VOLUME I: TECHNICAL PROPOSAL

August 27, 2021

A Design-Build Project

VDOT BRIDGES OVER I-95 SUPERSTRUCTURE REPLACEMENT AND REHABILITATION BUNDLING

UPC 111300 (U000-127-023, P101, R201, C501, B601; STP-5A27(802))
UPC 111294 (0064-127-022, P101, B661; NHPP-064-3(510))
UPC 113375 (0250-127-050, P101, R201, C501; NHPP-BR04(307))
UPC 113388 (0004-127-051, P101, R201, C501; NHPP-BR04(308))
UPC 118484 (9999-127-107, P101, R202, C501, B602; NHPP-5A27(784))
CONTRACT ID NUMBER: C00111300DB107

CORMAN KOKOSING

WRA

4.1 | Letter of Submittal

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CORMAN KOKOSING

12001 GUILFORD ROAD | ANNAPOLIS JUNCTION, MD 20701
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August 27, 2021

Mr. Joseph A. Clarke, PE, DBIA
Alternative Project Delivery Division
Virginia Dept. of Transportation
1401 East Broad Street
Richmond, VA 23219

RE: REQUEST FOR PROPOSAL | DESIGN-BUILD | VDOT BRIDGES OVER I-95 SUPERSTRUCTURE REPLACEMENT AND REHABILITATION BUNDLING | CITY OF RICHMOND, VIRGINIA | CONTRACT ID NUMBER: C00111300DB107

Dear Mr. Clarke:

Corman Kokosing Construction Company (Virginia SCC #F2080481) is submitting a Technical Proposal in response to the above-referenced Request for Proposal and hereby provides the following in our Letter of Submittal:

4.1.1 | Corman Kokosing Construction Company (Corman Kokosing), 12001 Guilford Road, Annapolis Junction, MD 20701 is the legal entity who will execute the contract with VDOT.

4.1.2 | Corman Kokosing hereby declares our intent, if selected, to enter into a contract with Virginia Dept. of Transportation (VDOT) for the project per the RFP.

4.1.3 | Pursuant to Part 1, Section 8.2, Corman Kokosing hereby declares the offer represented by the Technical/Price Proposals will remain in full force and effect for 120 days after the date Price Proposal is actually submitted to VDOT.

4.1.4 POINT OF CONTACT	SECONDARY POINT OF CONTACT	4.1.5 PRINCIPAL OFFICER OF CORMAN KOKOSING
Ryan Gorman, PE, DBIA **Regional VP, Alternative Contracting** Corman Kokosing Construction Co. 16500 Happy Hill Road South Chesterfield, VA 23834 804-400-4521 Cell 804-520-9810@faxtomail.com rgorman@kokosing.biz	**Chris Rutkai, PE** **Senior Area Manager** Corman Kokosing Construction Co., 16500 Happy Hill Road South Chesterfield, VA 23834 240-581-9577 Cell 804-520-9810@faxtomail.com crutkai@kokosing.biz	**Gregory A. Hamilton, PE, DBIA,** **Regional Sr. VP** Corman Kokosing Construction Co. 12001 Guilford Road Annapolis Junction, MD 20701 614-207-0716 Cell gah@kokosing.biz

4.1.6 | Final Completion Date: 11/27/24. **| 4.1.7 |** Unique Milestone Dates: None proposed.

4.1.8 | An executed Proposal Payment Agreement (Attachment 9.3.1) is in the Appendix.

4.1.9 | Executed Certification Regarding Debarment Forms (Attachments 11.8.6(a) and 11.8.6(b)) are in the Appendix.

4.1.10 | Corman Kokosing is committed to achieving a 9% DBE participation goal for the entire value of the contract.

Sincerely,

CORMAN KOKOSING CONSTRUCTION COMPANY

Gregory A. Hamilton, PE, DBIA
Regional Sr. Vice President

4.2 | Qualifications

4.2 QUALIFICATIONS

4.2.1 | Corman Kokosing hereby confirms the information contained in our Statement of Qualifications (SOQ) remains true and accurate.

4.2.2 | Figure 1 is our organizational chart from our submitted SOQ.

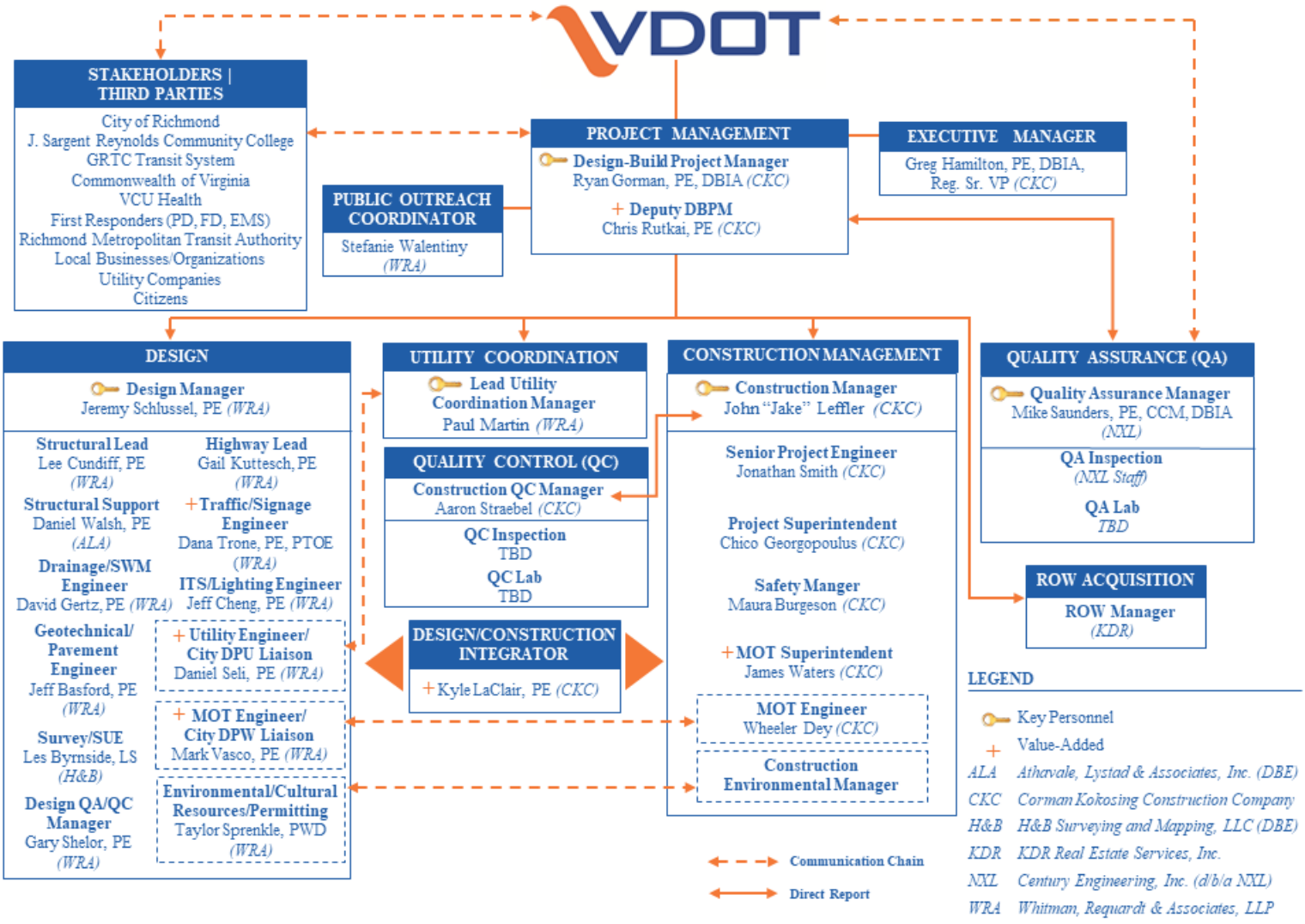


Figure 1: Organizational Chart

4.3 | Design Concept

4.3 DESIGN CONCEPT

The Corman Kokosing/WRA Team presents our design concept, which considers not only the complexity of this project, but also the complexity of each bridge and the influence they have on the entire project. This macro- and micro-analysis approach has resulted in the most efficient/economical way to build in a corridor with multiple stakeholders to consider. Through our review of the Request for Proposal (RFP), site visits, meeting with the Virginia Dept. of Transportation (VDOT), the City of Richmond (COR), the utility companies, and our knowledge of the corridor, our design supports the project priorities identified in the RFP as follows:

- **Reduce Construction Costs.** Our design reduces construction costs while meeting/exceeding the RFP's requirements. We minimized construction impacts to the extent possible which provides for a safer worksite without impacting traffic operations.
- **Implement Efficient Means and Methods.** We provide the most efficient and least impactful construction means and methods with a focus on safety. We prepared a maintenance of traffic (MOT) scheme that allows us to safely work on multiple bridges simultaneously without increasing impacts to the traveling public (vehicles, bicyclists, pedestrians).
- **Reduce Risk.** Our Conceptual Design reduces risk for VDOT by maximizing vertical clearance under the bridges which minimize future structure hits. Our design and approach provide safe, quality-built structures that reduce the need for future inspection and maintenance.
- **Achieve the Schedule.** Our Conceptual Design and project approach ensure we complete the project ahead of schedule while maintaining public acceptance throughout the project.

The Corman Kokosing/WRA Team evaluated the RFP Concept and alternatives developed by VDOT's preliminary engineering team and discussed several potential design enhancements with the VDOT team through the one-on-one meetings. Based on VDOT's feedback, we developed Design Enhancements **(See Table 2)** which provide value-added benefits to the project. These Design Enhancements are further depicted within our Roadway and Bridge Conceptual Plans within Sections 4.3.1 and 4.3.2, respectively, and are included in Volume II.

Our Conceptual Design accomplishes the following:

- Meets/exceeds all Design Criteria Table requirements.
- Ensures the limits of construction to include all stormwater management facilities are within the existing/proposed right-of-way (ROW) limits shown in the RFP Conceptual Plans with the exception of permanent/temporary easements.
- Does not include design elements that require Design Exceptions and/or Design Waivers unless they are identified or included as such in the RFP or Addendum.

4.3.1 | CONCEPTUAL ROADWAY PLANS

For the 1st Street, 4th Street, 5th Street, 7th Street, and Broad Street Bridges over I-95 in the City of Richmond:

a. ***General geometry, including horizontal curve data and associated design speeds, number and widths of lanes/shoulders:*** Our Conceptual Design Plans include information detailing the general geometry, horizontal curve data, associated design speeds, and the number and width of lanes and shoulders.

b. ***Horizontal alignments:*** The existing horizontal alignments were maintained, except at 5th Street where a slight improvement was made to provide a curve that has a bearing that matches the tangents and removes the slight kink in the RFP baseline at *Curve FIFTH_CO2*. All horizonal alignments meet the RFP requirements and Design Criteria Table. No Design Speed changes were made with this horizontal alignment modification.

c. ***Maximum grade for all segments and connectors:*** The Corman Kokosing/WRA Team's vertical alignments meet the RFP requirements and Design Criteria Table **(See Table 1)**:

TABLE 1 | MAXIMUM GRADES AND VERTICAL CLEARANCES PROVIDED

BRIDGE	MAXIMUM GRADE ALLOWED	PROPOSED MAXIMUM GRADE	MINIMUM REQUIRED VERTICAL CLEARANCE	PROPOSED MINIMUM VERTICAL CLEARANCES
1st Street	7%	2.2%	15-ft.	15-ft.-6-in.
4th Street	5%	2.0%	15-ft.	15-ft.-7-in.
5th Street	7%	2.5%	15-ft.	16-ft.-2-in.
7th Street	5%	5.0%	15-ft.	16-ft.-0-in.
Broad Street	9%	9.0%	15-ft.	15-ft.-8-in.

The change in vertical profiles and structure depths results in a **SIGNIFICANT** increase in vertical clearance. This heightens safety, improves operations, and increases long-term sustainability due to fewer bridge strikes. Adjacent streets and ramps were not affected by these grade changes. No Design Speed changes were made with these vertical alignment modifications **(See Table 2)**.

TABLE 2 | VERTICAL PROFILE ENHANCEMENTS

Vertical Profile Enhancement	Increases Vertical Clearance on I-95 Mainline Travel Lanes	Increases Safety	Improves Operations
1st Street Vertical Profile Modifications	From 14-ft.-5-in. minimum clearance to 16-ft.-0 in.	Increases intersection sight distance. Reduces stormwater flow on shoulders.	Increases intersection sight distance. Reduces stormwater flow on shoulders.
Raised 4th Street Vertical Profile over I-95	From 14-ft.-5-in. minimum clearance to 15-ft.-7-in.	Increases intersection sight distance. Reduces stormwater flow on shoulders.	Increases intersection sight distance. Reduces stormwater flow on shoulders.
Raised 5th Street Vertical Profile over I-95	From 14-ft.-5-in. minimum clearance to 16-ft.-2-in.	Increases intersection sight distance. Reduces stormwater flow on shoulders.	Increases intersection sight distance. Reduces stormwater flow on shoulders.
Raised 7th Street Vertical Profile over I-95	From 14-ft.-5-in. minimum clearance to 16-ft.-0 in.	Increases intersection sight distance. Reduces stormwater flow on shoulders.	Increases intersection sight distance Reduces stormwater flow on shoulders.

d. ***Typical sections of the roadway segments to include ramps, retaining walls, and bridge structures:*** Our typical sections, provided in our Conceptual Design in Volume II, graphically depict the proposed roadway design intent and fully comply with the RFP. Our Conceptual Design maintains the existing cross slopes wherever feasible and uses the existing guardrail and curb outside the construction limits where permitted by the *VDOT Road Design Manual.* The following are our proposed Design Enhancements 💡:

💡 **5th Street Bridge Design Enhancement:** Reduces 5th Street shoulder widths **(See Figure 2)**. This typical section change significantly reduces construction impacts to motorists and stormwater management needs by matching the land use and drainage characteristics of the existing conditions. Due to reducing approach work and bridge structure width, it will take less time to construct resulting in heightened public/worker safety during construction.

Due to reconfigurations at this location, stopping and intersection sight distance was reviewed for the southbound (SB) I-95 exit ramp and E. Duval Street intersection. The bridge parapet and pedestrian fencing are outside of the horizontal sight triangle for the SB I-95 exit ramp. The bridge parapet is within the horizontal sight triangle for E. Duval Street, however, because of the increase in vertical profile, it is below the vertical sight line. The pedestrian fencing is outside of the horizontal sight triangle and the proposed overhead sign structure is outside both horizontal sight triangles.

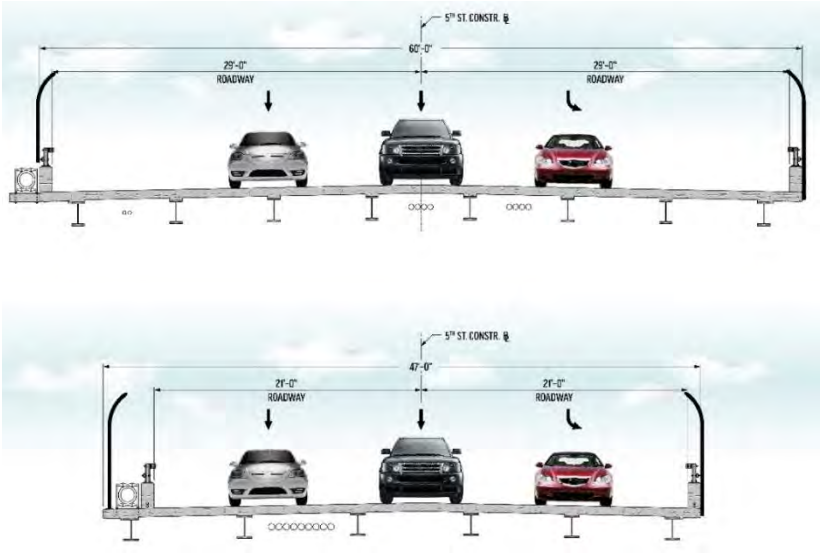


Figure 2: 5th Street Bridge Design Enhancement

5th Street Lane Configuration Enhancement: This revises the lane configuration on the 5th Street Bridge to provide a separate left turn lane for SB I-95 and two through lanes to access 5th Street. It better aligns with 5th Street traffic volumes **(See Figure 3)**, eliminates the shared left/through lane configuration of the RFP plans and need for an overhead arrow per lane sign **(See Figure 4)**. It improves motorist expectancy and safety by separating vehicles taking the ramp to SB I-95 from vehicles continuing into the City on 5th Street that may have differing speeds.

