

RESPONSE TO REQUEST FOR PROPOSALS

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I-64 EXIT 91 INTERCHANGE IMPROVEMENT

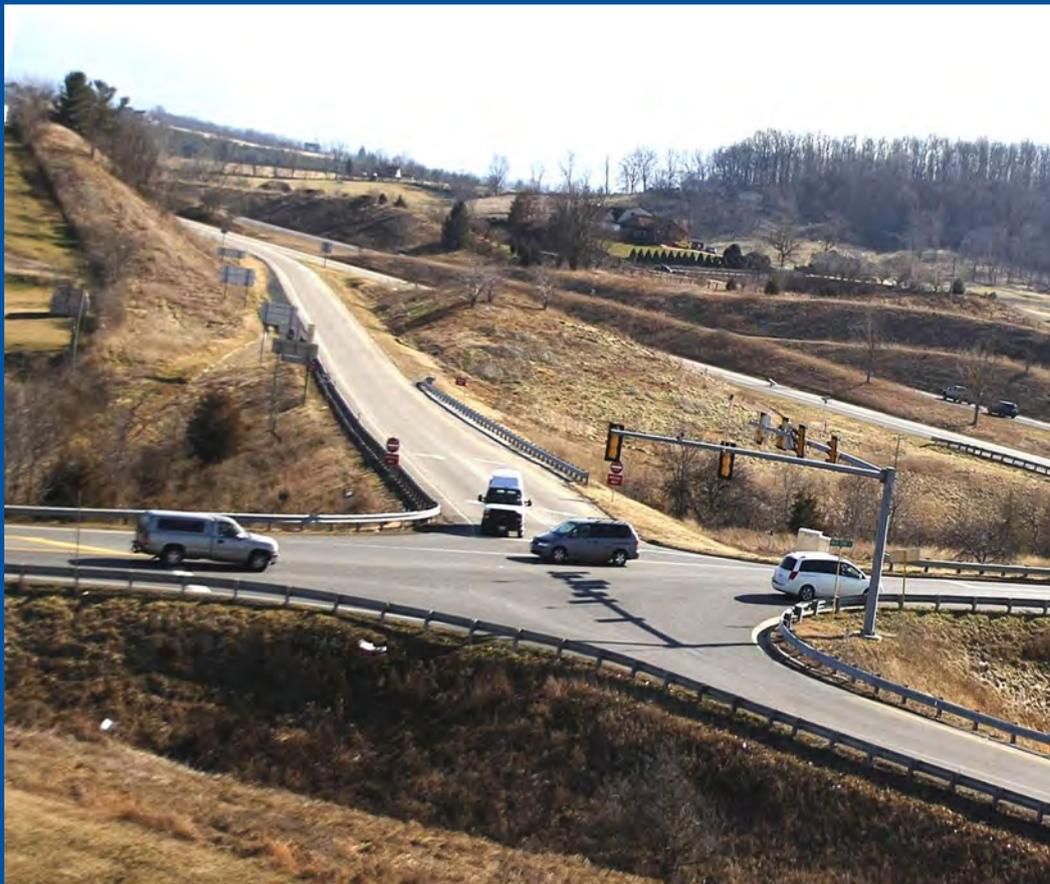
A DESIGN-BUILD PROJECT

From: 0.429 Miles West of Route 285

To: 0.438 Miles East of Route 285

Augusta County, Virginia

Volume I: Technical Proposal



State Project No.: 0064-007-111, P101, R201, C501, B-627

Federal Project No.: NH-064-2(152)

Contract ID Number: C00075877DB47

SUBMITTED TO:



SUBMITTED BY:



IN ASSOCIATION WITH:



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



June 29, 2012
Mr. Bill Arel, PE
Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219

RE: I-64 Exit 91 Interchange Improvement Project
From 0.429 Miles West of Route 285 To 0.438 Miles East of Route 285
Augusta County, Virginia. Contract ID Number C00075877DB47
Section 4.1 - Letter of Submittal

Dear Mr. Arel:

Shirley Contracting Company, LLC (Shirley), is pleased to submit this Technical Proposal for the I-64 Exit 91 Interchange Improvement Design-Build Project (the Project) to the Virginia Department of Transportation (VDOT). Together with Dewberry and Davis LLC (Dewberry) as the Engineer of Record, we will provide VDOT and the traveling public with an unequaled level of assurance that the Project will be completed successfully and will exceed the priorities established.

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

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

Offeror's Intent:

Should VDOT select Shirley for award of the I-64 Exit 91 Interchange Improvement Design-Build Project, Shirley will enter into a contract with VDOT for the Project in accordance with the terms of the Request for Proposal.

Declaration:

The offer represented by our Technical and Price Proposals will remain in full force and effect for one hundred twenty (120) days from the date this Technical Proposal is actually submitted to VDOT.

Proposal Payment Agreement:

An executed Proposal Payment Agreement (Attachment 9.3.1) is included in the appendix.

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael E. Post", enclosed in a rectangular box.

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

4.2 Offeror's Qualifications

4.2.1 TRUE, ACCURATE, AND UPDATED INFORMATION OF SOQ

Shirley Contracting Company, LLC hereby confirms that the information submitted in Section 3.2 (Letter of Submittal) and 3.3 (Offeror's Team Structure) of the RFQ remains true and accurate.

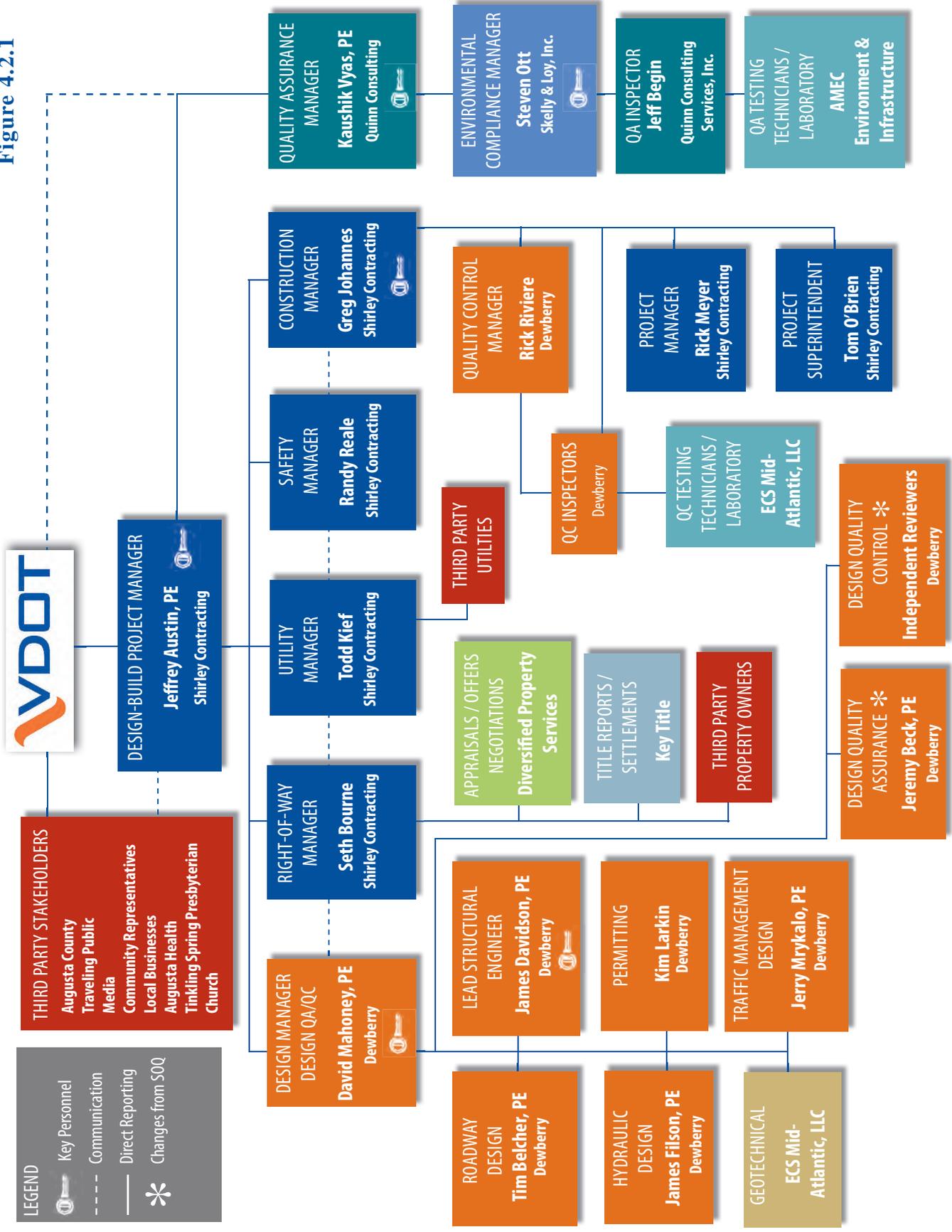
4.2.2 ORGANIZATION CHART

The Project Organization Chart on the following page (Figure 4.2.1) identifies the "chain of command" and major functions to be performed and their reporting relationships in managing, designing and constructing the Project, including quality control/quality assurance. There is one change to the Organization Chart at this time. We have added positions for Design Quality Assurance and Design Quality Control. This change is required as at the time of the submission of our response to the Request for Qualifications, VDOT had not finalized its changes to the *Minimum Requirements for Quality Assurance and Quality Control for Design-Build and P3 Projects Manual*. As a result of the changes to the manual, we added the two required positions and are in full compliance with the revisions to the manual. The position descriptions and their reporting relationships are included below. Otherwise, there have been no changes to the Organization Chart so a revised narrative is not applicable.

Design QA (Jeremy Beck, PE): Mr. Jeremy Beck, PE will report directly to the Design Manager to lead the Design QA efforts and will not be involved in the design production or QC efforts for the project. Following completion of the Design QC reviews and prior to submission to the Department, Mr. Beck will complete a QA review of each design document.

Design QC: For each design discipline the Design Manager will assign a qualified independent QC reviewer, who is not involved in the production of the design document, to complete a detailed QC review to ensure technical accuracy and conformance with the contract requirements.

Figure 4.2.1



4.3 Design Concept

4.3.1 CONCEPTUAL ROADWAY PLANS

The Shirley Team will design and construct the widening of Route 285 to a four-lane divided roadway making connections at the I-64 ramps, Ladd/Expo Road, Tinkling Springs Drive, Goose Creek Road, Midway Lane/Wilson Boulevard, and existing commercial entrances as shown in the RFP. Our concept **meets the design criteria table requirements provided in Table 2.4.A of the RFP for all roadways and ramps**. The general geometry including number and widths of lanes, shoulders, and pedestrian facilities, horizontal alignment information, vertical grades for all roadways, typical sections for all roadways, and conceptual hydraulic and stormwater layout are provided in Volume II of this submission. The following is a list of the various roadways to be improved and our Team's solutions to the challenges associated with each one.

Route 285 (Tinkling Springs Road) is an Urban Minor Arterial, GS-6 roadway with a 40 mph design speed. The two-lane existing section will be widened to four lanes that are 12' minimum wide. Our Team has adjusted the profile of Route 285 to only require overlay of the existing travel lanes, which will reduce the impact to traffic during construction. There are no existing pedestrian facilities, but this project will add a new 8' wide shared use path along the west side from Ladd Road to Goose Creek Road. The shared use path width is consistent with the approved design waiver. Median acceleration lanes with a minimum 15' width are provided at Four Square Lane and Tinkling Springs Drive. They are 360' long, which provides adequate acceleration from a stop condition on a grade less than 2%, to 40 mph per AASHTO Exhibit 10-70 with a 300' minimum taper per the RFP. The proposed profile will meet 40 mph design criteria, and the steepest vertical grade proposed is 4.57%, well less than the 8% maximum identified in AASHTO for 40 mph Urban Arterials (2004, page 472, Exhibit 7-10, Rolling Terrain).

I-64 is a Rural Principal Arterial, GS-1 Interstate roadway with a 75 mph design speed and 12' minimum lane widths. The ramps to and from Route 285 are GS-R with a 50 mph design speed with 16' minimum lane widths (except the turn lanes at Route 285). A major enhancement with our Team's concept is the elimination of demolition at the I-64 ramp gore areas. One of the options we have identified to achieve the Department's goal of correcting the existing substandard ramp cross slopes will be to provide a limited area of variable overlay of the existing I-64 travel lanes. This will raise the left side of the gore area a sufficient amount to allow overlay with the proper ramp cross slope. Both the overlay of I-64 and the ramp can be completed **without long-term lane closures or detours**. Also, we are providing full-depth paved shoulders in widened areas in accordance with the RFP. The proposed profile will meet 75 mph design criteria, and the steepest vertical grade proposed is 1.79%, which is less than the 3% maximum identified in AASHTO for 75 mph Rural Freeways (2004, page 506, Exhibit 8-1, Level Terrain).

Goose Creek Road has two distinct characteristics on either side of Route 285. To the west, Route 636 is an Urban Collector, GS-7 roadway with a 50 mph design speed. The two-lane existing section will be widened to four lanes that are 12' minimum wide. To the east, Route 640 is a Rural Collector, GS-3 roadway with a 50 mph design speed. The existing two-lane existing section will have lanes that are 12' minimum width throughout the limits of reconstruction. On the west side with corresponding adjustments on the east side, our Team proposes to hold the existing edge-of-pavement along the south side of Goose Creek Road and shift all new widening to the north. This will move a majority of the impacts off of developed property, such as the adjacent bank, and onto vacant property that was partially impacted by the RFP design. This shift will therefore reduce costs associated with right-of-way acquisitions and utility relocations. It also reduces construction costs since all of the work will be to one side of the road, reducing the number of temporary traffic switches and amount of temporary barrier required. The proposed profile will meet 50 mph design criteria, and the steepest vertical grades proposed are

1.00% and 1.50%, well less than the 8% maximum identified in AASHTO for 50 mph Urban Collectors (2004, page 432, Exhibit 6-8, Rolling Terrain) and the 7% maximum for 50 mph Rural Collectors (2004, page 423, Exhibit 6-4, Rolling Terrain).

The two other roadways that will be modified are Route 935 Expo Road and Route 627 Tinkling Springs Drive, which are both classified as Urban Local, GS-8 roads with 35 mph and 20 mph design speeds respectively. The work along Route 935 involves only minor widening on the existing horizontal and vertical alignment. The proposed profile for Route 627 will meet 20 mph design criteria, and the steepest vertical grade proposed is 6.40%, well less than the 15% maximum identified in AASHTO for 20 mph Urban Local roads (2004, page 391).

The conceptual roadway plans included in Volume II of this submission meet the overall project purpose to provide additional capacity along Route 285 between the Augusta Expo and Augusta Health Hospital and at the ramps to access Interstate 64. Our extensive design-build experience presents a practical plan to minimize disruptions to traffic and meet all documented commitments to the environment and stakeholders.

Our Team's concept minimizes disruptions to traffic in several ways. First, we have slightly adjusted the vertical profile to maximize the use of existing pavement. Therefore, transitions between new and existing construction will be accomplished by mill and overlay which will reduce the durations of temporary lane closures. Also, we have provided a conceptual drainage design that minimizes the number of perpendicular pipe crossings. This simplifies the maintenance of drainage during construction and provides for easier long-term maintenance of storm sewer pipes for VDOT. Finally, as explained in more detail in Section 4.5, Construction of the Project, our Team has taken the opportunity to **improve existing traffic conditions even during construction** by providing a third lane for left turns in the first traffic shift of our proposed bridge sequence of construction. We will also make the Route 285 widening south of the Goose Creek Road intersection a priority to accelerate turn lane improvements at the intersection while maintaining access to Tinkling Springs Drive.

Other items consistent with the RFP include:

- All pavement sections will meet the minimum pavement sections specified in the RFP.
- Per VDOT direction all signs within the project limits will be replaced.
- Lighting for the signalized intersections will be integrated onto the proposed signal poles.
- The four signals at Ladd/Expo Road, Ramp A/B, Ramp C/D, and Goose Creek Road will be completely replaced. The existing signal at Midway Lane/Wilson Boulevard will remain in place with only minor impacts to existing signal equipment and without replacement of the existing mast arms.

We have extensive experience dealing with numerous environmental commitments on VDOT Design-Build projects and our approach **honors all documented environmental commitments**. There are no impacts to the Historic Tinkling Springs Presbyterian Church parcel beyond what is shown in the RFP. Also, construction limits in front of the documented hazardous material sites have been limited to the extents shown in the RFP. By only requiring one new stormwater pond adjacent to Ramp B, our stormwater management approach needs no additional off-site right-of-way.

Our drainage concept includes extending the existing Goose Creek triple 6' x 7' box culvert and the existing skewed double 4' x 4' box culvert under Route 285 as clarified in Addendum #1. Our Team proposes new 48" and 54" pipes underneath the relocated Tinkling Spring Drive. The 54" pipe will provide the additional hydraulic capacity needed and will be countersunk in accordance with permitting requirements. One stormwater pond will be constructed in the VDOT-preferred location outside of Ramp B. The abandoned pavement for Old Ladd Road will be demolished and the pond will be constructed within the limits naturally formed by the existing slopes.

4.3.2 CONCEPTUAL STRUCTURAL PLANS

The Shirley Team's proposed bridge concept **meets all of the requirements of the RFP bridge criteria and commitments**. As allowed by the RFP documents and plans, our Team has modified the span arrangement of the proposed structure, which is shown on the attached preliminary concept plan in Volume II. Specifically, our Team proposes two prestressed concrete beam spans continuous for live load, with full integral abutments located behind Mechanically Stabilized Earth (MSE) walls. The typical section for the roadway and the associated shared-use path, railing and pedestrian fencing remain consistent with the RFP plans. Included below is a brief discussion of the key components of our Team's proposed design.

Our Team investigated and analyzed several bridge concepts and has determined that the most cost effective design which meets all of the RFP requirements is a two-span structure with an overall length of 212 feet. Our Team's proposed bridge represents a reduction in deck area of approximately 19% as compared to the RFP which depicted a bridge with a total length of 262 feet. Our beams will be VDOT standard precast bulb-T sections, reducing long-term maintenance costs compared to the steel plate girders shown in the RFP, and we have reduced the number of girder lines from the eleven shown in the RFP concept to nine (spaced at 11'-3"). The structure provides the required 16'-9" minimum vertical clearance over existing I-64 as well as over a future widening to the inside and over upgraded shoulders to the outside. The pier and abutments are located outside the clear zone for existing I-64 so no guardrail or median barriers are required below the bridge. The cast-in-place concrete abutments will be full integral as required by the RFP, and will be supported on driven steel H-piles behind MSE walls. By shortening the bridge length and moving up the abutment locations compared to the concept shown in the RFP, extraction of the existing abutment piles will not be required, allowing the portion of piles cut off below the MSE wall excavation to remain in place after demolition. The benefits of this approach are reduced construction time and less bridge for VDOT to maintain in the future.

Our Team has developed a concept that significantly improves traffic conditions during construction. Our proposed construction staging maintains the existing travel lanes on Route 285 during the first phase. During the second phase, we provide sufficient space for two through lanes plus the addition of a full-length single turn lane across the partially completed bridge. This immediately improves the existing condition during the remainder of the project. The bridge deck will have a longitudinal construction joint located over an interior beam, keeping the width of each deck pour within the 80' maximum specified in the VDOT Design Aids. Similarly, the multi-column pier on spread footings will be split into two separate piers to accommodate the phased construction and also limit the length of pier cap.

In accordance with the RFP, our Team's proposed bridge concept has been developed based on reducing long term maintenance costs for VDOT. In addition to the prestressed concrete beams and full integral abutments noted above, the bridge will also incorporate low permeability concrete, corrosion resistant reinforcing steel and laminated elastomeric bearings. When all of these elements are incorporated into the design and construction of this structure, it should result in a virtually maintenance free bridge.

As required by current VDOT standards, the bridge will be designed for the AASHTO HL-93 live loading in accordance with AASHTO's LRFD Bridge Design Specifications 5th Edition, 2010; 2010 Interim Specifications; VDOT Modifications and the additional substructure and foundation criteria provided in the RFP documents. The bridge will be designed to support future lighting and conduits as specified in the RFP. Load Ratings will be prepared for both the partially completed structure under the temporary traffic configuration and the as-built structure in its final configuration, in accordance with VDOT's Structure and Bridge Division Instructional and Informational Memorandum Number IIM-S&B-86.

In summary, our Team's conceptual roadway and bridge plan will:

- Minimize disruptions to traffic
- Increase public acceptance of the project
- Minimize environmental impacts
- Ensure on-time completion of the project
- Minimize long term maintenance costs

4.4 Project Approach

4.4.1 ENVIRONMENTAL MANAGEMENT

A significant benefit the Shirley Team provides to VDOT is that we have the in-house resources needed to efficiently manage the environmental and permitting processes continuously as design and construction progresses. Our environmental staff has conducted a thorough review of the proposed project improvements, all environmental investigations which have been conducted to date, and the existing NEPA Categorical Exclusion document. Our Team recently obtained a very similar Section 106 finding of no adverse effect for a roadway improvement project involving a church on the National Register of Historic Places. We fully understand the extensive coordination that has been completed to obtain the 4(f) *de minimis* finding and the Section 106 “no adverse effect” determination for the Tinkling Springs Presbyterian Church, and our plan avoids any design changes in this area which would require additional coordination. Our environmental team is thorough in our execution of compliance with NEPA environmental commitments, water quality, and in proactively avoiding and addressing the potential for environmental ramifications from project start through the completion of construction and final acceptance. Our Environmental Compliance Manager (ECM) is well versed in not only the required project commitments and numerous permit requirements, but has extensive construction experience to ensure the commitments and permit requirements are effectively implemented in the field.

We understand that potential hazardous material sites have been identified on parcels 002, 005, and 006. Encroachment into these parcels beyond that noted in the RFP design will be avoided and minimized as much as practicable. Our Team has relevant experience resolving design and construction challenges associated with these types of environmental conditions. Our environmental team has worked with our designers and constructors on past design-build projects to proactively avoid areas of recognized environmental concern through a variety of design modifications. These have included a change in the depth and type of drainage design to complete relocation of stormwater management features in an effort to avoid daylighting contaminated groundwater. We not only address potential contamination issues, but we are proactive in our approach to limiting potential migration of contamination through the use of bentonite dams or collars at property lines when relocating utilities through the area. Our design has held the limits of the RFP plans along these parcels, avoided underground utility relocations to the extent possible in this area and minimized cut slopes to address the potential for encountering contamination.

Our Team utilizes an integrated, comprehensive, over-the-shoulder approach toward environmental management on all projects. We have found that by utilizing this type of holistic approach, which includes a seat at the table for the Permitting Manager alongside roadway designers, construction supervisors, drainage/SWM engineers, utility coordinators, the ECM and any subcontractors; we are able to solve a variety of environmental challenges early in the process so that the project is seamless in its integration of environmental commitments and requirements. This process also provides for early identification of the need for additional studies and clearances which are outside of the original study areas. When additional studies cannot be avoided based on more detailed design, utility relocations, or site constraints, our Team conducts those necessary studies to obtain updated clearances and permits, notifies the appropriate VDOT personnel as to the need to address any required changes in a NEPA document, and provides documentation and support to the VDOT staff to coordinate appropriate clearances through FHWA and other regulatory agencies as necessary. On a recent project, Phase III of the Fairfax County Parkway Extension, the environmental staff worked with the designers to complete and obtain approvals of a Re-Evaluation of an Environmental Assessment, which was modified to help satisfy nearby citizen concerns related to tree preservation and roadway impacts. We eliminated impacts to approximately five acres of forested lands adjacent to the subdivisions, providing the homeowners with a positive result to help maintain their preferred visual and aesthetic buffers. Our design for this project currently avoids changes to the existing NEPA document

and associated commitments. There is however a potential to increase the wetland and stream channel impacts noted in the CE to address the relocated Tinkling Springs Drive roadway culverts, due to areas not delineated in the RFP plans. We have successfully addressed similar situations on other projects and will work with VDOT to address any necessary revisions as the design and studies progress.

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

Our Team is also very familiar with the various methods of obtaining numerous water quality permits for roadway projects, including the Inter-Agency Coordination Meeting (IACM) process for VDOT projects, pre-construction notifications for USACE Nationwide permits, and the joint permit application process for DEQ/USACE general and individual permits. Our permitting staff has successfully obtained all of these types of permits and achieved positive results for our clients through the various processes. For this project, we will use the joint permit application process as the Design-Builder will be the Permittee. In addition, we have obtained coverage for roadway and VDOT projects under DCR's VAR10 General Permit for Discharges of Stormwater from Construction Activities, completed the requisite VDOT stormwater forms (LD-445 series), and provided Stormwater Pollution Prevention Plans (SWPPP) and related information for inclusion on the VDOT SWPPP General Information sheets. Our Team will work with stormwater management engineers to avoid creating a "Class V Underground Injection Control (UIC) well" for stormwater discharge into a sinkhole or karst feature, where possible.

This project appears to meet the criteria to qualify for a State Programmatic General Permit from the USACE, and a Virginia Water Protection General Permit from DEQ. The VMRC does not appear to have jurisdiction on this project, however they are the clearing house for Joint Permit applications so coordination is required. Additionally the project will require a VSMP permit from DCR. These permits may require additional coordination with additional resource agencies, with whom we have long established working relationships. Our Design-Build Team has obtained all of these permits as part of previous design-build projects for the Department.

In short, our Team not only looks at the needs of the roadway, but uses past experience and expertise to develop innovative ways to minimize impacts in the design, permitting, and construction processes.

4.4.2 UTILITIES

One of the biggest risks to the successful completion of a design-build project can be third party public/private utilities that are impacted by design and construction. To combat this risk, the Shirley Team focuses on the planning and coordination process for these third party utilities during this Technical Proposal phase to identify design solutions that avoid these impacts to the greatest extent practical. Our Team dedicates an in-house Utility Manager who has performed these duties on more than \$1 billion of design-build work over the last 10 years. Our Utility Manager has already reviewed the project site, made early personal contact with each utility, and coordinated these utilities with the design to arrive at the most efficient and economical utility relocation plan possible. This feedback is reflected in not only our design, but in our budget, and most importantly, our Team's

schedule for completion. One design concept already developed by our Team that minimizes relocation of the overhead electric/catv system along Goose Creek Road is to shift the widening entirely to the north instead of widening to both sides. Other design efforts include minimizing profile changes to existing roadways, and coordinating the placement of storm crossings and inlets.

Following Award, we continually include the Utility Manager as an integral part of the design, right-of-way, permitting, scheduling, and construction disciplines. As the design progresses, we review utility designations and potential impacts to arrive at solutions that, as a first priority, avoid impacts and relocations. If unavoidable, we focus on solutions that minimize these impacts in order to finalize our Utility Relocation Plan and Schedule. As part of this effort, the Utility Manager will ensure that test pits are completed where necessary. All of this information is then coordinated directly with the right-of-way and permitting disciplines, and consequently, into the overall Project CPM. This allows the Team to prioritize acquisitions, permits, and the construction schedule to ensure that utilities are relocated on time. The Utility Manager will hold UFI Meetings, determine prior-rights and cost responsibility, and coordinate with the utilities to complete their design. Once underway, our Utility Manager will remain an integral part of the process, managing these relocations and coordinating with the construction teams.

Having the Utility Manager directly involved with the Project from the earliest stages of conceptual development to completion of construction will serve to mitigate one of the risks to maintaining the Project schedule - unknown utility conflicts. A key to minimizing this risk is constant and detailed communication with the utility providers throughout the design and construction process to fully understand the facilities and systems present. Further, as a result of our significant design-build experience, our Team has developed close, positive relationships with all of the utilities located within the Project limits. A thorough designation and test pitting program, including multiple test pits in advance of construction activities, also mitigates these risks. Finally, we have strategies to perform portions of the relocations by our own forces, including ductbank installation, conduit relocations in-place, and drilling for utility poles, in an effort to expedite the relocation activities.

The following table summarizes the utilities that we anticipate will require relocation:

| UTILITY DESCRIPTION | APPROXIMATE LOCATION | RELOCATION DESCRIPTION | QTY | UNIT |
|--|------------------------|--|-----|-------|
| Virginia Power - OH Electric | Along Goose Creek Road | Shift Pole Locations | 7 | POLES |
| Virginia Power - OH Service to Residence | Goose Creek Road | Shift Pole Locations | 1 | POLE |
| Cable TV - OH | Along Goose Creek Road | Shift Pole Locations w/ Virginia Power | 7 | POLES |
| Verizon - U/G Service Residence | Goose Creek Road | Relocate 25-pr Fiber Optic | 100 | FT |
| Verizon - U/G | Along Goose Creek Road | Relocate Copper Cable | 650 | FT |

4.4.3 GEOTECHNICAL

The Project Team’s Geotechnical Consultant, ECS Mid-Atlantic, has a specific plan to identify, reduce, and mitigate geotechnical risks to the benefit of VDOT and our Design-Build Team. A sound technical approach, stemmed from years of similar experience, will produce a successful, best-value design. ECS believes that the available subsurface information should be understood and used to the fullest extent, and when necessary, it should be complimented with supplementary studies early in the project design process.

A comprehensive Geotechnical Data Report (GDR) has been performed and the information is quite valuable. This should limit the supplemental studies required. The final investigation effort will focus on updating necessary information based on design refinements since the GDR was compiled. Also, supplemental borings will be performed at locations requiring specific analysis, such as bridge foundations, retaining walls, cut and fill slopes, soft soil zones and areas of potential karst topography. ECS has experience in performing all types of explorations at many sites, including the I-64 Exit 91 site, that require difficult access, traffic control, and utility avoidance. Boring locations will be laid out in a manner to minimize work within the travelway. However, if lane closures are required our Team will implement them during off-peak hours following all Federal and State work zone safety requirements.

It is understood that risks to the Contractor as well as the Owner need to be accurately identified as early as possible after project commencement. By understanding the available information, performing supplemental studies, and conducting appropriate engineering analyses, effective plans will be developed to minimize risks. The geologic conditions at the site are not overly problematic; however, specific concerns must be addressed. Key geologic and design issues include minimizing settlements of superstructures and bridge approaches, shallow rock, potential karst features, delineation of the extent of unsuitable soils, and the shrink/swell potential of soils. Our design staff will assist the construction staff to develop an excavation and earthwork management plan. Essential recommendations for design will be based on long-term performance, risk, and cost. Critical design elements include, bridge foundations, walls, cut and fill slopes, pavements, culverts, drainage, stormwater management ponds and protecting existing structures and slopes.

As noted above, some additional borings and laboratory testing will be required, notably at locations requiring geotechnical analyses. The laboratory testing would be primarily focused on strength properties of soils located in cut and fill sections. The site of the currently planned new bridge location is underlain by moderately weathered slate rock with a relatively consistent top of rock elevation. Borings nearby indicate carbonite limestone rock is present at similar elevations. To reduce the concern and risk that might be associated with fingers of limestone rock extending into the bridge site, ECS plans to perform supplemental electrical resistivity surveys (ER) at the bridge substructure locations. ER surveys can produce high-resolution graphics that can identify geologic hazards such as soft soils and sinkholes. Compared to standard borings, ER data can typically be obtained faster and include higher volumes of subsurface information in order to supplement the existing boring information.

4.4.4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Shirley Contracting Company, LLC (Shirley) is committed to providing VDOT with a project that is of the highest quality. Our extensive experience in design-build has led to the development of a proven QA/QC Program, complete with comprehensive procedures which address all aspects of quality from document inception to construction completion and final acceptance. This Program has been customized for the I-64 Exit 91 Interchange Improvement Project to incorporate all of the project specific contract requirements and the requirements of *VDOT's Minimum Quality Control & Quality Assurance Requirements for Design Build & Public-Private Transportation Act Projects*, (hereafter VDOT's Minimum QA/QC Requirements). Our Team has successfully implemented this Program, including utilization of an independent Quality Assurance Manager (QAM), on numerous design-build projects for VDOT over the past ten years including the Route 28 Corridor Improvements, Battlefield Parkway, Pacific Boulevard, Route 50 Widening and Route 27/244 Interchange Modifications Design-Build Projects. As a result of our performance and commitment to QA/QC, VDOT has been able to reduce costs by minimally staffing these projects with only the basic oversight needed to confirm that quality standards are exceeded.

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

DESCRIPTION OF DESIGN QA/QC PROCEDURES

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

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

INTERDISCIPLINARY COORDINATION

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

DESIGN QUALITY CONTROL (QC) PROCEDURE

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

The informal QC process begins with initial plan development and consists of the constant communication between design engineers developing various components of the project design; for example, coordination between the traffic engineer and Utility Manager to avoid conflicts between overhead power relocations and proposed traffic signal placement. The formal QC process begins once a plan document or component is considered to be complete by the design engineer for the specific task. The completed document is then copied and marked as an official check-print for review. The Design Manager will assign a qualified engineer not involved in the original design to perform the formal QC review. The QC reviewer will review the check-print and document their comments on the “Review Comment Summary and Resolution Sheet” developed by our Team and similar to the VDOT review form. A sample of our Team’s form is provided as Figure 4.5.1.

| REVIEW COMMENT SUMMARY AND RESOLUTION SHEET | | | | | |
|---|-------------|-----------|-------|---|--|
| Submittal: (Check one) <input type="checkbox"/> Initial Plans <input type="checkbox"/> Intermediate Plans <input type="checkbox"/> Final Plans | | Designer: | Date: | CODES 1. Accept Comment – Correct, Add, Clarify 2. Delete Comment 3. Clarify or Discuss 4. Resolution of Comment in Next Phase of Design | |
| Package/ Document: | Discipline: | Reviewer: | Page: | | |
| Comment No. Dwg. No./ Page No. Comment Code Response Final Disposition Code Date | | | | | |
| Signature of QA Reviewer: | | Date: | | | |

FIGURE 4.5.1

Once comments are completed by the QC reviewer, the QC reviewer will meet with the design engineer to discuss the comments and identify the corrective action required. At this meeting, they will discuss the comments and agree on the acceptable resolution and necessary plan changes. If the QC reviewer and design engineer cannot come to an agreement on the appropriate action, the Design Manager will be called in to provide direction to resolve the comment in a way that ensures compliance with the contract requirements. Following this meeting and as the required design changes are implemented, the design engineer will complete the response section of the Review Comment Summary and Resolution Sheet. After the plan is revised, the design engineer will forward the revised plan back to the QC reviewer for final review and final disposition of the comments. The QC reviewer will review the revised plan, document the final disposition for all comments that are resolved and add any additional comments that may have resulted from the design change. This back and forth process will continue until all comments are resolved and documented on the Review Comment Summary and Resolution Sheet.

The QC process will be undertaken by multiple reviewers who will review each and every aspect of the plans and computations, including geometric design (horizontal and vertical), drainage design, E&S design, maintenance of traffic (temporary traffic control) and sequence of construction, structural design, stormwater management design, signing and marking design, signal designs, etc. QC checks will be completed recognizing the design criteria identified in RFP, Part 2 Table 2.4.A – Roadway Inventory and Minimum Design Criteria, understanding the commitments those design criteria require in terms of geometric standards, drainage criteria, traffic designs, etc. In addition to reviewing the plan components, reviews will also be completed on all design calculations, computer input data, and project studies and reports.

Once agreement is reached between the QC reviewer and the design engineer, formal signatures indicating completion of the QC process for that component of the submission will be documented on a check print sign-off sheet. A sample of this “Design QC Check Print Sign-Off Sheet” is included as Figure 4.5.2. Both the “Review Comment Summary and Resolution Sheet” and “Design QC Check Print Sign-Off Sheet” will be kept in a QC notebook maintained as part of the project records at Dewberry’s Fairfax office. These

SHIRLEY
CONTRACTING COMPANY, LLC

**DESIGN QC CHECK PRINT
SIGN - OFF SHEET**

Client Name _____

Job Title: _____

Job Number _____

Charge Number: _____

Document Title: _____

Document Number: _____

Check Level (mark one) 1A 100% Document Check

1B 100% Input Check
(when Pre-validation software is used)

1C Spot Check
(See ISQP for specific items to Spot Check. Enter description below)

| | Print Name | Signature | Date |
|--|------------|-----------|-------|
| <input type="checkbox"/> Originator | _____ | _____ | _____ |
| <input type="checkbox"/> QC Review <small>(QC Checker)</small> | _____ | _____ | _____ |
| <input type="checkbox"/> Backcheck <small>(Originator)</small> | _____ | _____ | _____ |
| <input type="checkbox"/> 2nd QC Review <small>(QC Checker)</small> | _____ | _____ | _____ |
| <input type="checkbox"/> Backcheck* <small>(Originator)</small> | _____ | _____ | _____ |
| <input type="checkbox"/> 3rd QC Review* <small>(QC Checker)</small> | _____ | _____ | _____ |

QC Checker Verification that all QC
Comments are Resolved.

Upon completion of QC Reviews forward to Design Manager for QA Review

* If Necessary

FIGURE 4.5.2

documents will be available at anytime for VDOT review and audit following a formal submission.

