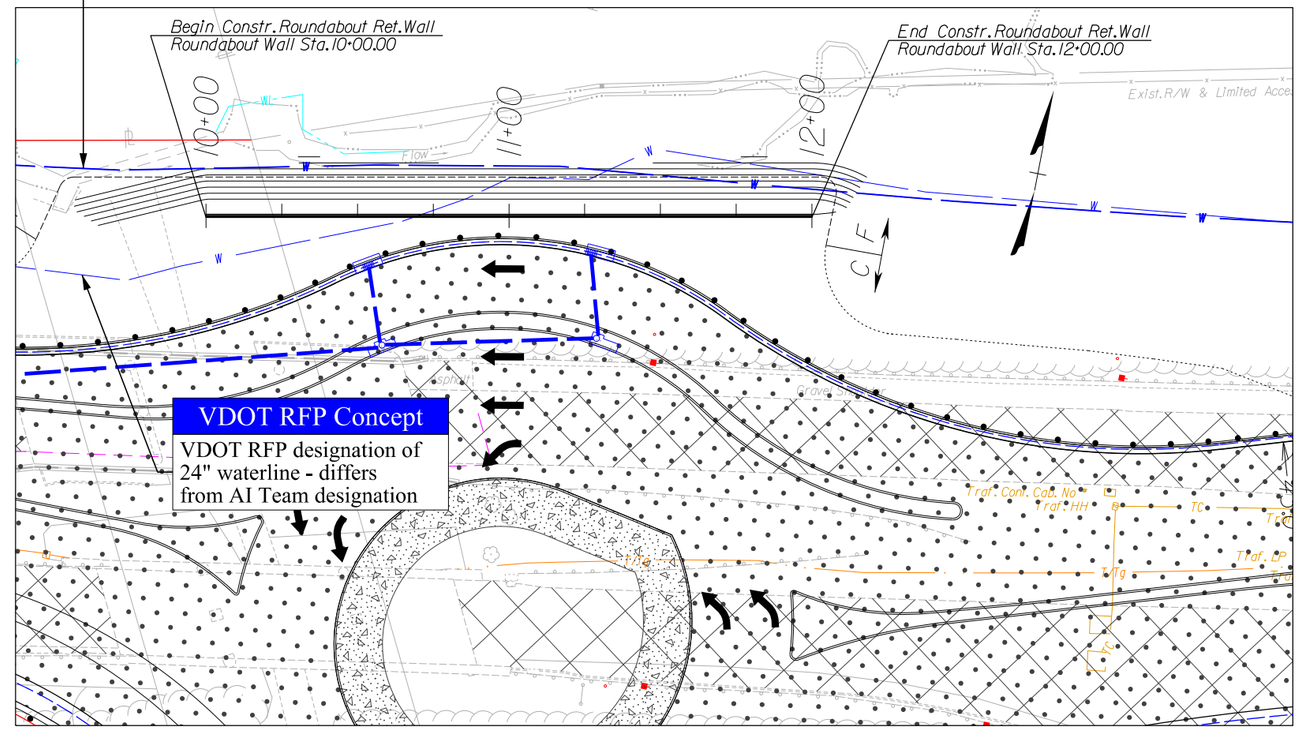
NORTHBOUND RAMP WALL PROFILE



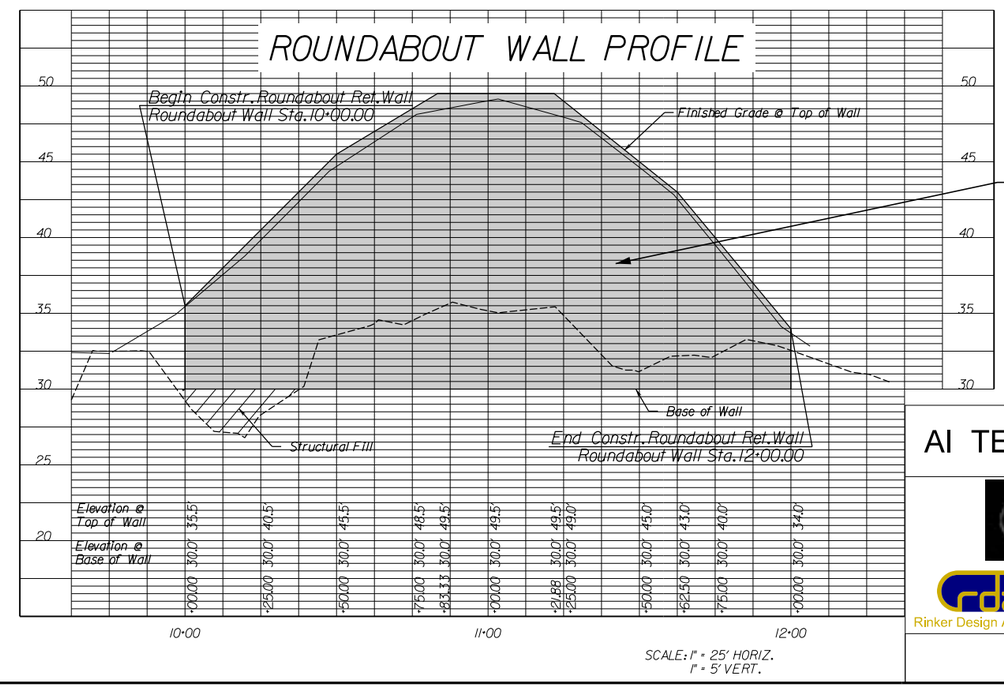
ROUNDABOUT WALL (MSE)