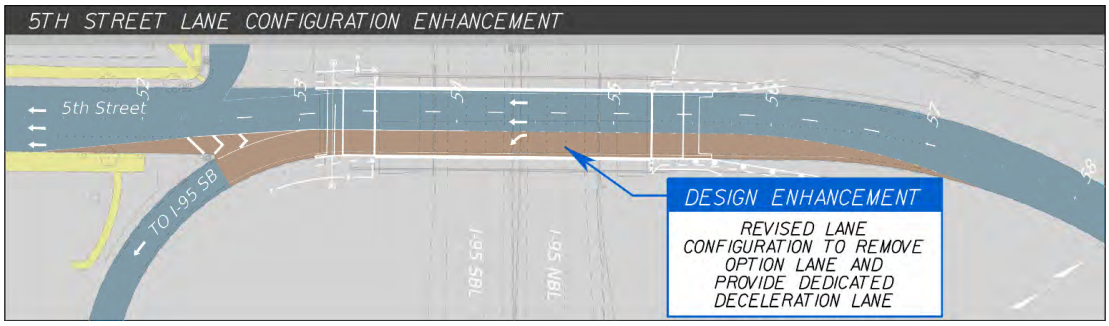


Figure 3: 5th Street Lane Configuration Enhancement

RFP Proposed Signage Concept **Corman Kokosing/WRA Proposed Signage Concept**

Figure 4: RFP vs. Corman/WRA Team proposed 5th Street Bridge signage concepts

e. *Proposed Right of Way (ROW) limits (i.e., shown as an overlay of our proposed ROW limits and VDOT's RFP Conceptual ROW limits, highlighting the differences between the two):* Understanding how ROW can affect the project's schedule and how to mitigate took precedence when developing our Conceptual Design. The result is a design that reduces the project footprint, acquisitions, and number of parcels impacted. **Table 3** demonstrates our easement reductions. We also prioritize the easement acquisitions to align with our schedule.

TABLE 3 | REDUCTIONS IN EASEMENTS *(Does not include utility easements)*

BRIDGE	RFP # PARCELS	CORMAN KOKOSING/WRA TEAM # PARCELS	RFP EASEMENTS (SF)	CORMAN KOKOSING/WRA TEAM EASEMENTS (SF)
1st Street	5	1	3,032	229
4th Street	2	2	2,846	2,237
5th Street	2	2	9,010	5,953
7th Street	1	1	3,789	1,124
Broad Street	0	0	0	0

f. *Proposed utility impacts:* The Corman Kokosing/WRA Team has reviewed the RFP Conceptual Plans and as-built plans for all known utilities and has been in contact with every utility owner identified in the RFP. Primary impacts are identified in **Table 4.** We will work with all impacted utility owners to undertake their relocations so they are completed without impacting the bridge replacement schedule.

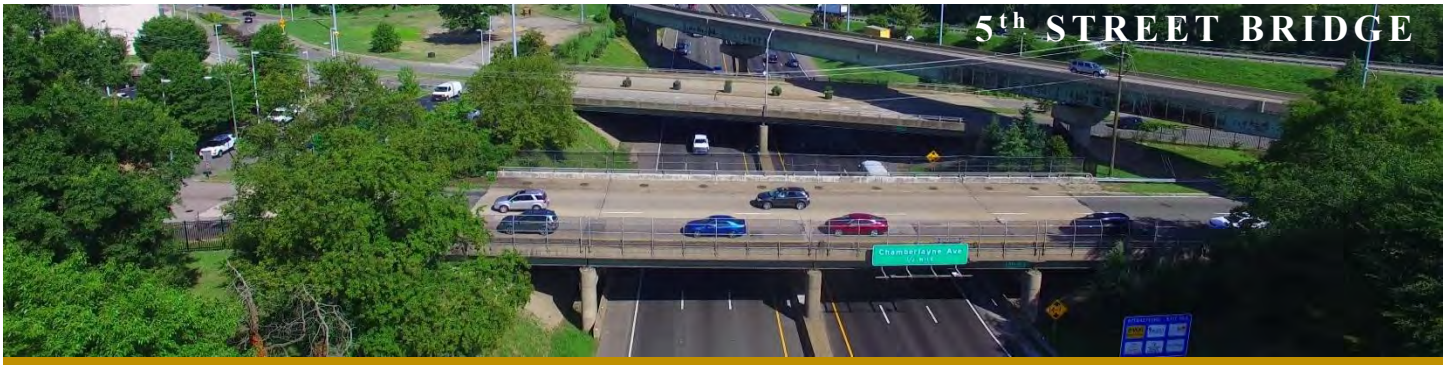
During design, we will more accurately identify the location and impacts of the underground utilities to design relocations out of conflict. Through coordination/management, utility relocations will not adversely impact the project schedule. Utility impact locations/mitigation measures are in **Section 4.4.2** of our Technical Proposal.

TABLE 4 | PROPOSED UTILITY IMPACTS

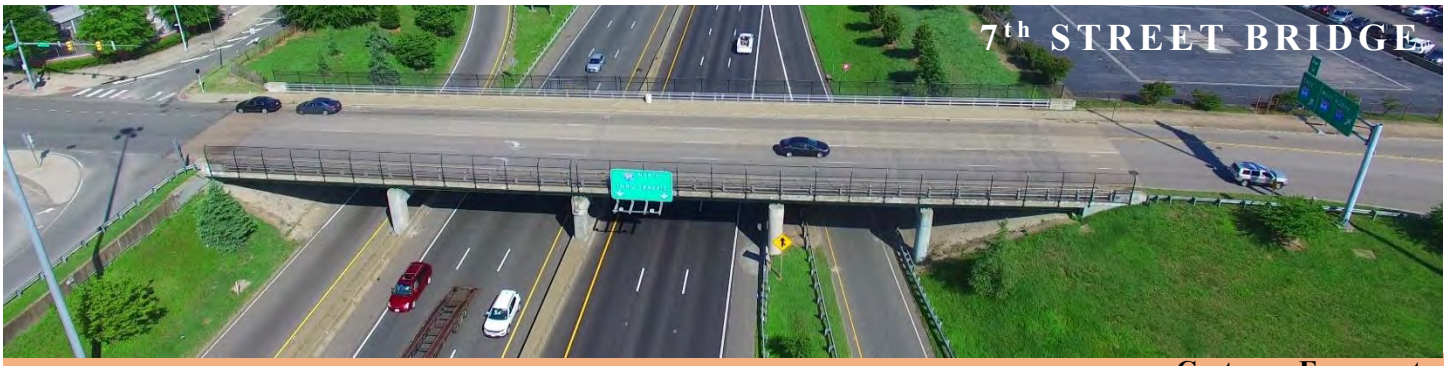
Phase	Utility	Facility	Conflict (Yes/No)	Cost (Project / Utility)	Easement Needed (Yes/No)
2	Dominion Energy	Parapet-mounted power poles, 1-3 phase circuit.	Yes	Project	Yes
2	Comcast	Parapet-mounted power poles. 1- 12 count fiber optic cable. 1- 54 count fiber optic cable. 1- 72 count fiber optic cable. 1- Trunk coax cable.	Yes	Utility	Yes
2	Crown Castle	Parapet-mounted power poles 1- 144 count fiber optic cable.	Yes	Utility	Yes
1 & 2	City of Richmond - Streetlights	Parapet-mounted lights. Do not replace per RFP. Need new conduits on new bridge for continuity.	Yes	Utility	No
2	City CCTV	On Dominion power poles.	Yes	Project	Yes
2	City DEM conduits	As-builts show two new conduits. Facilities are abandoned per City of Richmond.	Yes	Project	No

Phase	Utility	Facility	Conflict (Yes/No)	Cost (Project / Utility)	Easement Needed (Yes/No)
1	Verizon	13- 3½-in. ducts separated into two sections. 2- 864 count fiber cables. 1- 288 count fiber cable. 1- 144 count fiber cable. 1- Low pressure air pipe. 1- 2400 pair 26-gauge copper cable. 1- 2100 pair 26-gauge copper cable. Adding an 864-count fiber soon. Betterment to repair conduits/support duct bank.	Yes	Utility	No
2	City of Richmond - Water	12-in. watermain to be replaced and mounted outside parapet per RFP.	Yes	Project	No
1	City of Richmond Gas	6-in. gas main to be replaced during off-peak season.	Yes	Project	No

Phase	Utility	Facility	Conflict (Yes/No)	Cost (Project / Utility)	Easement Needed (Yes/No)
1 & 2	Unknown	3-in. sidewalk conduits.	Yes	Unknown	No
Pre-Phase	COR DPU	Median Hydrant. Relocate to south side.	Yes	Project	No
1	VDOT under bridge lighting	Remove and do not replace per RFP.	Yes	Project	No
1	VDOT under bridge lighting	Remove and do not replace per RFP.	Yes	Project	No
2	COR DEM	As-builts show two new conduits. Facilities are abandoned per COR.	Yes	Project	No
1	City of Richmond - Streetlights	Three duct - duct bank. Need new conduits on new bridge for continuity.	Yes	Utility	No

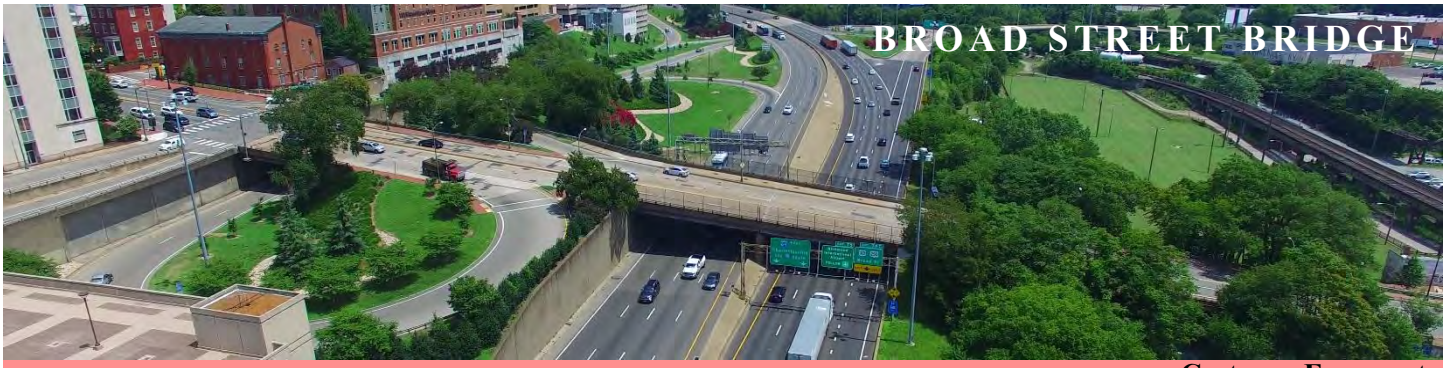


Phase	Utility	Facility	Conflict (Yes/No)	Cost (Project / Utility)	Easement Needed (Yes/No)
1	City of Richmond - Water	12-in. watermain to be replaced and mounted outside parapet per RFP.	Yes	Project	No
1 & 2	TBD	Sidewalk conduits.	Yes	Unknown	No
1 & 2	VDOT under bridge lighting	Remove and do not replace per RFP.	Yes	Project	No
2	City of Richmond - Gas	6-in. and 12-in. gas lines are abandoned and are to be capped, removed, and not replaced.	Yes	Project	No
2	Dominion Energy	2 – Four-way 5-in. duct banks.	Yes	Project	No



Phase	Utility	Facility	Conflict (Yes/No)	Cost (Project / Utility)	Easement Needed (Yes/No)
2	City of Richmond - Water	12-in. watermain to be replaced and mounted outside parapet per RFP.	Yes	Project	Yes
2	Dominion Energy	2–Three-way 6-in. duct banks.	Yes	Project	No
1 & 2	Unknown	Sidewalk conduits.	Yes	Unknown	No
1 & 2	VDOT under bridge lighting	Remove and do not replace per RFP.	Yes	Project	No
2	City of Richmond - Lighting	3–3-in. conduits.	Yes	Project	No
1	Verizon	16 - 31/2-in. ducts separated into two sections. 16 ducts. 2- 864 fiber cables. 1- 48 count cable. 1- 216 count fiber cable.	Yes	Utility	No

Phase	Utility	Facility	Conflict (Yes/No)	Cost (Project / Utility)	Easement Needed (Yes/No)
	Verizon (continued)	1- 1200 pair–26-gauge copper cable. 1- 2400 pair 26-gauge copper cable. 1- Low pressure air pipe. Adding an 864-count fiber soon.			
1	Summit IG	1-432 count fiber optic cable in the Verizon duct bank.	Yes	Utility	No
1	Crown Castle	2-96 count fiber optic cables in the Verizon duct bank.	Yes	Utility	No
1	Windstream	1- Unknown count fiber optic cables in the Verizon duct bank. 1- 24 count fiber optic cable in the Verizon duct bank. 1- Unknown count fiber optic cable in the Verizon duct bank.	Yes	Utility	No



Phase	Utility	Facility	Conflict (Yes/No)	Cost (Project / Utility)	Easement Needed (Yes/No)
1 & 2	City of Richmond - Water	2-12-in. watermains to be replaced and mounted outside parapet per RFP. Crossover piping to be installed considered a betterment.	Yes	Project	Yes
2	TBD	Sidewalk conduits.	Yes	Unknown	No
1 & 2	City of Richmond - Streetlights	Parapet mounted lights. Do not replace per RFP. Need new conduits on new bridge for continuity.	Yes	Project	No
2	Dominion Energy	12–5-in. ducts.	Yes	Project	No
1 & 2	City of Richmond - Gas	2-12-in. gas lines are abandoned and are to be capped, removed, and not replaced.	Yes	Project	No

g. ***Any other key project features:*** **Drainage/Stormwater Management (SWM):** As part of the project goals to reduce impacts, the Corman Kokosing/WRA Team reviewed the drainage/SWM requirements. Through our design, our final Concept Plans match the existing site drainage patterns and does not increase flow to any individual drop inlet. As outlined in the RFP, by not increasing peak flows, our design does not require any onsite SWM for quality or quantity. With the limited footprint of project work, no pipes or culverts will be disturbed, and only adjustment or in place replacement of storm sewer drop inlets are required. This eliminates landscape requirements with proposed SWM facilities, which in turn reduces long-term maintenance costs to VDOT.

1st Street Maintenance of Traffic (MOT): To enhance work zone safety and minimize the risk of head on collisions on the 1st Street Bridge between the two RFP proposed temporary traffic signals, we propose one-way

SB 1st Street operation only on the 1st Street Bridge while maintaining pedestrian movements at all times. This change matches the existing one-way SB section of 1st Street south of Duval Street.

To accommodate the Northbound (NB) 1st Street traffic over the I-95 bridge which originates from eastbound (EB) left turns and westbound (WB) right turns from Duval Street, depending on their origin, motorists are detoured to Chamberlayne Parkway via Duval Street, Leigh Street and Jackson Street. This proposed detour is consistent with the RFP detour for large truck/bus traffic traveling north across the bridge indicating this detour route has already been considered.

In Summary:

- We meet/exceed the project's scope of work while reducing the overall construction impacts which will benefit end users, particularly in terms of safety, operations, schedule, construction, and public acceptance.
- We exceed the post-construction minimum vertical clearance requirement of 15-ft. between 6-in. to 14-in. which improves safety and operations.
- We considered the types of materials, methods, and functionality used to reduce need for future inspection/maintenance.
- We meet/exceed the bridge strike mitigation system requirements by significantly increasing vertical clearances.

4.3.2 | CONCEPTUAL STRUCTURAL PLANS

Our proposed Design Concept meets/exceeds the RFP requirements and was developed through close coordination between Corman Kokosing and WRA. Our context-sensitive design and construction techniques ensure that our repairs/modifications can be constructed safely with minimal motorist impacts. Our structural approach is summarized by our project goals and what we accomplished:

Goal: Improve Minimum Vertical Clearance (MVC): Increase the MVC to 15-ft. at 15 locations that either I-95 or ramp lanes cross under these five bridge structure locations.