CONSTRUCTABILITY REVIEWS

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

DESIGN QUALITY ASSURANCE (QA) PROCEDURE

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

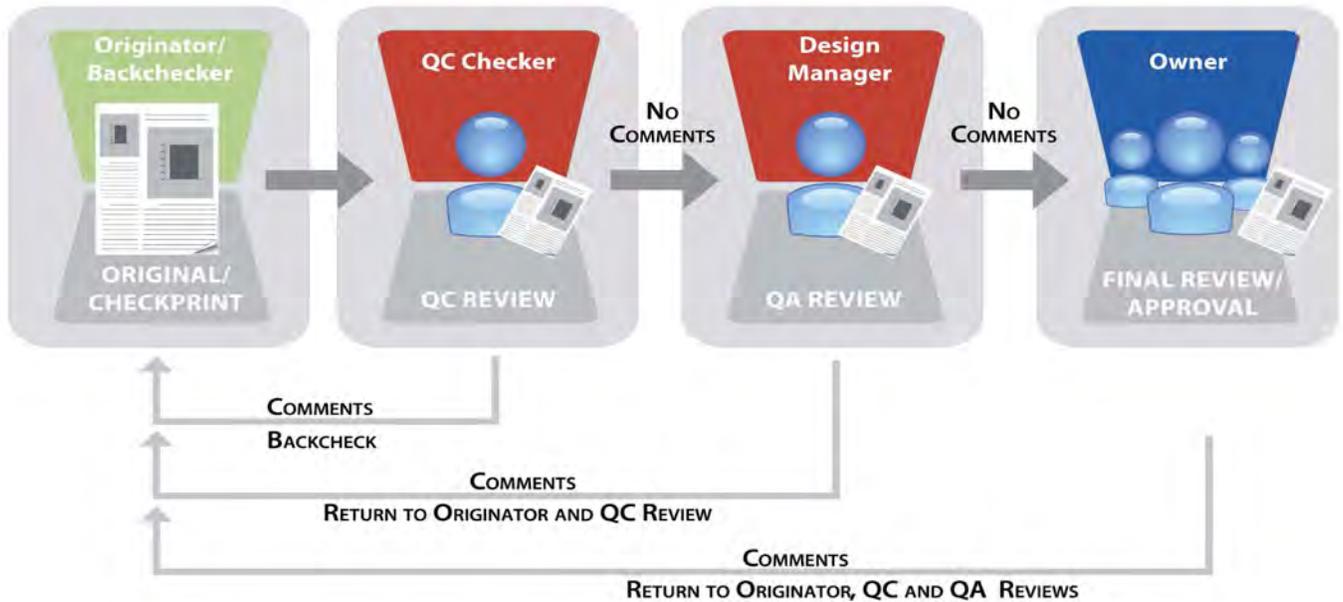
- Verify that the design engineer assessed the design accurately and applied correct analysis
- Verify qualified personnel were assigned to the specific design tasks
- Evaluate whether the design solution is practical and cost effective
- Verify implementation of and conformance to constructability reviews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

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

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

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

FIGURE 4.5.3



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

FIGURE 4.5.4

QA/QC APPROACH TO UNIQUE DESIGN ELEMENT/WORK ACTIVITY

One of the most complex design elements of the I-64 Exit 91 Interchange Improvement Project is the development and completion of a Transportation Management Plan (TMP) and a Temporary Traffic Control (TTC) plan (maintenance of traffic plan) which maintains access to adjacent properties and developments, maintains the existing travel lanes throughout the project, maximizes safety for the public and construction personnel, accommodates construction of the project and relocation of utilities, and recognizes the sequence of right-of-way acquisitions all while maintaining the project schedule. This design element is unique as all of these requirements must be carefully planned and accomplished without long-term lane closures as traffic volumes are currently over the capacity of the existing roadway.

QC of the TMP and TTC plans will begin early in the design development process with both design Team and construction Team reviews. The design review will be completed by a more senior engineer who is well versed in all aspects of roadway design, who is certified by VDOT in advanced level work zone traffic control design, who has been involved in substantial design-build projects, and who is cognizant of the utility relocation and right-of-way acquisition process and schedule. For each submission of the TMP and TTC plans, one copy will be forwarded to the QC Reviewer to begin the QC Check, and two copies will be sent to the Construction Team to complete a constructability review.

The Construction Team will complete a formal comprehensive review of the TMP and TTC plans to identify any potential construction problems, safety concerns, or coordination challenges resulting from the roadway and bridge construction phasing or traffic control device locations (such as temporary barrier). This constructability review will also include reviews of temporary construction items needed to safely complete the construction, including shoring, drainage, signals, signing, and pavement markings. All comments generated through this review will be forwarded back through the Design Manager to the design engineer. Any plan changes resulting from these comments will be rechecked by the Construction Team and the QC reviewer.

The QC review of the Transportation Management Plan (TMP) and a Temporary Traffic Control (TTC) plans will begin with verification that the design requirements are met, specifically that the number of through and turn lanes are maintained for each construction phase, and that acceptable levels of service will be provided through verification with work zone traffic analysis software. If design elements are verified to be accurate and in conformance with the contract requirements, the TTC plans will be checked against both the existing and ultimate roadway profiles to ensure that all proposed pavement (both permanent and temporary) can be installed without unacceptable impacts to existing traffic patterns, and will be usable during the later stages of pavement and drainage facility construction.

QC checks will also ensure that adequate temporary drainage is maintained throughout construction. The QC reviewer will ensure any temporary connections necessary between permanent and existing drainage facilities adequately maintain the flow of drainage are detailed, and that temporary extensions of pipe outfalls are identified in the plans. Also the reviewer will ensure that existing utilities which remain operational in a given stage of TTC are not impacted by construction, and that all proposed construction elements can be safely constructed without impacting existing travel lanes for each given stage.

The QC reviewer will also check project-wide TTC elements including temporary traffic signalization, ensuring that adequate signalization is maintained throughout construction at each intersection, and that necessary sight distance is provided at each approach to the intersections, taking into account work zone sight distance

obstructions (such as temporary barrier and materials) which may be in close proximity to the intersections throughout the project limits.

Once the Design QC review has been completed with plans revised by the design engineer and re-checked by the QC Reviewer, the updated plans and forms will be forwarded to Jeremy Beck, PE who will complete the Design QA reviews for each document. Jeremy will verify that the document originator was qualified to perform the design and assess the design to ensure the appropriate analysis was performed and the design solution is consistent with the contract documents. Additional elements which will be considered and double checked by the QA Reviewer will be the phasing of construction and the relationship to the acquisition of right-of-way, ensuring that the design team accurately understood the timing of right-of-way acquisitions in relation to the timing of construction. The QA Reviewer will also ensure that the appropriate permits have been obtained for the early construction elements, and that necessary utility relocations are accounted for by the permits. Following completion of the QA reviews and acceptable resolution of QA comments, the Design Manager will ensure that all QC and QA documentation is orderly and complete, contained in a consolidated project notebook or file, and that QA and QC verification documents are completed and included in the submission.

QA/QC FIELD CHANGES TO THE DESIGN

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

PROCEDURE FOR FIELD CHANGES:

- Construction Manager submits a Request for Information (RFI), detailing the issue and the requested change to the Design Manager with copies to the Construction QA Manager and VDOT.
- Design Manager forwards the RFI to the qualified engineer responsible for the respective design discipline. The engineer reviews the RFI and the original design and makes a recommendation on whether the field change is acceptable and includes additional engineering recommendations as applicable.
- Engineer forwards the recommendation back to the Design Manager. If the recommendation is a denial of the field change, the Design Manager will immediately forward an RFI response to the Construction Manager, QAM, and VDOT. If the recommendation results in a change to the approved plans, the Design Manager shall ensure that the Design QA/QC process is completed before certifying approval of the change.
- Design Manager forwards a certification of approval for the Field Change to VDOT for approval; with copies to the Construction Manager and QAM.
- VDOT approves the field change and forwards a copy to the QAM, Design Manager, and Construction Manager.
- The change is implemented in the field and documented on the as-built drawings identifying the change in the plans and the approved RFI Number.

RFI's that request a change in the approved plans or that result in a change in the approved plans shall be clearly marked to ensure that the Design QA/QC process is completed and approvals by the Design Manager and VDOT are obtained. RFIs that are clarifications to the approved plans and do not result in a change to the plans or the intent of the original design are not subject to the above process.

DESCRIPTION OF CONSTRUCTION QA/QC PROCEDURES

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

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

CONSTRUCTION QUALITY ASSURANCE

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

All QA inspection staff will complete daily reports and QA testing reports of all quality assurance inspections. The QAM will maintain the QA records of the QA Team and will compare QA tests to QC, Independent Assurance (IA) and Independent Verification (IV) tests to ensure consistency and accuracy at all testing levels. The QAM will determine and certify to VDOT whether the materials and work are in compliance with the approved drawings, specifications, and applicable VDOT standards and reference documents as outlined in the Contract. The QAM will also ensure that all inspectors have adequate certifications for the testing performed and that copies are maintained in the QAM project files on site. The QAM has autonomy and the responsibility to coordinate QA inspections and report findings directly to VDOT.

The QAM oversees the establishment and maintenance of a comprehensive system for project documentation that will organize, track and disseminate all Construction QA and QC information. The records will present a factual representation of the work performed by the Design-Builder on the Project and allow a determination by the QAM that all work was completed and tested in accordance with the plans and specifications. All documentation will be adequately identified and cross-referenced to support a field audit by the QAM and

VDOT during the life of the Project as well as final audit after project completion. At a minimum, the QAM will audit the QC and QA testing and inspection records each month prior to certifying the monthly payment application.

CONSTRUCTION QUALITY CONTROL

The Construction Quality Control Manager (QCM), Rick Riviere, with Dewberry, will manage the day-to-day QC inspections and material testing of the construction as directed by the Construction Manager and will report directly to the Construction Manager. The QCM and the QC Team are responsible for inspection of the construction activities and all QC sampling, testing and analysis of materials on the Project to ensure that construction quality is verified at frequencies exceeding those required by the VDOT Construction Manual, the Materials Manual of Instructions and Tables 105-4 & 105-5 of VDOT's Minimum QA/QC Requirements. As the QCM, he assures that the QC materials sampling and testing is consistent with the QC plan.

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

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

QA/QC APPROACH TO SIGNIFICANT CONSTRUCTION ELEMENT/WORK ACTIVITY

The I-64 Exit 91 Interchange Improvement Project will require the QA/QC Team to monitor the installation of new drainage pipes and structures throughout the project work limits. Once the drainage plans are approved, a Preparatory Inspection Meeting (PIM) will be held in accordance with Section 105.04 of the VDOT's Minimum QA/QC Requirements to ensure that all project personnel have a thorough understanding of the upcoming work. This meeting will be run by the QAM and attended by the QCM, Construction Manager, construction superintendent/foreman, appropriate members of the Design Team, VDOT representatives, and the QA and QC staff members who will perform the inspections and testing required for the work package. Each PIM is included in the CPM Schedule as a Hold Point and must be held prior to the start of the applicable work activity. Items that will be discussed at this preparatory drainage inspection meeting include but are not limited to: verification of required materials submittals including Source of Materials Form C-25 for pipe, structures, and bedding; both offsite and on-site materials inspections including the VDOT QA/QC stamp requirements for all pipe and structures delivered to the jobsite; inspection of materials as they are unloaded and stored on the project; a job safety analysis that specifically addresses unloading pipe and structures, excavation, installing pipe and structures, and confined space entry requirements; public information considerations; environmental

concerns and/or restrictions; materials testing and inspection frequencies required by QC, QA, IA, and IV per Tables 105.4 and 105.5 of the VDOT's Minimum QA/QC Requirements; test reports and checklists required; applicable permits; contractor's schedule and approach to the work; and finally any witness or hold points that are identified, such as the review of the foundation of a box culvert by VDOT and the geotechnical engineer from the Design Team prior to placement of bedding material. After the PIM, the Quality Assurance Manager will distribute meeting minutes to all attendees and the Department's Project Manager and IA/IV personnel within two business days.

Once the construction of drainage work begins, the QC inspectors will utilize pipe and drainage structure checklists and testing frequency logs to inspect and document the contractor's work. For pipe and drainage work, these checklists will require the inspection staff to check off items for each inspection phase (i.e. preparatory, intermediate, and completion) and will include items for checking pipe subgrade, pipe bedding, pipe alignment, and backfill. Materials testing frequencies will be as shown in Appendix 1 Table 105.4 of VDOT's Minimum QA/QC Requirements. For example, in place density tests for pipe installation will require QC to perform one test (VTM-10) per 100LF of length, each lift, alternating sides and one test per 150 CY; minimum one test per work shift at each location and whenever there is a change in material or compaction equipment/method. These inspections will be documented on the inspector's daily report (IDR) with the completed standard materials testing forms attached. The testing frequency logs will be updated daily and reviewed by the QCM and QAM to ensure that the QC testing frequencies required by VDOT's Minimum QA/QC Requirements are exceeded.

The QA testing and inspections will be performed by independent inspectors and testing technicians that are not with the same firms as the QC inspection and testing staff. The QA inspections will be completed daily and recorded in the QA inspectors IDR with QA testing completed at the frequency required by Table 105.4 of VDOT's Minimum QA/QC Requirements. For the pipe and structure installation, the frequency will be one test per 1500 CY, minimally one test every ten days of production (10% of QC frequency). In addition, VDOT's Minimum QA/QC Requirements require Independent Assurance (IA) testing on 10% of the QA testing frequency and Independent Verification (IV) testing on 10% of IA testing frequency. Having a testing frequency log that is updated daily enables the QAM and VDOT to easily audit the testing frequencies and schedule the IA and IV tests.

A project materials notebook will be maintained to ensure proper documentation of materials used, to include but not limited to, source of materials, invoices, certifications, and test reports. The materials notebook will be maintained in accordance with the VDOT Materials Division Manual of Instructions and stored at the project field office so that it will be easily accessible for review and audit by the QAM and VDOT.

Once inspection and testing of drainage items are complete, the QAM shall approve all materials testing reports prior to submission to the Department. The QAM will also cross check IA/IV tests with QA/QC records to make certain testing tolerances are within the variances permitted per Table 105-2 of VDOT's Minimum QA/QC Requirements. For work that is not completed in accordance with the approved QA/QC plan, the QA/QC Team will issue deficiencies on approved QA/QC plan forms and perform re-tests or re-inspections as necessary to correct the deficiencies. For items of a more serious nature that may require correction, removal, and replacement of the non-conforming work, the QAM will issue a non-conformance report and the contractor will be required to respond with the root cause of the non-conformance, the proposed disposition of the non-conformance, and how a recurrence of the problem will be avoided. The QA/QC Team will develop a punch list during the course of drainage construction and this list will be maintained by the

QAM. At the completion of construction, the QAM shall review the project records to ensure that all items addressed by non-conformance reports, deficiencies, and IA and IV reports have been corrected.

Finally, on the monthly payment application the QAM will certify that each work package was completed in accordance with the Contract documents before the request for payment is submitted to VDOT. This certification and payment will be withheld for any work package that has outstanding non-conformances.

SCHEDULING OF INSPECTION AND COORDINATION WITH VDOT

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

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

The Quality Assurance and Quality Control procedures outlined in this section are the result of many years of completing Design-Build and PPTA projects for VDOT including the Route 28 Corridor Improvements, Battlefield Parkway Design-Build, Pacific Boulevard Design-Build, Fairfax County Parkway Phase III, and other projects. With each new project we have improved upon the QA/QC process based on project experience, VDOT expectations and feedback, and changes in VDOT QA/QC specifications. Shirley has a focused commitment to quality both to minimize rework during construction and reduce long term maintenance costs.

4.5 Construction Of The Project

4.5.1 SEQUENCE OF CONSTRUCTION

When preparing our sequence of construction, our Team worked to provide for and maximize the safety of the traveling public, adjacent property owners, the workers on the project and other project stakeholders, as our first priority, all the while, creating an efficient design and plan to meet the RFP and contract requirements. We have broken the project into three (3) major construction phases with the goal of expediting the construction of as much of the ultimate roadway widening along the west side of Route 285 – Tinkling Springs Road for increased travel lane capacity, increased pedestrian safety, and increased public transportation access. In addition, our construction operation will focus on the Northern End (Goose Creek Road) in Phase I in order to prioritize the improvement of traffic flows in this congested portion of the project near Augusta Health Hospital. Also during construction, we are committed to maintaining at least all existing lanes and all existing pedestrian facilities to minimize impacts to the public (with the exception of off-peak temporary lane closures.) Please also see Section 4.5.2 Transportation Management Plan for a detailed discussion of safety, traffic operations, public transportation, and public outreach during construction. The sequence of construction on the following pages summarizes our planned approach to complete the project:

PHASE I: The first phase of construction is to widen Route 285 to the west of the existing roadway from approximately station 104+00 to station 163+11, which is going to be broken into two sections: South (104+00 to 125+28) and North (127+90 to 163+11) of I-64. Also, the Storm Water Management Pond #1, portions of the I-64 Accel/Decel Ramps (A, B, C & D), the west side of Bridge B627, Route 636/640 Goose Creek Road and Route 935 Expo Road will be constructed during Phase I. All cross street traffic will be maintained and operations are detailed further in Section 4.5.2. The major sections are detailed further below, which we have developed in a way that prioritizes the construction and opening of additional travel lane capacity.

Route 285 Tinkling Springs Road: North I-64 (127+90 to 163+11): Construction will begin with installation of construction signing and temporary pavement markings to shift traffic to the east on existing Route 285, and installation of group II channelizing devices and/or temporary concrete traffic barrier along the right side of the existing roadway. This will be followed by installation of erosion and sediment controls and clearing and grubbing (this may be done throughout the project along Route 285 on both sides to expedite utility relocations and construction). Utility relocations required for Dominion Virginia Power, Verizon and Comcast are to be performed to avoid conflicts and delay. Once the work area is safe and stabilized, multiple construction activities will be performed concurrently. This includes earthwork operations, drainage and rough grading the roadway widening linearly beginning at approximately station 163+00 and working down station to approximately 127+90 (We are starting on the North end to expedite improved access to Augusta Hospital). These operations will be followed by construction of the curb and gutter/concrete flatwork, pavement section - up to the intermediate asphalt course (wedging & leveling as necessary to meet the existing roadway grade to facilitate traffic shift/transition), signal installation/replacement modifications at Route 636/640, and I-64 WB Ramps, shared use path(s) and guardrail followed by lighting installation and final grading and seeding. The remaining signing and construction operations will be completed in preparation to shift traffic to the west onto the newly constructed widening of Route 285 and Route 636. Route 636 Goose Creek Road (20+44 to 10+00) will be widened to the north in a single phase holding the existing curb line to the south to reduce multiple phases and minimize inefficiencies.

Route 285 Tinkling Springs Road: South of I-64 (125+28 to 104+00): Construction will begin and be executed in the same manner as the North section by installing construction signing, temporary pavement markings to

shift traffic to the east on existing Route 285, installing group II channelizing devices and/or temporary concrete traffic barrier along the east side of the existing roadway, which will be followed by installation of erosion and sediment controls and clearing and grubbing. Once the work area is safe and stabilized, multiple construction activities will be performed concurrently. This includes constructing Storm Water Management Pond #1 as a first step, earthwork operations, drainage and rough grading the roadway widening linearly beginning at approximately station 125+28 working down station to approximately 104+00. As construction progresses down station, improvements to Route 935 Expo Road will be constructed. These operations will be followed up by construction of the curb and gutter/concrete flatwork, paving up to the intermediate asphalt course (wedging & leveling as necessary to meet the existing roadway grade to facilitate traffic shift/transition), signal installation/replacement at Route 631/935 and I-64 EB Ramps, building shared use path(s), guardrail, lighting installation and topsoil grading and seeding. The remaining signing and construction operations will be completed in preparation to shift traffic to the west onto the newly constructed widening of Route 285 and Route 935 concurrent with completion of the other Phase I portions of work.

Bridge – B627 (West): The west side of Bridge B627 will be constructed adjacent to the existing bridge that is to remain in service. This portion of the bridge constructed in this phase will be wide enough to carry three lanes of traffic during Phase II in order to expedite traffic operations improvements. First, the necessary temporary traffic control (maintenance of traffic) will be installed along Route 285 and I-64 to allow for construction of the bridge substructure (necessary support of excavation/shoring required to support the existing bridge, pile, MSE abutments, backwall footings/pile caps and pier). Upon completion of the substructure bridge elements, The superstructure will constructed to include, the beams being erected from left to right (east to west), followed by the installation of stay-in-place (SIP) forms, overhangs, deck placement, parapets and finishes.

After completion of each roadway section through intermediate asphalt and tie-ins to the west bridge B627, traffic will be shifted to the newly constructed widened portions, primarily to the west, and temporary drums and/or concrete barrier will be installed to allow for the construction of Phase II.

PHASE II: The second phase of construction is to widen Route 285 Tinkling Springs Road to the east of the existing roadway from approximately station 104+00 to station 163+11 while utilizing the additional travel lane capacity constructed in Phase I to the greatest extent possible. The Phase II widening on Route 285 will again be broken into two sections: South (104+00 to 125+28) and North (127+90 to 163+11) of I-64. Also, the remaining portions of the I-64 ramps (A, B, C & D), demolition of the existing Bridge B627, construction of the remaining portion of the east side of Bridge B627, Route 640 Goose Creek Road and Tinkling Springs Drive will be constructed during Phase II. The major Sections are detailed further below. All cross street traffic will be maintained and operations are detailed further in section 4.5.2.

Route 285 Tinkling Springs Road: North I-64 (127+90 to 163+11): Temporary traffic control items will be installed, followed by installation of erosion and sediment controls and clearing and grubbing. Once the work area is safe and stabilized, multiple construction activities will be performed concurrently. This includes earthwork operations, drainage and rough grading the roadway widening linearly beginning at approximately station 163+00 and working down station to approximately 127+90. These operations will be followed up by construction of the curb and gutter, paving up to the intermediate asphalt course (wedging & leveling as necessary to meet the existing roadway grade to facilitate traffic shift/transition), and completing remaining signal installation/replacement modifications at Route 636/640, I-64 WB Ramps & Route 625 and guardrail followed by lighting installation and final grading and seeding will be finished. The remaining signing and construction operations will be completed in preparation to shift traffic into the ultimate four-lane configuration of Route 285. Route 640 Goose Creek Road (15+80 to 10+00) will be widened to the south.

Route 285 Tinkling Springs Road: South of I-64 (104+00 to 125+28): Construction will begin and be carried out in the same manner as the North section by installing construction signing, followed by installation of erosion and sediment controls and clearing and grubbing. Once the work area is safe and stabilized, multiple construction activities will be performed concurrently. This includes earthwork operations, drainage and rough grading the roadway widening linearly beginning at approximately station 104+00 working up station to approximately 125+28. These operations will be followed up by construction of the curb and gutter, paving up to the intermediate asphalt course (wedging & leveling as necessary to meet the existing roadway grade to facilitate traffic shift/transition to the ultimate configuration), and completing the remaining signal installation/replacement at Route 631/935 and I-64 EB Ramps and guardrail followed by lighting installation and topsoil grading and seeding will be finished. The remaining signing and construction operations will be completed in preparation to shift traffic to the ultimate four-lane configuration of Route 285 with completion of the other Phase II portions of work.

Bridge – B627 (East): The existing Bridge B627 will be demolished and removed to permit construction of the remaining portions on the east side of the new bridge. The necessary temporary traffic control (maintenance of traffic) will be installed along Route 285 and I-64 to allow for construction of the bridge substructure (piling, MSE abutments, back wall footings/pile caps and pier). Upon completion of the substructure bridge elements, the beams will be erected from west to east, followed by the installation of SIP forms, overhangs, deck placement, parapets and finishes.

After completion of each roadway section through intermediate asphalt and tie-ins to the east side of Bridge B627, traffic will be opened to the ultimate four-lane configuration to allow for the construction of Phase III finishes.

PHASE III: The final phase of construction will be utilized to complete the finishes. This includes installation of the remaining concrete median sections along Route 285, milling and overlaying the existing Route 285, I-64 mainline and ramps, other existing roadway portions that remain, final surface asphalt placement, installation of pavement markings, remaining finishes, final grading/dress up and punch list activities.

4.5.2 TRANSPORTATION MANAGEMENT PLAN

Our Team fully understands that a thoroughly planned and well implemented Transportation Management Plan (TMP) is critical for a successful project. Therefore our TMP will be focused on the principals of **maximizing safety** (both for the travelling public and construction personnel) and of **minimizing travel delays** during construction. In order to meet these principals, we will prepare a comprehensive “Type B” Transportation Management Plan (TMP) and site-specific Temporary Traffic Control (TTC) plans per VDOT’s IIM-241.4 (Work Zone Safety and Mobility) requirements.

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

GOING BEYOND “MAINTAINING” EXISTING TRAFFIC OPERATIONS

Our Team is committed to going above and beyond maintaining minimum or even existing traffic operations during construction. **We are focused on improving the existing traffic operations during construction.** Therefore, we have developed our sequence of construction in a way that prioritizes the construction of new

lanes and lengthened turn lanes. For example, Phase I of the bridge construction will be designed in order to accommodate three lanes once traffic is switched onto the completed portion of the new bridge during Phase II as opposed to the minimum two lanes required. Our preliminary traffic analysis projections show this additional lane will have a significant improvement on Route 285 operations at the interchange ramps as the left turn lanes onto I-64 will be substantially lengthened using the middle lane on the new bridge. Also, additional travel lane capacity constructed in Phase I on the ramps, Route 285, Expo Road, and Goose Creek Road will be opened to traffic as soon as possible to improve traffic operations. In addition our Team will redesign corridor traffic signal phasing and timings throughout construction in order to expedite the travel time improvements for the motoring public.

COMMITMENT TO DETAIL AND COORDINATION

In order to accomplish our safety and mobility goals, we will pay careful attention to design details during TTC development. For example, we understand that the maintenance of driveway and intersection sight distance is critical, as substandard sight distance is one of the leading contributors to work zone crashes. Our Team has significant experience on past projects maintaining full access while ensuring sight distance is not blocked by work zone features such as barrier, equipment, and materials. Also we will design all lane shifts and tapers to meet the full desirable “L” length (double the minimum length) wherever possible in an effort to maximize driver safety and mobility when navigating temporary traffic patterns. In addition we understand the dangers of improper drop-off protection, and will design all work areas to be protected by temporary barrier or with a safety wedge with no hazards within the clear zone. Other TTC design elements that will be thoroughly detailed include maintenance of positive drainage during construction, detailed temporary signing and pavement marking plans, detailed maintenance of pedestrian traffic and temporary sidewalk plans, and detailed temporary traffic signal plans.

Our TMP will also be carefully coordinated with other design and construction elements, such as the schedule for right-of-way acquisition and utility relocation, which commonly have a significant influence on construction schedule. The construction personnel will also be actively engaged in the TMP and TTC development process, and will regularly complete constructability reviews for potential construction challenges and the need for special accommodations such as possible temporary shoring in the vicinity of the bridge over I-64.

PLANNED MITIGATION OF TRAFFIC IMPACTS

In order to accomplish our goal of improving the existing traffic operations during construction, we will maintain (at a minimum) all existing through lanes, turn lanes, and ramp lanes throughout construction. Our Team is committed to maintaining at least 12’ travel lane width on I-64 and 11’ wide travel lane width on all other roadways during construction. Lanes on I-64 will remain in their current configuration throughout construction in order to maximize motorist safety and minimize impacts to mobility. In addition, our Team is committed to maintaining an unrestricted shoulder along at least one side of each direction of I-64 throughout construction.

Temporary lane closures/width restrictions to facilitate construction will be limited to off-peak temporary lane closures per hours prescribed in the RFP (and approved as part of our TMP). On Route 285 temporary lane closures, width restrictions, and flagging hours will be limited to 7:00PM through 5:00AM on days permitted by the RFP. On I-64 temporary lane closures/width restriction hours will be limited to 7:00PM to 7:00AM (or 8:00PM to 7:00AM May through September) on days permitted by the RFP. Our Team will also verify that these temporary lane closure hours will result in acceptable operations as part of the work zone traffic analysis included in the Transportation Operations Plan section of the TMP. Using analysis software such as Synchro, Quick Zone, and HCS+, **we will ensure that temporary lane closures are limited to hours which align with**

the smallest impacts to the travelling public based on traffic volumes collected by our Team just prior to the start of construction. Through this process we ensure that construction efficiency is maximized while also limiting motorist delay.

No long term detours will be implemented to facilitate the construction of the proposed roadway and bridge improvements. In order to facilitate activities such as bridge demolition and girder erection, temporary overnight “slow roll” closures of a maximum duration of 15 minutes will be utilized with police assistance. Similar to the temporary lane closure hours, the planned “slow roll” closures will be analyzed as part of the TMP to ensure they occur at the least disruptive hours.

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

Mitigation strategies will include a thorough public communications plan described in additional detail in the following section, as traveler awareness of changes to traffic patterns and lane restrictions has significant safety and mobility benefits. Proposed mitigation will include use of Portable Changeable Message Signs (PCMS) throughout construction, use of a Safety Service Patrol (SSP) vehicle, and use of a backup vehicle with a “BE PREPARED TO STOP” sign on I-64 during temporary lane closures.

In addition to the mitigation strategies required by the RFP, our Team will employ site-specific impact management strategies in order to further increase safety and mobility. For example, temporary raised pavement markers will be used to supplement lane line pavement markings for increased visibility, especially at night and during wet pavement conditions. Also full-width paved shoulders will be provided during construction wherever possible for vehicle refuge and enforcement. Other strategies that will be utilized where warranted include the use of wider than normal lane lines for increased delineation of lane shifts, use of temporary transverse rumble strips for alert motorists of unusual conditions, the use of tighter than required channelizing device spacing for increased work zone delineation and construction safety.

PUBLIC AWARENESS AND STAKEHOLDER ACCOMMODATIONS

We fully understand the importance of a comprehensive public awareness campaign in order to effectively communicate project information to the local community as well as long distance travelers through the work zone. From our past successful design-build experience, we know that this objective is accomplished by using a combination of outreach methods. This includes the use of Portable Changeable Message Signs (PCMS) as mentioned in the previous section. These PCMS are an excellent way to communicate directly with the travelling public, and will be installed in advance of lane restrictions and changes in travel patterns on affected roadways. The PCMS locations will include, but not be limited to, four locations along I-64 equipped with wireless communication to the Staunton Traffic Operations Center (TOC). Also our Team will provide regular updates to VDOT regarding project status and travel impacts. Information will include, but not be limited to, a schedule for lane closures and traffic switches, diagrams detailing new or changed traffic patterns, and draft press releases to highlight items more critical in nature.

In addition, we plan to hold informational “Pardon our Dust” Public Information Meetings to keep the public informed. The timing of these meetings will be coordinated with VDOT and major project stakeholders, and will include an opportunity to introduce the Team, present the design, outline the construction phasing and schedule, and inform the public about specific impacts. Another form of communication we will use is the preparation of notices and flyers to be distributed to the public and stakeholder that show specific detail about the upcoming activities or changes to property access. We anticipate handing out flyers door to door to local residences, businesses, and distributing via the VDOT Office of Public Affairs.

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

- **Augusta Health Hospital** – Our Team recognizes that this facility located along Goose Creek Road is a significant project community stakeholder. As the hospital employs over 2,000 people and has roughly 1,500 visitors per day, minimization of impacts to this facility will be one of the priorities of the TMP. As discussed earlier, all existing lanes will be maintained, and **improvements that add capacity in the vicinity of the hospital will be expedited to improve both general and emergency access** (such as early opening of additional lane for hospital access on Route 285 and Goose Creek Road). In addition, the emergency preemption at the Route 285/Goose Creek Road intersection will be continuously maintained throughout construction. This maximization of mobility is especially important as over 150 patients per day visit the emergency room for urgent care. Our Team will establish regular lines of communication with the hospital, and we can at VDOT’s discretion, provide construction updates and impact notifications directly to them for the hospital newsletters and their website.
- **Augusta Expo** – Our Team also recognizes that the Augusta Expo located on Expo Road is a significant special event traffic generator and project community stakeholder. As these special events commonly result in 1,000+ attendees, project construction will be scheduled in a manner that temporary lane closures/width restrictions are not implemented during times when special events are held at the Expo. Also as the Augusta Expo generates significant out of town traffic, care will be taken to ensure clear guide signing is maintained throughout construction to/from I-64 and the Augusta Expo. Regular lines of communication with the Expo will be maintained and we also will provide construction updates and impact notifications for dissemination to their attendees.
- **Local Businesses** – Our Team is committed to providing continuous driveway access throughout construction for all businesses and driveways affected by this project. Also as we recognize that several businesses located within the project limits rely on pass-by traffic for a significant portion of their revenue, care will be taken in design of the TTC plans to provide clear and inviting guidance into these businesses. As with all major stakeholders, regular lines of communication will also be established with these businesses.

In addition to the major stakeholders discussed in detail above, applicable agencies will be included in our public outreach effort. These include Augusta County School, Police, Fire & Rescue, and Virginia Regional Transit (VRT).

I-64 CONSIDERATIONS

Finally, our Team also recognizes that maintenance of I-64 mobility throughout construction is critical as it is a vital commercial and long-distance travel route. Therefore **we are committed to maintaining full 12’ travel lanes with geometry meeting at least 70 mph throughout construction.** Also full paved shoulders will be

provided wherever possible. As discussed earlier, our Team will verify all temporary lane closures on I-64 will result in acceptable operations as part of the work zone traffic analysis included in the Transportation Operations Plan section of the TMP. In addition, we fully understand the dangers of construction vehicle ingress / egress on high speed roadways. Therefore, construction entrances on I-64 will be designed for locations where safe deceleration and acceleration can be accomplished on the shoulders instead of in the travel lanes wherever possible. In addition our Team will prepare a comprehensive Incident Management Plan as part of the TMP, which is especially critical on I-64 given the high traffic volumes. The TMP will clearly detail roles and responsibilities for an incident and the implementation of emergency detours utilizing pre-staged equipment if necessary.



Please see Proposal Schedule & Narrative included in the Appendix.

4.7 Disadvantaged Business Enterprises (DBE)

COMMITMENT TO ACHIEVING THE DBE GOAL

The Shirley Team is committed to achieving the 12% DBE participation goal for the I-64 Exit 91 Interchange Improvement Design-Build Project through design and construction activities.

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

PLAN TO MEET DBE SUBCONTRACTING GOAL

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

The following outlines the steps that have or will be taken to meet this requirement during the Price Proposal preparation phase:

- Our Team will first examine the Project, the nature of the work, and our internal company DBE database to determine where we believe the opportunities for DBE participation will be available. Once we determine the areas where participation was likely, working with our design partner Dewberry, we will take the necessary steps required to ensure that we communicate with and provided adequate notice of the project opportunities to the DBE community.
- Initially, we will *contact DBE firms included in our company database to inform them of the opportunity*. We will include in an e-mail solicitation the scope of the Project, the construction trades we believe will be able to provide subcontracting opportunities, and notice that plans are available at our company's main office for viewing. We will establish a single point of contact for all potential DBE firms so that questions regarding the Project and potential opportunities will be directed to the contact person and answered promptly.
- In addition to e-mails to subcontractors and vendors in our database, *we have to date and will continue to make follow-up telephone calls to these firms as a means of determining actual interest* in the Project and to answer any questions about possible opportunities.
- We will *attend industry, major business organization and community group events* where we will establish networking relationships to create interest in the Project and attract potential bidders. We also have had previous success soliciting assistance from various trade organizations in communicating with the DBE community.
- We will contact the *VDOT Business Opportunity and Workforce Development Center* (BOWD) and advise them of the project and the opportunity for DBE participation. One of the primary goals of the BOWD Center is to provide opportunities for DBE firms to partner with prime contractors.
- Throughout the development and preparation of our Technical and Price Proposals for the Project, we will track and maintain the status of our expected DBE participation. In this manner, we were immediately and constantly aware of the need to solicit increased participation from the DBE community in order to meet the goal. As the date for submission of the Price Proposal approaches, strategies for meeting the DBE participation goals are evaluated and finalized to ensure that the goal will be met with the submission of the Price Proposal. As we will plan to show on Form C-111 to be submitted with the Price Proposal, the Shirley Team plans to exceed the stated DBE goal for the Project.