Design Concept

AI Team designation of 24" waterline



ROUNDABOUT WALL PROFILE



Design Concept

Reduced overall size of wall by shifting the roundabout to the southeast, shifting the wall down the slope, and making the wall straight.

AI TEAM CONCEPT PLAN

American Infrastructure

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WALLACE MONTGOMERY

PROJECT	SHEET NO.
0095-106-122	6

11/5/2014

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	7

AI TEAM CONCEPT PLAN

American Infrastructure

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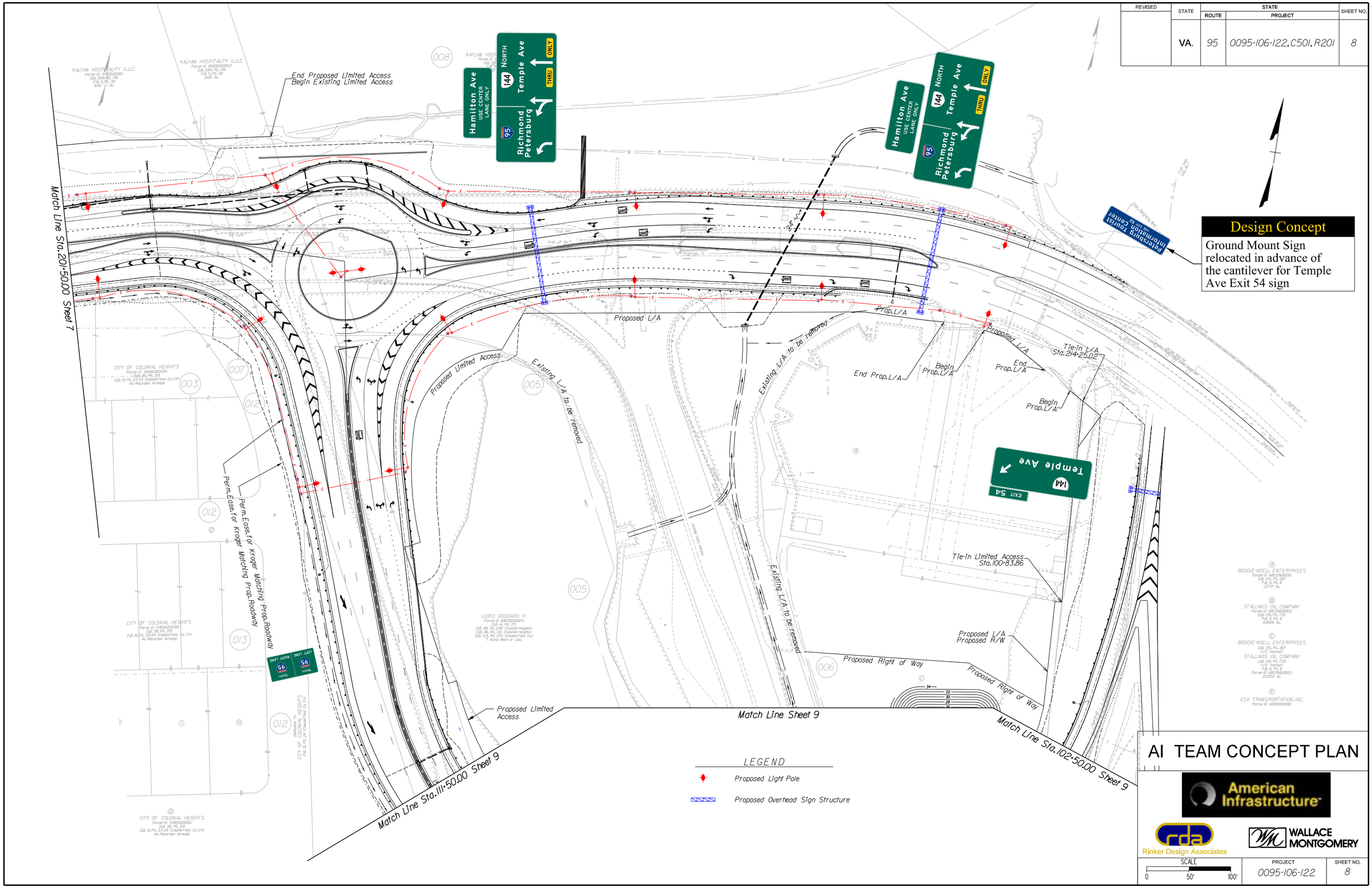
WALLACE MONTGOMERY