What we accomplished:

- Improved vertical profile and optimized structure depth at all five overhead bridge structure locations.
- Increased the MVC beyond 15-ft. at all locations that I-95 or ramp lanes pass under these five bridges.
- Increased the MVC ≥16-ft. at 11 of 15 locations where lanes pass under these five bridges (at the four locations <16-ft., impact struts will be provided per the RFP).

Goal: Low Maintenance: Provide low maintenance bridge structures that will reduce future inspection requirements and provide a long service life.

What we accomplished:

- Completely rehabilitating substructures with cathodic anodes installed per RFP/Specifications.
- Having superstructures be comprised of ASTM Grade 50W (Weathering Structural Steel) with sacrificial allowance in plate thickness and coated per the latest S&B guidelines.
- Having reinforced concrete decks be comprised of lightweight concrete with corrosion-resistant reinforcement per IIM-S&B-81.
- Having reinforced concrete decks be jointless superstructures per the *S&B Manual, Chapter 32* with micro abutments detailed, except at eastern abutment at Broad Street. Approach slabs can then be located at grade, which will virtually eliminate existing utility conflicts.
- Providing conventional structures where feasible, with as few construction joints as possible vs. accelerated bridge structures which contain far more construction joints.
- Installing materials and details which are per VDOT standard practices and elements to provide the best service life.

- Having only standard routine bridge safety inspections as all bridges will **not** contain fracture critical elements or similar that would need special inspections.

Goal: Minimize Footprint/Impact: Provide rehabilitation details that minimizes impacts to traveling public, adjacent property and utilities.

What we accomplished:

- Our micro-abutment design eliminates requirement to install sleeper pads which conflict with existing utilities.
- Rehabilitating/modifying all substructure units for the proposed superstructures, thus eliminating costly removal/replacements and requirements to install new bridge pier protection elements which would significantly impact I-95.
- Using innovated pier strengthening detailing and bearing configurations to reduce impacts to existing elements greatly reducing traffic impacts along the interstate as these details minimize the time required at each bridge.
- Supporting the dry utilities in-place (Verizon and Dominion Energy) and raising to meet the modified vertical profiles which reduce impacts to the approach roadway as our details do not require modifying the abutments or conduits between the abutments and utility vaults.
- Reducing work by using innovative materials and design detailing which reduces MOT requirements and contributes to public acceptance of the project.

Goal: Constructability: Provide a project that can be constructed safely with minimal impact to the public.

What we accomplished:

- Evaluated demolition methods and sequences to safely remove the existing structure.
- Evaluated erection procedure and sequences to safely erect the structure.
- Evaluated proposed girder locations relative to existing locations.
- Supported existing utilities where possible to avoid delays to bridge construction in between phases.
- Replaced Broad Street superstructure using best practice Accelerated Bridge Construction (ABC) techniques with details that provide a long service life.
- Evaluated ABC techniques using Preconstructed Composite Units (PCUs) at the other four bridge sites and determined it was best to use traditional superstructure replacement techniques based on our commitment to long-term performance. Construction will be in as few phases as possible with construction joints in accordance with RFP and VDOT practices.

No additional design exceptions or waivers are required above those already included in the RFP. Vertical clearance allowed in the current Design Exceptions are exceeded for each bridge.

TABLE 5 | STRUCTURAL DESIGN ENHANCEMENTS

Bridge	Design Enhancement	Value
All Bridges	Minimize modifying all existing substructure units to eliminate excavation adjacent to traffic.	Eliminates complex I-95 MOT phasing needed to access footings.
	Use micro-abutment detail to provide jointless bridges.	Minimizes utility conflicts.
1st Street	Reduced girders from nine in the RFP to eight. Eliminated proposed haunch. Increased vertical clearances to greater than 15-ft.-6-in. and greater than 16-ft. in most spans.	Reduces future maintenance costs. Reduces fabrication costs and potential fit-up issues. Eliminates impact struts on I-95 thru lanes.

Bridge	Design Enhancement	Value
4th Street	Reduced girders from 18 in the RFP to 10. Eliminated proposed haunch. Increased vertical clearances to greater than 15-ft.-6-in.	Reduces future maintenance costs. Reduces fabrication costs and potential fit-up issues.
5th Street	Reduced superstructure width which reduced girders from eight in the RFP to six. Eliminated proposed haunch. Increased vertical clearances to greater than 16-ft.	Reduces future maintenance costs. Reduces fabrication costs and potential fit-up issues. Eliminates impact struts.
7th Street	Reduced girders from 13 in the RFP to seven. Eliminated proposed haunch. Increased vertical clearances to greater than 16-ft.	Reduces future maintenance costs. Reduces fabrication costs and potential fit-up issues. Eliminates impact struts.
Broad Street	Reduced girders from 19 in the RFP to 14. Eliminated proposed haunch. Increased vertical clearances to greater than 15-ft-6-in. and greater than 16-ft. over mainline lanes.	Reduces future maintenance costs. Reduces fabrication costs and potential fit-up issues. Eliminates impacts struts, except over NB I-95 exit lane.

Description and Structural Concepts for bridges, retaining wall(s) and major drainage structure(s) proposed:

1st STREET BRIDGE

Superstructure: The existing five simple span superstructure will be replaced in two phases maintaining one lane of traffic and pedestrian traffic at all times. A fully continuous superstructure was evaluated for the 1st Street crossing and we determined that live load uplift occurred at the abutments due to the short end span ratio to the next adjacent span. The best solution is to keep the end spans simple and make the center three spans continuous. The deck slab at Piers 1 and 4 will be made continuous with a continuity slab in accordance with the *Manual of the Structure and Bridge Division* for a jointless superstructure.

Figure 5: Sample Project with carbon fiber wrap designed by WRA. Notice the color coating on the two far right columns.

Substructure: Due to the change in loading configuration, Piers 2 and 3 will require modifications to account for the additional flexure and shear capacity requirements. The pier caps will require strengthening by adding carbon fiber wrapping to address increased requirements for additional shear and moment capacity and will be color coated after installation to match the concrete. Due to the vertical profile change, the seats at all locations will be modified/raised to accept the bearings.

Adjusting the profile and reducing girder depth increases the vertical clearance **(See Table 6).**

TABLE 6 | 1ST STREET BRIDGE VERTICAL CLEARANCE

	SBL Ramp	SBL	NBL	NBL Ramp
Existing	16-ft.-0-in.	15-ft.-1-in.	14-ft.-5-in.	14-ft.-1-in.
Corman Kokosing/WRA Team Proposed Minimum	17-ft.-4-in.	16-ft.-7-in.	16-ft.-0-in.	15-ft.-6-in.
Vertical Clearance Increased by	**1-ft.-4-in.**	**1-ft.-6-in.**	**1-ft.-7-in.**	**1-ft.-5-in.**

4th STREET BRIDGE

Superstructure: The existing two-span continuous superstructure will be replaced in two phases, maintaining two lanes of traffic and pedestrian traffic at all times. Our proposed superstructure will provide a new two-span continuous superstructure and the modified vertical curve to increase the vertical clearances.

Substructure: With the minimal change in dead loads, no strengthening is required; however, due to the change in the vertical profile, the seats will be raised/modified for the new geometry and to accept the new elastomeric bearings at each substructure unit.

Adjusting the profile and reducing girder depth increases the vertical clearance **(See Table 7)**.

TABLE 7 | 4TH STREET BRIDGE VERTICAL CLEARANCE

	SBL	NBL
Existing	14-ft.-5-in.	14-ft.-5-in.
Corman Kokosing/WRA Team Proposed Minimum	15-ft.-7-in.	15-ft.-10-in.
Vertical Clearance Increased by	**1-ft.-2-in.**	**1-ft.-5-in.**

5th STREET BRIDGE

Superstructure: The existing four simple span superstructure will be replaced in two phases, maintaining one lane of traffic at all times. A fully continuous superstructure was evaluated for the new 5th Street superstructure and we determined that live load uplift occurred at the abutments due to the short end spans. To resolve this, the best solution is to keep the two end spans as a simple span and design the center two spans continuous superstructure. The deck slab will be made continuous at Piers 1 and 3 with a continuity slab per the *Manual of the Structure and Bridge Division* for a jointless superstructure. Per the RFP, eliminating the sidewalks on the superstructure allowed our final design to reduce the width of the new superstructure, which minimizes future maintenance costs. Our design will provide standard VDOT overhang width and, as an innovative solution to support the required water line, the deck slab was designed to eliminate the bracket and support the waterline on the deck.

Substructure: While the dead load of the superstructure was reduced, the substructure requires modifying the pier caps for flexure capacity resulting from the modified superstructure loading and beam seat modifications. The pier caps will require strengthening by adding carbon fiber wrapping to address increased requirements for additional shear and moment capacity and will be color coated after installation to match the concrete. Due to the vertical profile change, seats at all locations will be modified/raised to accept the bearings.

Adjusting the profile and reducing girder depth increases the vertical clearance **(See Table 8).**

TABLE 8 | 5TH STREET BRIDGE VERTICAL CLEARANCE

	SBL	NBL
Existing	14-ft.-7-in.	14-ft.-5-in.
Corman Kokosing/WRA Team Proposed Minimum	16-ft.-2-in.	16-ft.-2-in.
Vertical Clearance Increased by	**1-ft.-7-in.**	**1-ft.-9-in.**

7th STREET BRIDGE

Superstructure: The existing five simple span superstructure will be replaced in two phases maintaining two lanes of traffic and pedestrian traffic at all times. The new superstructure will be fully continuous to eliminate all joints.

Substructure: While the dead load of the superstructure was reduced, the substructure requires modifying the pier caps for flexure capacity resulting from the modified superstructure loading and beam seat modifications. The pier caps will require strengthening by adding carbon fiber wrapping to address increased requirements for additional shear and moment capacity and will be color coated after installation to match the concrete. Due to the vertical profile change, the seats at all locations will be modified/raised to accept the bearings.

Adjusting the profile and reducing girder depth increases the vertical clearance **(See Table 9).**

TABLE 9 | 7TH STREET BRIDGE VERTICAL CLEARANCE

	SBL Ramp	SBL	NBL	NBL Ramp
Existing	15-ft.-0-in.	14-ft.-5-in.	15-ft.-3-in.	16-ft.-7-in.
Corman Kokosing/WRA Team Proposed Minimum	16-ft.-1-in.	16-ft.-0-in.	17-ft.-1-in.	18-ft.-4-in.
Vertical Clearance Increased by	**1-ft.-1-in.**	**1-ft.-7-in.**	**1-ft.-10-in.**	**1-ft.-9-in.**

BROAD STREET BRIDGE

Superstructure: The existing two simple spans will be replaced using prefabricated bridge units over a maximum of eight weekends to meet the RFP requirements. Each PCU is comprised of two beam lines and precast deck to maintain stability during setting. A total of 14 PCUs will be used to replace the superstructure and to accommodate the ABC. The location of proposed interior girder lines was shifted from current beam lines to allow reconstruction of most of the beam seats before the long weekend closures in coordination with the substructure repair operations. Substructure modifications will be completed during off-peak hours in accordance with the allowed I-95 closure times. The final configuration will detail a slab made continuous over the pier and when combined with the modifications at the abutments, will provide a jointless superstructure.

Our proposed superstructure will use a deck continuity pour to eliminate the joint at the pier. Use of this standard detailing will ensure that the ABC methodology can be accomplished within the time frame allowed. The deck continuity details will be in accordance with the *Manual of the Structure and Bridge Division.*

As the current bridge profile is on a steep grade and with the requirements to re-open the bridge after each long weekend closure, instead of modifying the profile along Broad Street, our design has improved the existing vertical clearance by reducing the girder depth and using a tapered haunch at the eastern abutment only to improve the clearances over the exit ramp **(See Table 10)**.

TABLE 10 | BROAD STREET BRIDGE VERTICAL CLEARANCE

	SBL	NBL	NBL Ramp
Existing	15-ft.-6-in.	15-ft.-3-in.	14-ft.-4-in.
Corman Kokosing/WRA Team Proposed Minimum	16-ft.-5-in.	16-ft.-7-in.	15-ft.-8-in.
Vertical Clearance Increased by	**11-in.**	**1-ft.-4-in.**	**1-ft.-4-in.**

The superstructure will be shortened on the east end to eliminate cantilever portion of the superstructure and use the abutment seat closest to traffic to support the new PCU superstructure units. This eliminates the anchorage seats which eliminates an atypical design and provides VDOT with a more standard design.

Due to the current configuration with no backwall at the proposed seat location, we propose to precast a semi-integral backwall on the PCU units. The semi-integral backwall and its interface with the abutment seat will be detailed and constructed to provide for the same performance as standard cast-in-place details, with no compromise to long-term performance. Due to the configuration and size of the eastern abutment, we determined that it can be rehabilitated. The existing anchorage seats will be removed to a sufficient depth to install the proposed approach slab. To facilitate approach slab replacements, we will detail precast approach slabs with a high-early strength closure pour.

Substructure: With the proposed PCU superstructure changes, the pier cap will require strengthening for flexure and shear capacity resulting from modified superstructure loading and beam seat modifications. The pier caps will require strengthening by adding carbon fiber wrapping to address increased requirements for additional shear and moment capacity and will be color coated after installation to match the concrete. Due to the vertical profile change, the seats at all locations will be modified/raised to accept the bearings.

Other Structural Considerations: In developing our proposed solutions, The Corman Kokosing/WRA Team eliminated any potential new drainage structures and/or retaining walls for the five locations to receive new superstructures. We have successfully eliminated the need for moment slabs on the special design barrier walls at the tight urban location of Broad Street / I-95 Ramp, as well as the other locations requiring special design barriers by use of the BPP Barrier detailing modified to accept a CPSR Terminal Wall detailing.

In Summary, our Design Concept:

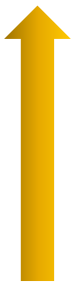
REDUCES number of girders from the RFP Concept Plans, which reduces future long-term maintenance costs.

REDUCES roadway impacts by using VDOT micro-abutment details and eliminating sleeper pads/utility conflicts.

REDUCES bridge work, motorist impacts and project duration due to our proposal to support in-place existing utilities.

REDUCES impacts to I-95 as our pier strengthening details requires no structural excavation to potentially re-build piers.

REDUCES need for future inspection/maintenance as we considered the types of materials, methods, and functionality used.



INCREASES the minimum vertical clearances to eliminate the strike mitigation system at 11 of the 15 locations that I-95 or ramps pass under the bridge that do not meet 16-ft minimum vertical clearances.

MEETS/EXCEEDS the project's scope of work, how it benefits end users, particularly in terms of safety, operations, schedule, construction and public acceptance.

MEETS/EXCEEDS the post-construction minimum vertical clearance requirement of 15-ft.

MEETS/EXCEEDS the bridge strike mitigation system requirements.

4.4 | Project Approach

4.4 PROJECT APPROACH

4.4.1 | ENVIRONMENTAL MANAGEMENT

Approach through design/construction to avoid/minimize project impacts to environmental resources: The Corman Kokosing/WRA Team is experienced in ensuring impacts do not exceed what is documented in the approved NEPA documentation. Additionally, we are experienced in having the environmental team coordinate regularly with the design team to incorporate all NEPA commitments into the design and construction plans for each bridge, including potential laydown areas. We have extensive experience working with VDOT, the City of Richmond, and the regulatory/resource agencies involved, including Federal Highway Administration (FHWA), Virginia Dept. of Historic Resources (VDHR), and the Virginia Dept. of Environmental Quality (VDEQ).

We have thoroughly reviewed the scope of work and supporting environmental documentation associated with each bridge, including the *Programmatic Categorical Exclusions (PCE) and reevaluations, permit determinations, effect determinations, and supporting documentation*, and are committed to successfully completing this project in a manner that minimizes impacts to the human and natural environment and ensures full compliance with applicable laws, regulations, and the project's environmental commitments. Our comprehensive Environmental Management Plan (EMP) is based on a thorough analysis of the environmental resources along the corridor and as outlined in the RFP. It outlines environmental goals and addresses schedule requirements for environmental compliance to be followed throughout design and construction. It focuses on avoiding/reducing environmental impacts during design and construction by establishing procedures to address environmental issues, providing mitigation measures, and minimizing risk. The Corman Kokosing/WRA Team's EMP strategy project includes the following:

- → Incorporate environmental commitments within processes, plans, and construction activities.
- → Maintain an environmental compliance program, including standards, procedures, and audits.
- → Coordinate with resource agencies to verify scope of the project would not require permits.
- → Perform additional database reviews for threatened/endangered species to ensure the no effect determination remains valid.
- → Maintain communication between VDOT and the Corman Kokosing/WRA Team to identify early on any changes to the design of any of the bridges that require additional environmental studies.
- → Maintain communication with Corman Kokosing/WRA Team, VDOT, FHWA, the City of Richmond, and stakeholders to conduct project activities in an environmentally-responsible manner.