As an ongoing process, Shirley stays up to date with changes and modifications to applicable DBE program rules so that we are best positioned to meet or exceed the goals established for the Project. Based on our experience and efforts we will put forward on this Project, *we commit to meeting the 12% DBE goal for the I-64 Exit 91 Interchange Improvement Design-Build Project.*

ATTACHMENT 4.0.1.1
I-64 Exit 91 Interchange Improvements
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

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

| Technical Proposal Component | Form (if any) | RFP Part 1 Cross Reference | Included within page limit? | Technical Proposal Page Reference |
|--|--------------------------------|----------------------------|-----------------------------|-----------------------------------|
| Technical Proposal Checklist and Contents | Attachment 4.0.1.1 | Section 4.0.1.1 | no | Appendix |
| Acknowledgement of RFP, Revisions, and/or Addenda | Attachment 3.6 (Form C-78-RFP) | Sections 3.6, 4.0.1.1 | no | Appendix |
| | | | | |
| Letter of Submittal | NA | Sections 4.1 | | |
| Letter of Submittal on Offeror's letterhead | NA | Section 4.1.1 | yes | 1 |
| Offeror's official representative information | NA | Section 4.1.1 | yes | 1 |
| Authorized representative's original signature | NA | Section 4.1.1 | yes | 1 |
| Declaration of intent | NA | Section 4.1.2 | yes | 1 |
| 120 day declaration | NA | Section 4.1.3 | yes | 1 |
| Principal Officer information | NA | Section 4.1.4 | yes | 1 |
| Proposal Payment Agreement or Waiver of Proposal Payment | Attachment 9.3.1 or 9.3.2 | Section 4.1.5 | no | Appendix |
| | | | | |
| Offeror's Qualifications | NA | Section 4.2 | | |
| Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any requested changes were previously approved by VDOT | NA | Section 4.2 | yes | 2 |
| Organizational chart with any updates since the SOQ submittal clearly identified | NA | Section 4.2 | yes | 3 |



ATTACHMENT 4.0.1.1

I-64 Exit 91 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 |
|--|----------------------|-----------------------------------|------------------------------------|--|
| Revised narrative when organizational chart includes updates since the SOQ submittal | NA | Section 4.2 | yes | 2 |
| | | | | |
| Design Concept | NA | Section 4.3 | | |
| Conceptual Roadway Plans and description | NA | Section 4.3.1 | yes | 4 |
| Conceptual Structural Plans, description, and renderings | NA | Section 4.3.2 | yes | 6 |
| | | | | |
| Project Approach | NA | Section 4.4 | | |
| Environmental Management | NA | Section 4.4.1 | yes | 8 |
| Utilities | NA | Section 4.4.2 | yes | 9 |
| Geotechnical | NA | Section 4.4.3 | yes | 10 |
| Quality Assurance/ Quality Control (QA/QC) | NA | Section 4.4.4 | yes | 11 |
| | | | | |
| Construction of Project | NA | Section 4.5 | | |
| Sequence of Construction | NA | Section 4.5.1 | yes | 22 |
| Transportation Management Plan | NA | Section 4.5.2 | yes | 24 |
| | | | | |
| Proposal Schedule | NA | Section 4.6 | | |
| Proposal Schedule | NA | Section 4.6 | no | Appendix |
| Proposal Schedule Narrative | NA | Section 4.6 | no | Appendix |



ATTACHMENT 4.0.1.1

I-64 Exit 91 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 |
|---|----------------------|---------------------------------------|--|--|
| Proposal Schedule in electronic format (CD-ROM) | NA | Section 4.6 | no | CD |
| | | | | |
| Disadvantaged Business Enterprises (DBE) | NA | Section 4.7 | | |
| Written statement of percent DBE participation | NA | Section 4.7 | yes | 30 |
| DBE subcontracting narrative | NA | Section 4.7 | yes | 30 |

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

RFQ NO. C00075877DB47
 PROJECT NO.: 0064-007-111, P101, RW201, C501, B627

ACKNOWLEDGEMENT OF RFP, REVISION AND/OR ADDENDA

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

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

1. Cover letter of March 28, 2012 - RFP
(Date)
2. Cover letter of June 1, 2012 - RFP Addendum #1
(Date)
3. Cover letter of June 21, 2012 – RFP Addendum #2
(Date)



 SIGNATURE

 June 29, 2012

DATE

10/1/2014

4.6 Proposal Schedule

PROJECT MILESTONES

The I-64 Exit 91 Interchange Improvement Schedule details our plan for all phases of the design/build process based on the following project Milestones:

| | |
|----------------------------------|--------------------|
| Notice of Intent to Award Date: | August 8, 2012 |
| CTB Approval/Notice to Award: | September 19, 2012 |
| Design-Build Contract Execution: | October 17, 2012 |
| Notice to Proceed: | October 18, 2012 |
| Begin Phase 1 Construction: | November 7, 2013 |
| Begin Phase 2 Construction: | September 24, 2014 |
| Begin Phase 3 Construction: | June 2, 2015 |
| Substantial Completion Date: | August 31, 2015 |
| Final Completion Date: | August 31, 2015 |

WORK BREAKDOWN STRUCTURE

Level one of the Work Breakdown Structure (WBS) groups the schedule into the phases of the Design-Build process as follows:

- **Project Milestones:** Area reserved for easy review of the project status.
- **Design:** Includes preliminary engineering services, plan development, QA/QC reviews, submittal milestones, and reviews by VDOT, FHWA and other regulatory agencies and approvals of plans. This section of the schedule includes a second level WBS structure to group design activities by type of design submission including right-of-way, roadway, bridge, SWM and culvert design.
- **Public Involvement:** This section of the schedule includes milestones for planned public involvement meetings and updates to the Office of Public Affairs for major traffic shifts and the VDOT website.
- **Environmental Permitting:** Includes wetland and stream delineations and jurisdictional determination, permit management and preparation, mitigation, and permit submissions, reviews and approvals. Initial efforts will focus on the Corps of Engineers Individual Permit, Virginia Water Protection Individual Permit, VMRC Sub-Aqueous Bed Individual Permit, LD 455/VSMP Permit and the SWPPP submission.
- **Right-of-way Acquisition:** This section of the schedule is used to monitor the acquisition of right-of-way and easements for the project including title searches, appraisals and appraisal reviews, offers, negotiations, and settlements. In order to prioritize groups of properties by order of need, we have included a second level WBS structure that includes separate right-of-way acquisition activities for the four quadrants of the project. Dividing the right-of-way activities into four separate groups of parcels will enable our Team to focus our right-of-way acquisition efforts on the most schedule critical acquisitions and track these critical acquisitions to ensure on-time completion.
- **Utility Relocations:** The utility relocation section of the schedule includes activities for UFI meetings, preparation of preliminary engineering (PE) estimates, approval of PE estimates, utility relocation design by the utility owner, approval of the utility design, and utility relocation construction. The utility relocations are separated into second level WBS groups by utility owner.

- Construction:** Includes all components of roadway and bridge construction as well as MOT, construction access, signals, and drainage. The Construction section of the schedule is segmented by three additional levels of WBS structure to divide the construction activities into groups of work packages that can be easily tracked to ensure on-time completion of the project.

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

| Level 1 | Levels 2, 3, 4, & 5 |
|---------|--|
| 01 | Schedule Milestones |
| 02 | Design Phase 02.01 Preliminary Design: Right-of-Way/Maint. of Traffic Plans 02.02 Roadway Design 02.03 Bridge Plans 02.04 SWM/Culvert Design |
| 03 | Public Outreach - Involvement 03.01 Public Involvement & Affairs Meetings |
| 04 | Environmental Permitting 04.01 General Environmental Permitting |
| 05 | Right of Way Acquisition/Easements 05.01 NW Quadrant of I-64/285 05.02 SW Quadrant of I-64/285 05.03 NE Quadrant of I-64/285 05.04 SE Quadrant of I-64/285 05.05 Tinkling Springs Drive – VA Dept of Historical Resources |
| 06 | Utility Relocations 06.01 Dominion Virginia Power 06.02 Verizon 06.03 Comcast |
| 07 | Pre-Construction 07.01 General Pre-Construction Activities |
| 08 | Construction 08.01 Phase I 08.01.01 Route 285 Tinkling Springs Road (127+90 – 163+11.61 West) 08.01.01.1 Route 285 Tinkling Springs Road (153+50-163+11.61 West) 08.01.01.2 Route 636 Goose Creek Road (20+44.98-10+00) 08.01.01.3 Route 285 Tinkling Springs Road (153+00–127+90 West) 08.01.02 Route 285 Tinkling Springs Road (104+00-125+28 West) 08.01.02.1 SWM Pond #1 08.01.02.2 Route 285 Tinkling Springs Road (115+00–125+28 West) 08.01.02.3 Route 935 Expo (17+00-10+00) 08.01.02.4 Route 285 Tinkling Springs Road (104+00 – 115+00 West) 08.01.03 I-64 Exit 91 Accel/Decel Ramps A, B, C, D 08.01.03.1 Ramp A – Left 08.01.03.2 Ramp B – Right 08.01.03.3 Ramp C – Right 08.01.03.4 Ramp D - Left 08.01.04 Bridge B627 08.01.04.1 Bridge B627 – West Side Phase I |

| | |
|--------------|---|
| 08.02 | Phase II |
| 08.02.01 | Route 285 Tinkling Springs Road (127+90 – 163+11.61 East) |
| 08.02.01.1 | Route 285 Tinkling Springs Road (153+50-163+11.61 East) |
| 08.02.01.2 | Route 640 Goose Creek Road (15+80-10+00) |
| 08.02.01.3 | Route 285 Tinkling Springs Road (153+00–127+90 East) |
| 08.02.01.4 | Tinkling Springs Drive (15+00-10+00) |
| 08.02.02 | Route 285 Tinkling Springs Road (104+00-125+28 East) |
| 08.02.02.1 | Route 285 Tinkling Springs Road (104+00-115+00 East) |
| 08.02.02.2 | Route 285 Tinkling Springs Road (115+00–125+28 East) |
| 08.02.03 | I-64 Exit 91 Accel/Decel Ramps A, B, C, D |
| 08.02.03.1 | Ramp A – Right |
| 08.02.03.2 | Ramp B – Left |
| 08.02.03.3 | Ramp C – Left |
| 08.02.03.4 | Ramp D - Right |
| 08.02.04 | Bridge B627 |
| 08.02.04.1 | Bridge B627 – East Side Phase II |
| 08.03 | Phase III |
| 08.03.01 | Route 285 Tinkling Springs Road (127+90 – 163+11.61) |
| 08.03.01.1 | Route 285 Tinkling Springs Road (153+50-163+11.61) |
| 08.03.01.2 | Route 285 Tinkling Springs Road (153+00–127+90) |
| 08.03.02 | Route 285 Tinkling Springs Road (104+00-125+28) |
| 08.03.02.1 | Route 285 Tinkling Springs Road (104+00-115+00) |
| 08.03.02.2 | Route 285 Tinkling Springs Road (115+00–125+28) |
| 08.03.03 | I-64 Exit 91 Accel/Decel Ramps A, B, C, D |
| 08.03.03.1 | Ramp A |
| 08.03.03.2 | Ramp B |
| 08.03.03.3 | Ramp C |
| 08.03.03.4 | Ramp D |

CALENDARS

The following is a description of the calendars used for this project.

Global Calendar - All calendars are based on 8 hour work days and include the following holidays:

New Year Day Holiday from 7:00AM December 31st until 7:00AM the next work day following New Year Day, unless the holiday occurs on a Sunday and then the following Monday is considered the Holiday.

Memorial Day Holiday from 7:00AM Friday prior to Memorial Day until 7:00AM Tuesday following Memorial Day.

Easter Holiday from 7:00AM on Good Friday until 7:00AM the following Monday after Easter Sunday.

Independence Day Holiday from 7:00AM July 3rd until 7:00AM the next work day following Independence Day, unless the holiday occurs on a Sunday and then the following Monday is considered the Holiday.

Labor Day Holiday from 7:00AM Friday prior to Labor Day until 7:00AM Tuesday following the Labor Day.

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

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

Calendar 3 – “5-Day Winter Imp” – This calendar is based on working part-time from December 25 to March 15. It is assigned to activities that are anticipated to have reduced productivity during the winter months.

Calendar 4 – “5-Day Winter SD” – Assigned to activities that are anticipated to be shut down during the winter, such as asphalt paving, pavement marking, and painting. This calendar contains no working days from December 25 of one year to March 10 of the next year.

SCHEDULE TIMING AND CRITICAL PATH

The following narrative describes key activities in the sequence of design, planning, permitting, pre-construction, and construction phase of the project. Each of these activities can be found in the attached Proposal Schedule and Schedule Summary found in Exhibit 4.6.1.

Design Phase:

The design phase includes preparation, Quality Assurance/Quality Control reviews, and submission of right-of-way/temporary traffic control (maintenance of traffic), roadway and bridge plans at multiple stages of the design process with a 21 calendar day activity for VDOT review after each submission. Also included, are reviews for FHWA and other regulatory agencies necessary. The design phase also includes non-critical activities for the completion of surveys, utility designations, test pits, flood plain studies, utility relocation plans, the scope validation period and geotechnical investigations, including a 90 calendar day activity for VDOT’s review of the geotechnical report prior to submission of the final roadway and bridge plans. Our Team will begin the design phase of the project immediately upon Notice to Proceed to get an early jump on flood plain studies, right-of-way, temporary traffic control, and roadway plans. The first formal plan submission will occur April 20, 2013 and will include right-of-way, maintenance of traffic, and erosion and sediment control plans in an effort to get an early start on the right-of-way acquisition phase and construction. The preliminary schedule reflects a critical approval of right-of-way/maintenance of traffic plans on May 12, 2013. The schedule anticipates final approval of all plans by August 23, 2013

Public Involvement:

The public involvement schedule includes submitting our Emergency Contact List upon Notice to Proceed, holding public information meetings each March at the start of the construction season, and providing updates to the Office of Public Affairs. The schedule includes the major milestone activities for the Public Information meetings and major traffic changes. However, there are many other public involvement activities that our Team will perform, including meeting with local businesses and affected property owners, attending meetings with home owners associations, local government representatives, and community groups, and providing information for regular updates at progress meetings and weekly lane closure plans.

Environmental Permitting:

Environmental Permitting will begin upon notice of award with the completion of wetland delineations, stream assessments, and jurisdictional determinations. All environmental permitting necessary will be completed by November 2013 ahead of the planned start of construction and the utility relocations which will take place within the project limits.

Right-of-Way Acquisition:

The administration of the right-of-way acquisitions will start upon Notice-to-Proceed with start of title searches and appraisals for affected properties. We have identified the need to acquire right-of-way and easements

from twenty properties within the corridor. With this many property acquisitions it will be crucial to prioritize the right-of-way acquisitions to match the project phasing. Of primary importance is the acquisition of parcels needed for the North West quadrant of the project along Route 285 and Route 636 Goose Creek for acquisition of utility easements for the early start of utility relocation and construction activities in this critical area of the project. To effectively prioritize and track the status of these acquisitions, we have separated the properties into four groups and included a detailed schedule of right-of-way acquisition activities for each group of properties. These activities include title searches, preparation of fair market value appraisals, appraisal reviews by the independent review appraiser, VDOT review and approval of the appraisals, preparation and delivery of offers to the affected property owners, negotiations with the property owners, settlements, and relocation assistance, if necessary. The northwest area ROW acquisition is scheduled to be completed October 28, 2013, well in advance of Phase I construction beginning. The remaining parcels to be acquired are tied to relevant construction activities and are staggered in timing accordingly.

Utility Relocations:

To simplify and track the utility relocations on the project, we have created a work breakdown structure that groups the utility relocation activities by utility owner. Within each utility owner group, we have included activities for holding the Utility Field Investigation (UFI) meeting, followed by preparation of the Preliminary Engineering (PE) estimates by the utility owner, approval of the PE estimate, design of the utility relocation, and construction of the relocation by area. Although we have already met with each individual utility company to discuss the proposed relocations and prior rights, the utility relocation schedule starts with formal UFI meetings in May 2013, following completion of all utility test pits. This will enable our Team to confirm and adjust our list of utility conflicts based on the field test pit data prior to holding the formal UFI meeting. We will continue this early coordination of utilities throughout the Design Phase of the Project to ensure that the Right-of-Way and Roadway Plans are coordinated with the utility relocation plans. The utility relocations are anticipated to be completed prior to impacting construction operations and avoiding delays.

Dominion Virginia Power:

All of the overhead lines to be impacted are on poles owned by Dominion Power. Once the easements are acquired along Route 636 Goose Creek Road, Dominion will start relocating their poles. Dominion's relocation will take approximately three months. Dominion's relocation will be followed by Comcast and Verizon with all overhead lines relocated by mid November 2013.

Comcast:

The Comcast facilities are located on Dominion Virginia Power poles and shall be relocated with the poles after Dominion completes their relocation.

Verizon:

The Verizon facilities are located underground adjacent to the Dominion Virginia Power poles and shall be relocated after Dominion completes their relocation.

Waterlines:

Existing waterline relocations/adjustments owned by the Augusta County Service Authority may be required for the proposed construction to accommodate storm drainage and the associated offsets will be performed as part of the standard construction operations.

Construction:

Upon completion of the general construction elements, we will complete the punchlist to achieve Substantial and Final Completion by August 31, 2015.

Critical Path:

The project critical path can be tracked within the attached proposal schedule and can also be found summarized in Exhibit 4.6.2

The Critical Path of the project starts with preparation and submission of the Right-of-Way / Temporary Traffic Control (Maintenance of Traffic) Plans and follows the Right of Way acquisition then to beginning construction. Construction starts with mobilization, installation of project wide temporary traffic control signs/devices, then moves into the multi-phase/stage construction activities along Route 285 beginning on the northern end of the project into Route 636 Goose Creek Road, down station to the south along Route 285 and Bridge B627. The critical path then moves to Phase II along Route 285 Tinkling Springs Road through the excavation and grading activities, into Route 640 Goose Creek Road, Church Access and the bridge construction. After completion of stage 2, traffic is shifted to the ultimate four-lane configuration for Phase III construction operation to begin. The critical path then follows concrete flatwork/medians, surface asphalt placement, permanent pavement markings, final grading and seeding, remaining finishes and the completion of the project punch list items for Substantial and Final Completion to be achieved by August 31, 2015.

PROJECT CONTROLS AND SCHEDULE RISK MITIGATION

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

Schedule Development

For any design-build project it is imperative that the Project Team develops a detailed CPM schedule that considers the interrelationships between all of the design-build disciplines. This is especially important on a project with extensive right-of-way and utility impacts that must be integrated into the design and construction sequencing. The Shirley Team has developed the Preliminary CPM Schedule included as Exhibit 4.6.1 that includes a Work Breakdown Structure (WBS) to clearly delineate the tasks of each discipline manager, including Design, Permitting, Right-of-Way, Utilities, and Construction.

Each discipline manager was responsible for producing a schedule to govern their own work and provide insight into how their schedule activities affect and are affected by activities in other disciplines. Once each manager prepared their individual schedule, schedule development meetings were held by the Design-Build Project Manager. These meetings were attended by all discipline managers to review each individual schedule and integrate them into the overall project CPM Schedule. These meetings ensure that:

- The work packages within each discipline are comprehensive enough to define the work with no activities omitted;
- The work packages are integrated within each discipline and between disciplines to generate a clearly defined project critical path, confirm that the critical path makes sense, and that the schedule shows

that the Project will complete on-time or ahead of schedule;

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

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

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

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

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

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

During the utility relocation and construction phases of the Project, the Design-Build Project Manager, Superintendent, Designer of Record, QA Manager, QC Manager, and VDOT will continue to meet weekly for a Construction Progress Meeting to coordinate necessary QA, QC, Independent Assurance (IA) and Independent

Verification (IV) inspections. At each meeting the Superintendent will review the work performed during the previous week and outline the schedule activities that will be performed during the following two weeks.

An additional technique that the Shirley Team uses to monitor construction progress is the “Daily Shift Cost Report” (DSCR). At the end of each day, the construction field personnel compare the quantity of work, and the cost to do so, completed that day with the budgeted production and cost. Not only does this analysis provide an early indicator of cost concerns, but it also instantly highlights potential issues with the schedule by focusing on production rates. Religiously completing and reviewing the DSCR’s allows the construction team to make immediate “real-time” adjustments to work crews, equipment, trucking, subcontractor resources, and material deliveries to adjust production rates in order to maintain the Project schedule. Our Team will also review and adjust the durations of future schedule activities based on the DSCR production rates to help identify and mitigate schedule concerns for the later phases of the project.

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

Procedures for Rescheduling Activities and Schedule Recovery

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

Baseline CPM Development

Within 90 days from the Date of Commencement, the Shirley Team will prepare and submit a cost and resource loaded, detailed Baseline CPM Schedule for VDOT’s review and approval in accordance with the Contract Documents.

MITIGATION OF MAJOR DELAY RISKS

Timely Review and Approval of Submittals

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

- Design Submissions
- Permits
- QA/QC Plan

- CPM Schedule and Updates
- MOT and TMP Plans
- Materials Documentation, including Source of Supply and Shop Drawings

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

Each submittal will include a transmittal cover sheet identifying the submittal's priority level. For submittals between the contractor and design firm, normal priority submittals will be returned within four weeks, high priority submittals within two weeks and urgent submittals within three days. This also allows the Team to prioritize multiple submittals that are turned in concurrently. For submittals to government agencies and utilities we will include adequate review time frames in the CPM Schedule, including a minimum of 21 days for review by VDOT and longer durations for approval of environmental permits and utility submissions as applicable.

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

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

Right-of-Way Acquisition

The I-64 Exit 91 Interchange Improvements project requires acquisition of Right-of-Way and easements from multiple individual properties. In order to mitigate the potential delays stemming from the late acquisition of right-of-way our team shall take several preventative measures to minimize the risks of delayed acquisitions. Separate right-of-way plan submissions shall be made to gain early approval for acquisitions providing an early start on appraisals and offers to landowners allowing more time for negotiations. We have separated the acquisitions into four different groups. Individual properties, once defined, shall be prioritized for acquisitions and relocations by order of need to optimize schedule float. We have included right-of-way activity durations based on extensive right-of-way acquisition experience including independent appraisal reviews, VDOT appraisal reviews, and extended negotiation and settlement durations.

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

Utility Relocations

Some of the biggest risks to a design-build schedule involve public/private utility companies who do not have a vested interest in the Project and are not necessarily compelled to complete their work within the scheduled time constraints. On the I-64 Exit 91 Interchange Improvement Project, this risk is spread among several utility locations with the coordination required between three identified utility companies. To mitigate the risk, we have started our planning and coordination process for these utilities by meeting with each affected utility and discussing the project, the utilities impacts, potential relocation options, and discussing ways to accelerate the utility relocations after award of the project.

These discussions have been facilitated by the preexisting relationships that we have developed through other design-build projects in Virginia. This early coordination has enabled us to identify the following opportunities to advance the utility relocations and minimize the risk for utility delays after Notice to Proceed:

- We have identified utility corridors, and easements that can be easily added to the right-of-way plans early in the design phase to advance the utility easement acquisitions.
- We have agreed to include the environmental impacts of the utility relocations in our Joint Permit Application to avoid potential delays resulting from utilities acquisition of a separate permit.
- We have identified utilities that will allow our team to design their utility relocations to minimize the risk of delay or coordination issues resulting from a third party design.
- We have initiated discussions with the utility companies to allow Shirley Design-Build to use its own subcontractors to install the utility infrastructure where possible.

This early personal contact with each utility will enable us to manage their issues/concerns and provide the potential to accelerate utility relocation activities on the project.

The Shirley Team's pre-proposal preparation, proven experience in all phases of design-build, extensive project controls, schedule management and recovery techniques will serve to ensure that the I-64 Exit 91 Interchange Improvement Project will complete on time or ahead of schedule. Over the years, our Team has earned a solid professional reputation for meeting our commitments, completing projects ahead of schedule and under budget, performing quality work in a safe work environment, and establishing a problem-solving atmosphere and partnership with the Owner. This is a result of our extensive experience, quality people, and corporate commitment. The I-64 Exit 91 Interchange Improvement Project is a challenging and exciting Project for our Team and is one that we will bring this same level of commitment to for the benefit of VDOT and the public.

Exhibit 4.5.1

C00075877DB47 - VDOT D/B I-64 EXIT 91

WBS - I-64 EXIT 94 PROJECT

28-Jun-12 11:58

| Activity ID | Activity Name | Original Duration | Total Float | Start | Finish | 2012 | | | | | | | | | | | | 2013 | | | | | | | | | | | | 2014 | | | | | | | | | | | | 2015 | | | | | | | | | | | |
|--|--|-------------------|-------------|------------|------------|------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|--|--|--|--|--|--|
| | | | | | | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | | | | | | |
| C00075877DB47 - VDOT D/B I-64 EXIT 91 | | 794 | 0 | 08-Aug-12 | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SCHEDULE MILESTONES | | 794 | 0 | 08-Aug-12 | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1000 | NOTICE OF INTENT TO AWARD (8/8/12) | 0 | 0 | 08-Aug-12* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1020 | POST NOI TO AWARD (8/9/12) | 0 | 0 | 09-Aug-12* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1040 | CTB AWARD (9/19/12) | 0 | 0 | 19-Sep-12* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1060 | DESIGN-BUILD CONTRACT EXECUTION (10/17/12) | 0 | 0 | 17-Oct-12* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1080 | NOTICE TO PROCEED (10/18/12) | 0 | 0 | 18-Oct-12* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1220 | SCOPE VALIDATION PERIOD (120 DAYS) | 120 | 139 | 18-Oct-12 | 14-Feb-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1100 | BEGIN PHASE I CONSTRUCTION | 0 | 0 | 07-Nov-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1120 | BEGIN PHASE II CONSTRUCTION | 0 | 0 | 24-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1140 | BEGIN PHASE III CONSTRUCTION | 0 | 0 | 02-Jun-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1180 | COMPLETE VDOT PUNCHLIST | 30 | 0 | 20-Jul-15 | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1160 | SUBSTANTIAL COMPLETION (8/31/15) | 0 | 0 | | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1200 | FINAL COMPLETION (8/31/15) | 0 | 0 | | 31-Aug-15* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DESIGN PHASE | | 226 | 46 | 18-Oct-12 | 04-Sep-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SWM/CULVERT DESIGN | | 11 | 46 | 21-Aug-13 | 04-Sep-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BD4000 | SUBMIT SWPPP (LD-455E) | 15 | 64 | 21-Aug-13 | 04-Sep-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BD4020 | APPROVED SWPPP (LD-455E) (HOLD PT) | 0 | 64 | | 04-Sep-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PRELIMINARY DESIGN - FIELD SURVEY/MAPPING | | 149 | 96 | 18-Oct-12 | 20-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1000 | NOTIFICATION OF LANDOWNERS | 20 | 0 | 18-Oct-12 | 06-Nov-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1020 | BASE MAPPING/FIELD SURVEY | 45 | 0 | 07-Nov-12 | 21-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1040 | UTILITY DESIGNATIONS | 30 | 60 | 22-Dec-12 | 20-Jan-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1080 | PREPARE ROW/MOT PLANS | 120 | 0 | 22-Dec-12 | 20-Apr-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1140 | GEOTECHNICAL INVESTIGATION | 60 | 134 | 22-Dec-12 | 19-Feb-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1060 | UTILITY TEST PITS | 30 | 60 | 21-Jan-13 | 19-Feb-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1160 | VDOT REVIEWS GEOTECHNICAL REPORTS | 90 | 134 | 20-Feb-13 | 20-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1100 | VDOT REVIEW/COMMENT ROW/MOT PLANS | 21 | 0 | 21-Apr-13 | 11-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1120 | APPROVE ROW/MOT PLANS | 0 | 0 | 12-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROADWAY DESIGN | | 170 | 46 | 22-Dec-12 | 20-Aug-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2000 | PREPARE ROADWAY PLANS (1ST SUBMISSION) | 120 | 43 | 22-Dec-12 | 20-Apr-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2020 | DESIGN QA/QC (1ST SUBMISSION) | 5 | 43 | 21-Apr-13 | 25-Apr-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2040 | SUBMIT ROADWAY PLANS (1ST SUBMISSION) | 1 | 43 | 26-Apr-13 | 26-Apr-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2060 | VDOT REVIEW/COMMENT ROADWAY PLANS (1ST SUBMISSION) | 21 | 43 | 27-Apr-13 | 17-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2080 | PREPARE ROADWAY PLANS (2ND SUBMISSION) | 30 | 43 | 18-May-13 | 16-Jun-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2100 | DESIGN QA/QC (2ND SUBMISSION) | 5 | 68 | 18-May-13 | 22-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2120 | SUBMIT ROADWAY PLANS (2ND SUBMISSION) | 1 | 43 | 17-Jun-13 | 17-Jun-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2140 | VDOT REVIEW/COMMENT ROADWAY PLANS (2ND SUBMISSION) | 21 | 64 | 18-Jun-13 | 08-Jul-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2160 | PREPARE FINAL ROADWAY PLANS | 21 | 64 | 09-Jul-13 | 29-Jul-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2180 | DESIGN FINAL QA/QC PLANS | 5 | 80 | 09-Jul-13 | 13-Jul-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2200 | SUBMIT FINAL ROADWAY PLANS | 1 | 64 | 30-Jul-13 | 30-Jul-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2220 | VDOT REVIEW/COMMENT FINAL ROADWAY PLANS | 21 | 64 | 31-Jul-13 | 20-Aug-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BB2240 | FINAL ROADWAY PLANS APPROVED | 0 | 64 | | 20-Aug-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BRIDGE DESIGN | | 179 | 48 | 22-Dec-12 | 02-Sep-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BC3000 | SUBMIT PRELIMINARY DESIGN (TS&L) - BRIDGE B-627 | 30 | 66 | 22-Dec-12 | 20-Jan-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BC3020 | VDOT REVIEW/COMMENT BRIDGE PRELIMINARY DESIGN | 21 | 66 | 21-Jan-13 | 10-Feb-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BC3040 | PREPARE BRIDGE PLANS (1ST SUBMISSION) | 120 | 66 | 11-Feb-13 | 10-Jun-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

▶ Actual Work
 ▶ Critical Remaining Work
 ▶ Summary
▶ Remaining Work
 ◆ Milestone

| Activity ID | Activity Name | Original Duration | Total Float | Start | Finish | 2012 | | | | | | | | | | | | 2013 | | | | | | | | | | | | 2014 | | | | | | | | | | | | 2015 | | | | | | | | | | | | | | | |
|--|-----------------------------|-------------------|-------------|-----------|-----------|------|----|-----------|-----------|--|---|---|---|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | J | F | M | A | M | J | J | A | S | O | N | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 285 TINKLING SPRINGS RD (153+50 - 163+11.61 WEST) | | | | | | 135 | 57 | 30-Dec-13 | 07-Jul-14 | 07-Jul-14, ROUTE 285 TINKLING SPRINGS RD (153+50 - 163+11.61 WEST) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1000 | MOT DEVICES | 4 | 0 | 30-Dec-13 | 07-Jan-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1020 | EROSION CONTROLS | 5 | 0 | 07-Jan-14 | 14-Jan-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1100 | SAW CUT EX ASPHALT | 3 | 0 | 14-Jan-14 | 17-Jan-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1040 | STRIP TOPSOIL | 6 | 0 | 17-Jan-14 | 27-Jan-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1060 | EXCAVATION | 11 | 0 | 27-Jan-14 | 11-Feb-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1080 | STORM DRAINAGE | 15 | 2 | 27-Jan-14 | 17-Feb-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1120 | GRADING | 6 | 0 | 11-Feb-14 | 19-Feb-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1140 | PLACE AGGREGATE 21-B | 8 | 0 | 19-Feb-14 | 03-Mar-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1160 | UNDERDRAIN | 5 | 6 | 03-Mar-14 | 10-Mar-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1180 | CONCRETE FLATWORK | 12 | 6 | 10-Mar-14 | 26-Mar-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1200 | PLACE BASE ASPHALT BM-25.0A | 5 | 15 | 26-Mar-14 | 02-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1260 | CUT SHARED USE PATH | 3 | 6 | 26-Mar-14 | 31-Mar-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1280 | PLACE UD-3 SHARED USE PATH | 2 | 6 | 31-Mar-14 | 02-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1220 | PLACE IM ASPHALT 19.0A | 3 | 15 | 02-Apr-14 | 07-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1300 | PLACE AGGREGATE/GEOTEXILE | 3 | 12 | 02-Apr-14 | 07-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1240 | SIGNALIZATION | 60 | 55 | 07-Apr-14 | 07-Jul-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1320 | PLACE SM-12.5A | 2 | 13 | 07-Apr-14 | 09-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1340 | GRADE ROW AREAS | 3 | 12 | 09-Apr-14 | 14-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1360 | RESPREAD TOPSOIL | 3 | 12 | 14-Apr-14 | 17-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A1380 | SEEDING | 2 | 12 | 17-Apr-14 | 22-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 636 GOOSE CREEK RD (20+44.98 - 10+00 WEST) | | | | | | 95 | 14 | 07-Jan-14 | 20-May-14 | 20-May-14, ROUTE 636 GOOSE CREEK RD (20+44.98 - 10+00 WEST) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2000 | MOT DEVICES | 5 | 7 | 07-Jan-14 | 14-Jan-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2020 | EROSION CONTROLS | 3 | 11 | 11-Feb-14 | 14-Feb-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2100 | SAW CUT EX ASPHALT | 3 | 16 | 14-Feb-14 | 19-Feb-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2040 | STRIP TOPSOIL | 8 | 0 | 03-Mar-14 | 13-Mar-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2060 | EXCAVATION | 12 | 0 | 13-Mar-14 | 31-Mar-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2080 | STORM DRAINAGE | 10 | 0 | 13-Mar-14 | 27-Mar-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2120 | GRADING | 3 | 0 | 31-Mar-14 | 03-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2140 | PLACE AGGREGATE 21-B | 5 | 0 | 03-Apr-14 | 10-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2160 | UNDERDRAIN | 3 | 0 | 10-Apr-14 | 15-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2180 | CONCRETE FLATWORK | 5 | 0 | 15-Apr-14 | 23-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2200 | PLACE BASE ASPHALT BM-25.0A | 3 | 3 | 23-Apr-14 | 28-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2240 | CUT SHARED USE PATH | 4 | 0 | 23-Apr-14 | 29-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2220 | PLACE IM ASPHALT 19.0A | 3 | 3 | 28-Apr-14 | 01-May-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2260 | PLACE UD-3 SHARED USE PATH | 2 | 0 | 29-Apr-14 | 01-May-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2280 | PLACE AGGREGATE/GEOTEXILE | 3 | 0 | 01-May-14 | 06-May-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2300 | PLACE SM-12.5A | 2 | 0 | 06-May-14 | 08-May-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2320 | GRADE ROW AREAS | 3 | 0 | 08-May-14 | 13-May-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2340 | RESPREAD TOPSOIL | 3 | 0 | 13-May-14 | 16-May-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A2360 | SEEDING | 2 | 12 | 16-May-14 | 20-May-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 285 TINKLING SPRINGS ROAD (104+00 - 125+28 WEST) | | | | | | 211 | 0 | 03-Dec-13 | 24-Sep-14 | 24-Sep-14, ROUTE 285 TINKLING SPRINGS ROAD (104+00 - 125+28 WEST) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 285 TINKLING SPRINGS RD (104+00-115+00 WEST) | | | | | | 168 | 0 | 31-Jan-14 | 24-Sep-14 | 24-Sep-14, ROUTE 285 TINKLING SPRINGS RD (104+00-115+00 WEST) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1B4000 | MOT DEVICES | 3 | 7 | 31-Jan-14 | 05-Feb-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1B4020 | EROSION CONTROLS | 3 | 1 | 01-Aug-14 | 06-Aug-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1B4080 | STORM DRAINAGE | 8 | 6 | 06-Aug-14 | 18-Aug-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1B4100 | SAW CUT EX ASPHALT | 2 | 3 | 06-Aug-14 | 08-Aug-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

▶ Actual Work
 ▶ Critical Remaining Work
 ▶ Summary

▶ Remaining Work
 ◆ Milestone

| Activity ID | Activity Name | Original Duration | Total Float | Start | Finish | 2012 | | | | | | | | | | | | 2013 | | | | | | | | | | | | 2014 | | | | | | | | | | | | 2015 | | | | | | | | | | | |
|--|-----------------------------|-------------------|-------------|-----------|-----------|------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|--|--|--|--|--|--|
| | | | | | | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | | | | | | |
| PHASE II | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 285 TINKLING SPRINGS ROAD (127+90 - 163+11.61 EAST) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 285 TINKLING SPRINGS RD (153+50 - 163+11.61 EAST) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1000 | MOT DEVICES | 3 | 0 | 24-Sep-14 | 29-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1020 | EROSION CONTROLS | 2 | 0 | 29-Sep-14 | 01-Oct-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1040 | STRIP TOPSOIL | 3 | 0 | 01-Oct-14 | 06-Oct-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1100 | SAW CUT EX ASPHALT | 2 | 1 | 01-Oct-14 | 03-Oct-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1060 | EXCAVATION | 9 | 0 | 06-Oct-14 | 17-Oct-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1080 | STORM DRAINAGE | 4 | 0 | 17-Oct-14 | 23-Oct-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1120 | GRADING | 4 | 0 | 17-Oct-14 | 23-Oct-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1140 | PLACE AGGREGATE 21-B | 3 | 0 | 23-Oct-14 | 28-Oct-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1160 | UNDERDRAIN | 2 | 0 | 28-Oct-14 | 30-Oct-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1180 | CONCRETE FLATWORK | 2 | 0 | 30-Oct-14 | 03-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1200 | PLACE BASE ASPHALT BM-25.0A | 3 | 0 | 03-Nov-14 | 06-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1240 | GRADE ROW AREAS | 3 | 2 | 03-Nov-14 | 06-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1220 | PLACE IM ASPHALT 19.0A | 2 | 0 | 06-Nov-14 | 10-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1260 | RESPREAD TOPSOIL | 2 | 0 | 10-Nov-14 | 12-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A1280 | SEEDING | 3 | 0 | 12-Nov-14 | 17-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 640 GOOSE CREEK RD (15+80 - 10+00 EAST) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2000 | MOT DEVICES | 2 | 0 | 10-Nov-14 | 12-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2020 | EROSION CONTROLS | 2 | 0 | 12-Nov-14 | 14-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2100 | SAW CUT EX ASPHALT | 3 | 0 | 14-Nov-14 | 19-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2040 | STRIP TOPSOIL | 2 | 0 | 17-Nov-14 | 19-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2060 | EXCAVATION | 6 | 0 | 19-Nov-14 | 02-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2080 | STORM DRAINAGE | 3 | 7 | 19-Nov-14 | 24-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2120 | GRADING | 4 | 0 | 02-Dec-14 | 08-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2140 | PLACE AGGREGATE 21-B | 4 | 0 | 08-Dec-14 | 12-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2160 | UNDERDRAIN | 2 | 0 | 12-Dec-14 | 16-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2180 | CONCRETE FLATWORK | 3 | 0 | 16-Dec-14 | 19-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2200 | PLACE BASE ASPHALT BM-25.0A | 2 | 2 | 19-Dec-14 | 23-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2240 | GRADE ROW AREAS | 2 | 0 | 19-Dec-14 | 29-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2220 | PLACE IM ASPHALT 19.0A | 1 | 2 | 23-Dec-14 | 24-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2260 | RESPREAD TOPSOIL | 2 | 0 | 29-Dec-14 | 02-Jan-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A2280 | SEEDING | 2 | 2 | 02-Jan-15 | 06-Jan-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 285 TINKLING SPRINGS RD (127+90 - 153+50 EAST) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3000 | MOT DEVICES | 2 | 26 | 12-Nov-14 | 14-Nov-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3020 | EROSION CONTROLS | 3 | 0 | 02-Jan-15 | 07-Jan-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3040 | STRIP TOPSOIL | 3 | 1 | 07-Jan-15 | 12-Jan-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3100 | SAW CUT EX ASPHALT | 4 | 0 | 07-Jan-15 | 13-Jan-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3060 | EXCAVATION | 8 | 0 | 13-Jan-15 | 23-Jan-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3080 | STORM DRAINAGE | 8 | 5 | 13-Jan-15 | 23-Jan-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3120 | GRADING | 5 | 0 | 23-Jan-15 | 30-Jan-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3140 | PLACE AGGREGATE 21-B | 5 | 0 | 30-Jan-15 | 06-Feb-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3160 | UNDERDRAIN | 3 | 0 | 06-Feb-15 | 11-Feb-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3180 | CONCRETE FLATWORK | 4 | 0 | 11-Feb-15 | 17-Feb-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3240 | GRADE ROW AREAS | 5 | 0 | 17-Feb-15 | 24-Feb-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H2A3260 | RESPREAD TOPSOIL | 4 | 0 | 24-Feb-15 | 02-Mar-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