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-106-122	7

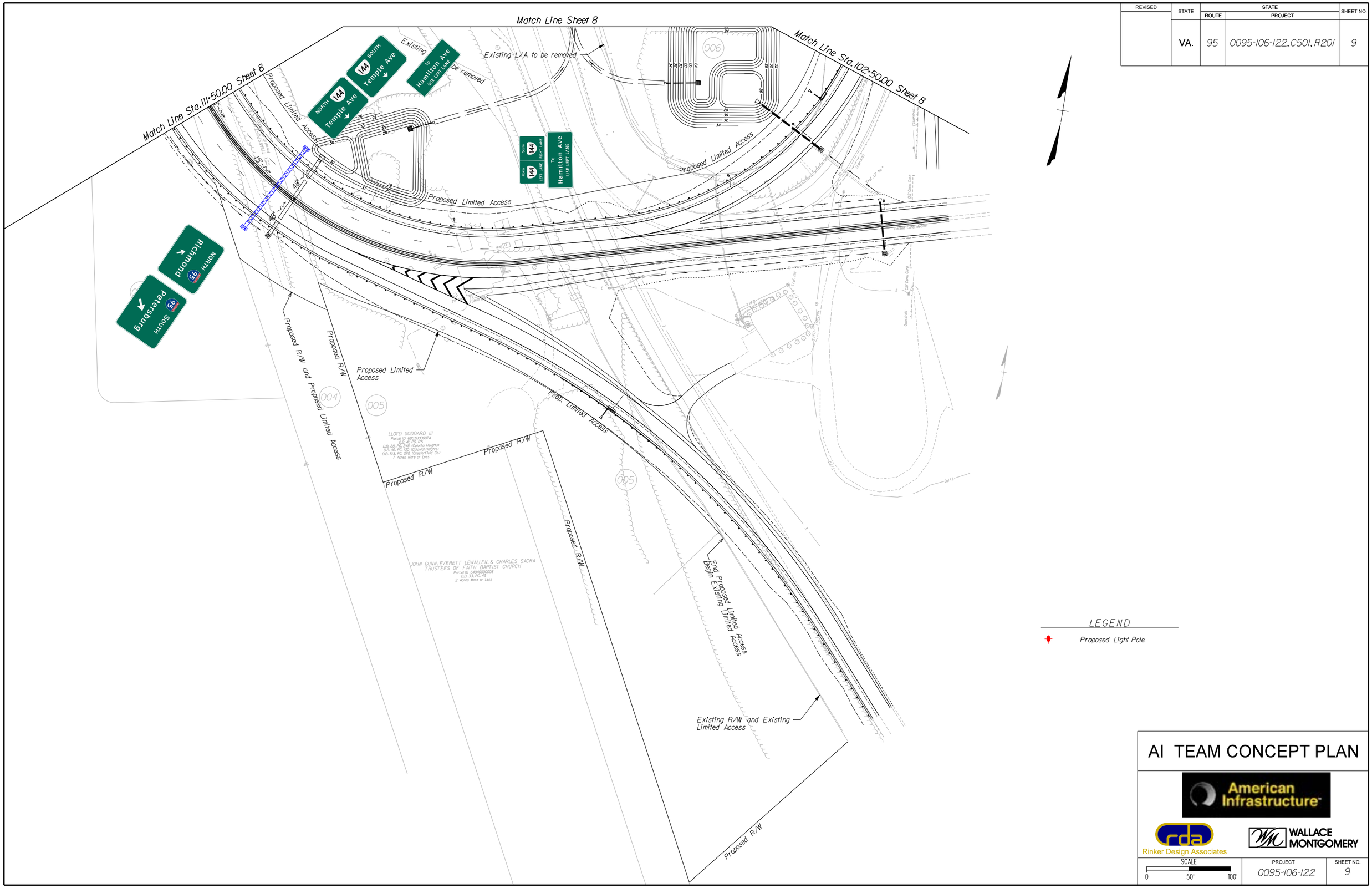
11/5/2014

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	8



11/5/2014

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-106-122, C501, R201	9



AI TEAM CONCEPT PLAN

American Infrastructure

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WALLACE MONTGOMERY

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-106-122	9

11/5/2014

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