Approach/potential solutions for addressing recognized environmental conditions/concerns within the project footprint: The Corman Kokosing/WRA Team understands that addressing recognized environmental conditions and potential areas of concern early on is critical to project success. We conducted an environmental risk assessment that considered environmental commitments, as well as important resources from the natural and built environments. It identified potential environmental concerns where impacts may occur for which we developed mitigation strategies, reducing the threat of scheduling delays. **Table 11** outlines our understanding of project commitments, potential areas of concern, as well as our approach to mitigating project risks.

TABLE 11 | DESIGN/CONSTRUCTION APPROACH TO ADDRESS ENVIRONMENTAL RECOGNIZED CONDITIONS/AREAS OF CONCERN

Environmental Condition / Areas of Concern	Risk Mitigation Strategy: Compliance and Commitment Approach
NEPA DOCUMENTATION	— Communicate regularly with the design manager and perform regular plan reviews to ensure the design team incorporates requirements into the final design.

Environmental Condition / Areas of Concern	Risk Mitigation Strategy: Compliance and Commitment Approach
NEPA DOCUMENTATION (continued)	— Develop a Geographic Information System (GIS) database to track spatial environmental resource data which can be used to overlay design files to facilitate evaluation of bridge concepts and potential concerns throughout design/construction. — Limit impacts to equal or less than approved in the PCEs. — Avoid project scope/footprint changes which includes laydown areas, to eliminate or substantially reduce additional studies (including historic properties). — Support VDOT's preparation of Final Re-Evaluations before ROW acquisition and construction (EQ201, EQ 200) and Final Environmental Certification/Commitments Checklist (EQ103).
CULTURAL RESOURCES AND SECTION 4(F)	— Consider historic properties to be design constraints and avoid impacting them beyond what is shown on the RFP Conceptual Plans. — Notify VDOT's project manager ahead of any other project-related activities, including staging, borrow/disposal, and any temporary/permanent easements, proposed to be located on or within the viewshed of historic properties. — Manage project footprint to maintain de minimis use of Jackson Ward Historic District and Franciscan Convent (temporary construction easement). — Avoid any additional project-related activities that impact these resources. — Comply with Special Provision for Removal and Replacement of Historical Marker (SA 66 - Execution of Gabriel). — Comply with Special Provision for Sidewalk and Curbing Replacement. — Comply with Special Provision for Limitation of Operations.
AIR QUALITY	— Adhere to VDEQ construction open burning restrictions; cutback asphalt restrictions; fugitive dust precautions; and special provision for volatile organic compound emissions control areas. — Construction emissions performed per VDOT's Road and Bridge Specifications.
THREATENED AND ENDANGERED SPECIES	— Perform additional database reviews to ensure threatened/endangered species determination of no effect remains valid. — Provide VDOT with documentation.
HAZARDOUS MATERIALS	— Perform asbestos inspections on all structures VDOT has not previously inspected, and, as applicable, perform asbestos abatement, abatement monitoring, notifications, and demolition. — Remove asbestos containing materials identified on bridges using OSHA's compliant work practices. — Comply with VDOT's Road and Bridge Specifications (Sections 413.02, 411.08, and 411.09) as it pertains to the testing/disposal of paint waste. — Comply with Special Provisions (SP522-DB0300-00 and SP 500-DB310-00) and project-specific SP for Disclosure, Clarification, and Avoidance of Asbestos Containing Materials and Materials with Trace Levels of Asbestos. — Manage solid waste, hazardous waste, and hazardous materials per applicable federal, state, and local environmental regulations. — Prepare/implement spill prevention, control, and countermeasure plan.

Integrating environmental management into the schedule to minimize possibility of delays: The Corman Kokosing/WRA Team developed a timeline for environmental commitment compliance into the design/ construction project schedule. The EMP ensures our team prioritizes environmental management, meets the project's commitments, and minimizes impacts during design/construction. Following our EMP and keeping documentation ahead of construction activities will result in an environmentally-friendly project that meets agency review requirements, minimizes the possibility of delays, and ensures a successful project.

4.4.2 | UTILITIES

Utility coordination, adjustments, and relocations approach: The key to successful utility relocation is early, frequent, and open communication with utility companies that have facilities impacted by the upcoming

construction. The Corman Kokosing/WRA Team is set to use an approach to the utility coordination/relocation work that follows the *VDOT Utility Manual of Instructions, Utility Relocation Policies & Procedures,* which is standard for addressing utility coordination/relocations in Virginia, with hands-on coordination efforts that will continue throughout the project's lifespan. This keeps the utility companies focused and cooperative towards the shared goal of timely and cost-effective relocations.

Our utility relocations plans will be categorized as follows:

1. **In-Plan Relocations:** Water, sanitary sewer, natural gas, City of Richmond Lighting and CCTV, and bridge mounted duct banks will be coordinated as in-plan work with design/construction for these facilities incorporated into the project plans and work packages.
2. **Out-of-Plan Relocations:** Privately-owned utilities for power and telecommunications facilities, will be coordinated as out-of-plan work with the utilities responsible for design/construction for required relocations and the Corman Kokosing/WRA Team managing this work for successful and on-time completion.

Utility Coordination: Utility coordination has already started during proposal preparation. All utility companies with facilities in the project area have been contacted with points of contact confirmed and existing facility records obtained. These records were compared to the RFP Concept Plans survey and our own project site inspection for accuracy and completeness, and are included in the Corman Kokosing/WRA Team proposal plans. **Figure 6** showcases the utility companies with facilities in the project area:

Immediately after project award, coordination with all impacted utility owners will re-commence so that all facilities are properly supported or relocated without impact to the project completion date.

Figure 6: Utilities with facilities in the project area

Utility conflicts / mitigation measures: We know the importance of avoiding utility conflicts/relocations wherever possible. This approach minimizes risk of project delays. If conflicts cannot be avoided, we will work to minimize relocations with design modifications and/or protection-in-place of the assets. Our Design Concept maximizes supporting the existing bridge duct banks in-place during bridge replacements. Relocations will be individually addressed in the construction schedule, with an emphasis in avoiding project delays, and, if

necessary, define with logic where work can be shifted to avoid any delays to daily construction. **Table 12** on **Page 43** identifies utilities that conflict with the proposed work, accompanied by solutions and mitigation measures to minimize project schedule impacts.

As we have done on all past projects, Corman Kokosing fully integrates utilities into the project schedule. We allowed time for utility coordination efforts, design, approvals and authorizations, easement acquisition, utility owner material procurement, and the sequential relocation of utilities. Utility relocation activity durations have been extended where possible beyond the actual planned durations to build contingency into the overall schedule. We have further minimized schedule risk by phasing our construction sequence to accommodate utility activities.

As noted above, the preferred method for handling potential conflicts is to leave utilities in their current location as much as possible to avoid lengthy delays and added cost. Before removing the existing utility supports, the utilities will be supported by a temporary support beam.

As shown in **Figure 7**, **Step 1** removes the deck; **Step 2** installs the support beam; **Step 3** completes the rest of the superstructure demolition; **Step 4** reattaches the duct bank to the new girders; and **Step 5** places the new concrete deck.

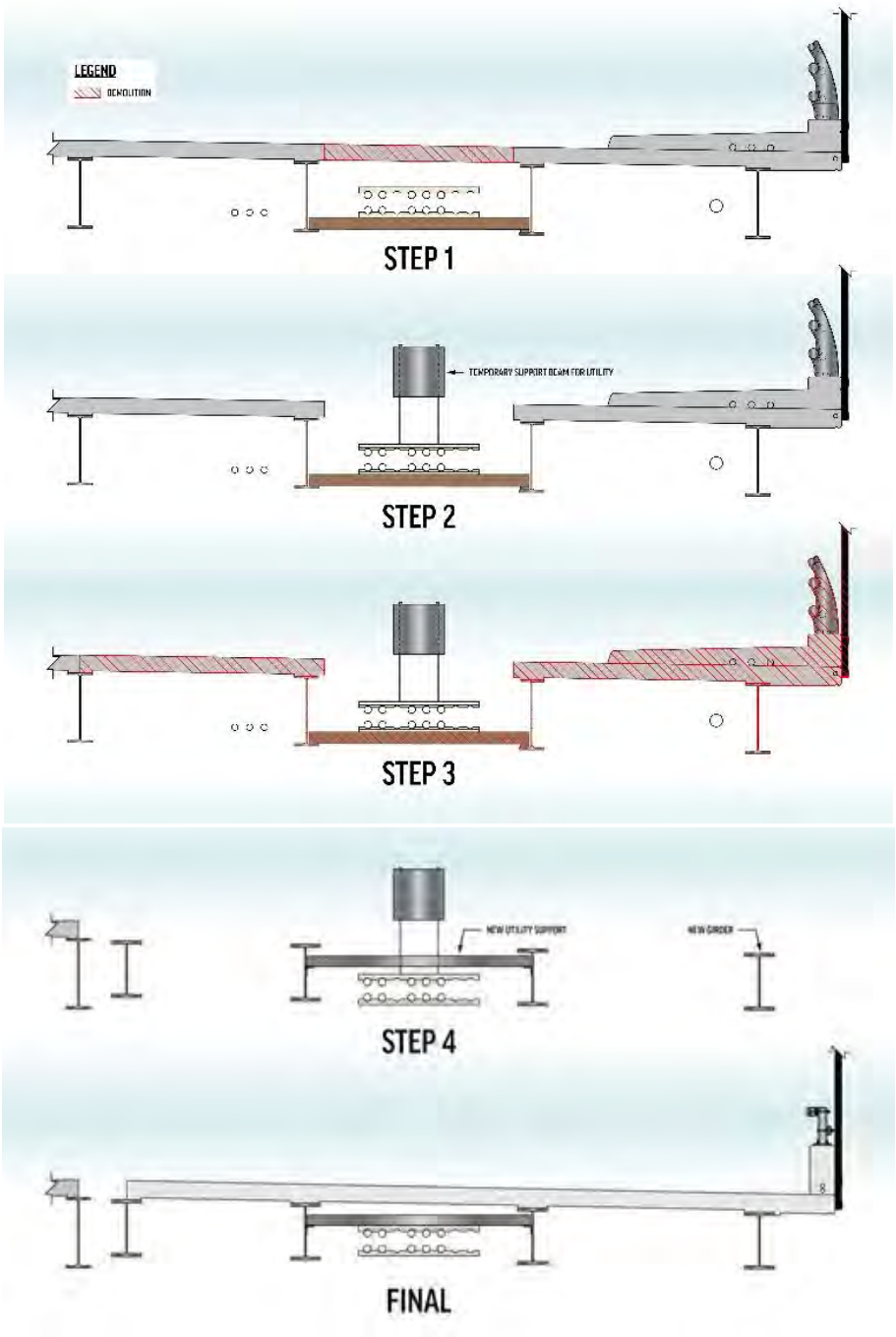


Figure 7: Temporary support beam

Protecting Existing Utilities: During demolition, fragile utilities, such as duct banks, will be protected by sawing and removing the bridge deck slabs over the utilities to eliminate hoe-ramming over top of the utility. Steel and ductile iron utility lines are more resilient than duct banks and bridge deck demolition performed with traditional demolition hammers will not impact them. Corman Kokosing has completed many deck and superstructure replacement projects using these methods when working around existing utilities, including City of Richmond gas and water, as well as power and communication duct banks with zero incidents or interruptions of service.

TABLE 12 | UTILITY CONFLICTS, SOLUTIONS AND MITIGATION

1st STREET

Utility Conflict	Solution	Mitigation
Dominion Power Lines	Relocate the Dominion poles off the bridge to new overhead lines to the north. New poles will be located outside of the Limited Access Lines.	Phase 1 of 1st Street Bridge reconstruction will replace the southern half so that Dominion and the other pole-mounted utilities have time to relocate without affecting the critical path.
Comcast/Crown Castle	These utilities crossing I-95 are currently pole-mounted on the bridge and will be relocated to the new poles after the Dominion relocation.	Must take place before Phase 2 of 1st Street Bridge reconstruction as the poles are mounted on the north side of the bridge.
City of Richmond Lighting	The two bridge-mounted street lights do not need to be replaced per the RFP.	Will be de-energized after award and removed prior to bridge demolition.
City of Richmond CCTV	Relocate the two CCTV cameras mounted on the bridge and install outside bridge limits on existing Dominion poles. Fiber will be relocated aerially with relocated Dominion lines.	Per coordination with City of Richmond, CCTV operation is critical to security in the adjacent neighborhood. Cross-over to new fiber will be closely coordinated with the City to minimize CCTV down time.
City of Richmond DEM	Existing conduits marked as DEM conduits in the as-built drawings are abandoned and will be removed in-phase.	N/A
City of Richmond Gas	Gas line will be replaced in the same location by City of Richmond Gas Works.	Must replace between March 1st and October 1st due to seasonal outage restrictions. Prioritize 1st Street Bridge so that Phase 1, including replacing the gas line, is completed during the 2022 window.
City of Richmond Water	Replace the waterline in-phase and attach to overhang/parapet per conceptual drawings.	Since the 1st Street, 5th Street, and 7th Street water mains cannot be out of service at the same time, prioritize 5th Street replacement to mitigate conflicting outages.
Verizon/E. Baker	The 13 conduits below the southern-most lanes will be repaired via betterment by Verizon and temporarily supported during Phase 1 bridge demolition/ reconstruction.	Construction engineering to ensure a structurally-stable temporary support system.
Sidewalk Conduits	No utility owners have claimed use of the sidewalk conduits shown on the as-built drawings.	Will place two spare 2-in. conduits in each parapet for future City/VDOT use.

4st STREET

Utility Conflict	Solution	Mitigation
City of Richmond Lighting	The lighting will be taken out of service during bridge replacement and new conduits provided across the new bridge.	Per the RFP, we will coordinate with the City at least 60 days in advance to allow crews to de-energize, perform wiring, and reconnections.
VDOT Lighting	Existing under bridge lighting will be removed and not replaced as per the RFP.	N/A
City of Richmond DEM	The existing conduits marked at DEM conduits in the as-built drawings are abandoned and will be removed in-phase.	N/A
City of Richmond Water	Relocate the fire hydrant out of the median to the south side of the road.	Must be completed prior to shifting traffic in to Phase 1.
Sidewalk Conduits	No utility owners have claimed use of the sidewalk conduits shown on the as-built drawings.	Will place two spare 2-in. conduits in each parapet for future City/VDOT use.

5th STREET

Utility Conflict	Solution	Mitigation
Dominion Power Lines	Avoid location by support existing duct bank in-place during bridge replacement and reattach to new girders.	Construction engineering to ensure a structurally-stable temporary support system.
VDOT Lighting	Existing under bridge lighting will be removed and not replaced as per the RFP.	N/A

City of Richmond Gas	Gas line below 5th Street is abandoned and will be capped and removed during demolition.	N/A
City of Richmond Water	Replace the waterline in-phase and attach to overhang/parapet per conceptual drawings.	Since the 1st Street, 5th Street, and 7th Street water mains cannot be out of service at the same time, prioritize 5th Street replacement to mitigate conflicting outages.
Sidewalk Conduits	No utility owners have claimed use of the sidewalk conduits shown on the as-built drawings.	Will place two spare 2-in. conduits in each parapet for future City/VDOT use.

7th STREET

Utility Conflict	Solution	Mitigation
Dominion Power Lines	Support existing duct bank in-place during bridge replacement and reattach to new girders.	Construction engineering to ensure a structurally-stable temporary support system.
VDOT Lighting	Existing under bridge lighting will be removed and not replaced as per in the RFP.	N/A
City of Richmond DEM	The existing conduits marked as DEM conduits in the as-built drawings are abandoned and will be removed in-phase.	N/A
City of Richmond Gas	The gas line below 7th Street is abandoned and will be capped and removed in-phase during demolition.	N/A
City of Richmond Water	Replace the waterline in-phase and attach to overhang/parapet per conceptual drawings.	Since the 1st Street, 5th Street, and 7th Street water mains cannot be out of service at the same time, prioritize 5th Street replacement to mitigate conflicting outages.
Verizon / Summit / Crown Castle / Windstream	The 16 conduits below the southern-most lanes will be repaired via betterment by Verizon and temporarily supported during Phase 1 bridge demolition/ reconstruction.	Construction engineering to ensure a structurally-stable temporary support system.
Sidewalk Conduits	No utility owners have claimed use of the sidewalk conduits shown on the as-built drawings.	Will place two spare 2-in. conduits in each parapet for future City/VDOT use.