▶ Actual Work
 ▬ Critical Remaining Work
 ▶ Summary
▬ Remaining Work
 ◆ Milestone

Exhibit 4.5.2

| Activity ID | Activity Name | Original Duration | Total Float | Start | Finish | 2012 | | | | | | | | | | | | 2013 | | | | | | | | | | | | 2014 | | | | | | | | | | | | 2015 | | | | | | | | | | | |
|--|---|-------------------|-------------|------------|------------|------|-----|---|---|---|---|---|---|---|---|---|---|------|-----|---|---|---|---|---|---|---|---|---|---|------|-----|---|---|---|---|---|---|---|---|---|---|------|-----|---|---|---|---|--|--|--|--|--|--|
| | | | | | | J | Jul | A | S | O | N | D | J | F | M | A | M | J | Jul | A | S | O | N | D | J | F | M | A | M | J | Jul | A | S | O | N | D | J | F | M | A | M | J | Jul | A | S | O | N | | | | | | |
| C00075877DB47 - VDOT D/B I-64 EXIT 91 | | 744 | 0 | 18-Oct-12 | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SCHEDULE MILESTONES | | 744 | 0 | 18-Oct-12 | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1080 | NOTICE TO PROCEED (10/18/12) | 0 | 0 | 18-Oct-12* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1100 | BEGIN PHASE I CONSTRUCTION | 0 | 0 | 07-Nov-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1120 | BEGIN PHASE II CONSTRUCTION | 0 | 0 | 24-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1140 | BEGIN PHASE III CONSTRUCTION | 0 | 0 | 02-Jun-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1180 | COMPLETE VDOT PUNCHLIST | 30 | 0 | 20-Jul-15 | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1160 | SUBSTANTIAL COMPLETION (8/31/15) | 0 | 0 | | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1200 | FINAL COMPLETION (8/31/15) | 0 | 0 | | 31-Aug-15* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DESIGN PHASE | | 143 | 0 | 18-Oct-12 | 12-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PRELIMINARY DESIGN - FIELD SURVEY/MAPPING | | 143 | 0 | 18-Oct-12 | 12-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1000 | NOTIFICATION OF LANDOWNERS | 20 | 0 | 18-Oct-12 | 06-Nov-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1020 | BASE MAPPING/FIELD SURVEY | 45 | 0 | 07-Nov-12 | 21-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1080 | PREPARE ROW/MOT PLANS | 120 | 0 | 22-Dec-12 | 20-Apr-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1100 | VDOT REVIEW/COMMENT ROW/MOT PLANS | 21 | 0 | 21-Apr-13 | 11-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA1120 | APPROVE ROW/MOT PLANS | 0 | 0 | 12-May-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ENVIRONMENTAL PERMITTING | | 129 | 0 | 12-May-13 | 07-Nov-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D1120 | *CORPS OF ENGINEERS GENERAL PERMIT | 180 | 0 | 12-May-13 | 07-Nov-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D1140 | *VIRGINIA WATER PROTECTION GENERAL PER... | 180 | 0 | 12-May-13 | 07-Nov-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D1160 | *VMRC SUB-AQUEOUS BED GENERAL PERMIT C... | 180 | 0 | 12-May-13 | 07-Nov-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PUBLIC OUTREACH | | 744 | 0 | 18-Oct-12 | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C1000 | PUBLIC INVOLVEMENT & AFFAIRS MEETING | 704 | 0 | 18-Oct-12 | 31-Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PRE-CONSTRUCTION | | 37 | 0 | 07-Nov-13 | 30-Dec-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G1020 | MOBILIZATION FOR CONSTRUCTION | 15 | 0 | 07-Nov-13 | 03-Dec-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G1040 | INITIAL SURVEY CONTROLS | 15 | 0 | 03-Dec-13 | 30-Dec-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G1060 | INITIAL MOT DEVICES | 15 | 0 | 03-Dec-13 | 30-Dec-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CONSTRUCTION | | 424 | 0 | 03-Dec-13 | 20-Jul-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PHASE I | | 212 | 0 | 03-Dec-13 | 25-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 285 TINKLING SPRINGS ROAD (127+90 - 163+11.61 WEST) | | 193 | 0 | 30-Dec-13 | 25-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROUTE 285 TINKLING SPRINGS RD (127+90 - 153+50 WEST) | | 130 | 0 | 27-Mar-14 | 25-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3080 | STORM DRAINAGE | 8 | 0 | 27-Mar-14 | 08-Apr-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3040 | STRIP TOPSOIL | 14 | 0 | 16-May-14 | 09-Jun-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3060 | EXCAVATION | 17 | 0 | 09-Jun-14 | 02-Jul-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3100 | DEMO/DOWEL EX BOX CULVERT | 3 | 0 | 02-Jul-14 | 09-Jul-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3120 | PLACE REINFORCING STEEL BOX CULVERT | 4 | 0 | 09-Jul-14 | 15-Jul-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3140 | F/P/S BOX CULVERT | 6 | 0 | 15-Jul-14 | 23-Jul-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3160 | PLACE RIP-RAP BOX CULVERT OUTFALL | 2 | 0 | 23-Jul-14 | 25-Jul-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3200 | GRADING | 10 | 0 | 25-Jul-14 | 08-Aug-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3220 | PLACE AGGREGATE 21-B | 10 | 0 | 08-Aug-14 | 22-Aug-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3240 | UNDERDRAIN | 3 | 0 | 22-Aug-14 | 27-Aug-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3260 | CONCRETE FLATWORK | 5 | 0 | 27-Aug-14 | 05-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3280 | PLACE BASE ASPHALT BM-25.0A | 5 | 0 | 05-Sep-14 | 12-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3320 | CUT SHARED USE PATH | 3 | 0 | 05-Sep-14 | 10-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3340 | PLACE UD-3 SHARED USE PATH | 5 | 0 | 10-Sep-14 | 17-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1A3300 | PLACE IM ASPHALT 19.0A | 3 | 0 | 12-Sep-14 | 17-Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this “Agreement”) is made and entered into as of this 29th day of June, 2012, by and between the Virginia Department of Transportation (“VDOT”), and Shirley Contracting Company, LLC (“Offeror”).

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”) pursuant to VDOT’s **November 3, 2011** Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the **I-64 Exit 91 Interchange Improvements, Project No. 0064-007-111, P101, R201, C501, B627** (“Project”), under a design-build contract with VDOT (“Design-Build Contract”); and

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

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

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

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth in this Agreement and other good and valuable consideration, the receipt and adequacy of which are acknowledged by the parties, the parties agree as follows:

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

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

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

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

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

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

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

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

9. Miscellaneous.

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

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

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

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

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

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

VIRGINIA DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

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

By:  _____

Name: Michael E. Post

Title: President/CEO/Manager



**Critical Infrastructure Information (CII)
Sensitive Security Information (SSI)
Individual Non-Disclosure Agreement**



Code of Virginia §36-105.3 and §44-146.22 and 49 CFR Part 1520 stipulates instituting procedures to ensure the safe storage and secure handling of information that should be protected and not disclosed. VDOT CII/SSI includes such information and is not subject to disclosure under FOIA (reference Code of Virginia §2.2-3705.2).

Disclosure of CII/SSI in any manner that permits interception by unauthorized persons is prohibited. CII/SSI may not be released to persons without a need-to-know except with written permission from VDOT (see *Handling CII/SSI* on page 3). CII/SSI includes information marked as such or other information relating to VDOT security or protected systems (see *Guide to Identifying Possible CII* on page 4).

All documents and materials provided are the sole and exclusive property of VDOT. They may not be modified, reproduced, republished, redistributed or presented for sale, completely or in part, and doing so may result in severe civil and criminal penalties. All documents and materials provided are only to be used in conjunction with contract or project # C00075877DB47.

As an employee of (or contractor to) Shirley Contracting Company I understand that:

1. Certain information which I will receive from Virginia Department of Transportation (VDOT) may contain CII/SSI.
2. I may learn of or have access to some or all of this information through a computer system or through my employment activities.
3. CII/SSI is valuable and sensitive and is protected by law and by strict VDOT policies. The intent of these laws and policies is to assure that CII/SSI will remain confidential - that is, it will be used only as necessary to accomplish VDOT's mission.
4. I have no right or ownership interest in any CII/SSI referred to in this Agreement.
5. Willful violation of this agreement may subject me to discipline which might include, but is not limited to, termination of employment or further VDOT related work and to legal liability.
6. I am obligated to protect this information from unauthorized disclosure in accordance with the terms of this agreement.
7. Unauthorized disclosure of CII/SSI could compromise safety and security of persons and is prohibited.
8. My execution of this agreement shall not nullify or affect in any manner any other agreement, non-disclosure or otherwise, which I have executed or may execute with VDOT or the Commonwealth of Virginia.
9. My obligations with respect to the confidentiality and security of all CII/SSI disclosed to me shall survive the termination of any agreement or relationship with VDOT.
10. I am required to conduct myself in a strict conformance to applicable laws and VDOT policies governing CII/SSI (see *Handling CII/SSI* on page 3).
11. VDOT may at any time revoke my authorization allowing access to CII/SSI.

Accordingly, as a condition of and in consideration of my access to CII/SSI, I agree that:

1. I will only access CII/SSI for which I have a need-to-know
2. I will use any CII/SSI that I obtain only as needed by me to perform my legitimate VDOT related duties.
3. I will not in any way divulge, copy, release, sell, loan, review, alter or destroy any CII/SSI except as properly authorized within the scope of my professional VDOT activities

Last Name, First name:



**Critical Infrastructure Information (CII)
Sensitive Security Information (SSI)
Individual Non-Disclosure Agreement**



4. I will safeguard the confidentiality of all CII/SSI at all times.
5. I will safeguard and will not disclose my access code or any other authorization I have that allows me to access CII/SSI and I accept responsibility for all activities undertaken using my access code and other authorization.
6. I will be responsible for my misuse or my wrongful disclosure of CII/SSI and for my failure to safeguard my access code or other authorization access to CII/SSI.

Each provision of this agreement is severable. If any administrative or judicial tribunal should find any provision of this agreement to be unenforceable, all other provisions shall remain in full force and effect.

I make this agreement in good faith, without mental reservation or purpose of evasion.

| | |
|---|------------------------------|
| Michael Post | June 29, 2012 |
| Printed name of Individual Staff Member | Date |
| Shirley Contracting Company | 703-550-8100 |
| Company Name | Phone Number |
| 8435 Backlick Road | 703-550-7897 |
| Company Address | Fax Number |
| Lorton, VA 22079 | mpost@shirleycontracting.com |
| Company Citv. State. Zip | E-mail Address |
| | |
| Signature of Individual Staff Member | |

Authorized Agent for Company (person who signed the Company Agreement):

| | |
|----------------------------------|--------------|
| Printed Name of Authorized Agent | Title |
| Signature of Authorized Agent | Phone Number |
| VDOT Contact Name | |

Return copy of signed agreement to _____.



**Critical Infrastructure Information (CII)
Sensitive Security Information (SSI)
Individual Non-Disclosure Agreement**



(Retain this page and the next for reference)

Handling CII/SSI

You are responsible for safeguarding Critical Infrastructure Information/Sensitive Security Information (CII/SSI) in your custody or under your control.

The extent of protection afforded CII/SSI shall be sufficient to reasonably foreclose the possibility of its loss or compromise.

The terms of this clause (*Handling CII/SSI*), including this paragraph, must be included in any dissemination of any document, in whole or in part, that contains CII/SSI.

Protection - CII/SSI shall be protected at all times, either by appropriate storage or having it under the personal observation and control of a person authorized to receive it. Each person who works with protected CII/SSI is personally responsible for taking proper precautions to ensure that unauthorized persons do not gain access to it.

Use and Storage - During working hours, reasonable steps shall be taken to minimize the risks of access to CII/SSI by unauthorized personnel. After working hours, CII/SSI shall be secured in a secure container, such as a locked desk, file cabinet or facility where contract security is provided.

Reproduction - Documents or material containing CII/SSI may be reproduced to the minimum extent necessary consistent with the need to carry out official duties provided that the reproduced material is marked and protected in the same manner as the original material.

Disposal - Material containing CII/SSI shall be disposed of by any method that prevents unauthorized retrieval (e.g. shredding, burning, returning to original source, etc.).

Transmission - CII/SSI shall be transmitted only by VDOT courier, US first class, express, certified or registered mail, or through secure electronic means.



**Critical Infrastructure Information (CII)
Sensitive Security Information (SSI)
Individual Non-Disclosure Agreement**



Things to consider regarding the need to protect CII/SSI...

- What impact could the information have if it was inadvertently transferred to an unintended audience?
- Does the information provide details concerning security procedures and capabilities?
- Could someone use the information to target personnel, facilities or operations?
- How could someone intent on causing harm misuse the information?
- Could the use of this information be dangerous if combined with other publicly available information?

Before looking at the Guide, answer the following:

| | |
|---|---|
| Is the information customarily public knowledge? (Information that is accessible to the general public if there has been no deliberate attempt to keep it hidden or secret.) | |
| Does the general public have a need-to-know? (Access to, or knowledge or possession of, specific information required to carry out official duties) (Note: Contractors should be considered employees, not general public.) | |
| If "yes" to either, then it is not CII/SSI otherwise, continue to the guide. | X |

| Guide to Identifying Possible CII/SSI | | |
|--|---|------------|
| If the item under consideration shows, describes or is listed below, it might be CII/SSI. | | Y/N |
| 1 | Information, the disclosure of which would jeopardize the safety or security of any person or structure, including engineering and construction drawings and plans that reveal: <ul style="list-style-type: none"> • Critical structural components • Ventilation systems • Elevators • Mandatory building emergency equipment or systems • Security equipment and systems • Fire protection equipment • Telecommunications equipment and systems • Electrical systems • Other utility equipment and systems (COV § 2.2-3705.2 (2)) | |
| 2 | Documentation or other information that describes the design, function, operation or access control features of any security system, manual or automated, used to control access to or use of any automated data processing or telecommunications system. (COV § 2.2-3705.2 (3)) | |
| 3 | Plans and information to prevent or respond to terrorist activity, the disclosure of which would jeopardize the safety of any person, including: <ul style="list-style-type: none"> • Critical infrastructure sector or structural components • Vulnerability assessments • Operational, procedural, transportation, and tactical planning or training manuals • Staff meeting minutes or other records Engineering or architectural records or portions of, that reveals the location or operation of: <ul style="list-style-type: none"> • Security equipment and systems • Ventilation equipment and systems • Emergency equipment and systems • Utility equipment and systems • Elevator equipment and systems • Fire protection equipment and systems • Electrical equipment and systems • Telecommunications equipment and systems The same categories of records submitted to us for the purpose of antiterrorism response planning if accompanied, in writing, a statement that: <ul style="list-style-type: none"> • Invokes the protection of §2.2-3705.2 • Specifically identifies the records or portions thereof which are to be protected • States why the protection of such records from public disclosure is necessary (COV § 2.2-3705.2 (4)) | |
| 4 | Information including (drawings, manuals, or other records) which reveals: <ul style="list-style-type: none"> • Surveillance techniques • Personnel deployments • Alarm or security systems or technologies • Operational and transportation plans or protocols (COV § 2.2-3705.2 (6)) | |
| 5 | Information concerning threats against transportation. (USC 49 CFR 1520 (5)) | |

RESPONSE TO REQUEST FOR PROPOSALS

Copy 1 of 10

I-64 EXIT 91 INTERCHANGE IMPROVEMENT

A DESIGN-BUILD PROJECT

From: 0.429 Miles West of Route 285
To: 0.438 Miles East of Route 285
Augusta County, Virginia

Volume II: Design Concept



State Project No.: 0064-007-111, P101, R201, C501, B-627

Federal Project No.: NH-064-2(152)

Contract ID Number: C00075877DB47

Submitted To:



Submitted By:



In Association With:



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| 33 | GEOMETRIC LAYOUT | |
| 34 | TYPICAL SECTIONS | |
| 35 | TYPICAL SECTIONS | |
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| 37 | RTE. 285 PROFILE | STA. 105+00.00 TO STA. 118+00.00 |
| 38 | PLAN | STA. 118+00.00 TO STA. 132+00.00 |
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| 41 | RTE. 285 PROFILE | STA. 132+00.00 TO STA. 146+00.00 |
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| 44 | PLAN | STA. 146+00.00 TO STA. 160+00.00 |
| 45 | RTE. 285 PROFILE | STA. 146+00.00 TO STA. 160+00.00 |
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COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
**PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY**
DESIGN-BUILD PROJECT: RFP PLANS

AUGUSTA COUNTY

I-64 EXIT 91 INTERCHANGE AND BRIDGE IMPROVEMENTS AT RTE 285
FROM: 0.465 MI.W.OF RTE.285 TO: 0.494 MI.E.OF RTE.285

FHWA 534-1110

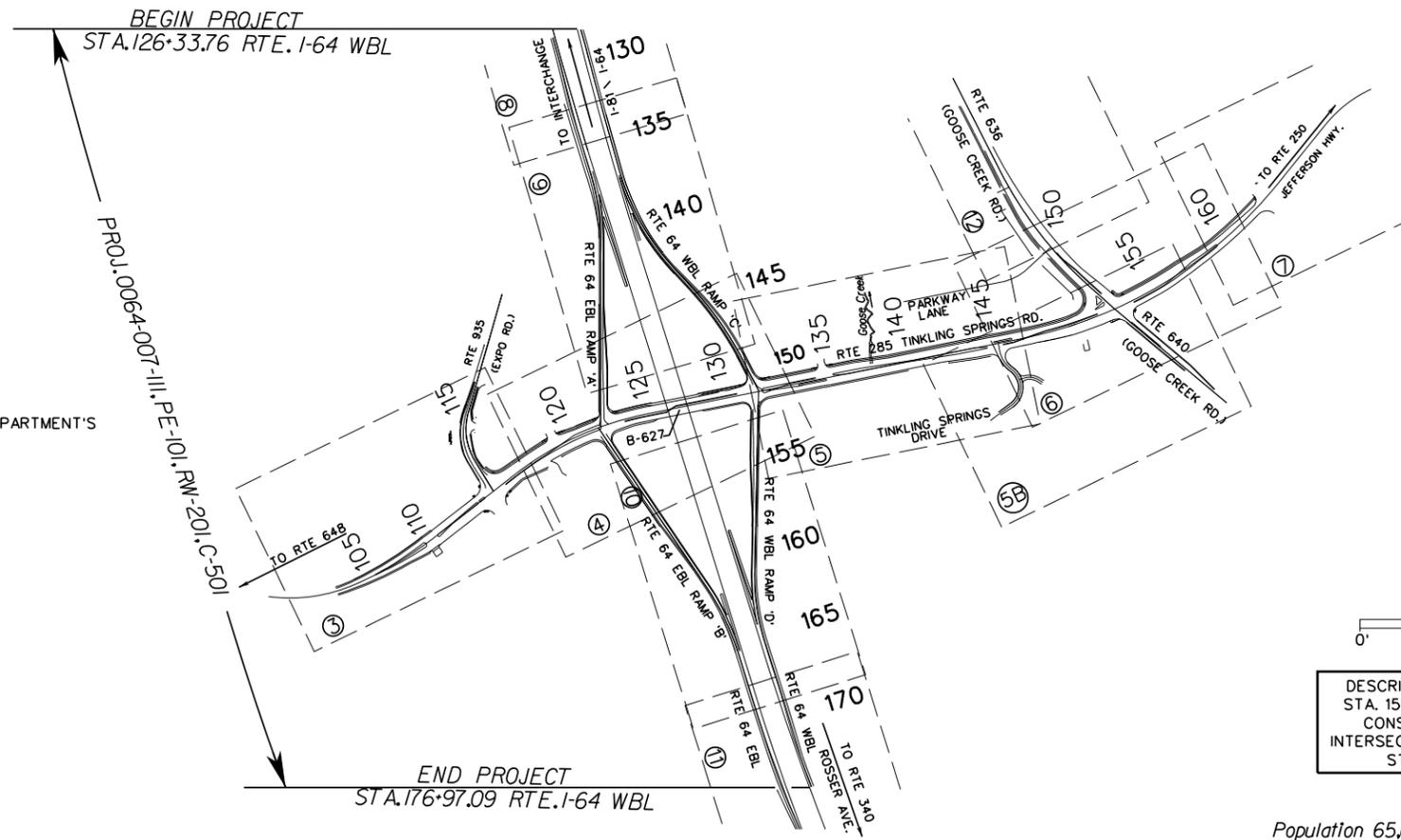
| STATE | FEDERAL AID PROJECT | ROUTE | STATE PROJECT | SHEET NO. |
|-------|---------------------|-------|--|-----------|
| VA. | NH-064-2(1) | 64 | (FO)0064-007-III (SEE TABULATION BELOW FOR SECTION NUMBERS) | 32 |

| FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA | |
|--|---|
| (GS1) RURAL PRINCIPAL ARTERIAL-ROLLING-75 MPH DESIGN SPEED | |
| | Fr: 0.465 MI. W. of Rte. 285 To: 0.494 MI.E. of Rte. 285 |
| ADT (2011) | 38,662 |
| ADT (2034) | 68,900 |
| DHV | |
| D (%) (design hour) | |
| T (%) (design hour) | 11% |
| V (MPH) | 75 |



PROJECT MANAGER Shirley Contracting Company, LLC
SURVEYED BY Dewberry (703) 849-0607
DESIGN SUPERVISED BY Shirley Contracting Company, LLC
DESIGNED BY Dewberry (703) 849-0607

THIS PROJECT WAS DEVELOPED UTILIZING THE DEPARTMENT'S
ENGINEERING DESIGN PACKAGE (GEOPAK).
GEOPAK Computer Identification No. 75877



CONVENTIONAL SIGNS

| | |
|------------------------------|-----|
| STATE LINE | --- |
| COUNTY LINE | --- |
| CITY/TOWN OR VILLAGE | --- |
| RIGHT OF WAY LINE | --- |
| FENCE LINE | --- |
| UNFENCED PROPERTY LINE | --- |
| FENCED PROPERTY LINE | --- |
| WATER LINE | --- |
| SANITARY SEWER LINE | --- |
| GAS LINE | --- |
| ELECTRIC UNDERGROUND CABLE | --- |
| TRAVELED WAY | --- |
| GUARD RAIL | --- |
| RETAINING WALL | --- |
| RAILROADS | --- |
| BASE OR SURVEY LINE | --- |
| LEVEE OR EMBANKMENT | --- |
| BRIDGES | --- |
| CULVERTS | --- |
| DROP INLET | --- |
| POWER POLES | --- |
| TELEPHONE OR TELEGRAPH POLES | --- |
| TELEPHONE OR TELEGRAPH LINES | --- |
| HEDGE | --- |
| TREES | --- |
| HEAVY WOODS | --- |
| GROUND ELEVATION | --- |
| GRADE ELEVATION | --- |



DESCRIPTION REFERENCE
STA. 150+89.11 RTE 64 WBL
CONSTR. CENTERLINE
INTERSECTION RTE 285 SBL
STA. 127+19.01

Population 65,615 (2000 Census)

| STATE PROJECT NO. | SECTION | FEDERAL AID PROJECT NO. | TYPE CODE | UPC NO. | EQUALITIES | LENGTH INCLUDING BRIDGE(S) (WIDTH) | | LENGTH EXCLUDING BRIDGE(S) (WIDTH) | | BRIDGE PROJECT NO. | TYPE PROJECT | DESCRIPTION |
|-------------------|---------|-------------------------|-----------|---------|------------|------------------------------------|-------|------------------------------------|-------|--------------------|--------------|--|
| | | | | | | FEET | MILES | FEET | MILES | | | |
| 0064-007-111 | PE-101 | NH-064-2(152) | | 75877 | | 5063.33 | 0.959 | 5063.33 | 0.959 | | Pre. Engr. | From: 0.465 MI. W. of Rte. 285 To: 0.494 MI. E. of Rte. 285 |
| | RW-201 | | | 75877 | | 5063.33 | 0.959 | 5063.33 | 0.959 | | RW | From: 0.465 MI. W. of Rte. 285 To: 0.494 MI. E. of Rte. 285 |
| | C-501 | | I000 | 75877 | | 5063.33 | 0.959 | 5063.33 | 0.959 | | Constr. | From: 0.465 MI. W. of Rte. 285 To: 0.494 MI. E. of Rte. 285 |
| | B-627 | | | X231 | 75877 | 212.00 | 0.040 | | | | Bridge | Bridge over Interstate 64 |

Note: Project Length based on Rte I-64 WBL Centerline

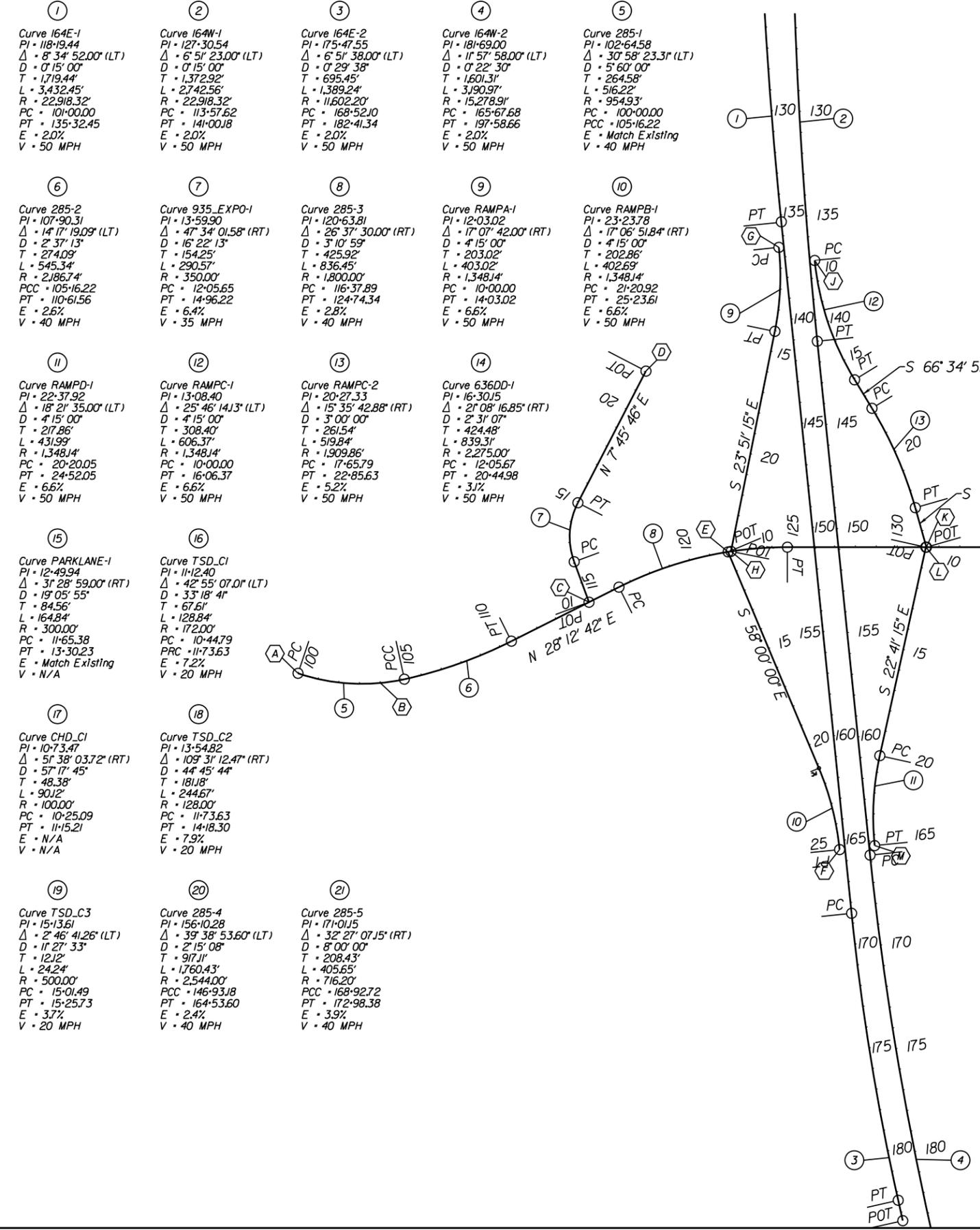
THESE PLANS ARE UNFINISHED
AND UNAPPROVED AND ARE NOT
TO BE USED FOR ANY TYPE
OF CONSTRUCTION OR THE
ACQUISITION OF RIGHT OF WAY.

Copyright 2012, Commonwealth of Virginia

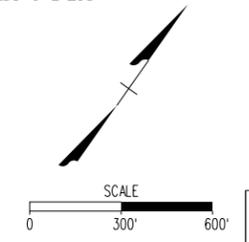
| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 33 |

GEOMETRIC LAYOUT SHEET

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



- (A) BEGIN RTE.285 STA.100+00.00 C/L 285
- (B) BEGIN CONSTRUCTION RTE.285 STA.104+00.00 C/L 285
- (C) BEGIN EXPO RD. STA.10+00.00 C/L 935_EXPO STA.114+77.40 C/L 285
- (D) END EXPO RD. STA.22+04.33 C/L 935_EXPO
- (E) BEGIN RAMP B STA.10+00.00 C/L RAMPB STA.121+89.28 C/L 285
- (F) END RAMP B STA.25+23.61 C/L RAMPB STA.165+43.51 C/L 164E 26.47° RT
- (G) BEGIN RAMP A STA.10+00.00 C/L RAMP A STA.136+52.64 C/L 164E 24.02° RT
- (H) END RAMP A STA.24+74.98 C/L RAMP A STA.122+03.33 C/L 285
- (J) BEGIN RAMP C STA.10+00.00 C/L RAMP C STA.137+49.4 C/L 164W 24.09° LT
- (K) END RAMP C STA.24+81.40 C/L RAMP C STA.131+40.60 C/L 285
- (L) BEGIN RAMP D STA.10+00.00 C/L RAMP D STA.131+37.49 C/L 285
- (M) END RAMP D STA.24+52.05 C/L RAMP D STA.165+24.78 C/L 164W 26.35° LT
- (N) BEGIN TINKLING SPRINGS DR. STA.10+00.00 C/L TSDRIVE STA.145+50.00 C/L 285
- (O) BEGIN CHURCH DRIVE STA.10+00.00 C/L CH_DRIVE STA.12+50 C/L TSDRIVE
- (P) END CHURCH DRIVE STA.11+45.21 C/L CH_DRIVE
- (Q) END TINKLING SPRINGS DRIVE STA.15+66.68 C/L TSDRIVE
- (R) BEGIN RTE.640 STA.10+00.00 C/L 640DD BEGIN RTE.636 STA.10+00.00 C/L 636DD STA.152+52.97 C/L 285
- (S) END RTE.640 STA.18+42.33 C/L 640DD
- (T) BEGIN PARKLANE STA.10+00.00 C/L PARKLANE STA.15+13.88 C/L 636DD
- (U) END PARKLANE STA.19+08.91 C/L PARKLANE
- (V) END RTE.636 STA.26+42.61 C/L 636DD
- (W) END CONSTRUCTION RTE.285 STA.163+11.61 C/L 285
- (X) END RTE.285 STA.179+91.53 C/L 285



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

TYPICAL SECTIONS

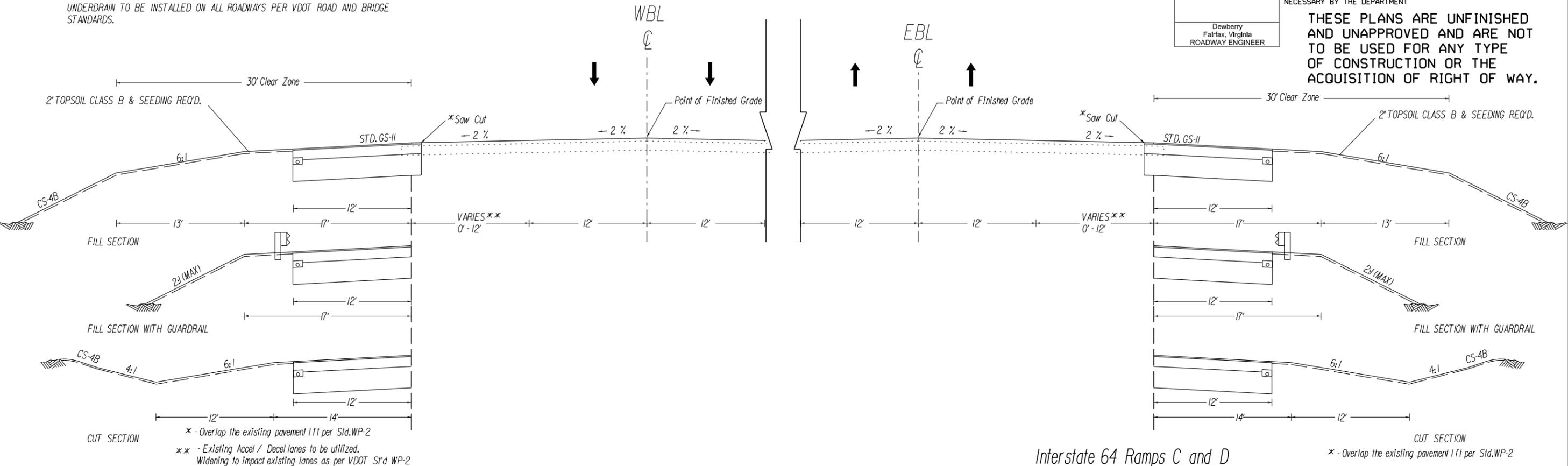
Interstate 64 (GS-I Rural Principal Arterial)
 75 MPH Min. Design Speed

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 C-501 | 34 |

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

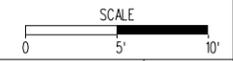
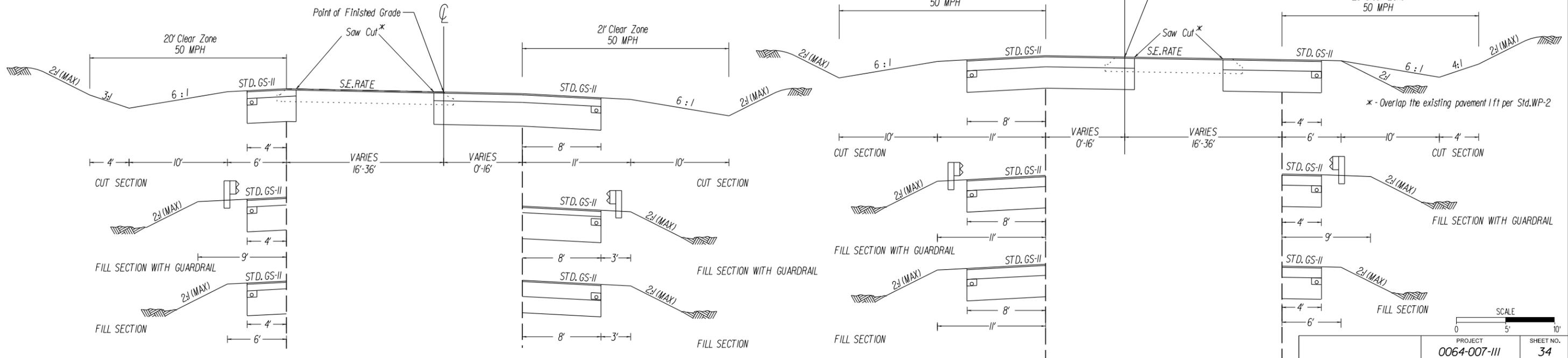
Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

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



Interstate 64 Ramps A and B
 GS-R Interchange Ramp
 50 MPH Min. Design Speed

Interstate 64 Ramps C and D
 GS-R Interchange Ramp
 50 MPH Min. Design Speed



TYPICAL SECTIONS

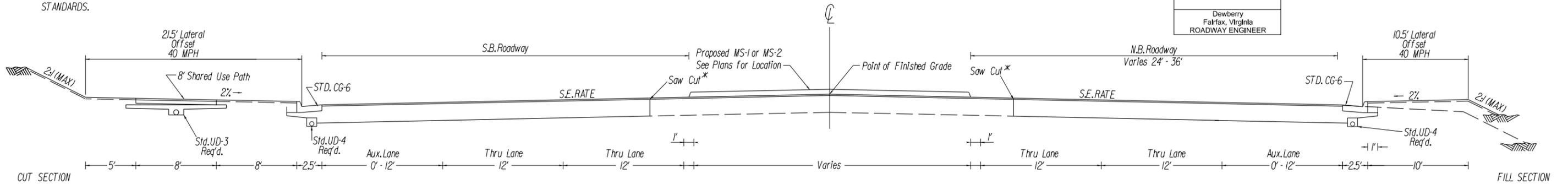
| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 C-501 | 35 |

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

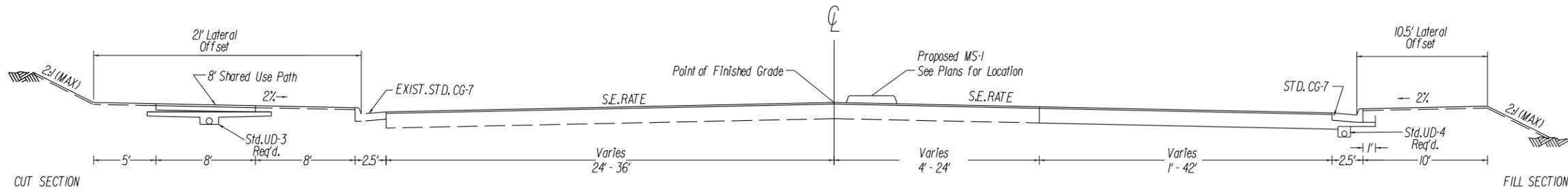
Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

NOTE: CLEARZONE WIDTH AND LATERAL OFFSET DIMENSIONS TO BE PROVIDED/MAINTAINED AS REQUIRED BY THE AASHTO ROADSIDE DESIGN GUIDE AND VDOT ROAD DESIGN MANUAL.
 ALL PROPOSED PAVEMENT TO BE IN ACCORDANCE WITH RFP PART 2, SECTION 2.81.
 UNDERDRAIN TO BE INSTALLED ON ALL ROADWAYS PER VDOT ROAD AND BRIDGE STANDARDS.