BROAD STREET

Utility Conflict	Solution	Mitigation
City of Richmond Water	Replace both waterlines in-phase similar to current condition, except the new installation will be outside the parapet vs. between the beams.	First line is taken out of service and placed back into service before working on the second line.
Dominion Power Lines	Support existing duct bank in-place during bridge replacement and re-attach to new girders.	Construction engineering to ensure a structurally-stable temporary support system.
City of Richmond Gas	Abandon the two existing 12-in gas lines and cap and remove in-phase during demolition.	N/A
City of Richmond Lighting	The two existing bridge-mounted street lights do not need to be replaced per the RFP. The lighting will be taken out of service during bridge replacement and new conduits provided across the new bridge.	Per the RFP, we will coordinate with the City at least 60 days in advance to allow crews to de-energize, perform wiring, and reconnections.
Sidewalk Conduits	No utility owners have claimed use of the sidewalk conduits shown on the as-built drawings.	Will place two spare 2-in. conduits in each parapet for future City/VDOT use.

Mitigation: During the proposal phase, we have contacted every utility company that we and the RFP identified that could possibly be at each bridge site. **Table 12** identifies mitigation strategies for each known utility at each bridge site.

Upon Notice to Proceed, we will mobilize our underground utility investigation partners to pinpoint exact locations at conflict points using test holes or ground penetrating radar. This also includes investigating inside each handhole and vault to confirm the pre-award utility information we received. If a new utility facility is discovered, we will trace and identify the owner of the facility in question, determine if it requires relocation, and design a new path to eliminate any conflicts.

Concurrent with the underground investigation, we will host preliminary utility review meetings with involved utility companies to explain impact of the project and sequence of work. Proposal plans will be distributed for review as early as possible. They are quickly advised which facilities are most likely in conflict and how those conflicts play into the project staging.

When plans reach a level of completeness to show project impacts to the utilities, a Utility Field Inspection (UFI) meeting is held. Plans and preliminary VDOT UT-9 forms are distributed to the utilities approximately two weeks prior. During this meeting, utilities can put forth their relocation strategies, preliminary schedules for performing adjustments/relocations, and their utility easement requirements, if they exist. Due dates are set for utility relocation/adjustments plan and estimate submittals and no conflict letter submissions.

The key to mitigating potential schedule delays with the utility companies is constant communications. The Corman Kokosing/WRA Team will continually track and communicate with the involved companies throughout the relocation phase. We have developed a tracking matrix and spreadsheets that will be updated constantly and allows us to look ahead to prepare for the coming stages **(See Figure 8)**.

Utility Relocation Tracker

Task	DVP	Verizon	Windstream	Crown Castle	COR CCTV	Comcast	COR Water
UFI Date	3/10/2018	3/10/2018	3/10/2018	3/10/2018	3/10/2018	3/10/2018	3/10/2018
Easement Request Due	2/1/2018	N/A	N/A	N/A	N/A	N/A	N/A
Easement Request Submitted	2/1/2018	N/A	N/A	N/A	N/A	N/A	N/A
P&E Due	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	IN PLAN
P&E Submitted	5/22/2018	4/15/2018	5/14/2018	5/8/2018	5/13/2018	5/11/2018	
Authorization Granted	5/27/2018	4/22/2018	5/20/2018	5/20/2018	5/19/2018	5/20/2018	
NTP Given	5/27/2018	4/22/2018	5/20/2018	5/20/2018	5/19/2018	5/20/2018	
Construct. Scheduled Start	6/15/2018	5/7/2018	6/15/2018	6/15/2018	6/15/2018	6/15/2018	
Construction Start	6/10/2018	5/8/2018	6/12/2018	6/16/2018	6/14/2018	6/20/2018	
Construct. Scheduled Finish	12/2/2018	7/6/2018	12/2/2018	12/2/2018	2/4/2019	12/2/2018	
Construction Finished	12/1/2018	7/1/2018	12/3/2018	11/25/2018	2/1/2019	12/3/2018	

Figure 8: Example of a Utility Relocation Tracker matrix

Tracking starts at the UFI, setting the dates for the easement requests, plan and estimate (P&E) submissions, start of field work, and target completion dates for each utility. As the easement requests are completed, needed parcels will be listed and tracked as they progress through the negotiation process, and final documentation supplied to the utility/utilities needing the easement when received. This allows us to quickly see how many parcels remain and keep close communications with the ROW staff for forecasts on closings so involved utilities can start preparing to mobilize to the field and get ready to proceed at the earliest point in time.

As construction begins, the Corman Kokosing/WRA Team field personnel will track relocation progress, as well as communications with the company field supervisors themselves. Bi-weekly progress meetings will be held onsite with all utilities involved. If it is apparent a utility is falling behind, meetings will be held more often to partner in solutions to get back on track. If needed, we will provide them with laydown areas, site access, MOT assistance, clearing, and other services that will help meet project schedule. Corman Kokosing will provide a utility inspector to monitor utility construction activities performed for private/ public utilities on the project. They will ensure that all utilities are relocated according to the approved P&E. They will obtain approval for any field changes to the approved P&E from our lead utility coordination manager, Paul Martin. They will also maintain UT-7 daily records of utility work being performed. Our utility inspector will assist in creating a set of red-lined As-Built Drawings that depicts any changes made from the approved P&E.

As utility adjustments/relocations are completed, we will keep VDOT updated on progress and close them out using the VDOT RUMS System. The utilities are directed to submit prompt/correct drawings for all necessary as-built land use permits.

4.4.3 | QUALITY ASSURANCE | QUALITY CONTROL (QA/QC)

The Corman Kokosing/WRA Team understands that one of the most important aspects of a VDOT design-build project is the successful completion of the Quality Assurance/Quality Control (QA/QC) program. The QA/QC process is integral to all design and construction projects administered by VDOT and is even more critical under the design-build delivery system.

To meet our mission and objectives, we assembled a team of highly qualified and experienced professionals to comply with *VDOT's Minimum Requirements for Quality Assurance and Quality Control on Design Build and Public-Private Transportation Act Projects, dated July 2018.*

The Corman Kokosing/WRA Team's QA/QC approach creates a partnering environment between VDOT, our field staff and QC inspectors/testers, and NXL's QA staff. Forming this partnership with a proactive/robust QC/QA testing *and* inspection program starts with a project-specific QA/QC Plan. It is in every stakeholder's best interest that the QC/QA program:

- Reduces/eliminates contractor or designer rework.
- Keeps QA efforts focused and targeted.
- Limits VDOT's need to assign valuable resources.
- Assures VDOT of a well-maintained, safe construction site with construction/materials meeting specifications.

Design: To meet the goals and criteria, WRA has established QA/QC practices in place that will integrate all designers and construction staff for a high-quality program. Gary Shelor, P.E., will lead our design QA/QC efforts and his guidance will satisfy the project goals to minimize VDOT's review time and need for additional QA/QC review upon submission.

As the designated QA/QC engineer, Gary's focus is on the technical quality of the work being performed and working with Design Manager Jeremy Schlussel, P.E. and other team members to ensure that:

- Sound technical practices are being followed.
- VDOT and stakeholder best interests are served in all aspects of the project.
- VDOT established policies/procedures are being followed.
- WRA zeros in on key issues critical to achieving all project goals and objectives.

To kick-off QA/QC prior to design, the design manager, lead discipline engineers, design/construction integrator (DCI), and design QA/QC manager will provide criteria and checklists for each design element to staff engineers. They will audit it to ensure correct standards are followed, checklists are used, and the work is documented at each stage. Regular *All Hands* meetings, stressing the importance of quality in the design, keep the quality culture in check. It is also a forum for lead construction and design firm principals to offer lessons learned on past design-build projects and perspectives on the role quality plays in project success.

The customized QC Plan developed for each project location includes a list of items to be verified, a place for the reviewer's name, and the date checked. The QA manager and design-build project manager (DBPM) review the checklists (LD-436, Checklists from S&B Manual Chapters) to confirm items are checked by a qualified person.

QC records are maintained to create a permanent history of project development and progress can be reviewed as needed. The QA engineer supervises the QC activities and reviews all reports to verify completeness of checking and proper presentation of the material for clarity/accuracy.

The mission is providing quality designs and construction in the fast-paced delivery of a design-build project. What drives success is effective communication among everyone involved: the owner, permitting agencies, designer, constructor, subcontractors and the construction team. QA/QC design procedure goals:

- Designs that are safe and meet VDOT guidelines/requirements.
- Conform to RFP, Part 2, Section 2.1.4.
- Design infrastructure that meets requirements, are constructible, durable, economical, and minimize maintenance.
- Meet the design schedule, budget, and construction staging requirements.
- Minimize design costs by working efficiently and avoiding rework.
- Provide an organized and indexed set of design calculations, including design criteria and assumptions.
- Minimize VDOT and other agency reviews.

Checking Design Deliverables: It is essential that design deliverables show complete and clear fabrication and construction requirements/details. The design QA/QC manager will develop/implement a QA/QC Plan. Procedures will be enforced and documented to minimize VDOT reviews.

Design Preparation: Design deliverables will be prepared under the lead discipline (roadway, structural, drainage, geotechnical, etc.) engineers. Regularly-scheduled meetings led by the DCI will be held throughout design with the design manager, lead discipline engineers, QC staff, construction manager and key construction team member representatives, such as the fabricator and erector. VDOT is welcome to participate. These meetings reduce design and VDOT review times by coordinating design and construction requirements during design, not just at scheduled milestones.

Checking design deliverables come in the form of drawings and calculations. Review starts within the discipline before the deliverable is reviewed by the Design QA & QC Lead, Design Manager, etc. Reviewing each deliverable follows the steps outlined below. At the end of each step, the check-print stamp is signed for the drawings and on the cover sheet on each set of calculations. The following outlines responsibilities:

Originator: Prepares the deliverable to be checked and is accountable for accuracy and adequacy per design code requirements. It is not intended that the Originator rely on the checking process to complete the deliverable.

Checker: Independent of the Originator and checks the deliverable. Reviews every aspect, including input for design programs that are a part of the calculation set. Marks up the stamped deliverable set with comments and returns it to the Originator. This is a senior staff member with the experience to check the design of the discipline they are reviewing.

Back-checker: Reviews the checked deliverable, confirms the items marked for revision are justifiable, and that corrections noted are appropriate. If the Back-checker disagrees with a Checker's correction, they must resolve it prior to the next step. If it cannot be resolved, the lead discipline engineer or design manager resolves it.

Corrector: Addresses comments marked on the check print (original deliverable). This can be either the Originator or a CAD Technician.

Verifier: Reviews the corrected deliverable against the check print and verifies corrections marked on the plan sheet or calculation sheet were addressed. The Verifier is also the Checker.

Interdisciplinary Review: Once the design deliverable is checked, the design manager and D/CI organizes the lead discipline engineers (roadway, structural, drainage, utilities, etc.) to review the submittal. Concurrently, the Construction Manager and QC group reviews the submittal for constructability. If there are comments from the Interdisciplinary Review, the checking procedure starts from the beginning for the affected portions of the deliverable.

Quality Assurance: The design QA/QC manager audits and ensures the QC checking process is being followed by the design team. In addition to the QA/QC design process outlined above, the design QA/QC manager and the design manager may direct a design peer review on a discipline by a senior technical team member. Comments from this review will also be addressed by following the quality control checking process.

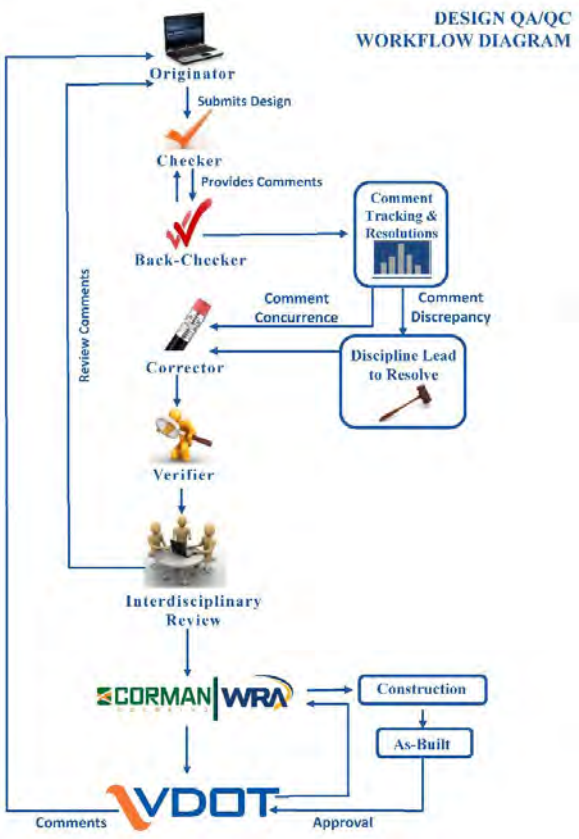


Figure 9: Design QA/QC Workflow

Contractor Review: As a final deliverable review before submitting to VDOT, the Corman Kokosing/WRA Team again reviews the plans for constructability, conformance to anticipated means and methods, and completeness of comment responses. This will be led by Design/Construction Integrator Kyle LaClair, PE.

Submit to VDOT: The lead discipline engineer signs a form for each milestone deliverable that QC efforts are compliant and transmits it to the design manager and D/CI who signs off on it with the QA/QC manager. Final deliverables are now ready to be signed and sealed by the lead discipline engineer (a Virginia PE), and the DBPM submits it to VDOT for review and/or approval. VDOT (or other reviewing agency) reviews the design and submits comments to the Corman Kokosing/WRA Team. Comments are addressed by incorporating changes into the design for the next milestone submittal. This continues throughout design until final plans are submitted to VDOT and approved for construction.

TEAMWORK: *The Design QC Plan includes Corman Kokosing as an integral part of the design quality process.*

Construction: With Corman Kokosing performing construction QC and NXL performing construction QA, we have built a QA/QC team that will provide VDOT a high-quality project.

The Construction QA/QC Plan will establish clear/complete procedures for inspection of construction and testing of materials. Corman Kokosing and NXL collectively prepares/submits the QA/QC Plan to VDOT for review/ approval. It is based upon procedures proven successful on past design-build projects, such as VDOT's I-64 Widening at Bottoms Bridge. The QA/QC team's experience, combined with lessons learned, will provide VDOT the distinct advantage and benefit of seasoned professionals with a successful record of administering QA/QC programs in Virginia.

Effective meetings and communication are key to an effective QA/QC program. Proper planning and conducting project meetings contribute significantly to project success. We will hold the following meetings:

Daily Communications: During construction, the quality assurance manager (QAM) communicates daily with key staff. Every day, he will conduct a brief staff meeting with the QA staff to confirm all work is covered and accurate records are being kept and communicates with our CM to ensure QC staff and construction operations are proceeding as planned. The QC and QA staff will also be communicating each day to confirm inspection coverage of the work.

Preparatory Inspection Meetings: Prior to starting any work activity, the QAM leads these meetings to confirm project personnel thoroughly understand upcoming work. The objective is to provide coordination/ communication among Corman Kokosing's production, QA, and QC personnel, as well as VDOT's independent assurance and verification sampling and testing (IA/VST) personnel.

Weekly QA/QC Meeting: The CM, QC manager (QCM), QAM, and the senior QA and QC inspectors meet to discuss work progress. Any issues/concerns are discussed/addressed. Minutes are prepared and any outstanding issues/concerns are tracked until resolved. The VDOT project manager has an open-door invitation to attend this meeting.

Monthly Progress Meetings: QCM and QAM attends these meetings to update attendees on the QA/QC Program. Construction QA and QC inspection personnel performs all construction inspection, sampling, and testing prescribed by the Minimum Requirements and other applicable contract documents. This includes documentation of construction activities and acceptance of manufactured materials. The following five phases are in place to verify work is performed in substantial conformance with the contract:

1. **Utility Relocation Inspections:** Ensures all utilities are relocated per the approved P&E. Maintain UT-7 daily records of utility work being performed.
2. **Start-up Phase Inspections:** Takes place as work begins. The QAM or his staff reviews the work to verify conformance to the plans and the correct documentation is being forwarded to VDOT after his review/acceptance.
3. **Production Phase Inspections:** Ensures the methods/procedures established in the start-up phase are maintained, and any deficiencies noted in the initial phase have been resolved/corrected.
4. **Intermediate Phase Inspections:** Throughout construction, the QA/QC team continues to inspect/test the work per procedures prescribed by the QA/QC Plan and other contract documents. The team accommodates VDOT's independent verification inspections as requested.
5. **Final Inspection and Punch-list:** QA/QC team is responsible for final inspection. The QAM maintains the punch list and is created as the project approaches substantial completion. Final inspection is performed on all definable features of the work, against approved construction plans, specifications, and other related construction documents, and any discrepancies are noted.

QC/QA documentation will be maintained electronically in an online location accessible to all personnel associated with the project using Bentley's ProjectWise System and PlanGrid. The QAM will monitor the QC and QA staff to ensure proper document control is being performed. He will also review the inspection staffs' daily diaries daily and make them available for the VDOT project manager to review.

Anticipated QA and QC staffing: For a project of this size, scope, and complexity, the Corman Kokosing/WRA Team realizes our QA/QC staff must be experienced and robust to deliver a final product that meets/exceeds the requirements. We will incorporate proven procedures to standardize and streamline the construction quality

approach. The procedures developed establish proper controls so that the project will meet all quality requirements and contractual expectations of VDOT and will be built to meet/exceed service-life requirements.

The DBPM will have ultimate responsibility to ensure that project policies are effectively implemented and that our team is staffed with knowledgeable and dedicated people who are committed to designing and constructing this project. Implementing QA/QC as prescribed by the Corman Kokosing/WRA Team will eliminate the need for VDOT to augment the quality effort. Implementing our quality system is comprehensive and imposes responsibility on all levels of our team.

Corman Kokosing anticipates having between two and seven individuals actively involved in the project's Construction QA/QC Program. This number does not include the field engineers or crew supervisors that have the responsibility to ensure work is built per the plans/specifications. The QCM will be dedicated to the project full time. We anticipate the QAM will be onsite one to two days a week and will be adjusted as needed throughout construction. The inspector staffing levels will vary depending on the number of operations occurring and whether both day and night operations taking place.

4.5 | Construction of Project

4.5 CONSTRUCTION OF THE PROJECT

4.5.1 | SEQUENCE OF CONSTRUCTION

The Corman Kokosing/WRA Team has developed our sequence of construction approach considering the following key initiatives. 1) Maximize the public and worker safety protocols; 2) Increase bridge clearances to the extent feasible; 3) Economize MOT Plan; and 4) Avoid or minimize existing utility impacts. These key initiatives will greatly maximize our ability to avoid/mitigate potential construction delays throughout the project. To test them, we compared construction approaches, as described below, to determine the best value to VDOT:

CONVENTIONAL CONSTRUCTION METHODS

VS.

ACCELERATED BRIDGE CONSTRUCTION (ABC)

The Corman Kokosing/WRA Team reviewed conventional vs. ABC methods for each bridge and determined the best value to VDOT. The result of this analysis concluded with four out of the five bridges using conventional construction methods (1st Street, 4th Street, 5th Street, and 7th Street). Broad Street will be ABC for reasons elaborated below.

So why use conventional construction techniques?

- It provides flexibility in regard to girder spacing. This translates into the ability to avoid or minimize impacts to the existing utilities, translating further into mitigating potential delays.
- Has fewer construction phases which is more predictable from day-to-day operations, which results in less risk to the motoring/pedestrian public.
- It typically results in a more durable structures which provides VDOT with a best-value approach.
- Results in fewer construction joints than ABC, which is generally preferred by VDOT.
- Mitigates potential precast fit-up issues that often exist when using ABC methods.

We worked our sequence of construction to maximize the ability to implement conventional construction methods as we feel it will provide VDOT with the best value. A general sequence of construction is described more fully in subsequent sections below.

ABC techniques will be used to replace the Broad Street Bridge superstructure only to accommodate the prescribed closure schedule for Broad Street. Corman Kokosing will complete as much work as possible prior to weekend shutdowns to minimize the amount of work to be completed during the shutdowns. A general sequence for this bridge is more fully described in the subsequent sections below.

NIGHT DETOURS / LANE CLOSURES

VS.

NIGHT CROSSOVERS WITH MOVEABLE BARRIER WALL

The Corman Kokosing/WRA Team also reviewed MOT options for each bridge. Again, using the key initiatives described previously, using detours and lane closures will maximize the amount of working time at night while at the same time increase public and worker safety protocols. Analysis shows that it takes longer to set up and tear down crossover traffic patterns with moveable barrier wall compared with setting up a detour or lane closure in one direction only.

Our plan minimizes the times traffic patterns are altered because of the greater timeframe to complete work at night resulting in less exposure to motorists due to face-on-face traffic patterns associated with a cross-over.

General Sequence of Construction Conventional Method (1st / 4th / 5th / 7th Bridges): The Corman Kokosing/WRA Team will prioritize design packages to facilitate critical path work that can begin while final structural plans are being finalized. An advanced MOT design package will be completed so that bridge

demolition and substructure repairs can start on all four northern bridges prior to final Released for Construction (RFC) structural plans being finalized.

Once final designs are complete, superstructure replacement at the 1st, 5th, and 7th Street Bridges starts, along with any in-phase utility work. It is anticipated that work will occur simultaneously at all three bridge locations, with 1st Street prioritized so that the gas line replacement located on the Phase 1 side occurs within the March-October 2022 window. Work on 4th and Broad Streets that does not impact the overhead lanes, such as substructure repairs and utility, will occur in tandem with bridge replacement work on the first three bridges.

Once 7th Street traffic is in its final configuration, replacing the 4th Street Bridge will begin. Superstructure work on Broad Street starts as the 1st and 5th Street Bridges conclude, and as 4th Street is ongoing.

General Sequence of Construction ABC for Broad Street Bridge: Our approach consists of three phases of deck replacement with each phase consisting of superstructure removal and PBU deck replacement over NB and SB I-95 in successive weekends. This allows completing utility relocations and other follow-on work as phases of superstructure replacement are completed. For example, in Phase 1 (removal Zone 1 in **Figure 10**), superstructure replacement occurs over NB I-95 in one weekend shutdown followed by replacement over SB I-95 in a successive weekend shutdown. This allows constructing the 12-in. waterline and completing the sidewalk and parapet which need to be finished prior to the southern phases.

Major work at Broad Street, including the weekend-long shutdowns, will not occur until 7th Street Bridge work is substantially complete and traffic is in its final configuration. This minimizes impacts felt by the Broad Street shutdown by keeping traffic flowing in other parts of the city as much as possible.

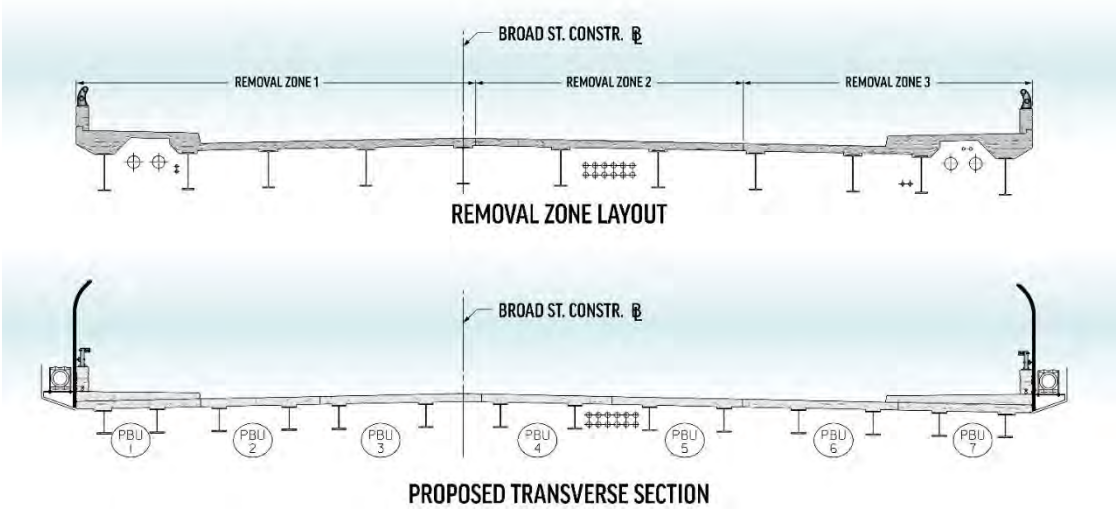


Figure 10: Typical ABC phasing for Broad Street Bridge

Construction phasing approach, including ABC and the general sequence of activities to complete the project by the final completion date: **Figure 11** reflects our major sequence of activities that culminates in the completion of the project by our final completion date.

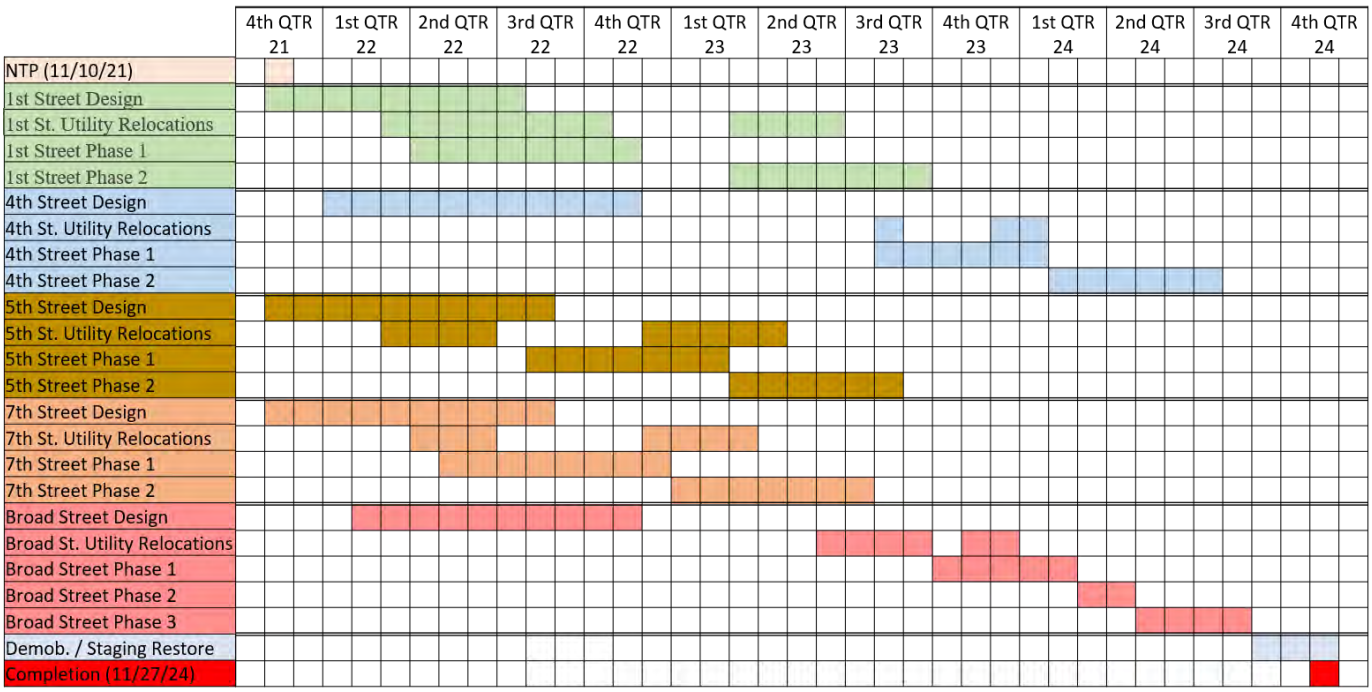


Figure 11: Sequence of activities between bridges

Per the RFP, 7th Street Bridge and the 4th Street Bridge and the 7th Street Bridge and Broad Street Bridge superstructure replacements are not to occur at the same time unless otherwise approved. Our proposed sequence conforms to that restriction and has the ability to assembly-line substructure work activities between all bridges to maximize using shared I-95 MOT configurations. This assembly-line approach allows for economization of activities and minimizes number of changed traffic patterns I-95 traffic is subjected to.

Addressing Safety: The Corman Kokosing/WRA Team has a proven track record in planning/executing work safely, and we have developed an approach that will address any safety concerns early and aggressively. Designs will be measured against public impacts, as well as cost and construction operations. Corman Kokosing and WRA have highly acclaimed reputations for being *good neighbors* -- this project will be no exception. Our Temporary Traffic Control Plan (TTCP) will be continuously evaluated for effectiveness to minimize impacts. Upon Notice of Award, we will meet individually with stakeholders, including VDOT, local emergency responders, and adjacent businesses to discuss their concerns and solicit input for our Traffic Management Plan (TMP) and Site-Specific Safety Plan. Key team members will be present to brainstorm ways to minimize impacts to each entity's operations while opening lines of communication for early identification/mitigation of potential impacts.

The Corman Kokosing/WRA Team has planned and designed the project with an emphasis on motorist, pedestrian and worker safety. This is accomplished by limiting interaction of construction activities with motorists through our TTCP and construction phasing plan, as well as providing a Site-Specific Safety Plan that incorporates Corman Kokosing's *Zero-At-Risk Behavior* culture. This culture places emphasis on human characteristics and focuses on each team member identifying and eliminating at-risk behaviors from their lives on a 24/7 basis.

As detailed in **Section 4.5.2** below and as stated above, the focus of our TTCP and phasing is to eliminate/limit interaction between construction activities and the public. Strategies include:

- **Detouring I-95 Traffic During Critical Work:** For 1st/4th/5th/7th Streets (with the exception of NB I-95 under the 1st Street Bridge), I-95 traffic will be detoured around the work area for critical activities, i.e., superstructure demolition, new steel beams installations, deck overhang formwork installation/removal,

etc.) to provide a safe work area for the travelling public and construction workers. Broad Street will be reconstructed using crossovers to detour traffic around the work zone for all phases as well.

- **Limiting I-95 Traffic Shifts:** The existing travel lanes will only be shifted once to the outside (on the SB side only) to provide access for the substructure work at 1st/4th/5th/7th Streets. NB I-95 will remain in its current configuration with 12-ft. lane widths without any shifts during bridge construction. This translates to keen driver expectations, reducing risk of any sideswipe incidents.
- **Isolating Substructure Work:** At all locations adjacent to traffic, scaffolded access to the piers and abutments will be encapsulated with tightly secured, heavy-duty breathable tarps to ensure that no debris, tools, etc. can come in contact with motorists.
- **Protecting Pedestrian Routes:** Pedestrians will have one open sidewalk and a safe route across each bridge during all phases of construction. This route will be clearly conveyed to pedestrians and the work areas will be barricaded so there will be no pedestrian intrusions into the work zones.

Corman Kokosing prides itself about our Zero At-Risk Behavior culture which will be paramount on this project. A Site-Specific Safety Plan will be developed by the project team, along with Corman Kokosing's Safety Manager, Steve Simpson CSP, CHST, which applies our standard operating procedures for all aspects of the work. Additionally, all Corman Kokosing and subcontractor team members who work on the project will attend a Site-Specific Orientation using the Safety Plan. Attendees will receive a project-specific hard hat sticker to confirm those that sets foot onsite has been indoctrinated on the project's safety culture.

Supervisory team members will be thoroughly trained on construction safety through *Kokosing University,* Corman Kokosing's company education system. A robust blend of online, in-person and third-party instruction educates our supervisory team members, as well as to certify Competent Person (CP) status in several key areas. Core curriculums are developed for each position. For example, a foreman's curriculum includes, but is not limited to OSHA 30-Hour, Excavation and Trenching CP, Utility Strike Prevention CP, First Aid/CPR, Confined Space CP, Fall Prevention CP, Heat Illness CP, Cold Weather CP and Silica CP.

Craft team members will receive task-specific training through detailed/documented Work Instructions. Examples include *Fall Protection Authorized Person, Scaffold Authorized User, Working Around Cranes, Portland Cement Hazards* and no less than 18 Work Instructions related to *Respirable Silica* hazards. Through weekly use of Work Instructions, and a robust library of applicable Safety Talks and Safety Concerns (lessons learned), the Zero-At-Risk Behavior safety culture is clearly and consistently conveyed to Corman Kokosing workers on the project.