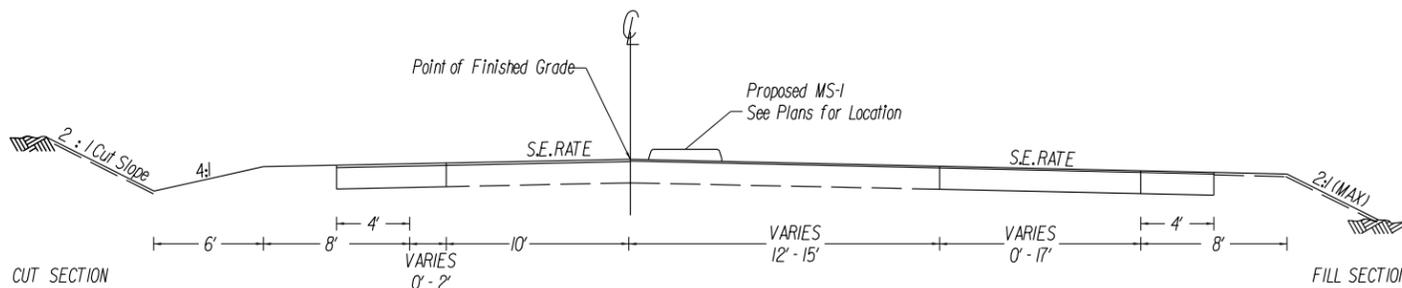
Route 285 Tinkling Springs Road (GS-6 Urban Minor Arterial)
 40 MPH Min. Design Speed



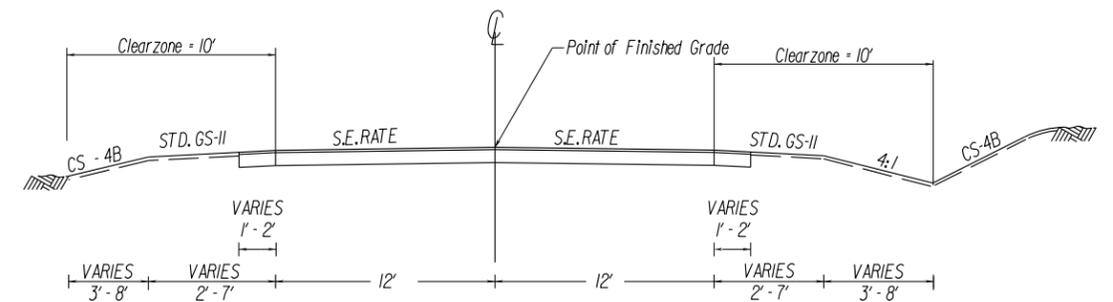
Route 636 - Goose Creek Road
 GS-7 Urban Collector - 50 MPH Min. Design Speed



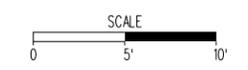
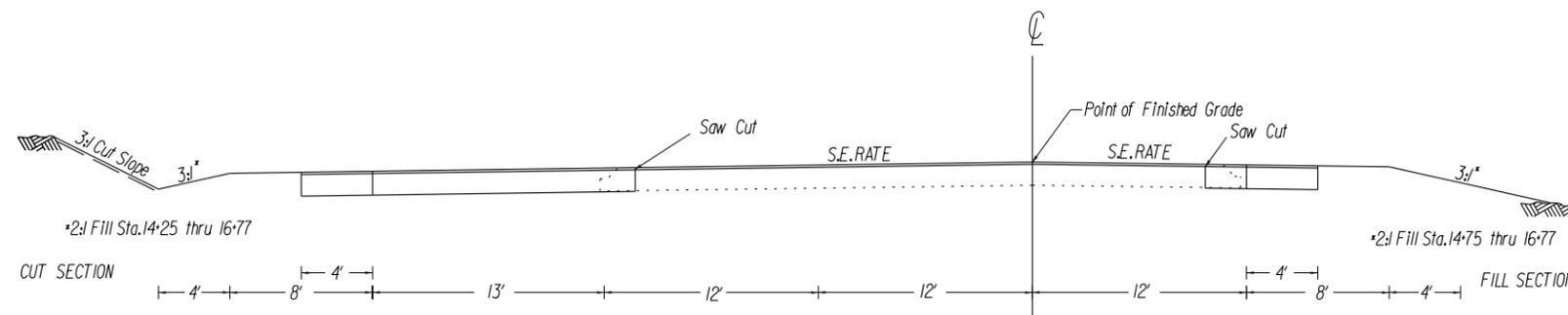
Route 640 - Goose Creek Road
 GS-7 Urban Collector - 50 MPH Min. Design Speed



Route 627 - Tinkling Springs Drive
 GS-8 Urban Local - 20 MPH Min. Design Speed



Route 935 Expo Rd.
 GS-8 Urban Local - 35 MPH Min. Design Speed



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

PROJECT MANAGER Shirley Contracting Company, LLC.
 SURVEYED BY Dewberry (703) 849-0607
 DESIGN SUPERVISED BY Shirley Contracting Company, LLC.
 DESIGNED BY Dewberry (703) 849-0607



THESE PLANS ARE UNFINISHED
 AND UNAPPROVED AND ARE NOT
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 OF CONSTRUCTION OR THE
 ACQUISITION OF RIGHT OF WAY.

REFERENCES
 (PROFILES, DETAIL & DRAINAGE
 DESCRIPTION SHEETS, ETC.)

Rte. 285 Profile 37
 Expo Road Profile 43

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|--|-----------|
| | VA. | 64 | 0064-007-III, PE-101, RW-201, C-501 | 36 |

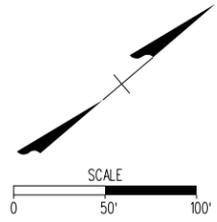
DESIGN FEATURES RELATING TO CONSTRUCTION
 OR TO REGULATION AND CONTROL OF TRAFFIC
 MAY BE SUBJECT TO CHANGE AS DEEMED
 NECESSARY BY THE DEPARTMENT

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

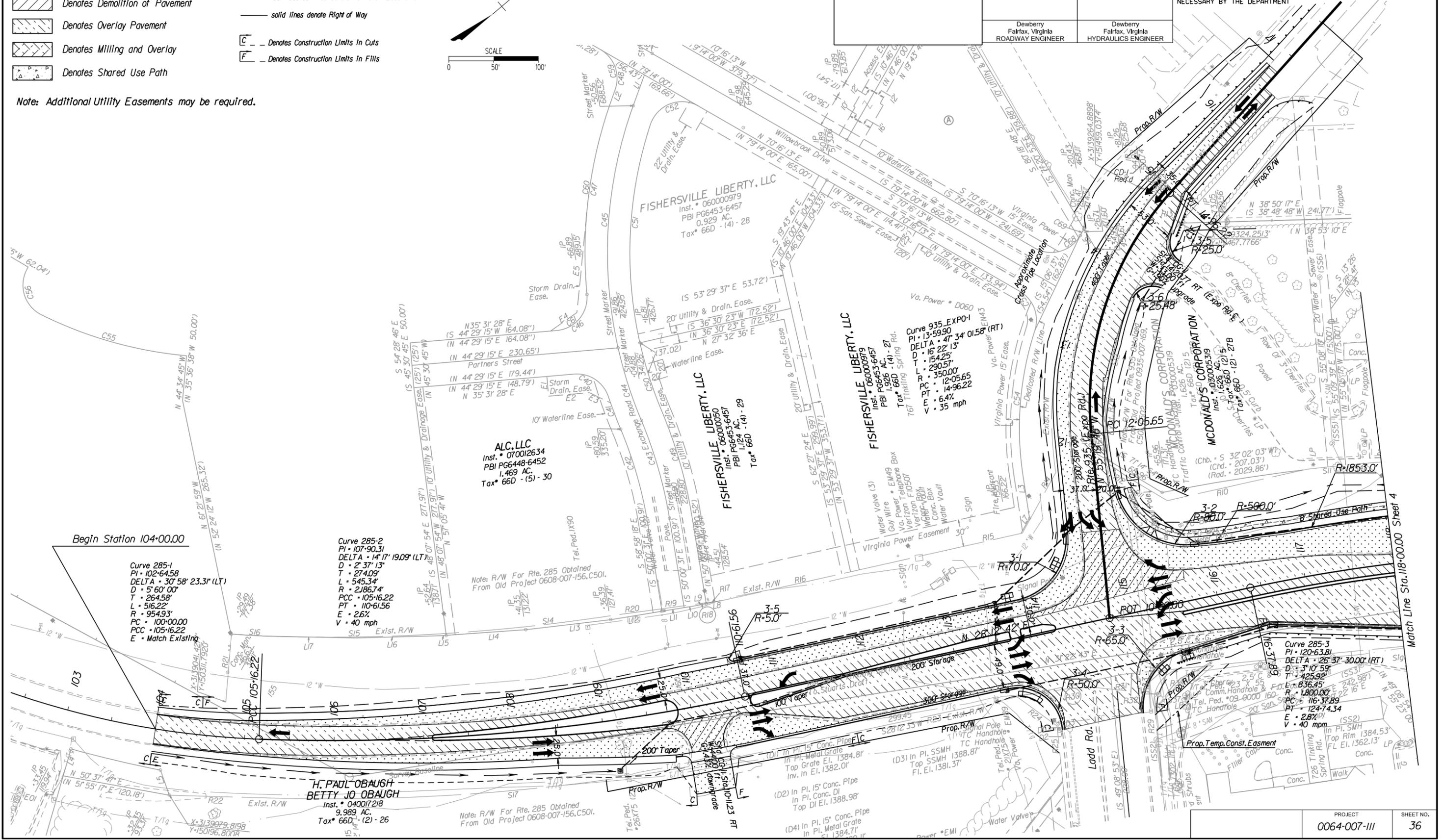
Dewberry
 Fairfax, Virginia
 HYDRAULICS ENGINEER

- LEGEND**
- Denotes Full Depth Pavement
 - Denotes Demolition of Pavement
 - Denotes Overlay Pavement
 - Denotes Milling and Overlay
 - Denotes Shared Use Path

- dot - dot - dashed lines denote Temporary Easements
- dot - dashed lines denote Permanent Easements
- solid lines denote Right of Way
- Denotes Construction Limits In Cuts
- Denotes Construction Limits In Fills

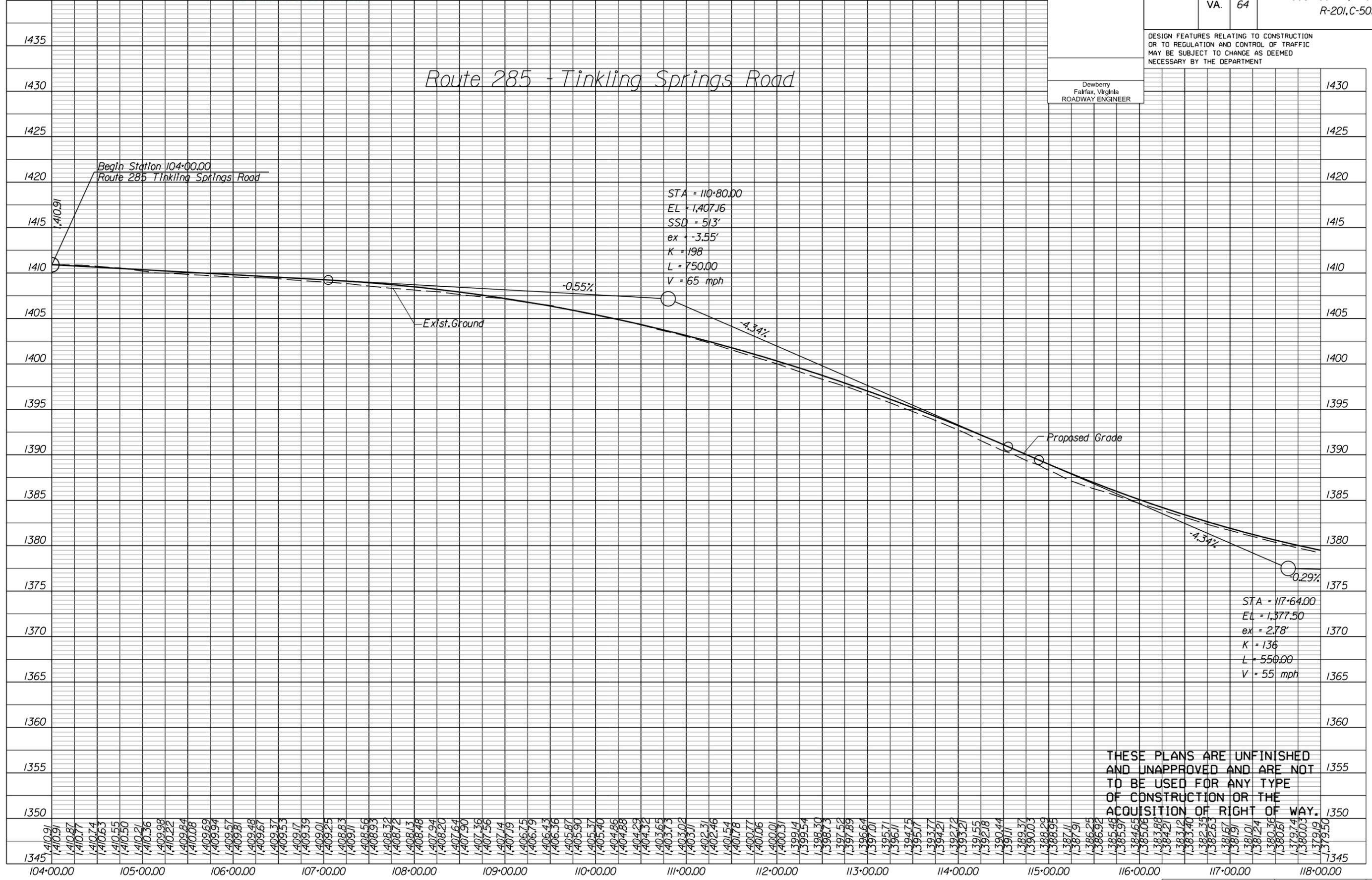


Note: Additional Utility Easements may be required.



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

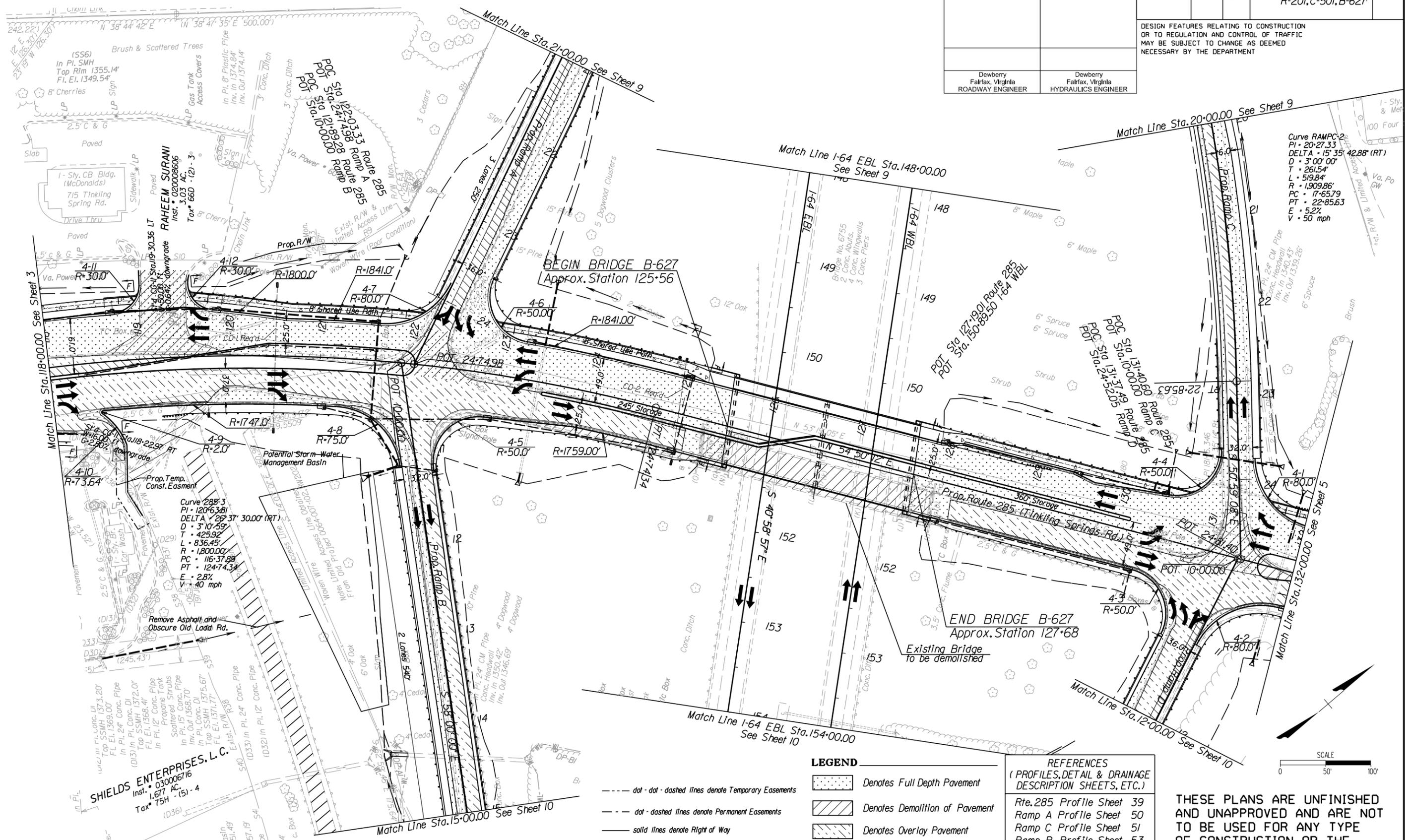
Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER



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

| Station | Elevation | Station | Elevation |
|-----------|-----------|-----------|-----------|
| 104+00.00 | 1410.91 | 111+00.00 | 1398.73 |
| 104+10.00 | 1410.87 | 111+10.00 | 1398.73 |
| 104+20.00 | 1410.77 | 111+20.00 | 1398.73 |
| 104+30.00 | 1410.74 | 111+30.00 | 1398.73 |
| 104+40.00 | 1410.63 | 111+40.00 | 1398.73 |
| 104+50.00 | 1410.55 | 111+50.00 | 1398.73 |
| 104+60.00 | 1410.50 | 111+60.00 | 1398.73 |
| 104+70.00 | 1410.56 | 111+70.00 | 1398.73 |
| 104+80.00 | 1410.56 | 111+80.00 | 1398.73 |
| 104+90.00 | 1409.98 | 111+90.00 | 1398.73 |
| 105+00.00 | 1410.22 | 112+00.00 | 1395.71 |
| 105+10.00 | 1410.84 | 112+10.00 | 1394.75 |
| 105+20.00 | 1410.08 | 112+20.00 | 1395.17 |
| 105+30.00 | 1409.69 | 112+30.00 | 1394.75 |
| 105+40.00 | 1409.94 | 112+40.00 | 1394.21 |
| 105+50.00 | 1409.57 | 112+50.00 | 1393.21 |
| 105+60.00 | 1409.81 | 112+60.00 | 1393.21 |
| 105+70.00 | 1409.48 | 112+70.00 | 1393.21 |
| 105+80.00 | 1409.67 | 112+80.00 | 1392.18 |
| 105+90.00 | 1409.37 | 113+00.00 | 1390.44 |
| 106+00.00 | 1409.53 | 113+10.00 | 1389.37 |
| 106+10.00 | 1409.53 | 113+20.00 | 1389.03 |
| 106+20.00 | 1409.39 | 113+30.00 | 1388.29 |
| 106+30.00 | 1409.01 | 113+40.00 | 1388.95 |
| 106+40.00 | 1409.25 | 113+50.00 | 1387.11 |
| 106+50.00 | 1408.83 | 114+00.00 | 1387.91 |
| 106+60.00 | 1409.11 | 114+10.00 | 1386.25 |
| 106+70.00 | 1408.56 | 114+20.00 | 1386.92 |
| 106+80.00 | 1408.93 | 114+30.00 | 1385.48 |
| 106+90.00 | 1408.32 | 114+40.00 | 1385.91 |
| 107+00.00 | 1408.72 | 114+50.00 | 1384.65 |
| 107+10.00 | 1408.13 | 115+00.00 | 1385.06 |
| 107+20.00 | 1408.48 | 115+10.00 | 1383.88 |
| 107+30.00 | 1407.94 | 115+20.00 | 1384.21 |
| 107+40.00 | 1408.20 | 115+30.00 | 1383.12 |
| 107+50.00 | 1407.64 | 115+40.00 | 1383.40 |
| 107+60.00 | 1407.90 | 115+50.00 | 1382.35 |
| 107+70.00 | 1407.36 | 116+00.00 | 1382.63 |
| 107+80.00 | 1407.56 | 116+10.00 | 1381.67 |
| 107+90.00 | 1407.14 | 116+20.00 | 1381.91 |
| 108+00.00 | 1406.75 | 116+30.00 | 1381.24 |
| 108+10.00 | 1406.79 | 116+40.00 | 1380.36 |
| 108+20.00 | 1406.43 | 116+50.00 | 1379.74 |
| 108+30.00 | 1406.36 | 117+00.00 | 1380.61 |
| 108+40.00 | 1405.87 | 117+10.00 | 1379.74 |
| 108+50.00 | 1405.90 | 117+20.00 | 1380.03 |
| 108+60.00 | 1405.37 | 117+30.00 | 1379.19 |
| 108+70.00 | 1405.40 | 117+40.00 | 1379.50 |
| 108+80.00 | 1404.86 | | |
| 108+90.00 | 1404.88 | | |
| 109+00.00 | 1404.29 | | |
| 109+10.00 | 1404.32 | | |
| 109+20.00 | 1403.65 | | |
| 109+30.00 | 1403.73 | | |
| 109+40.00 | 1403.02 | | |
| 109+50.00 | 1402.31 | | |
| 109+60.00 | 1402.46 | | |
| 109+70.00 | 1401.54 | | |
| 109+80.00 | 1401.78 | | |
| 109+90.00 | 1401.06 | | |
| 110+00.00 | 1400.01 | | |
| 110+10.00 | 1399.51 | | |
| 110+20.00 | 1399.54 | | |
| 110+30.00 | 1398.50 | | |
| 110+40.00 | 1398.73 | | |
| 110+50.00 | 1397.52 | | |
| 110+60.00 | 1397.89 | | |
| 110+70.00 | 1396.64 | | |
| 110+80.00 | 1397.01 | | |
| 110+90.00 | 1395.71 | | |
| 111+00.00 | 1394.75 | | |
| 111+10.00 | 1395.17 | | |
| 111+20.00 | 1394.21 | | |
| 111+30.00 | 1393.21 | | |
| 111+40.00 | 1393.21 | | |
| 111+50.00 | 1392.18 | | |
| 111+60.00 | 1390.44 | | |
| 111+70.00 | 1389.37 | | |
| 111+80.00 | 1389.03 | | |
| 111+90.00 | 1388.29 | | |
| 112+00.00 | 1388.95 | | |
| 112+10.00 | 1387.11 | | |
| 112+20.00 | 1387.91 | | |
| 112+30.00 | 1386.25 | | |
| 112+40.00 | 1386.92 | | |
| 112+50.00 | 1385.48 | | |
| 112+60.00 | 1385.91 | | |
| 112+70.00 | 1384.65 | | |
| 112+80.00 | 1385.06 | | |
| 112+90.00 | 1383.88 | | |
| 113+00.00 | 1384.21 | | |
| 113+10.00 | 1383.12 | | |
| 113+20.00 | 1383.40 | | |
| 113+30.00 | 1382.35 | | |
| 113+40.00 | 1382.63 | | |
| 113+50.00 | 1381.67 | | |
| 114+00.00 | 1381.91 | | |
| 114+10.00 | 1381.24 | | |
| 114+20.00 | 1380.36 | | |
| 114+30.00 | 1379.74 | | |
| 114+40.00 | 1380.61 | | |
| 114+50.00 | 1379.74 | | |
| 115+00.00 | 1380.03 | | |
| 115+10.00 | 1379.19 | | |
| 115+20.00 | 1379.50 | | |
| 115+30.00 | 1378.56 | | |
| 115+40.00 | 1378.56 | | |
| 115+50.00 | 1377.52 | | |
| 116+00.00 | 1376.58 | | |
| 116+10.00 | 1375.64 | | |
| 116+20.00 | 1374.70 | | |
| 116+30.00 | 1373.76 | | |
| 116+40.00 | 1372.82 | | |
| 116+50.00 | 1371.88 | | |
| 117+00.00 | 1370.94 | | |
| 117+10.00 | 1370.00 | | |
| 117+20.00 | 1369.06 | | |
| 117+30.00 | 1368.12 | | |
| 117+40.00 | 1367.18 | | |
| 117+50.00 | 1366.24 | | |
| 118+00.00 | 1365.30 | | |

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---|-------|--|--|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501, B-627 | 38 |
| DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT | | | | |
| Dewberry Fairfax, Virginia ROADWAY ENGINEER | | Dewberry Fairfax, Virginia HYDRAULICS ENGINEER | | |



Curve RAMPC-2
 PI = 20+27.33
 DELTA = 15° 35' 42.88" (RT)
 D = 3' 00" 00"
 T = 261.54'
 L = 519.84'
 R = 1909.86'
 PC = 17+65.79
 PT = 22+85.63
 E = 5.2%
 V = 50 mph

Curve 288-3
 PI = 120+63.81
 DELTA = 26° 37' 30.00" (RT)
 D = 3' 10" 59"
 T = 425.92'
 L = 836.45'
 R = 1800.00'
 PC = 116+37.88
 PT = 124+74.34
 E = 2.8%
 V = 40 mph

SHIELDS ENTERPRISES, L.C.
 Inst. # 030006716
 1.677 AC.
 Tax # 75H (5)-4

Note: Additional Utility Easements may be required.

- - - dot - dot - dashed lines denote Temporary Easements
- - - dot - dashed lines denote Permanent Easements
- solid lines denote Right of Way
- ☐ — Denotes Construction Limits In Cuts
- ☐ — Denotes Construction Limits In Fills

LEGEND

| | |
|--|--------------------------------|
| | Denotes Full Depth Pavement |
| | Denotes Demolition of Pavement |
| | Denotes Overlay Pavement |
| | Denotes Milling and Overlay |
| | Denotes Shared Use Path |

REFERENCES
 (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

| | |
|------------------------|----|
| Rte. 285 Profile Sheet | 39 |
| Ramp A Profile Sheet | 50 |
| Ramp C Profile Sheet | 51 |
| Ramp B Profile Sheet | 53 |
| Ramp D Profile Sheet | 54 |

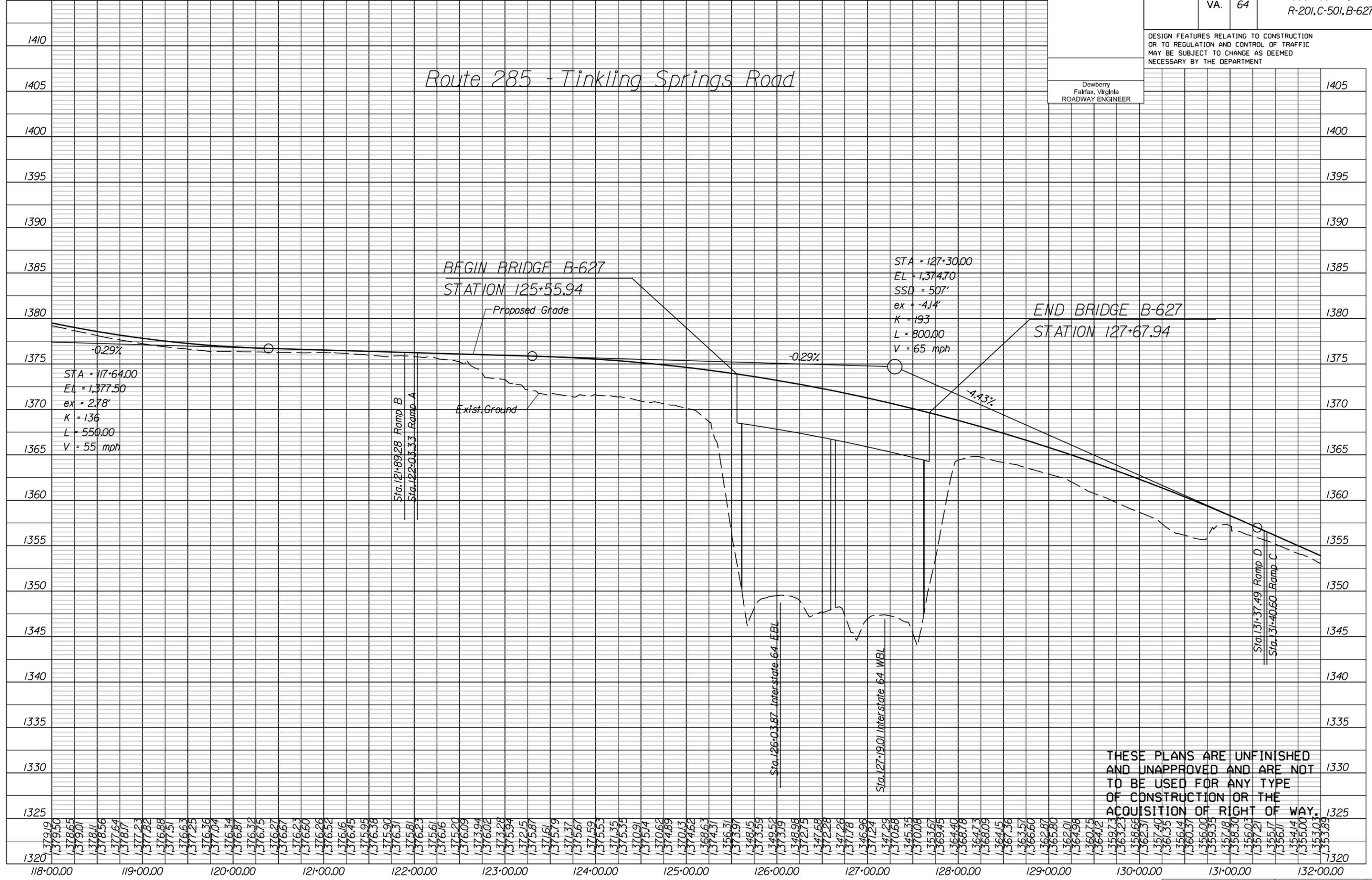
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.



| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|--|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501, B-627 | 39 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER



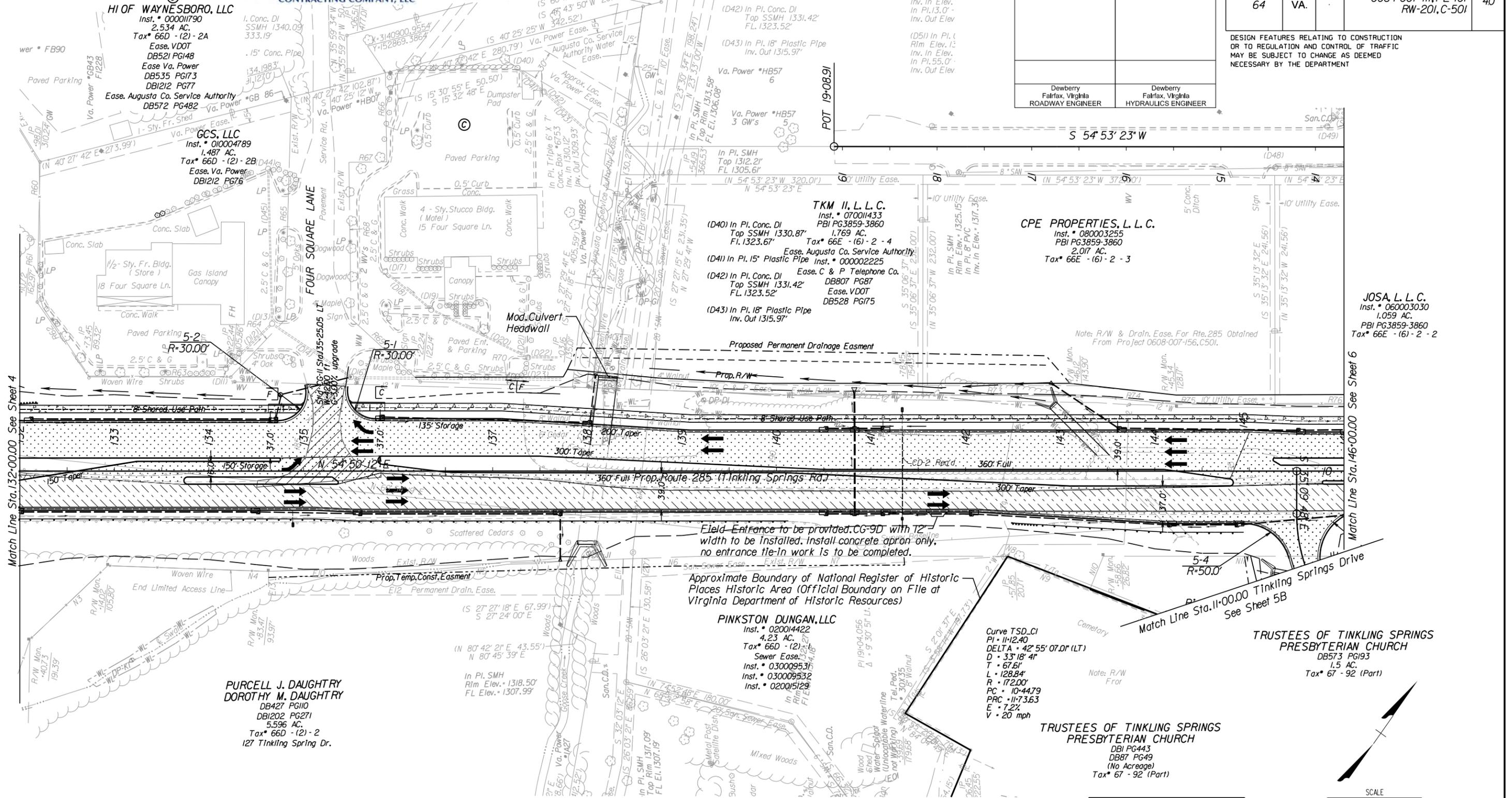
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|---------------------------------------|-----------|
| 64 | VA. | | 0064-007-III, PE-101 RW-201, C-501 | 40 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

Dewberry
 Fairfax, Virginia
 HYDRAULICS ENGINEER



HI OF WAYNESBORO, LLC
 Inst. # 000011790
 2.534 AC.
 Tax# 66D - (2) - 2A
 Ease, VDOT
 DB521 PG48
 Ease Va. Power
 DB535 PG73
 DB1212 PG77
 Ease, Augusta Co. Service Authority
 DB572 PG482

GCS, LLC
 Inst. # 010004789
 1.487 AC.
 Tax# 66D - (2) - 2B
 Ease, Va. Power
 DB1212 PG76

TKM II, L.L.C.
 Inst. # 07001433
 PBI PG3859-3860
 1.769 AC.
 Tax# 66E - (6) - 2 - 4
 Ease, Augusta Co. Service Authority
 inst. # 000002225
 Ease, C & P Telephone Co.
 DB807 PG87
 Ease, VDOT
 DB528 PG75

CPE PROPERTIES, L.L.C.
 Inst. # 080003255
 PBI PG3859-3860
 2.017 AC.
 Tax# 66E - (6) - 2 - 3

JOSA, L.L.C.
 Inst. # 060003030
 1.059 AC.
 PBI PG3859-3860
 Tax# 66E - (6) - 2 - 2

PURCELL J. DAUGHTRY
DOROTHY M. DAUGHTRY
 DB427 PG110
 DB1202 PG271
 5.596 AC.
 Tax# 66D - (2) - 2
 127 Tinkling Spring Dr.