Major work activities will have a Job Hazard Analysis (JHA) completed and reviewed by the crew members prior to starting the work. Hazard identification, elimination or mitigation and controls are captured through a JHA. They will be living documents to be adjusted as needed as the work progresses for any change of conditions, equipment or personnel. The foremen will use the JHAs to formulate a daily Morning Action Plan (MAP) and every crew will complete a MAP meeting prior to the work shift. If work tasks change during the shift, the foreman and crew will *re-MAP* prior to starting the new task. MAPs focus on three questions **(See Figure 12)**.

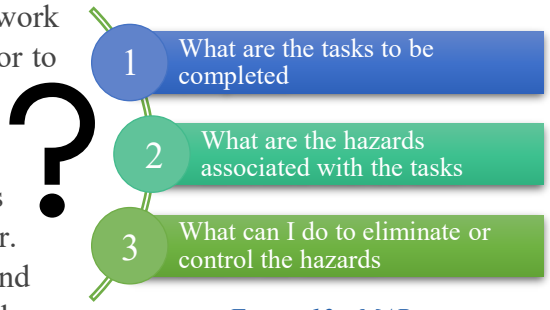


Figure 12: MAP questions

Being a local contractor with an office and shop near the project gives us the advantage of having a full-time safety specialist team member. Aaron Rife, CHST, will assist in the Site-Specific Safety Plan and building the Zero-At-Risk Behavior culture of the project. He will make

frequent visits completing documented inspections and audits. Corman Kokosing's Safety Manager Steve Simpson, CSP, CHST will make project visits and inspections.

In addition to our Safety Department inspections and audits, the project team will make weekly, documented safety inspections. All project managers, project engineers, field engineers and superintendents on the project will be required to complete the weekly inspections. Inspection data will be entered into our central database and can be mined so the project team can be proactive in handling any frequently occurring issues or trends.

Addressing staging and storage areas: Construction projects within an urban context can be challenging from a logistical perspective. Staging personnel/equipment and coupling those resources with material deliveries are critical issues to be addressed by the project team. Strategic planning is a must in determining the correct approach that can affect the project schedule and other factors, such as public/worker safety. Our approach includes a central project office location with a primary material staging area coupled with several local site adjacent staging areas. Given the urban context, the following key issues were considered in developing our approach.

- **Safe Ingress/Egress:** All staging/storage areas will consider vehicle entrance site distance for the safe movement of people, equipment and materials to/from the site. These sites must consider the large girder deliveries and proximity of material storage at bridges that still allow for safe movement of vehicles.
- **Operational Efficiency:** Staging personnel, equipment and material near individual work areas will lead to an efficient construction plan.
- **Clear Zone Issues:** Removal from the travel ways when prohibited during non-working hours.
- **Adjacent Residential/Business Considerations:** Separation from local business and other commercial/ residential establishments will be vital when considering light pollution, noise nuisance, and construction traffic, specifically, when a good portion of this project will be overnight.
- **Environmental Constraint Considerations:** The staging/storage locations must address environmental risks associated with the potential for spills and other pollutant-related incidents. Best management practices will be employed per local/state regulatory requirements.
- **Zoning/Local Land Use Restrictions:** City of Richmond local land use regulations will be accounted for in our staging/storage approach.
- **Site Security:** The locations of staging/storage will also consider site security, including fencing and a security gate coupled with the ability to monitor.

Primary staging/storage areas will be fenced and screened with temporary office trailers or storage containers. Since we anticipate night work, storage areas will also be illuminated, either by established electric service drop or with portable generators, depending on the location. The properties will have a stabilized entrance to reduce tracking mud onto public roads. Erosion & sediment controls will be installed/maintained. Upon completion, staging/storage areas will be converted as shown on the final plans in the vicinity of the work area and off-project areas will be restored in accordance with lease requirements.

Central Project Office Locations/Interim Storage/Staging Areas: There are a few locations under consideration to serve in the capacity of a central project office and staging/storage areas **(See Table 13)**.

TABLE 13 | POTENTIAL BRIDGE SITE STORAGE AND STAGING AREAS

Bridge	Aerial	Staging Area
1st Street		There are a few options for temporary staging/storage: Option 1 is to inquire on leasing the property northeast of the 1st Street Bridge at **20 East Baker Street.** Option 2, either separately or in conjunction with Option 1, is to use closed sections of Baker and Duval Streets on each end of the bridge.
4th and 5th Streets		**4th Street: 800 North 3rd Street** is being considered as the local long-term staging/storage location for equipment/materials, in addition to being a probable central project office site. The end areas of the phased bridge work will also be used for interim equipment parking and material storage. **5th Street:** This bridge can also use this site as the local long-term staging/storage location. There is also an area under the EB I-64 flyover ramp that was used in the past. This site will be accessed through the existing guardrail with appropriate terminals, etc. It has been historically used as a construction staging/laydown area and has overhead lighting from the adjacent high-mast lights. Access will be to/from 3rd Street which has adequate entrance sight distance.
7th Street		There a few options for temporary staging/storage, including the parking lot at **901 North 7th Street** and/or inside the existing loop ramp. The parking lot is also a central project office location when considering there are no residential properties nearby. The entrance is already established with adequate intersection sight distance for ingress/egress. There is parking lot level lighting, in addition to the adjacent high-mast lights from I-64. Regardless of project central office location, this site will be used as a material storage/staging area and for workers to park their vehicles. Specific terms/conditions will be coordinated with VDOT.
Broad Street		Due to the nature of ABC methods, interim staging areas will be established on each end of the bridge during weekend closures. These interim/temporary staging areas will be removed at the end of each weekend to reopen to the public. Equipment/materials will be brought back to the long-term storage areas.

We will also review office space that is for lease adjacent to the project corridor. The location will house the project management team during construction.

In regard to off-site storage, Corman Kokosing also uses a just-in-time delivery strategy to reduce space requirements onsite. Long-lead and schedule critical materials are procured early and staged at the manufacturer's facility or our yard in South Chesterfield, Virginia for delivery at the jobsite when needed. Materials are conveniently on hand which eliminates risk of damage or loss.

Each bridge site will also have an interim storage/staging area as the demolition, rehabilitation and superstructure construction progresses. Short-duration laydown areas will be established within the limits of disturbance (LOD) to support immediate work activities. They will be compliant with environmental protection best practices and will be more transitory through the site as work progresses. Any work within the clear zone of any highway will be protected by temporary concrete barrier for public/construction worker safety or be outside the clear zone.

4.5.2 | TRANSPORTATION MANAGEMENT PLAN (TMP)

The Corman Kokosing/WRA Team has the knowledge, understanding, and experience in developing TMPs involving major interstate and bridge projects that safely/effectively manage traffic during construction and communication with stakeholders. This segment of I-95 is a critical transportation link, with an average daily

traffic (ADT) volume exceeding 149,000 vehicles per day (VPD). Volumes are higher during peak travel times due to recreational travel and major regional events, significantly associated with many destinations throughout the Richmond area.

There are limited alternate routes available, with Routes 1 and 301 through the City of Richmond serving as the primary alternate routes to I-95 through this area. I-95 is also a vital east coast commercial truck route. Providing a safe/efficient work zone for motorists enables our team to construct improvements effectively. We will develop a TMP which encompass the following significant elements:

1. Temporary Traffic Control Plan (TTCP).
2. Public Information and Communications Plan (PICP).
3. Incident Management Plan (IMP).

The TTCP will be developed following the *Virginia Work Area Protection Manual* (VWAPM), applicable VDOT standards, and Part 2 of the RFP. It will detail the work phases, impacts to the travel way, haul routes, construction access, and other critical elements necessary to provide a safe/efficient work zone.

Key Elements and Points of Emphasis: Proposed TMP elements consider the varied users of the I-95 corridor. Our Conceptual Design accommodates heavy truck traffic, with WB-67 design vehicle turning movements used to establish required clear area during construction. We understand the critical nature of the I-95 corridor and levels of traffic demand. We acknowledge the holiday work restrictions in limiting operations and additional critical dates in the RFP. Our project schedule accounts for these volume periods when existing travel times must remain open to traffic.

Maintaining traffic through all phases of construction: Our MOT approach first zeros in on motorist/worker safety. As per the RFP, the project focuses on construction related to the five bridges. We developed this sequence of construction to maintain traffic through the work zone. The following are construction phasing elements:

I-95 Construction Operations: As an initial approach to MOT, we must first look at the impacts this project and the five bridges will have on the entire region, which include construction phases. As stated in the RFP, work along I-95 and all crossover streets will be completed using construction phasing, temporary travel lanes, crossovers, pedestrian/bicycle facility accommodations, and detours. This is a significant undertaking to occur concurrently with daily traffic activities, and requires careful planning, precise scheduling and communication. In conjunction with our means-and-methods and the RFP requirements, the following is a general approach to maintain traffic throughout construction:

1st STREET BRIDGE SEQUENCE OF CONSTRUCTION | MOT

North 1st Street over I-95 Bridge Rehabilitation: Execute construction in two phases to address the superstructure, roadway approaches, pedestrian/bike facilities, drainage, utility relocations, and traffic engineering elements. Please note RFP, *Section 2.10.4: Lane and Road Closures Restrictions* specifies that one lane must be maintained on the 1st Street Bridge over I-95. The Information Package includes a 1st Street MOT Scheme that depicts two-way traffic operations on the one-lane bridge with temporary traffic signals at the Duval Street and Baker Street intersections that would alternate the ROW over the 1st Street Bridge. The two-way traffic operation on the one-lane bridge is not specified in Part 2 of the RFP.

To improve safety within the work zone and minimize the potential for head on collisions on the 1st Street Bridge between the two temporary traffic signals, we propose a one-way inbound 1st Street operation on the 1st Street

Bridge. A pedestrian route will always be maintained on the bridge. This is consistent with the existing one-way inbound section of 1st Street south of Duval Street.

Outbound 1st Street traffic will be detoured to Leigh Street, Chamberlayne Parkway and Charity Street for both phases of construction. ***Note this detour (Scenario CK-1, detailed below) is not part of the RFP and was developed by the Corman Kokosing/WRA Team.*** The RFP includes a detour for *"large truck and bus traffic traveling north across the bridge via Leigh Street to Chamberlayne Parkway to Charity Street"* indicating that a detour route has already been considered.

SB I-95 will be shifted toward the outside after shoulder strengthening is completed to accommodate an approximately 10-ft. wide work zone behind barrier wall at the inside pier. Temporary barrier wall (bolt-down wall as needed) will be installed along the inside shoulder of NB I-95 to provide an anchor point for the vertical shielding needed to protect traffic. Heavy, breathable tarps will be secured to the existing bridge beams at the top and secured at the bottom using this barrier wall. This is typical for all bridge locations where barrier wall is placed on the opposite side of a scaffolded work area **(See Figure 13)**.

This will provide an encapsulated work area where substructure work (surface repairs, bearing pad reconstruction, etc.) can take place with no risk of concrete demolition debris, tools, etc. coming in contact with the travelling public. This work can be completed during dayshift which is much safer for the craft workforce and is more productive. Only substructure surface repairs for the face of the pier cap and columns opposite the scaffolded side have to be completed under lane closures during off-peak hours.

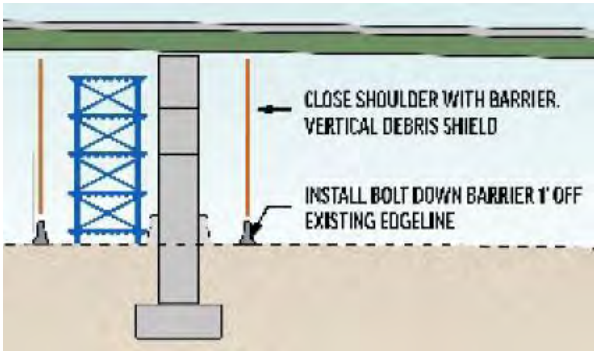


Figure 13: Typical Pier Access

Temporary barrier wall (bolt-down wall as needed) will be installed along the outside shoulder of SB I-95 and the I-64 off-ramp will have barrier wall along both shoulders without shifting or reducing lane widths.

MOT under 1st Street will be set up once and remain in this configuration until the superstructure replacement is complete for both construction phases. This allows the majority of substructure work to be completed under barrier wall without impacting motorists with numerous traffic shifts and closures.

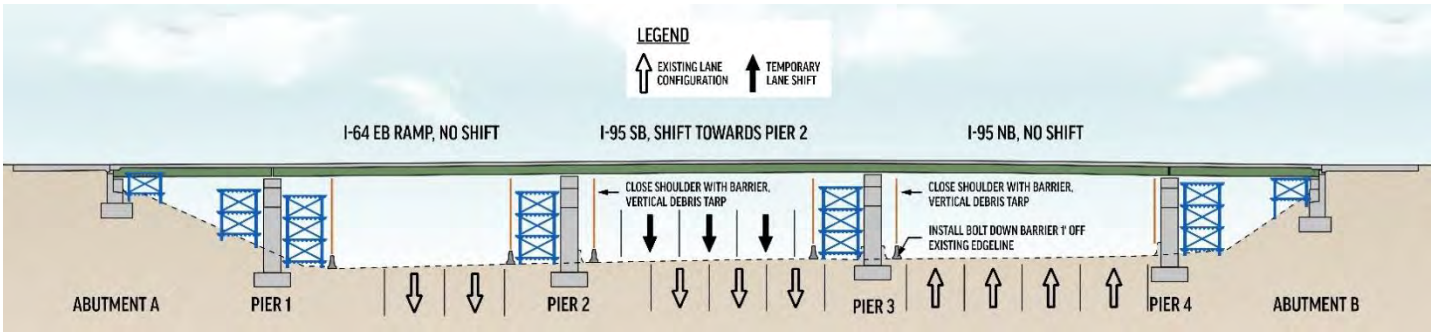


Figure 14: I-95 MOT under 1st Street

Periodically, NB I-95 travel lanes (accommodating the I-64 on-ramp) will be reduced with alternating lane closures during allowable off-peak hours to complete substructure/superstructure construction. The I-95 NB detour (Scenario F) shown in the RFP may be used during these lane closures to safely channel traffic. Additionally, the WB I-64 off-ramp to NB I-95 will be detoured using Scenario E-1A when necessary in conjunction with NB I-95 lane closures to complete substructure/superstructure construction.

Periodically, SB I-95 travel lanes will be reduced with alternating lane closures or detoured using Scenario CK-5 (detailed below) during off-peak hours to complete substructure/superstructure construction. The SB I-95 to EB I-64 off-ramp will be detoured using the Scenario CK-2 (detailed below) to facilitate superstructure construction. ***Note these detours (Scenarios CK-2 and CK-5) are not part of the RFP and were developed by the Corman Kokosing/WRA Team.***

4TH STREET BRIDGE SEQUENCE OF CONSTRUCTION | MOT

North 4th Street over I-95 Bridge Rehabilitation: Execute construction in two phases using crossovers and temporary pavement to address the superstructure, roadway approaches, pedestrian facilities, drainage, utility relocations, and traffic engineering elements. Traffic merges from two to one lane in each direction. Vehicles traveling outbound from downtown along 4th Street will yield to those along 3rd Street before crossing the bridge.

In Phase 1, outbound traffic shifts to the inbound side of the bridge, crosses the bridge, then transitions back to normal traffic patterns.

In Phase 2, inbound traffic shifts to the newly-constructed outbound side of the bridge before transitioning to normal traffic patterns along 3rd Street.

Temporary barrier wall (bolt-down wall as-needed) will be installed along the outside shoulder of NB I-95 and the inside shoulder of NB I-95. SB I-95 will be shifted toward the outside after shoulder strengthening is completed to accommodate an approximately 10-ft. wide work zone behind the barrier wall at the inside pier. Temporary barrier wall (bolt-down wall as-needed) will be installed along the outside shoulder of SB I-95.

MOT under 4th Street will be set up once and remain in this configuration until the superstructure replacement is complete for both phases of construction. This allows most of the substructure work to be completed behind the barrier wall without impacting motorists with traffic shifts and lane closures.