Field Entrance to be provided. CG-9D with 12' width to be installed. Install concrete apron only, no entrance tie-in work is to be completed.

Approximate Boundary of National Register of Historic Places Historic Area (Official Boundary on File at Virginia Department of Historic Resources)

PINKSTON DUNGAN, LLC
 Inst. # 020014422
 4.23 AC.
 Tax# 66D - (2) - 2
 Sewer Easement
 Inst. # 030009531
 Inst. # 030009532
 Inst. # 020015129

Curve TSD CI
 PI - 11+12.40
 DELTA - 42° 55' 07.0" (LT)
 D - 33' 18' 4" (LT)
 T - 67.61'
 L - 128.84'
 R - 172.00'
 PC - 10+44.79
 PRC - 11+73.63
 E - 7.2%
 V - 20 mph

TRUSTEES OF TINKLING SPRINGS PRESBYTERIAN CHURCH
 DB1 PG443
 DB87 PG49
 (No Acreage)
 Tax# 67 - 92 (Part)

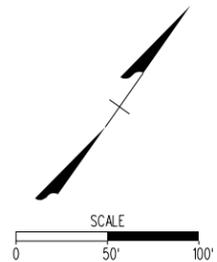
TRUSTEES OF TINKLING SPRINGS PRESBYTERIAN CHURCH
 DB573 PG193
 1.5 AC.
 Tax# 67 - 92 (Part)

- dot - dot - dashed lines denote Temporary Easements
 --- dot - dashed lines denote Permanent Easements
 ——— solid lines denote Right of Way
- ☐ — Denotes Construction Limits In Cuts
 ☐ — Denotes Construction Limits In Fills
- Note: Additional Utility Easements may be required.

- LEGEND**
- Denotes Full Depth Pavement
 - Denotes Demolition of Pavement
 - Denotes Overlay Pavement
 - Denotes Milling and Overlay
 - Denotes Shared Use Path

REFERENCES
 (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

| | |
|-------------------------------------|----|
| Profile Sheet (Rte 285) | 41 |
| Profile Sheet (Tinkling Springs Dr) | 43 |



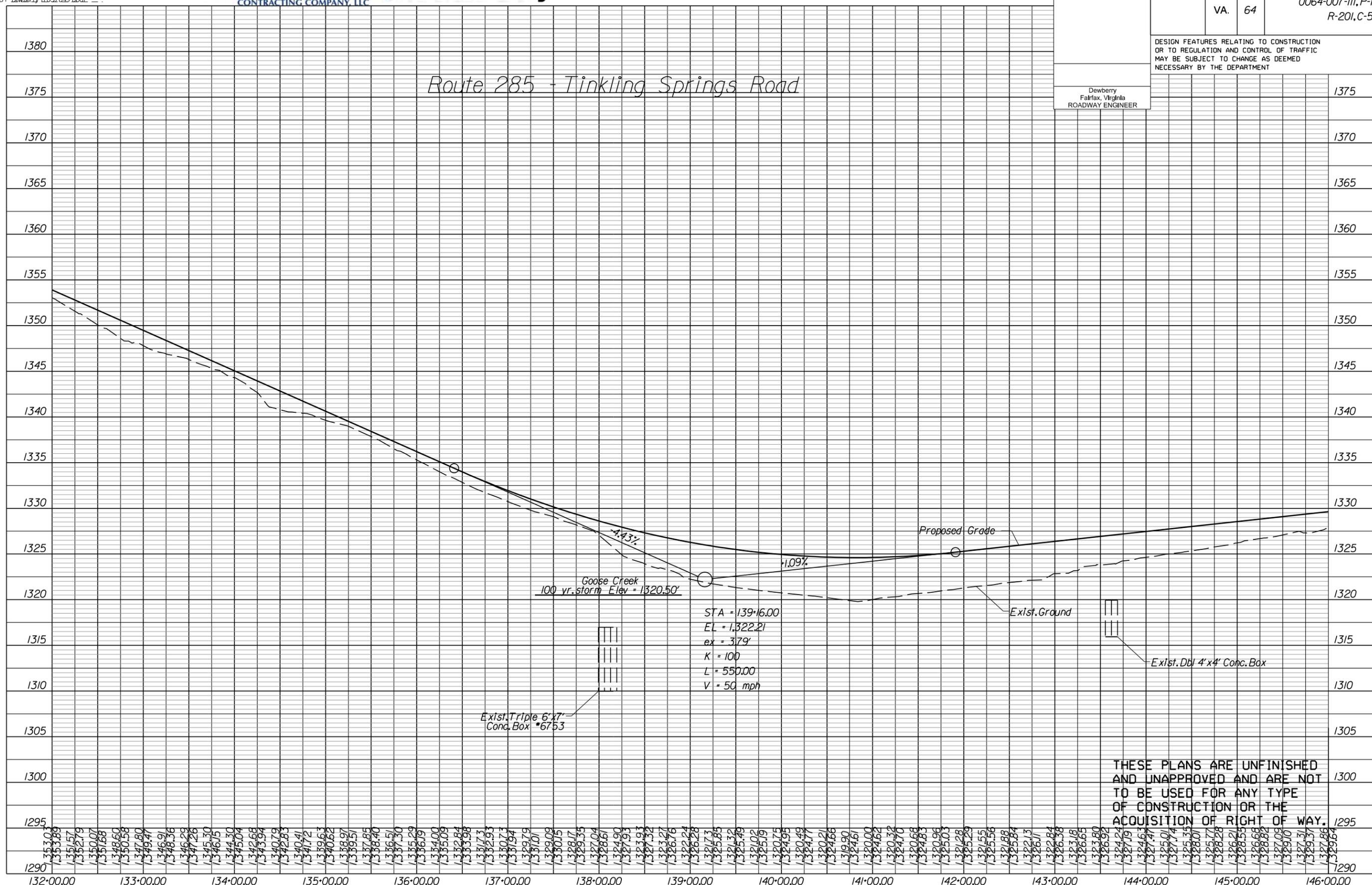
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 41 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

Route 285 - Tinkling Springs Road



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

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| 1290 | 1325.00 | 1330.00 | 1335.00 | 1340.00 | 1345.00 | 1350.00 | 1355.00 | 1360.00 | 1365.00 | 1370.00 | 1375.00 | 1380.00 | 1385.00 | 1390.00 | 1395.00 | 1400.00 | 1405.00 | 1410.00 | 1415.00 | 1420.00 | 1425.00 | 1430.00 | 1435.00 | 1440.00 | 1445.00 | 1450.00 | 1455.00 | 1460.00 | 1295 |
| 1353.89 | 1351.57 | 1349.25 | 1346.93 | 1344.61 | 1342.29 | 1340.00 | 1337.71 | 1335.42 | 1333.13 | 1330.84 | 1328.55 | 1326.26 | 1323.97 | 1321.68 | 1319.39 | 1317.10 | 1314.81 | 1312.52 | 1310.23 | 1307.94 | 1305.65 | 1303.36 | 1301.07 | 1298.78 | 1296.49 | 1294.20 | 1291.91 | 1289.62 | 1290 |

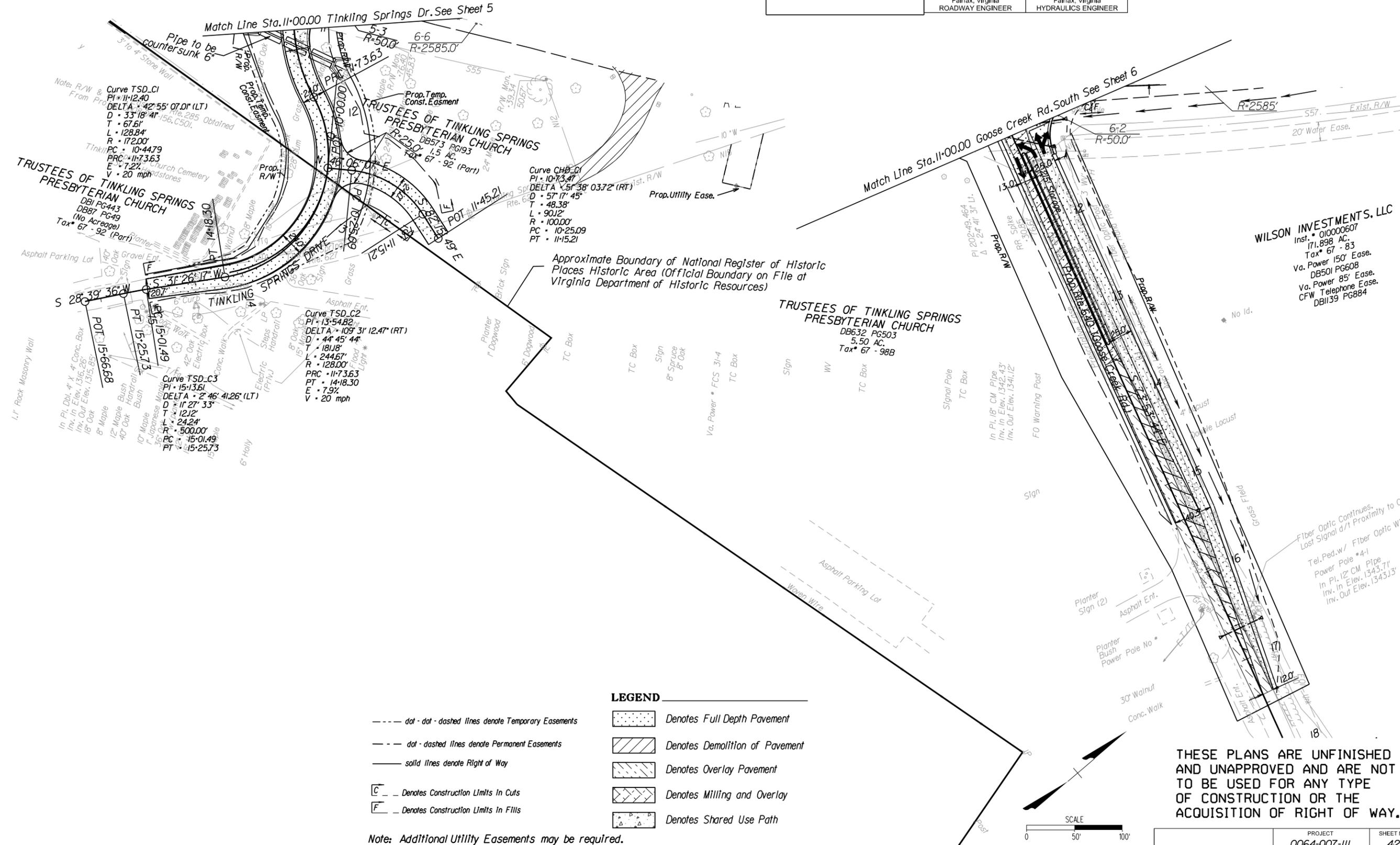
**PLANTERS BANK & TRUST
 COMPANY OF VIRGINIA**
 Inst. # 02001115
 PBI PG3859-3860
 2.162 AC.
 Tax # 66E - (6) - 2 - 1

| REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.) | |
|---|----|
| Profile Sheet | 43 |

| | |
|---|--|
| Dewberry Fairfax, Virginia ROADWAY ENGINEER | Dewberry Fairfax, Virginia HYDRAULICS ENGINEER |
|---|--|

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 42 |

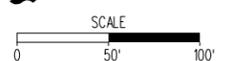
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LEGEND

| | |
|---|--------------------------------|
| --- dot - dot - dashed lines denote Temporary Easements | Denotes Full Depth Pavement |
| --- dot - dashed lines denote Permanent Easements | Denotes Demolition of Pavement |
| — solid lines denote Right of Way | Denotes Overlay Pavement |
| C — Denotes Construction Limits In Cuts | Denotes Milling and Overlay |
| F — Denotes Construction Limits In Fills | Denotes Shared Use Path |

Note: Additional Utility Easements may be required.



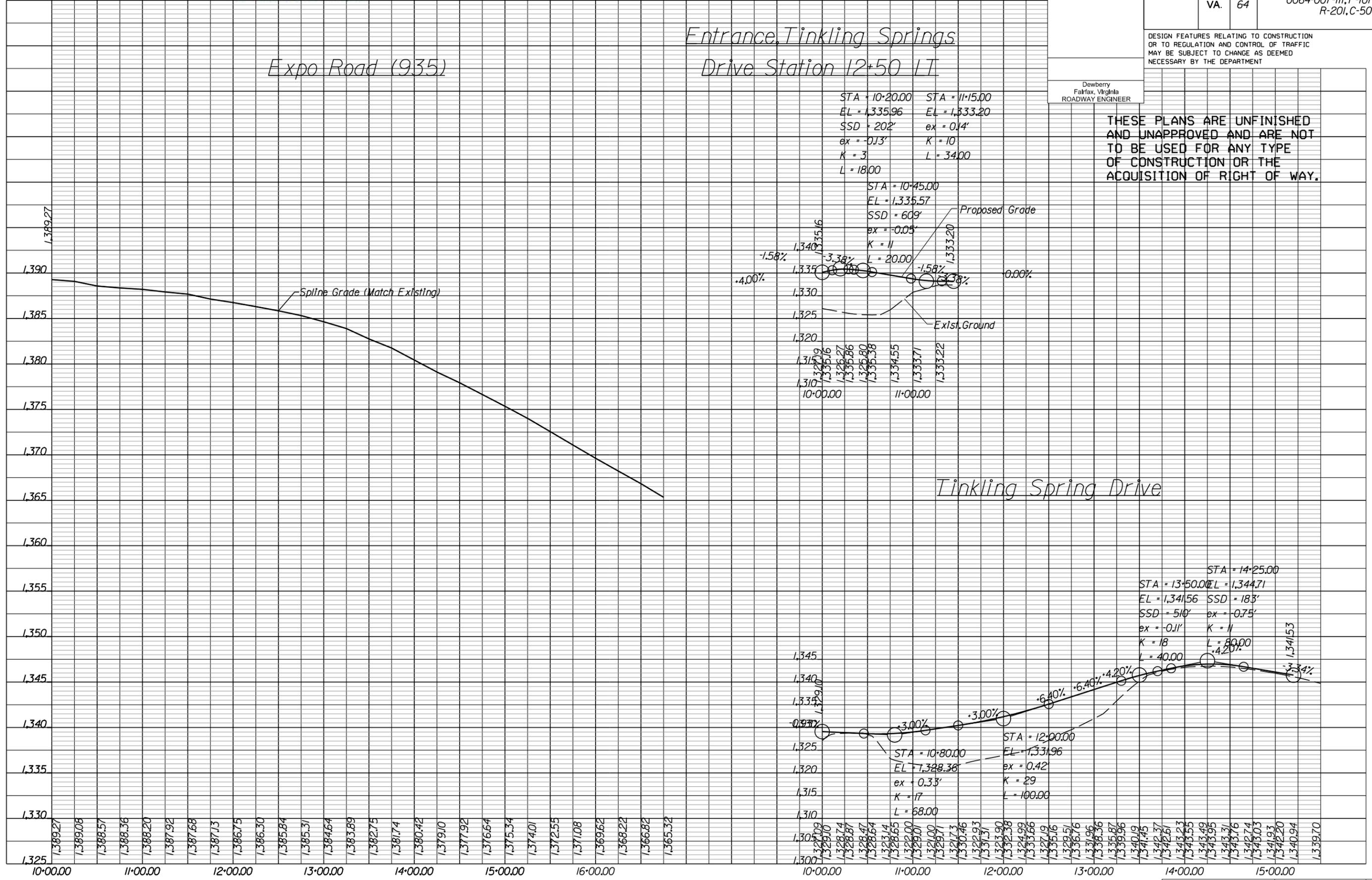
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 43 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

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



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| 1,389.27 | 1,389.08 | 1,388.57 | 1,388.36 | 1,388.20 | 1,387.92 | 1,387.68 | 1,387.13 | 1,386.75 | 1,386.30 | 1,385.84 | 1,385.31 | 1,384.64 | 1,383.89 | 1,382.75 | 1,381.74 | 1,380.42 | 1,379.10 | 1,377.92 | 1,376.64 | 1,375.34 | 1,374.01 | 1,372.55 | 1,371.08 | 1,369.62 | 1,368.22 | 1,366.82 | 1,365.32 | 1,365.09 | 1,364.10 | 1,363.74 | 1,362.87 | 1,362.47 | 1,362.14 | 1,361.65 | 1,361.00 | 1,360.01 | 1,359.17 | 1,358.46 | 1,357.93 | 1,357.31 | 1,356.90 | 1,356.99 | 1,356.66 | 1,356.16 | 1,355.51 | 1,354.76 | 1,353.86 | 1,352.87 | 1,351.96 | 1,350.96 | 1,349.19 | 1,348.37 | 1,347.45 | 1,346.26 | 1,345.23 | 1,343.55 | 1,343.49 | 1,343.95 | 1,343.31 | 1,343.16 | 1,342.74 | 1,342.03 | 1,341.93 | 1,341.20 | 1,340.94 | 1,339.70 | | | | | | | | | | | | | | | | | | | | | | | | |
| 10+00.00 | 11+00.00 | 12+00.00 | 13+00.00 | 14+00.00 | 15+00.00 | 16+00.00 | 17+00.00 | 18+00.00 | 19+00.00 | 20+00.00 | 21+00.00 | 22+00.00 | 23+00.00 | 24+00.00 | 25+00.00 | 26+00.00 | 27+00.00 | 28+00.00 | 29+00.00 | 30+00.00 | 31+00.00 | 32+00.00 | 33+00.00 | 34+00.00 | 35+00.00 | 36+00.00 | 37+00.00 | 38+00.00 | 39+00.00 | 40+00.00 | 41+00.00 | 42+00.00 | 43+00.00 | 44+00.00 | 45+00.00 | 46+00.00 | 47+00.00 | 48+00.00 | 49+00.00 | 50+00.00 | 51+00.00 | 52+00.00 | 53+00.00 | 54+00.00 | 55+00.00 | 56+00.00 | 57+00.00 | 58+00.00 | 59+00.00 | 60+00.00 | 61+00.00 | 62+00.00 | 63+00.00 | 64+00.00 | 65+00.00 | 66+00.00 | 67+00.00 | 68+00.00 | 69+00.00 | 70+00.00 | 71+00.00 | 72+00.00 | 73+00.00 | 74+00.00 | 75+00.00 | 76+00.00 | 77+00.00 | 78+00.00 | 79+00.00 | 80+00.00 | 81+00.00 | 82+00.00 | 83+00.00 | 84+00.00 | 85+00.00 | 86+00.00 | 87+00.00 | 88+00.00 | 89+00.00 | 90+00.00 | 91+00.00 | 92+00.00 | 93+00.00 | 94+00.00 | 95+00.00 | 96+00.00 | 97+00.00 | 98+00.00 | 99+00.00 | 100+00.00 |

REFERENCES
 (PROFILES, DETAIL & DRAINAGE
 DESCRIPTION SHEETS, ETC.)

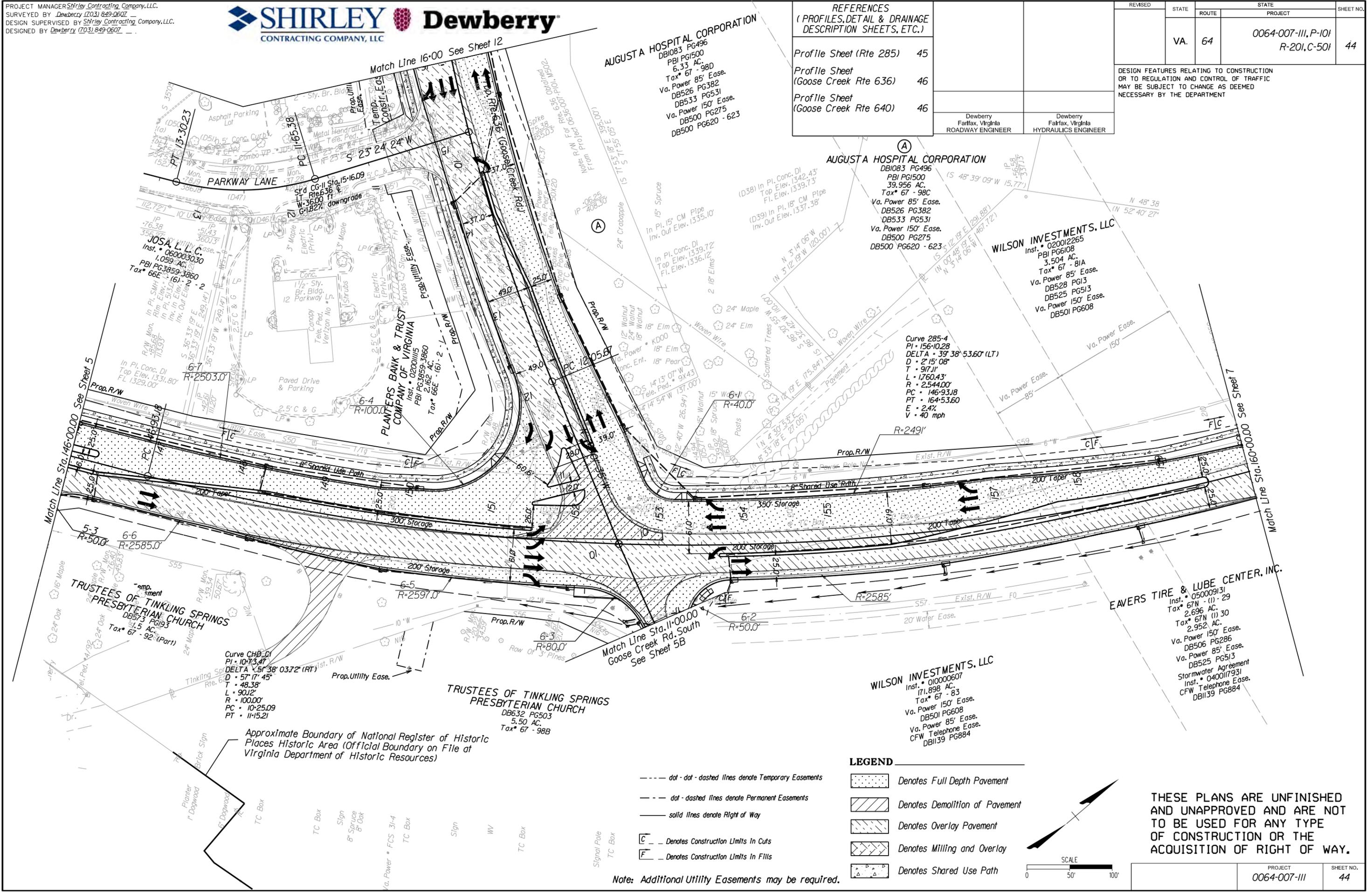
| | |
|-------------------------------------|----|
| Profile Sheet (Rte 285) | 45 |
| Profile Sheet (Goose Creek Rte 636) | 46 |
| Profile Sheet (Goose Creek Rte 640) | 46 |

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 44 |

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

Dewberry Fairfax, Virginia
 ROADWAY ENGINEER

Dewberry Fairfax, Virginia
 HYDRAULICS ENGINEER

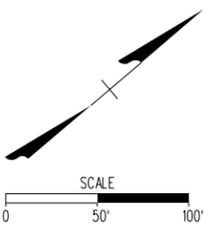


Approximate Boundary of National Register of Historic Places Historic Area (Official Boundary on File at Virginia Department of Historic Resources)

Note: Additional Utility Easements may be required.

LEGEND

| | | | |
|------------------------------|--------------------------------------|--|--------------------------------|
| --- dot - dot - dashed lines | denote Temporary Easements | | Denotes Full Depth Pavement |
| --- dot - dashed lines | denote Permanent Easements | | Denotes Demolition of Pavement |
| — solid lines | denote Right of Way | | Denotes Overlay Pavement |
| | Denotes Construction Limits In Cuts | | Denotes Milling and Overlay |
| | Denotes Construction Limits In Fills | | Denotes Shared Use Path |

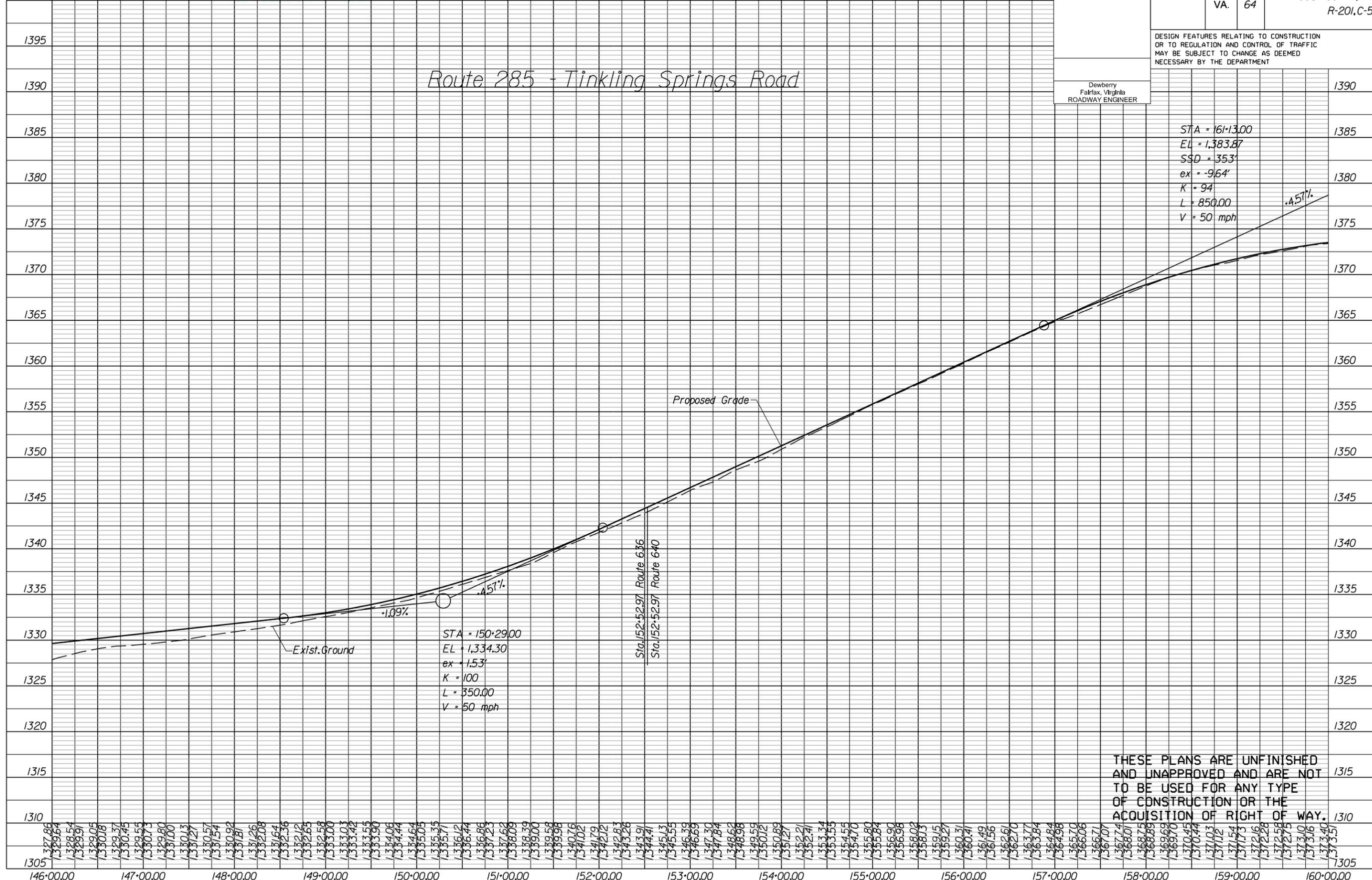


THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 45 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER



STA = 161+13.00
 EL = 1,383.87
 SSD = 353'
 ex = -9.64'
 K = 94
 L = 850.00
 V = 50 mph

STA = 150+29.00
 EL = 1,334.30
 ex = -1.53'
 K = 100
 L = 350.00
 V = 50 mph

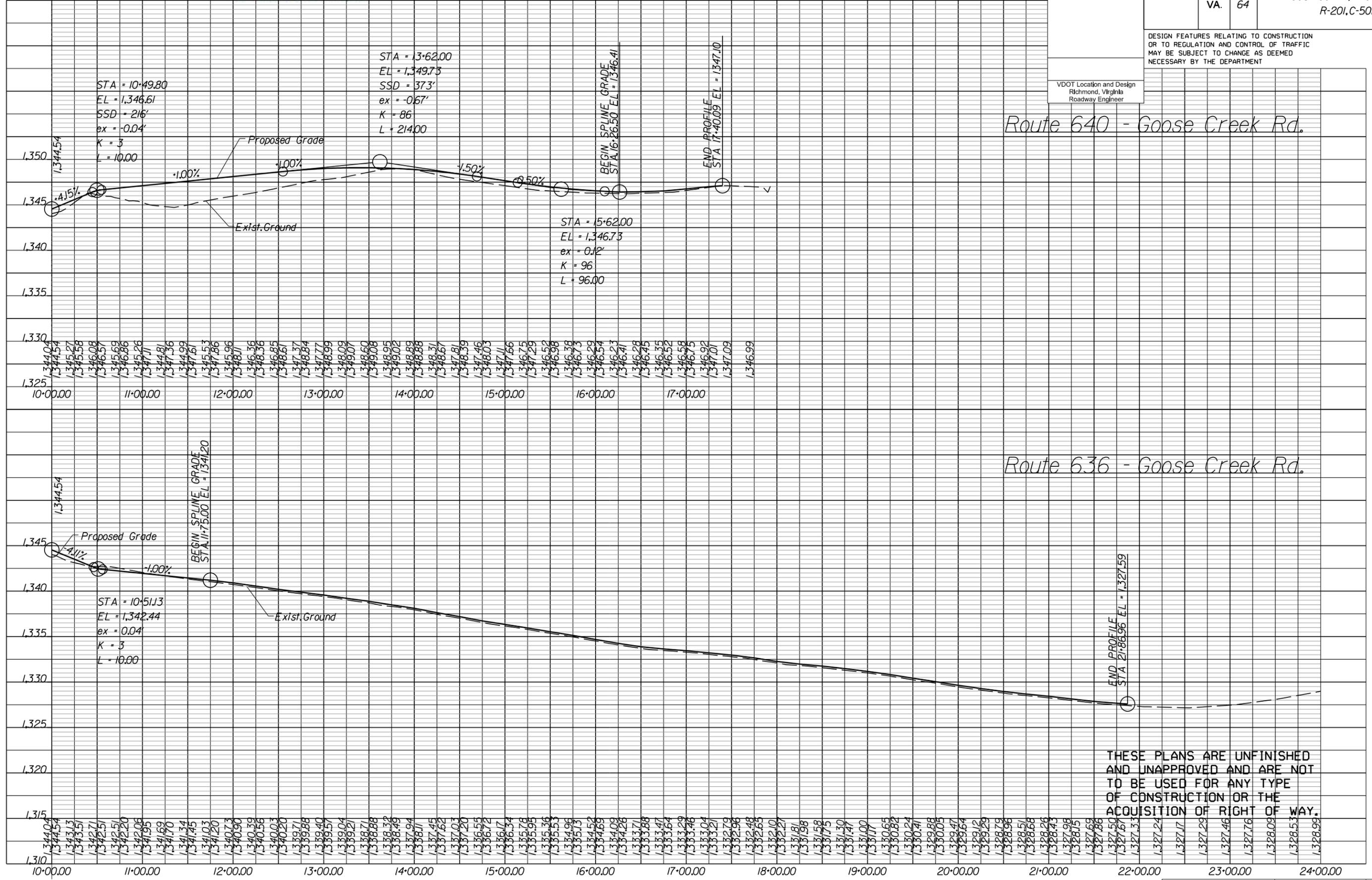
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| | | |
|------|--------|-----------|
| 1305 | 337.86 | 146+00.00 |
| | 339.64 | |
| | 338.54 | |
| | 339.91 | |
| | 339.05 | |
| | 339.37 | |
| | 339.45 | |
| | 339.55 | |
| | 339.75 | |
| | 339.80 | |
| | 339.00 | |
| | 339.13 | |
| | 339.27 | |
| | 339.54 | |
| | 339.92 | |
| | 339.26 | |
| | 339.08 | |
| | 339.64 | |
| | 339.56 | |
| | 339.12 | |
| | 339.65 | |
| | 339.58 | |
| | 339.00 | |
| | 339.42 | |
| | 339.55 | |
| | 339.90 | |
| | 339.08 | |
| | 339.44 | |
| | 339.64 | |
| | 339.05 | |
| | 339.35 | |
| | 339.71 | |
| | 339.12 | |
| | 339.44 | |
| | 339.86 | |
| | 339.25 | |
| | 339.62 | |
| | 338.09 | |
| | 338.59 | |
| | 339.00 | |
| | 339.58 | |
| | 339.98 | |
| | 340.76 | |
| | 341.02 | |
| | 341.79 | |
| | 342.12 | |
| | 342.83 | |
| | 343.28 | |
| | 343.91 | |
| | 344.41 | |
| | 345.13 | |
| | 345.55 | |
| | 346.39 | |
| | 346.69 | |
| | 347.30 | |
| | 347.84 | |
| | 348.62 | |
| | 349.59 | |
| | 350.12 | |
| | 350.89 | |
| | 351.27 | |
| | 352.21 | |
| | 352.41 | |
| | 353.34 | |
| | 353.55 | |
| | 354.55 | |
| | 354.70 | |
| | 355.80 | |
| | 355.84 | |
| | 356.90 | |
| | 356.98 | |
| | 358.02 | |
| | 358.15 | |
| | 359.27 | |
| | 360.31 | |
| | 360.41 | |
| | 361.49 | |
| | 361.56 | |
| | 362.61 | |
| | 363.77 | |
| | 363.84 | |
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| | 364.98 | |
| | 365.70 | |
| | 366.06 | |
| | 366.71 | |
| | 367.07 | |
| | 367.74 | |
| | 368.01 | |
| | 368.75 | |
| | 368.89 | |
| | 369.69 | |
| | 369.70 | |
| | 370.45 | |
| | 370.44 | |
| | 371.03 | |
| | 371.12 | |
| | 371.54 | |
| | 371.75 | |
| | 372.16 | |
| | 372.28 | |
| | 372.58 | |
| | 372.75 | |
| | 373.10 | |
| | 373.16 | |
| | 373.40 | |
| | 373.51 | |
| | | 160+00.00 |

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 46 |

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

VDOT Location and Design
 Richmond, Virginia
 Roadway Engineer



Route 640 - Goose Creek Rd.

Route 636 - Goose Creek Rd.

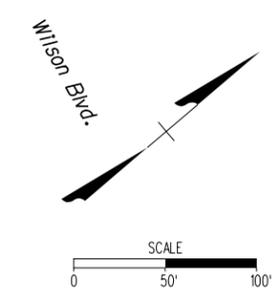
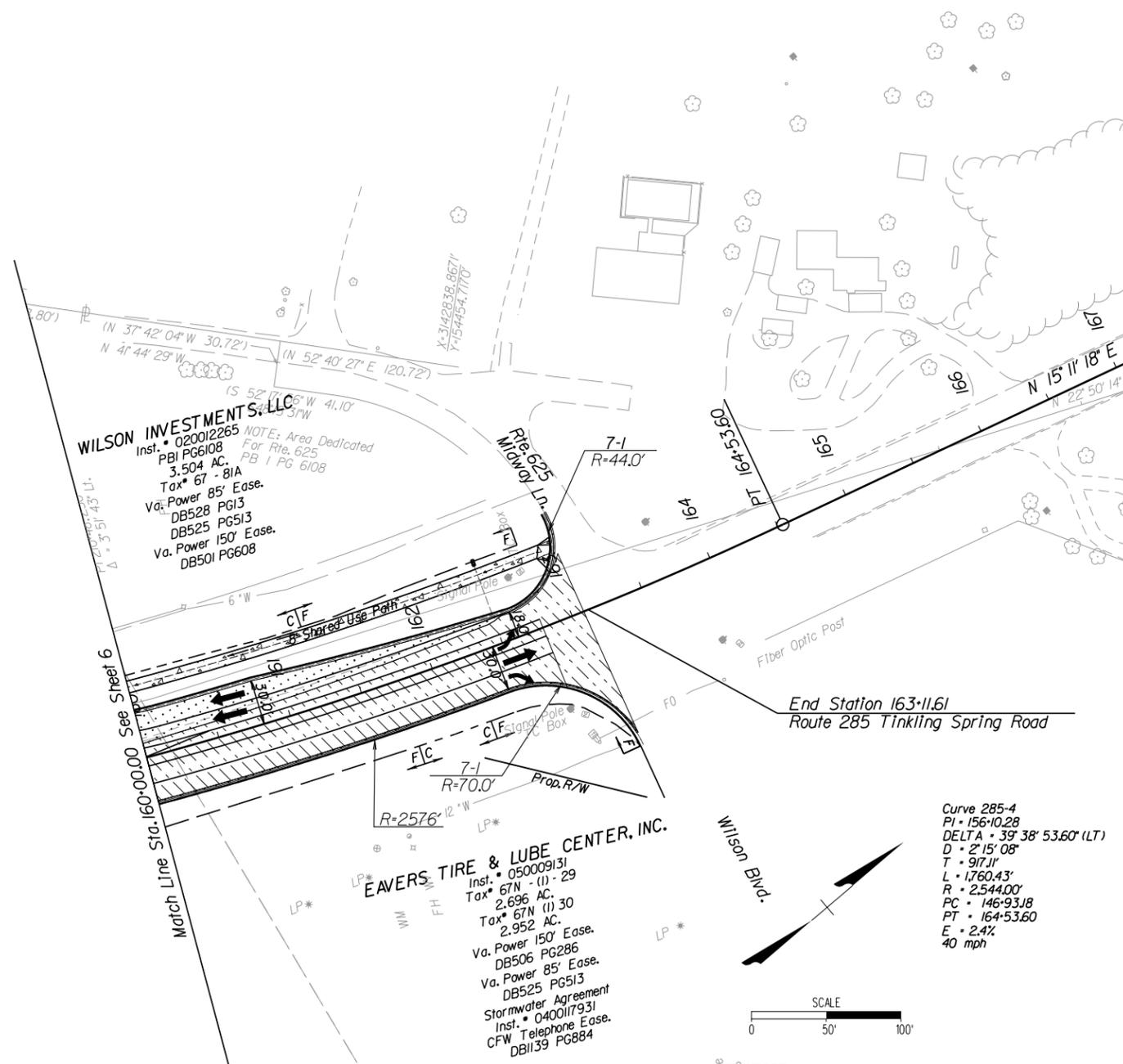
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 47 |

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

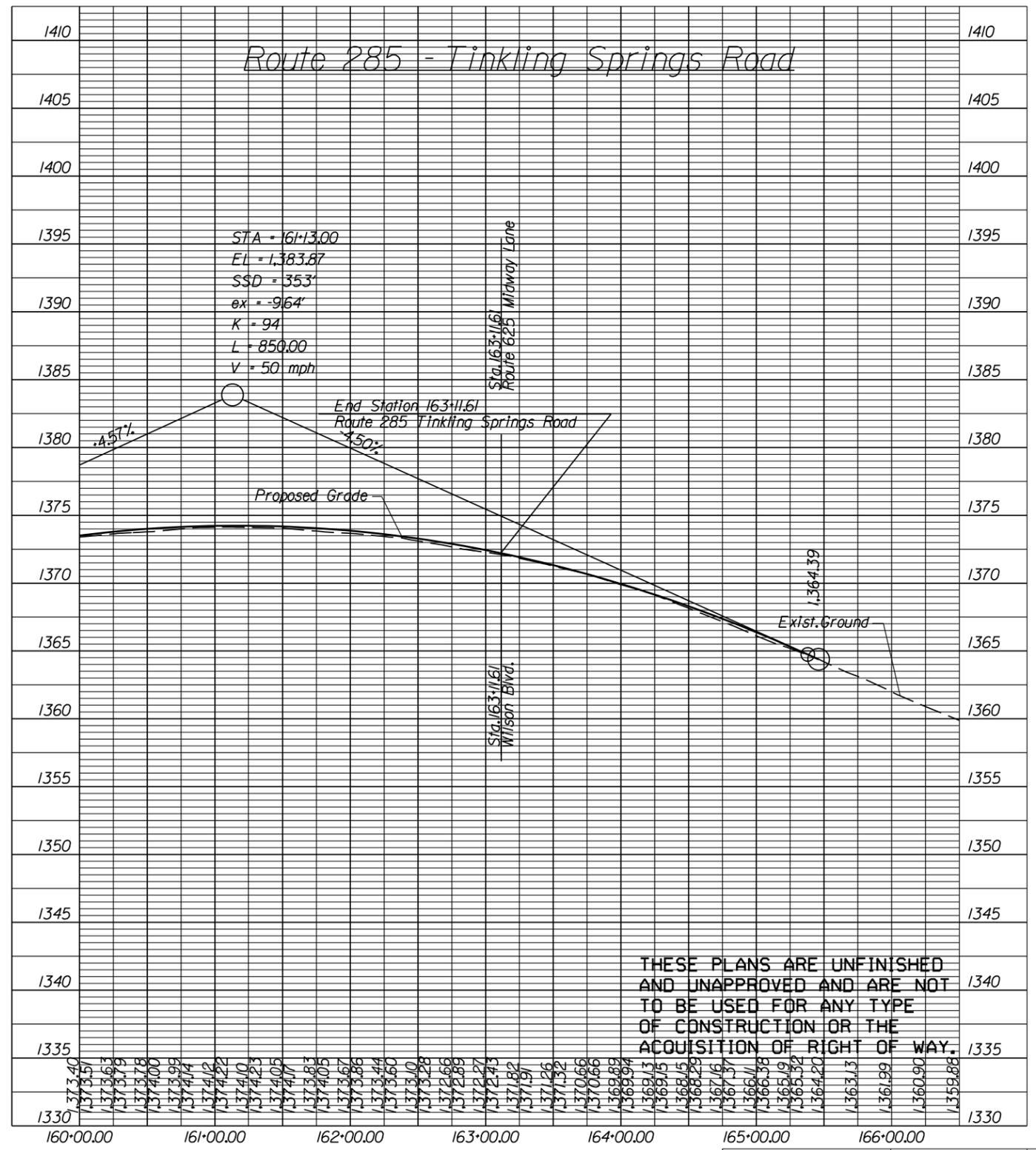
Dewberry Fairfax, Virginia
 ROADWAY ENGINEER

Dewberry Fairfax, Virginia
 HYDRAULICS ENGINEER



- LEGEND**
- 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
 - [Pattern] Denotes Full Depth Pavement
 - [Pattern] Denotes Demolition of Pavement
 - [Pattern] Denotes Overlay Pavement
 - [Pattern] Denotes Milling and Overlay
 - [Pattern] Denotes Shared Use Path

Note: Additional Utility Easements may be required.

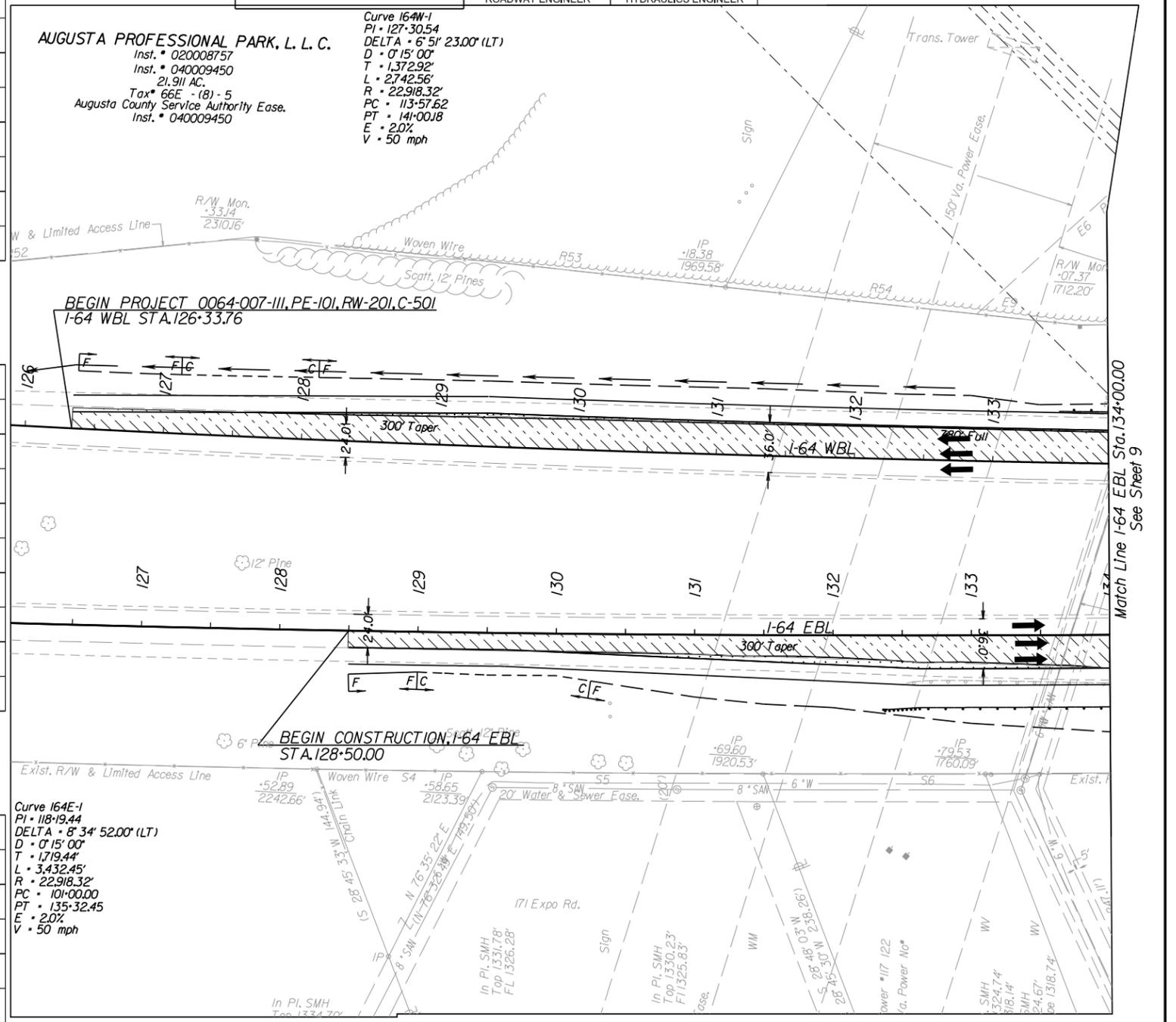
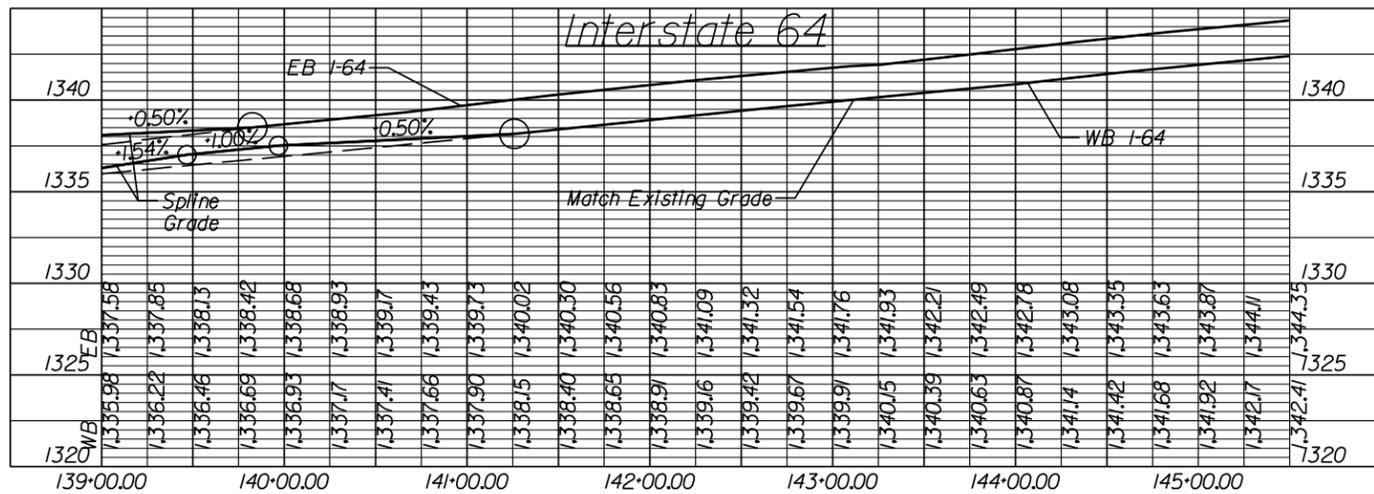
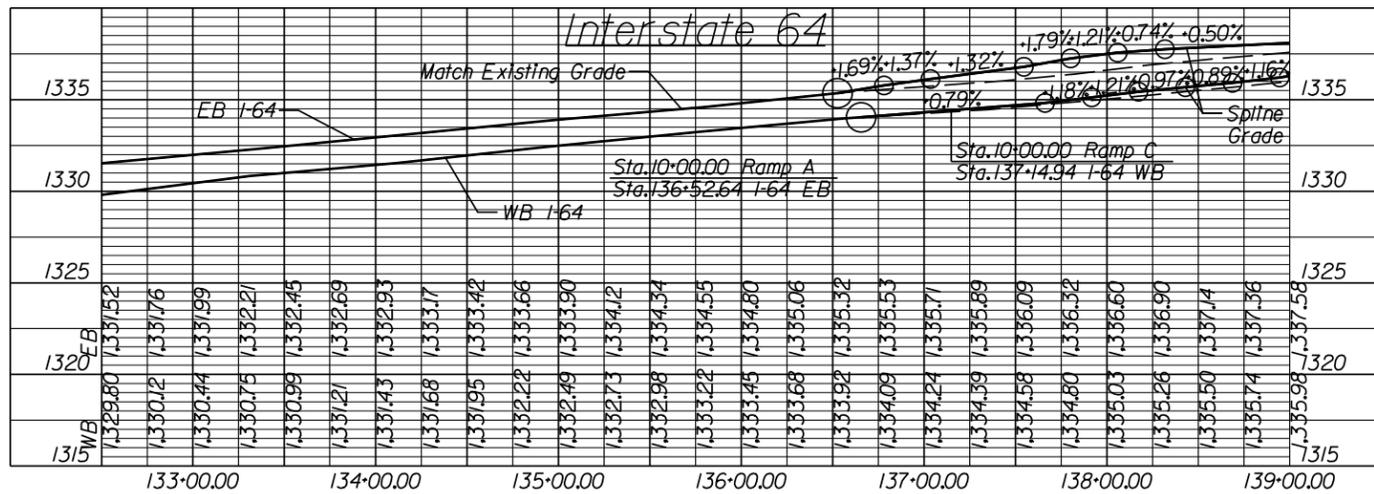
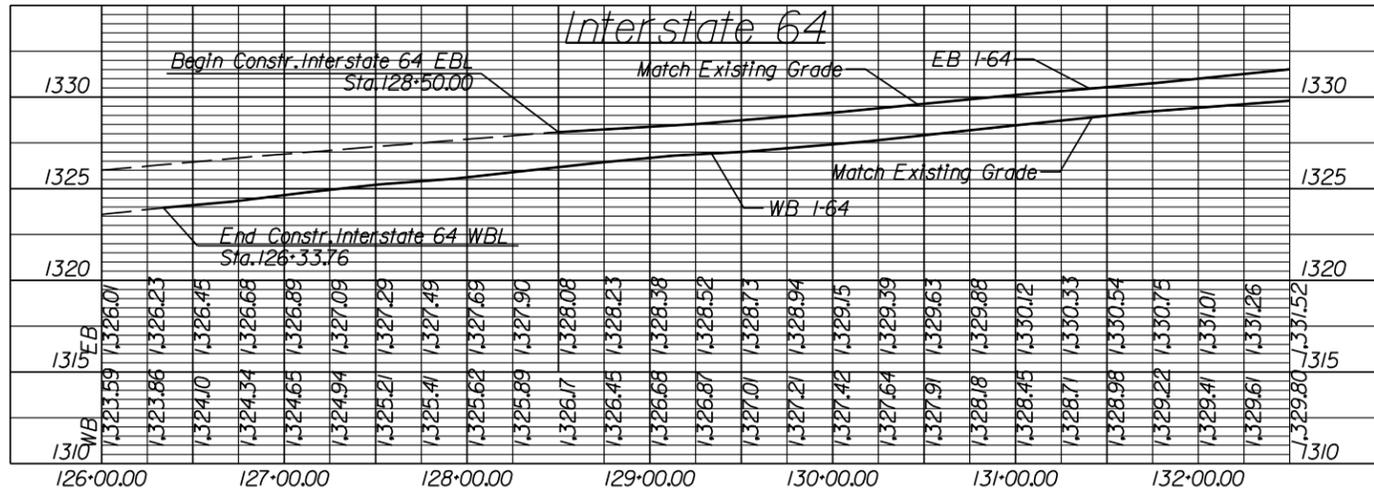


THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

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

Dewberry Fairfax, Virginia
 ROADWAY ENGINEER

Dewberry Fairfax, Virginia
 HYDRAULICS ENGINEER



LEGEND

- 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
- [Stippled Box] Denotes Full Depth Pavement
- [Hatched Box] Denotes Demolition of Pavement
- [Cross-hatched Box] Denotes Overlay Pavement
- [Diagonal Hatched Box] Denotes Milling and Overlay
- [Dotted Box] Denotes Shared Use Path

SCALE: 0 50' 100'

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

Note: Additional Utility Easements may be required.

TRUSTEES OF THE INTERNATIONAL
 CHURCH OF THE FOUR SQUARE GOSPEL

DB772 PG204
 26.772 AC.
 Tax* 66 - 50N
 Ease, Augusta County Service Authority
 Inst. * 050013617
 Inst. * 080001441
 DB1326 PG413
 PBI PG3286
 DB569 PG130
 Ease, Va. Power
 DB498 PG189
 DB533 PG300

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

REFERENCES
 (PROFILES, DETAIL & DRAINAGE
 DESCRIPTION SHEETS, ETC.)

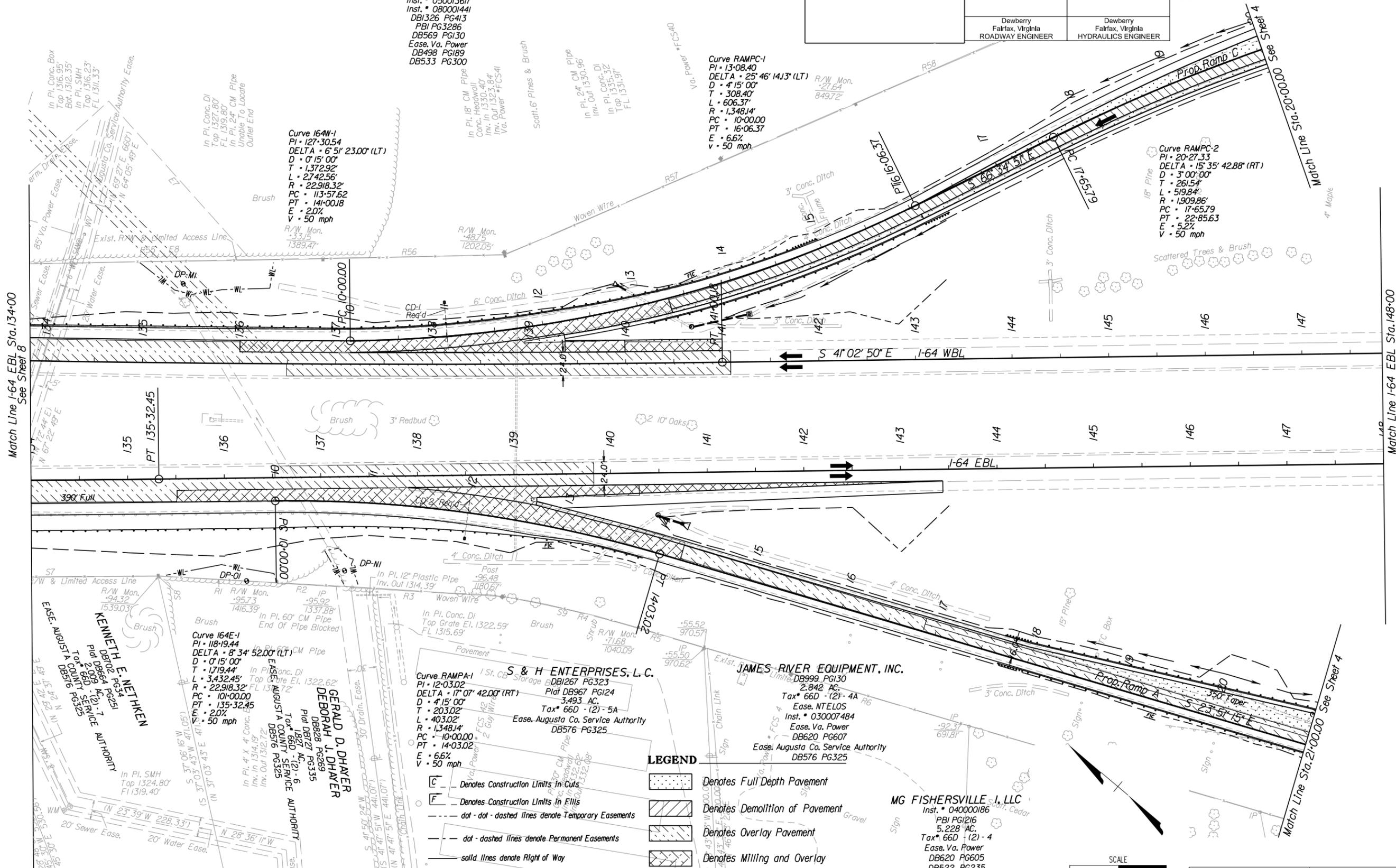
| | |
|----------------|----|
| Ramp A Profile | 50 |
| Ramp C Profile | 51 |

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 49 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

Dewberry
 Fairfax, Virginia
 HYDRAULICS ENGINEER



S & H ENTERPRISES, L.C.
 DB1267 PG323
 Plat DB967 PG124
 3.493 AC.
 Tax* 66D - (2) - 5A
 Ease, Augusta Co. Service Authority
 DB576 PG325

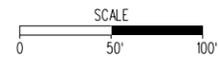
JAMES RIVER EQUIPMENT, INC.
 DB999 PG130
 2.842 AC.
 Tax* 66D - (2) - 4A R6
 Ease, NTELOS
 Inst. * 030007484
 Ease, Va. Power
 DB620 PG607
 Ease, Augusta Co. Service Authority
 DB576 PG325

MG FISHERSVILLE I, LLC
 Inst. * 040000186
 PBI PG1216
 5.228 AC.
 Tax* 66D - (2) - 4
 Ease, Va. Power
 DB620 PG605
 DB522 PG235
 Ease, Augusta Co. Service Authority
 DB576 PG325

LEGEND

| | | | |
|--|--------------------------------------|--|--------------------------------|
| | Denotes Construction Limits in Cuts | | Denotes Full Depth Pavement |
| | Denotes Construction Limits in Fills | | Denotes Demolition of Pavement |
| | denote Temporary Easements | | Denotes Overlay Pavement |
| | denote Permanent Easements | | Denotes Milling and Overlay |
| | denote Right of Way | | Denotes Shared Use Path |

Note: Additional Utility Easements may be required.

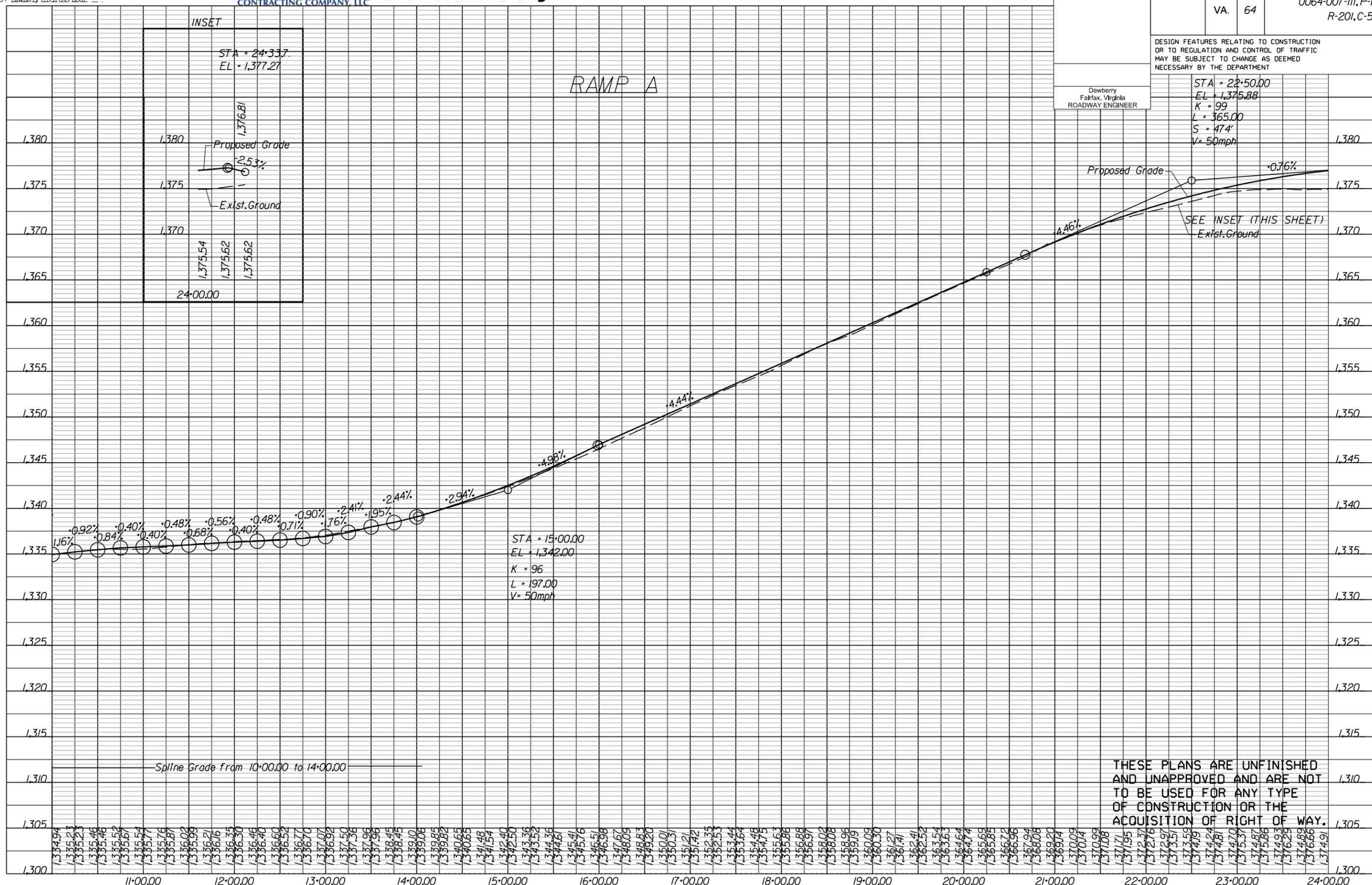


| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 50 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

STA = 22+50.00
 EL = 1,375.88
 K = 99
 L = 365.00
 S = 474'
 V = 50mph



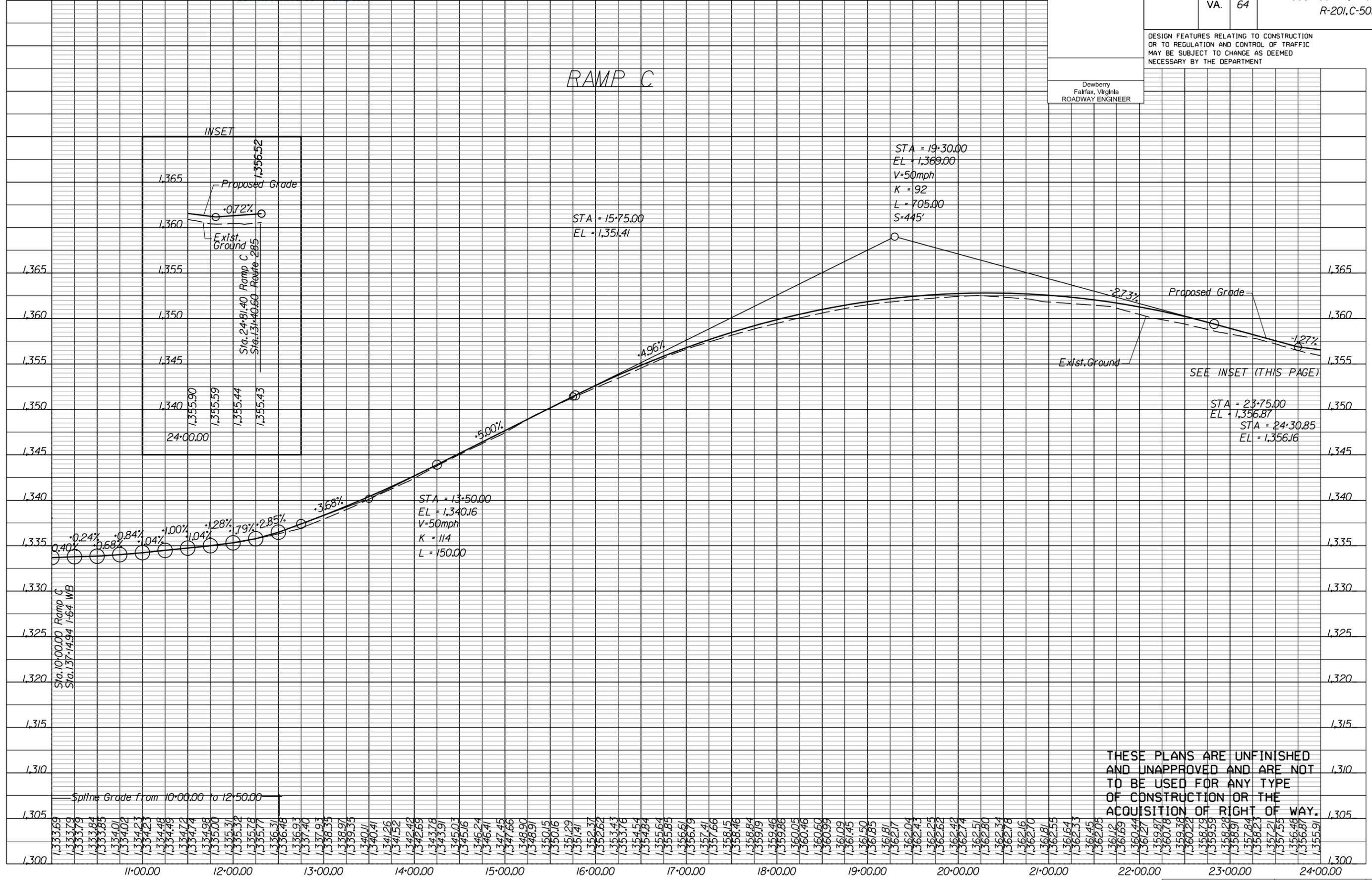
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 51 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

RAMP C



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

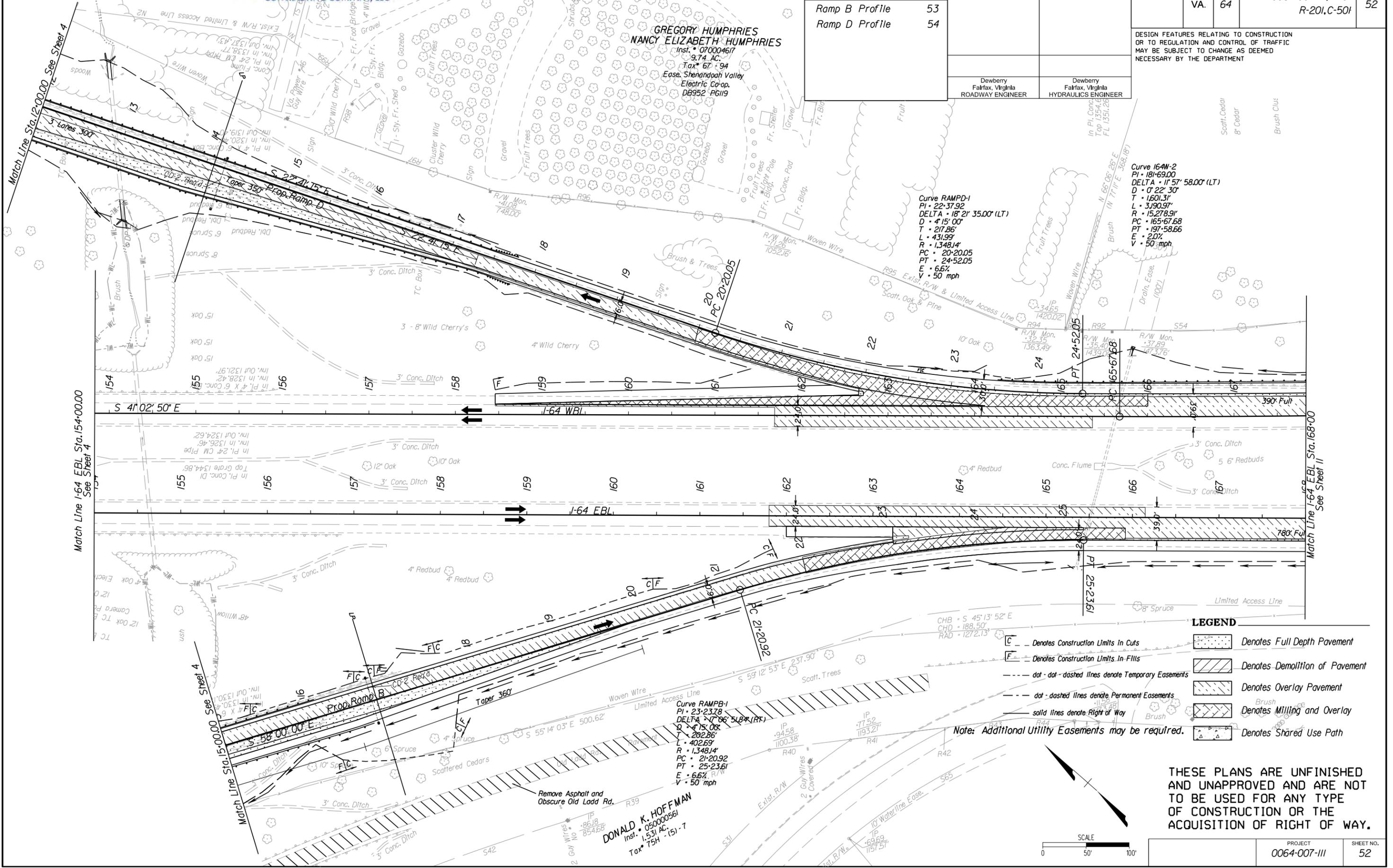
| REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.) | |
|---|----|
| Ramp B Profile | 53 |
| Ramp D Profile | 54 |

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 52 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

Dewberry
 Fairfax, Virginia
 HYDRAULICS ENGINEER



GREGORY HUMPHRIES
 NANCY ELIZABETH HUMPHRIES
 Inst. # 07000467
 9.74 AC
 Tax # 67-94
 Easement, Shenandoah Valley
 Electric Co-op.
 DB952 P6119

Curve RAMPD-1
 PI = 22+37.92
 DELTA = 18° 21' 35.00" (LT)
 D = 4' 15' 00"
 T = 217.86'
 L = 431.99'
 R = 1,348.14'
 PC = 20+20.05
 PT = 24+52.05
 E = 6.6%
 V = 50 mph

Curve 164W-2
 PI = 181+69.00
 DELTA = 11° 57' 58.00" (LT)
 D = 0' 22' 30"
 T = 1601.31'
 L = 3,190.97'
 R = 15,278.91'
 PC = 165+67.68
 PT = 197+58.66
 E = 2.0%
 V = 50 mph

Curve RAMPB-1
 PI = 23+23.78
 DELTA = 17° 06' 51.84" (RT)
 D = 4' 15' 00"
 T = 202.86'
 L = 402.69'
 R = 1,348.14'
 PC = 21+20.92
 PT = 25+23.61
 E = 6.6%
 V = 50 mph

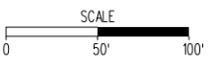
DONALD K. HOFFMAN
 Inst. # 050000561
 1.531 AC.
 Tax # 75H-151-7

LEGEND

| | |
|---|---|
| [C] --- Denotes Construction Limits In Cuts | [Stippled Box] Denotes Full Depth Pavement |
| [F] --- Denotes Construction Limits In Fills | [Hatched Box] Denotes Demolition of Pavement |
| --- dot-dot-dashed lines denote Temporary Easements | [Diagonal Hatched Box] Denotes Overlay Pavement |
| --- dot-dashed lines denote Permanent Easements | [Cross-hatched Box] Denotes Milling and Overlay |
| --- solid lines denote Right of Way | [Dotted Box] Denotes Shared Use Path |

Note: Additional Utility Easements may be required.

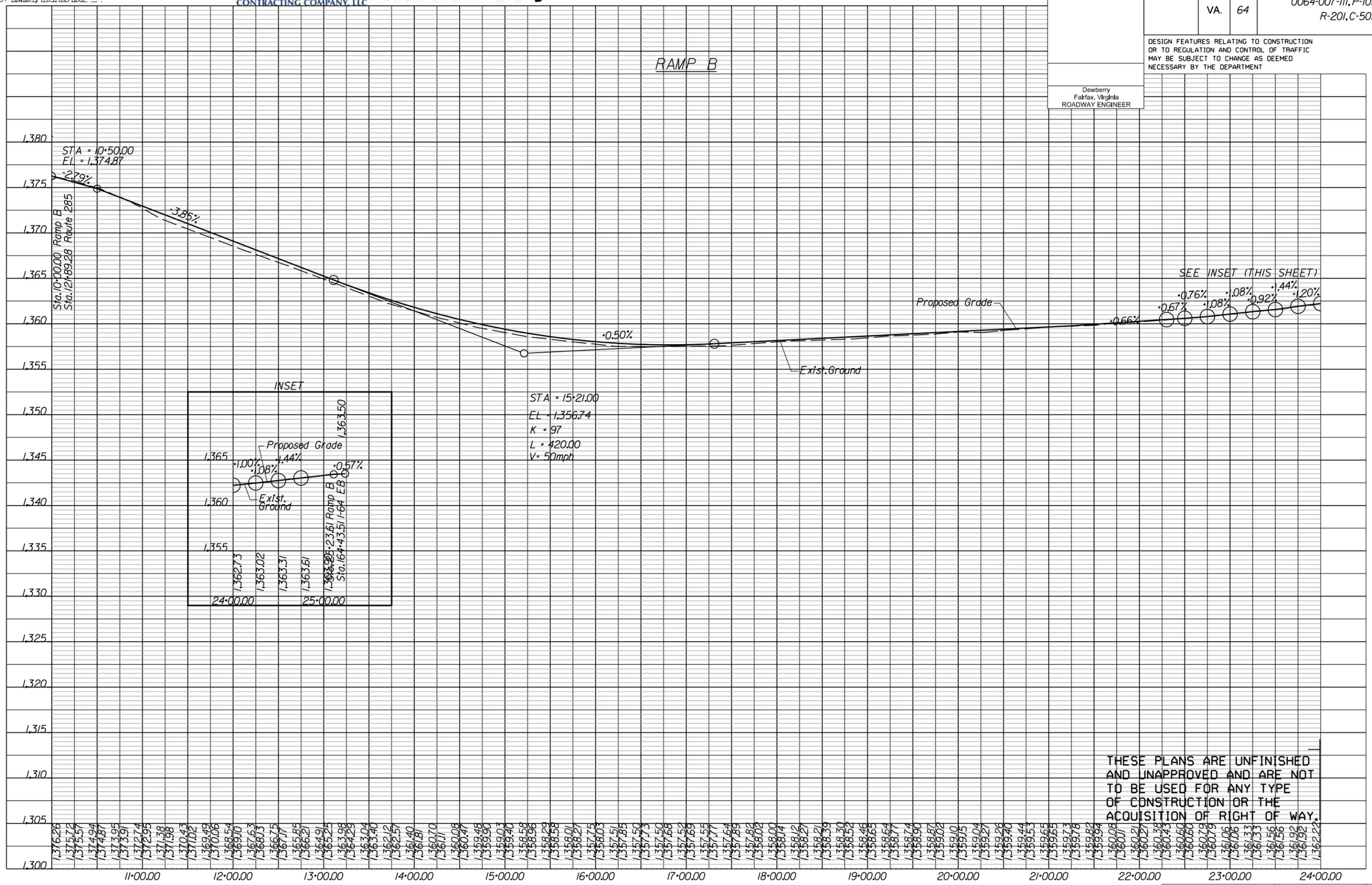
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.



| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 53 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER



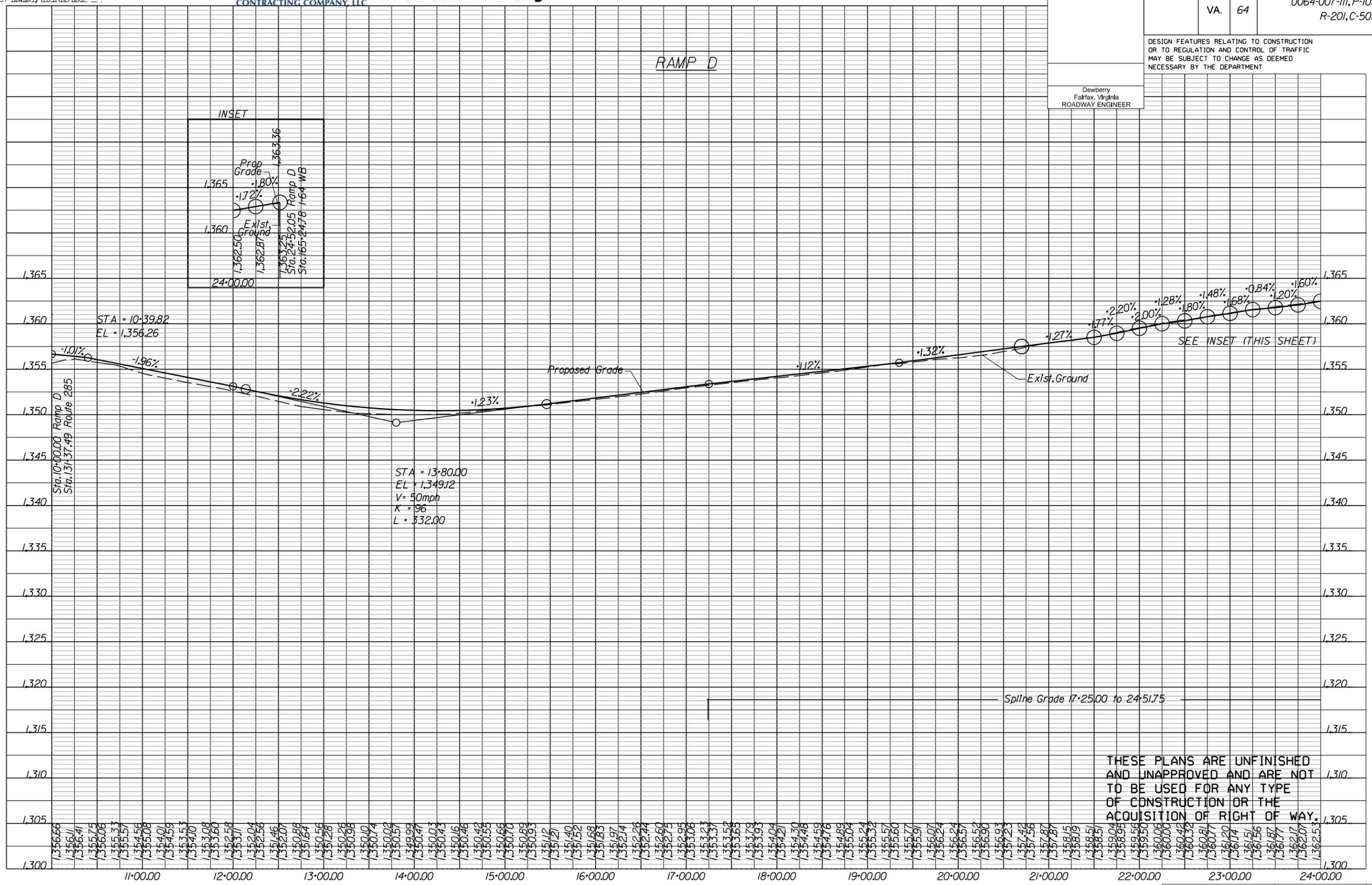
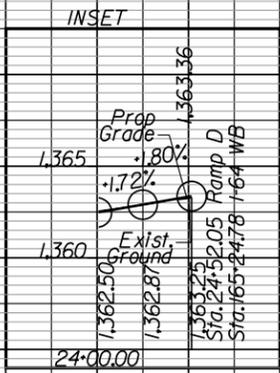
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 54 |

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

Dewberry
 Fairfax, Virginia
 ROADWAY ENGINEER

RAMP D



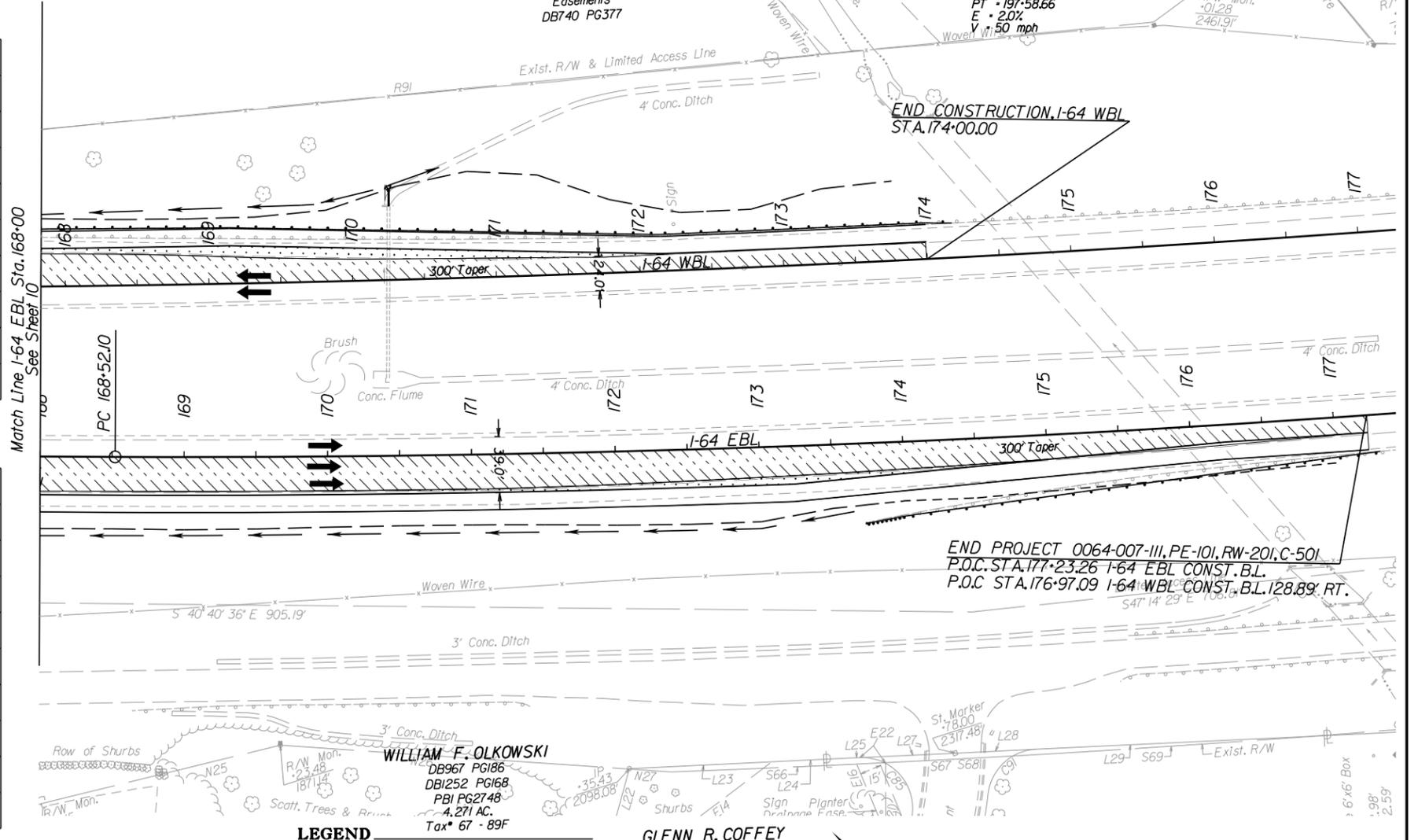
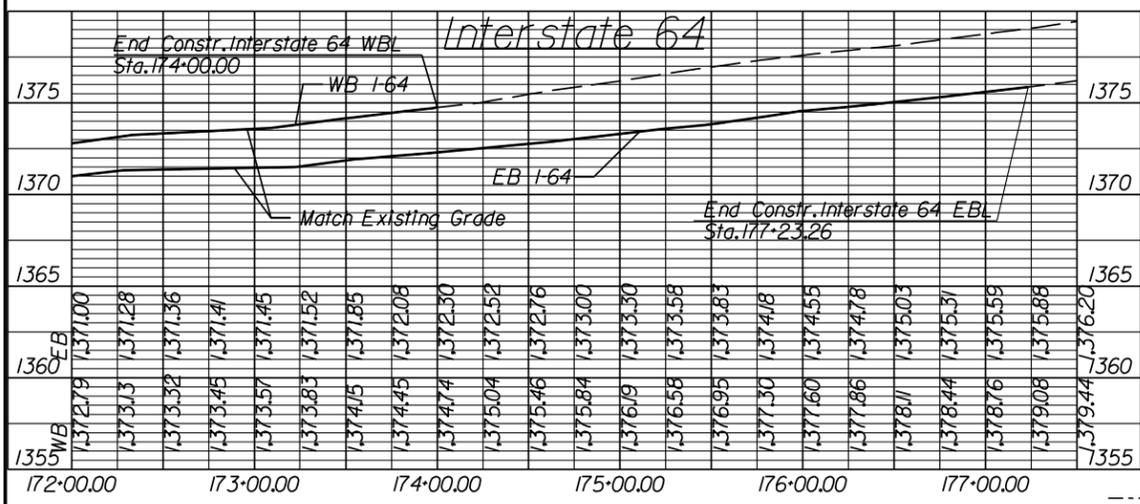
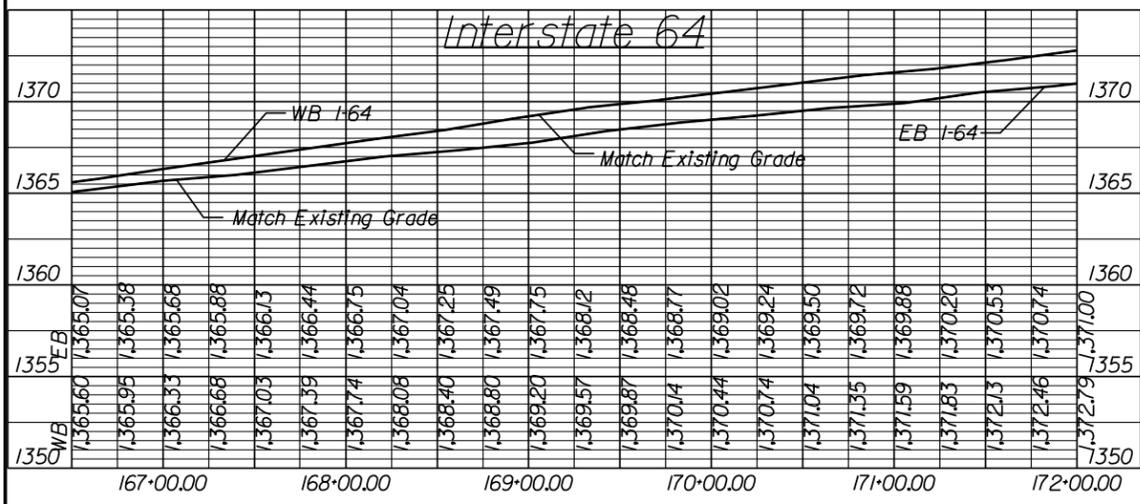
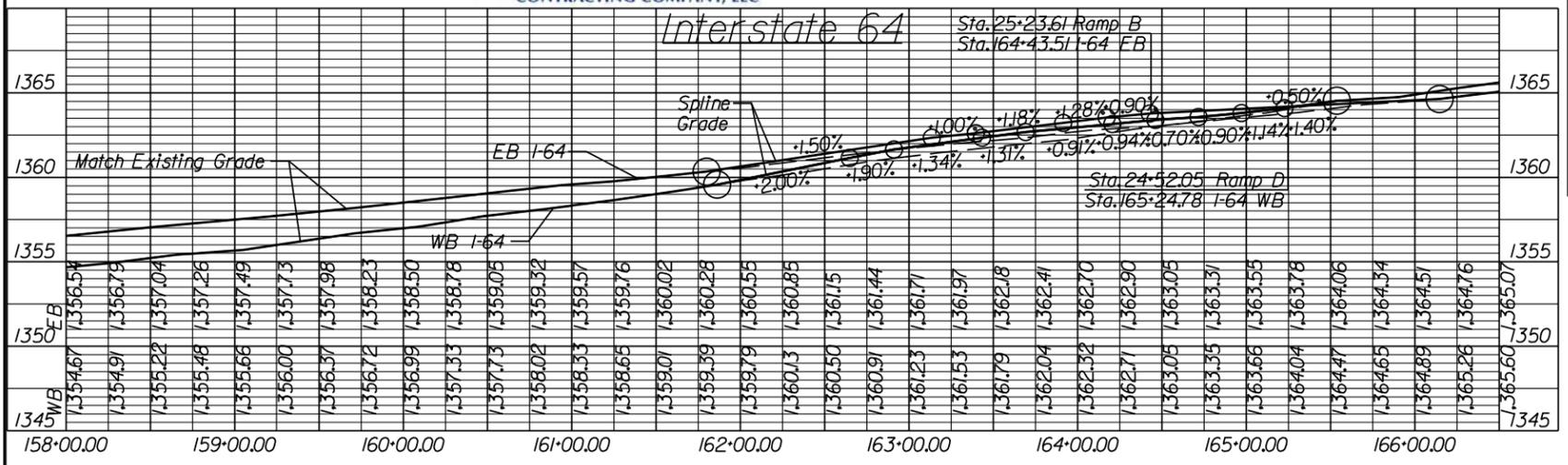
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 55 |

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

Dewberry Fairfax, Virginia
 ROADWAY ENGINEER

Dewberry Fairfax, Virginia
 HYDRAULICS ENGINEER



ANTHONY ALTOMONTE
CECELIA W. ALTOMONTE
 Inst. # 050012663
 70,658 AC.
 Tax # 67 - 89
 Easements
 DB140 PG377

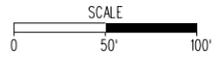
WILLIAM F. OLKOWSKI
 DB967 PG186
 DB1252 PG168
 PBI PG2748
 4,271 AC.
 Tax # 67 - 89F

GLENN R. COFFEY
PEGGY HAWPE COFFEY
 Inst. # 050009391
 PBI PG5916
 0,444 AC.
 Tax # 75H - (7) - 1

- 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

- LEGEND**
- [Pattern] Denotes Full Depth Pavement
 - [Pattern] Denotes Demolition of Pavement
 - [Pattern] Denotes Overlay Pavement
 - [Pattern] Denotes Milling and Overlay
 - [Pattern] Denotes Shared Use Path

Note: Additional Utility Easements may be required.



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

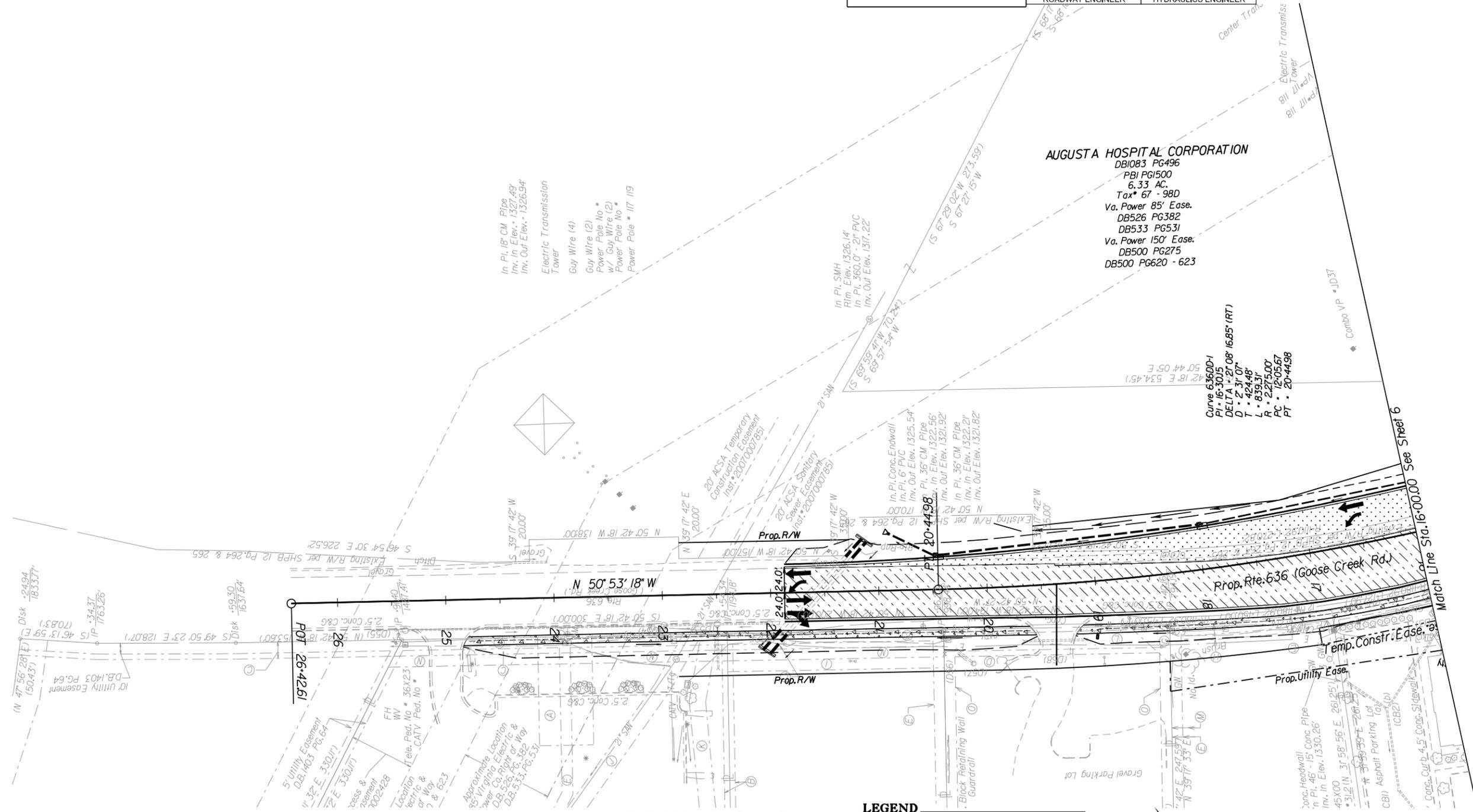
| REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.) | |
|---|----|
| Profile Sheet (Goose Creek Rte 636) | 46 |

| REVISED | STATE | ROUTE | STATE PROJECT | SHEET NO. |
|---------|-------|-------|-------------------------------------|-----------|
| | VA. | 64 | 0064-007-III, P-101 R-201, C-501 | 56 |

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

Dewberry Fairfax, Virginia
ROADWAY ENGINEER

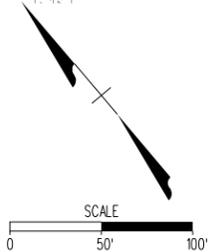
Dewberry Fairfax, Virginia
HYDRAULICS ENGINEER



- - - - 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

- LEGEND**
- [Stippled Box] Denotes Full Depth Pavement
 - [Diagonal Lines Box] Denotes Demolition of Pavement
 - [Cross-hatched Box] Denotes Overlay Pavement
 - [Wavy Lines Box] Denotes Milling and Overlay
 - [Dotted Box] Denotes Shared Use Path

Note: Additional Utility Easements may be required.



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

| | | | |
|-----------------------------|-------------|---|--------------------|
| STATE | FEDERAL AID | STATE | SHEET NO. |
| VA. | PROJECT | ROUTE | PROJECT |
| | | 0064 | 0064-007-111, B627 |
| NBIS Number: 00000000029276 | | UPC No. | 75877 |
| Federal Oversight Code: F0 | | FHWA Construction and Scour Code: X781-SN | |

DESIGN EXCEPTION(S):

GENERAL NOTES:

Width: 12'-0" Shared Use Path, Varying Roadway, 4'-0" Median, Varying Roadway. Overall width 94'-10" face-to-face of outside rails.

Span layout: 106' - 106' prestressed concrete bulb-T beam spans continuous for live load.

Capacity: HL-93 loading.

Specifications:

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

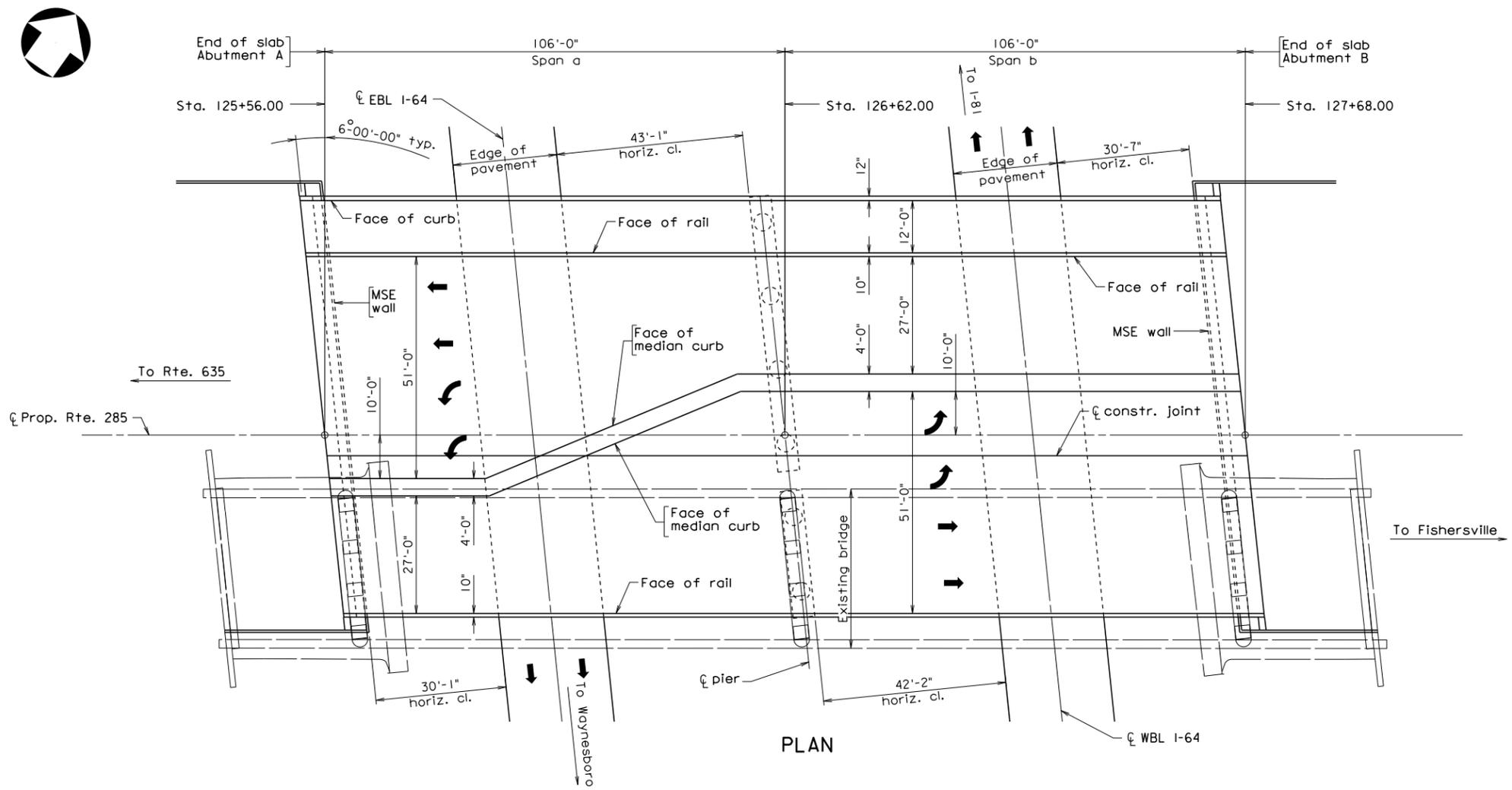
Design: AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010; 2010 Interim Specifications; and VDOT Modifications.

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

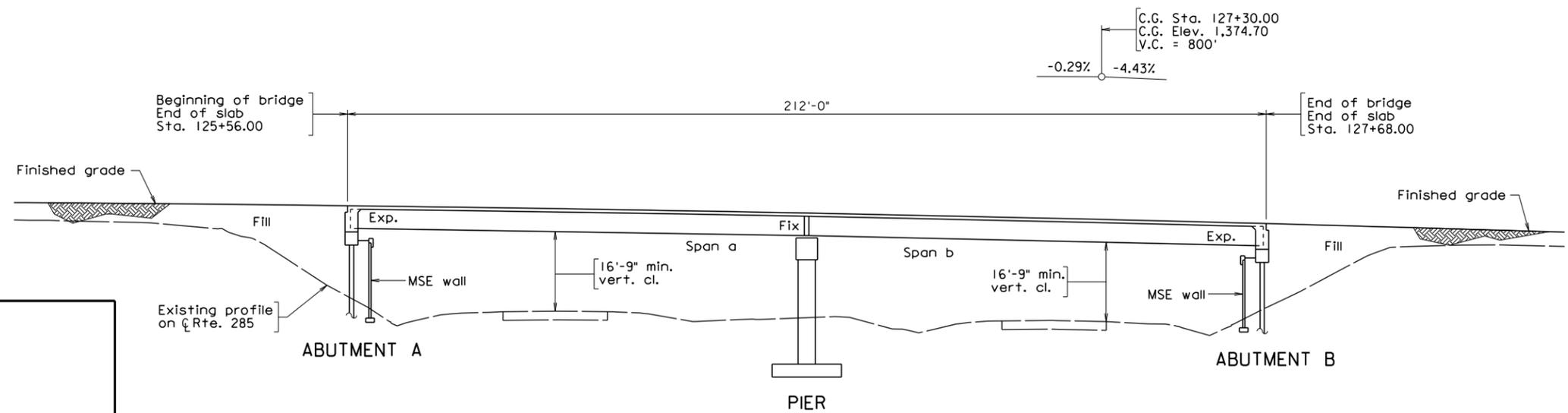
These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

Bridge No. of existing bridge is 6755. Plan No. is 205-13.

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



PLAN



DEVELOPED SECTION ALONG C RTE. 285



COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED BRIDGE ON
RTE. 285 OVER I-64
AUGUSTA CO.
PROJ. 0064-007-111, B627

Recommended for Approval: _____ Date _____
Shirley Contracting Company, LLC

Approved: _____ Date _____
Chief Engineer

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION

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

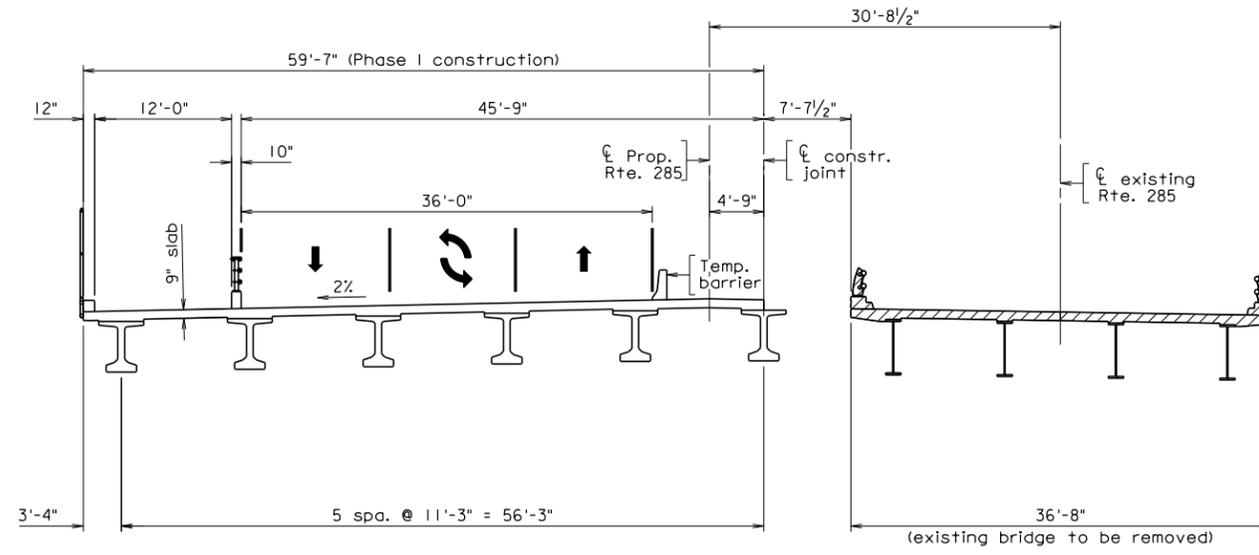
Scale: 1/16" = 1'-0"

Date: June 2012 © 2012, Commonwealth of Virginia

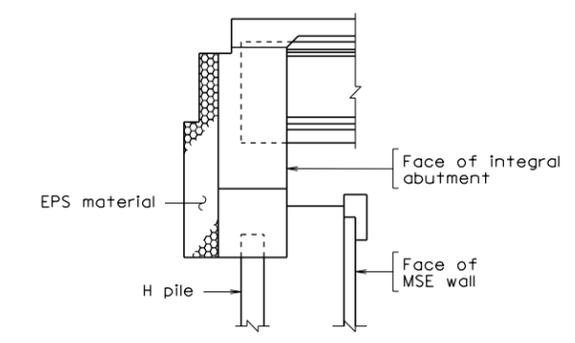
CP&E.dgn

| |
|--|
| DEWBERRY & DAVIS FAIRFAX, VA STRUCTURAL ENGINEER |
| PLANS BY: |
| COORDINATED: |
| SUPERVISED: |
| DESIGNED: |
| DRAWN: |
| CHECKED: |

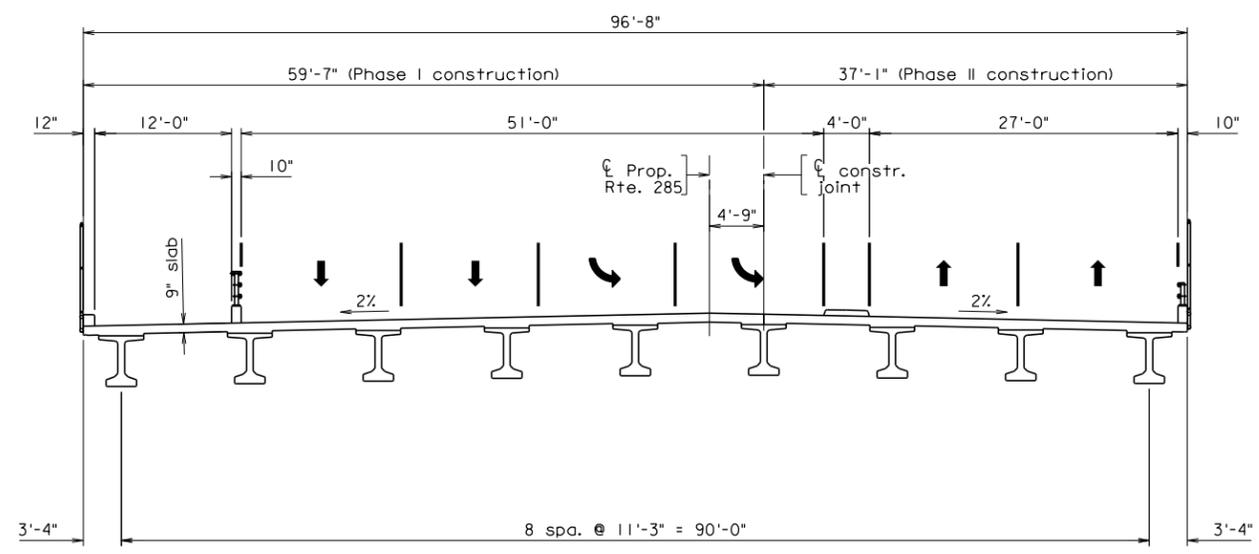
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|-------|-------------|-------|--------------------|
| STATE | FEDERAL AID | STATE | SHEET NO. |
| ROUTE | PROJECT | ROUTE | PROJECT |
| VA. | | 0064 | 0064-007-111, B627 |
| | | | 58 |



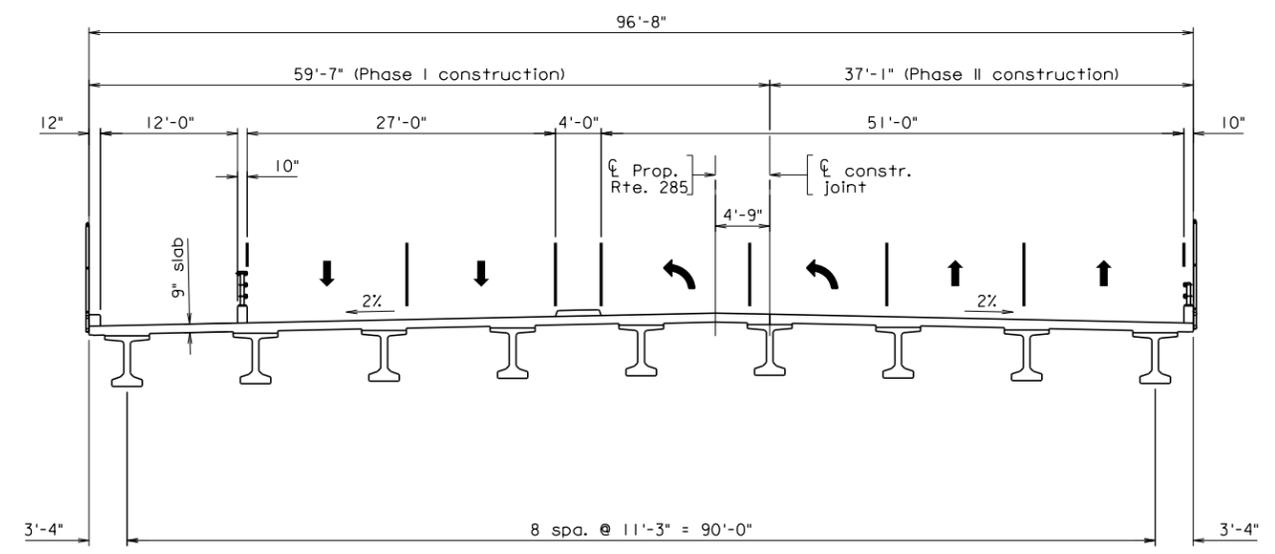
TEMPORARY TRANSVERSE SECTION
PROPOSED CONSTRUCTION STAGING



ABUTMENT TYPICAL SECTION
Scale: 1/4" = 1'-0"



TRANSVERSE SECTION
NEAR STA. 125+28.00



TRANSVERSE SECTION
NEAR STA. 127+90.00

RTE. 285 OVER I-64

bridge.section.dgn

DEWBERRY & DAVIS LLC
FAIRFAX, VA
STRUCTURAL ENGINEER

Scale: 1/8" = 1'-0" except as noted

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION



| | |
|---|-----------------|
| COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION STRUCTURE AND BRIDGE DIVISION | |
| TRANSVERSE SECTIONS AND ABUTMENT TYPICAL SECTION | |
| No. | Description |
| Date | Revisions |
| Designed: | Date |
| Drawn: | June 2012 |
| Checked: | Plan No. 291-23 |
| | Sheet No. 58 |

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