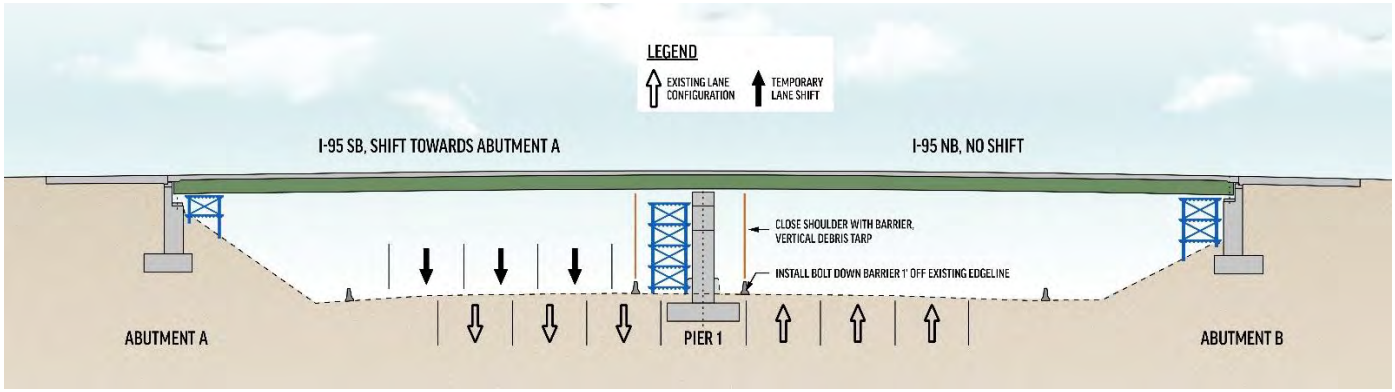


Figure 15: I-95 MOT under 4th Street

Periodically, NB and SB I-95 travel lanes will be reduced with alternating lane closures or detoured (using the aforementioned Scenarios F and CK-5) during allowable off-peak hours to complete substructure and superstructure construction.

5TH STREET BRIDGE SEQUENCE OF CONSTRUCTION | MOT

North 5th Street over I-95 Bridge Rehabilitation: Execute construction in two phases of this single direction inbound movement bridge to address the superstructure, roadway approaches, drainage, utility relocations, and traffic engineering elements.

During the initial phase, construction is on the northern/western side and the WB I-64 traffic heading toward SB I-95 will merge from two to one lane before the bridge. Construction in Phase 1 channels traffic along the southern/eastern side of the bridge and will permit the through movement into downtown and the left to SB I-95.

During both phases, there are no concerns regarding pedestrians/bicyclists, since this is considered part of the WB I-64 exit ramp to SB I-95.

Phase 2 construction is essentially a mirror image of Phase 1 since construction flips to the southern/eastern side and inbound traffic uses the newly-constructed portion of the bridge.

Temporary barrier wall (bolt-down wall as-needed) will be installed along the outside shoulder of NB I-95 to provide access to the outside pier and along the inside shoulder without shifting traffic or reducing lane widths. SB I-95 will be shifted toward the outside after shoulder strengthening is completed to accommodate an approximately 10-ft. wide work zone behind barrier wall at the inside pier. Temporary barrier wall (bolt-down wall as-needed) will be installed along the outside shoulder of SB I-95.

MOT under 5th Street will be set up once and remain in this configuration until the superstructure replacement is complete for both phases of construction. This allows most substructure work to be completed behind the barrier wall without impacting motorists with traffic shifts and lane closures

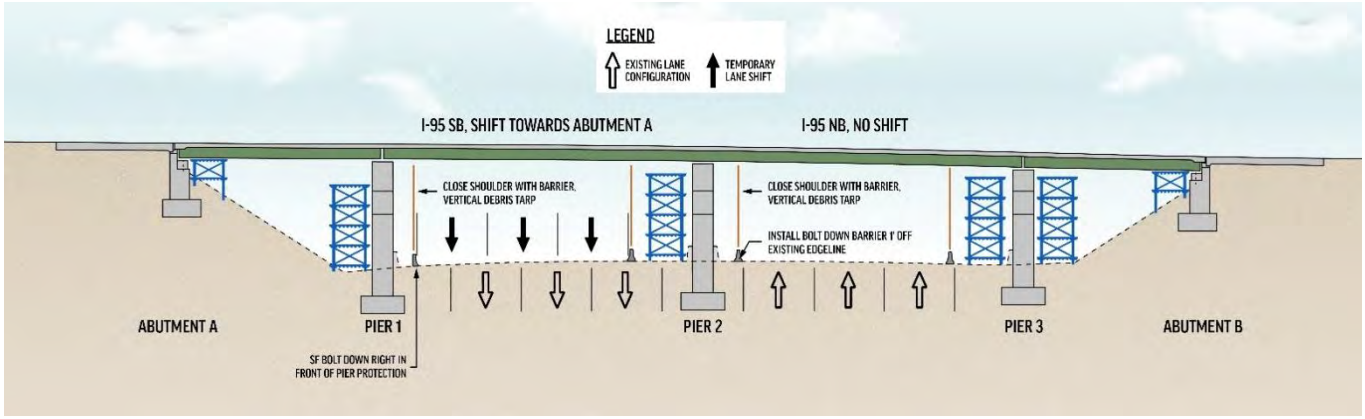


Figure 16: I-95 MOT under 5th Street

Periodically, NB and SB I-95 travel lanes will be reduced with alternating lane closures or detoured (using the aforementioned Scenarios F and CK-5) during allowable off-peak hours to complete substructure and superstructure construction.

7TH STREET BRIDGE SEQUENCE OF CONSTRUCTION | MOT

North 7th Street over I-95 Bridge Rehabilitation: Execute construction in two phases of this dual direction bridge to address the superstructure, roadway approaches, drainage, utility relocations, and traffic engineering elements. The 7th Street facility and bridge currently consist of two-way traffic with one travel lane in each direction and two right turning lanes on the east side. The turning lanes are used to access NB I-95. During construction of both phases, only the outbound 7th Street traffic is permitted with the inbound movement detouring

throughout construction. The detour, detailed in the RFP MOT Schemes for 7th Street, uses the 4th Street Bridge via Hospital Street, 5th Street, 4th Street, 3rd Street to Jackson Street. The southern/eastern side of the bridge is constructed in Phase 1 with the northern/western side in Phase 2.

Temporary barrier wall (bolt-down wall as-needed) will be installed along the outside shoulder of the 7th Street on-ramp to NB I-95 and along the inside shoulder of the on-ramp to provide access to the inside pier (outside pier along NB I-95) by slightly reducing the ramp lane width. Temporary barrier wall (bolt-down wall as-needed) will be installed along the outside shoulder of the NB I-95. SB I-95 will be shifted toward the outside after shoulder strengthening is completed to accommodate an approximate 10-ft. wide work zone behind barrier wall at the inside pier. Temporary barrier wall (bolt-down wall as-needed) will be installed along the outside shoulder of SB I-95. The 5th Street on-ramp to SB I-95 width will be reduced slightly and temporary barrier wall (bolt-down wall as-needed) will be installed along the inside shoulder to provide access to the SB I-95 outside pier.

MOT under 7th Street will be set up once and remain in this configuration until the superstructure replacement is complete for both phases of construction. This allows most substructure work to be completed behind the barrier wall without impacting motorists with traffic shifts and lane closures.

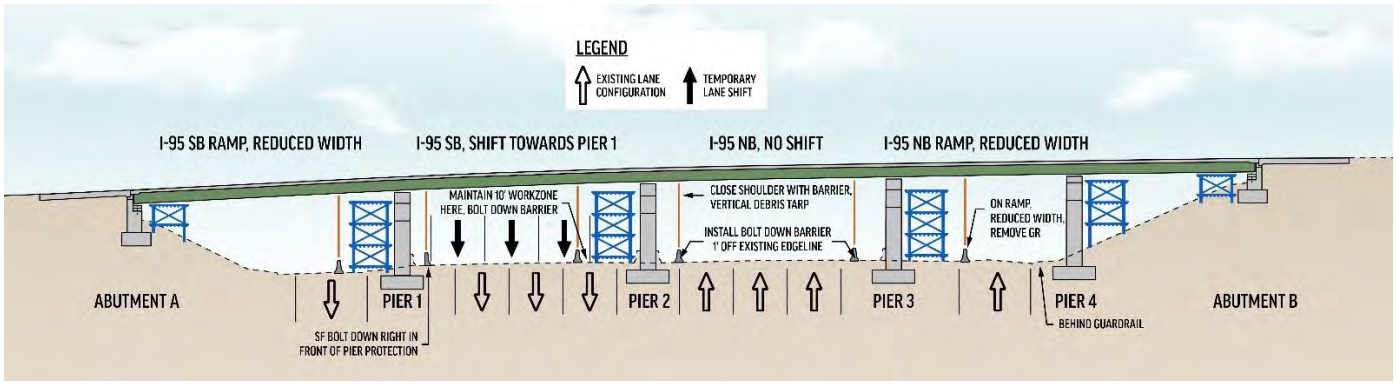


Figure 17: I-95 MOT under 7th Street

Periodically, NB and SB I-95 travel lanes will be reduced with alternating lane closures or detoured (using the aforementioned Scenarios F and CK-5) during allowable off-peak hours to complete substructure and superstructure construction. Periodically, the 7th Street on-ramp to NB I-95 will be closed and detoured using Scenario E-1B to facilitate superstructure construction.

Periodically, the 5th Street on-ramp (WB I-64) to SB I-95 will be closed and detoured to facilitate superstructure construction using Scenario CK-3 (Detailed on **page 65**). ***Note this detour (Scenario CK-3) is not part of the RFP and was developed by the Corman Kokosing/WRA Team.***

VDOT BENEFIT: *Our Traffic Management Plan allows all NB I-95 existing lanes to remain at 12-ft. width during construction of 1st/4th/5th/7th Street Bridges.*

BROAD STREET SEQUENCE OF CONSTRUCTION | MOT

Broad Street over I-95 Bridge Rehabilitation: Staged construction for this bridge via ABC techniques consists of weekend closures for construction, while permitting pedestrians/bicyclists to cross during construction. The detour used on weekends is for both directions using 14th Street to Main Street to 18th Street and vice-versa. Rerouting will be diverting all Broad Street's east-west traffic to common areas of weekend entertainment sites

and Shockoe Bottom. Close coordination/communication with the City and public officials is essential. During these weekend closures, access to I-95/I-64 is limited to the ramp on the west side of the Broad Street Bridge and I-95 crossover detours will be in place during construction and is further described below.

Substructure work will be completed to the greatest extent possible prior to the weekend shutdowns, including substructure surface repairs and partial bearing seat construction in-between the existing bearing seats. This will be accomplished in two phases using lane shifts in both directions.

In Phase 1, SB I-95 will be shifted toward the outside after shoulder strengthening is completed to accommodate an approximate 10-ft. wide work zone behind the barrier wall at the pier. Temporary barrier wall (bolt-down wall as needed) will be installed along the inside shoulder of NB I-95. NB I-95 travel lanes will be reduced with inside lane closures during allowable off-peak hours to complete substructure surface repairs on the pier.

In Phase 2, NB and SB I-95 will be shifted toward the inside after shoulder strengthening is completed to accommodate an approximate 10-ft. wide work zone at both abutments.

Detour Scenario CK-4 (Detailed on **page 66**) will be used periodically in conjunction with lane closures during off-peak hours to facilitate NB I-95 MOT shifts and any substructure/superstructure work that can be accomplished prior to the weekend shutdowns. ***Note this detour (Scenario CK-4) is not part of the RFP and was developed by the Corman Kokosing/WRA Team.***

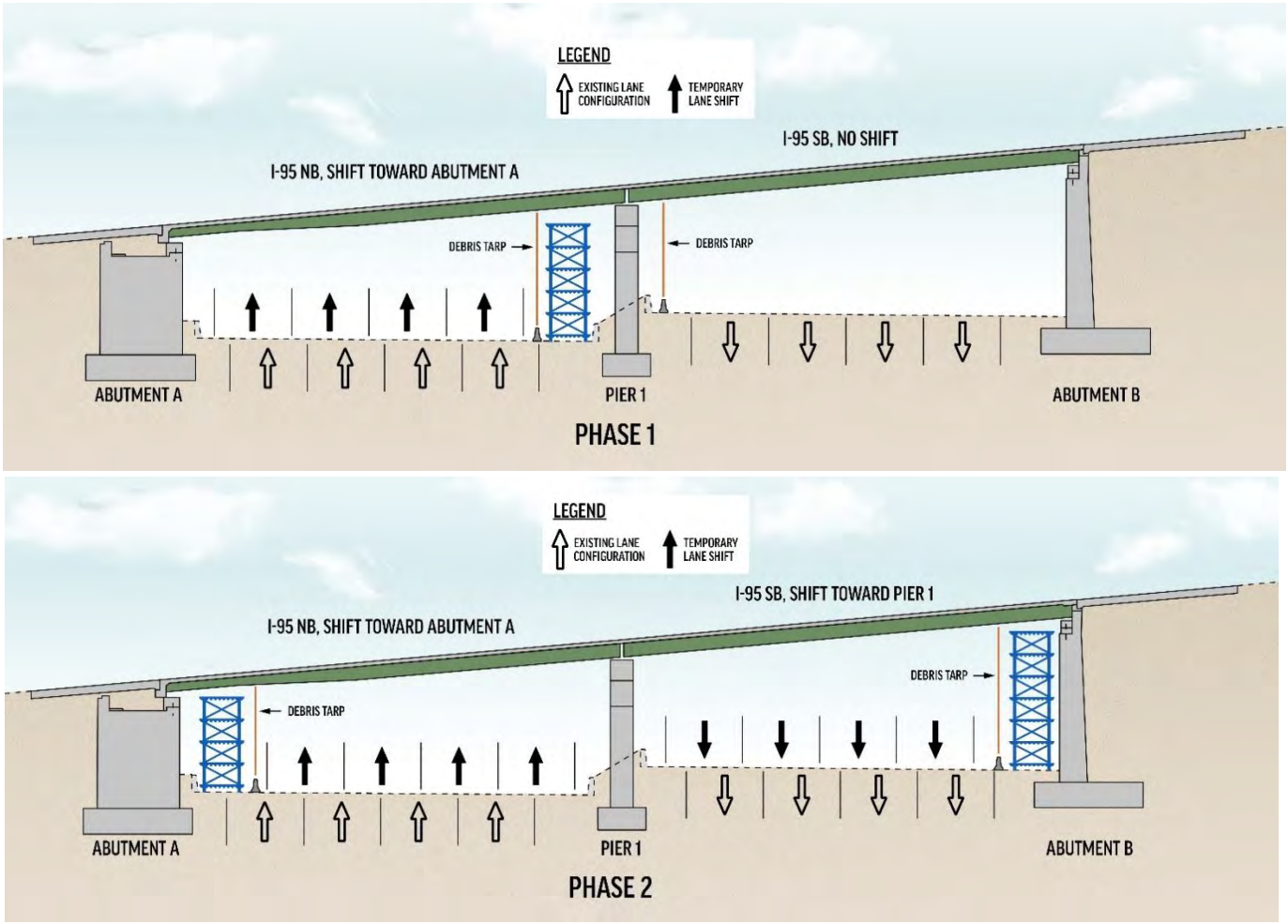


Figure 18: I-95 MOT under Broad Street

Upon completion of all possible substructure work, traffic will be shifted back to the original configuration in preparation for the crossover installation and weekend shutdown work.

NB/SB I-95 Traffic Shifts under the Broad Street Bridge: During the weekend shutdowns, I-95 traffic is reduced to one lane in each direction concurrently and in accordance with the given typical section. The intent is to use crossovers that enable the Broad Street Bridge construction and includes using moveable traffic barriers for channelization. Implementation necessitates verifying suitable traffic lane reductions and shifts for I-95 in both directions in conjunction with the phasing. Although indicated schematically in the RFP, detailed drawings will address the begin and end points of the shifts to include signing, markings, Portable Changeable Message Signs, moveable barrier locations and tie-in points, terminations and attenuators, temporary profiles, barrier demolition, pavement reconstruction, and reinstallation of permanent barrier that is removed. Traffic control devices needed per the *Virginia Work Area Protection Manual* will be designated on the plans.

RFP detour Scenarios E-3A, E-4A and E4-B will be used during the weekend shutdowns during each applicable phase of construction. Detour Scenario CK-4 will be used during weekend shutdowns when all I-95 traffic is diverted to SB I-95; this detour eliminates the short lane drop required from the EB Downtown Expressway on-ramp to NB I-95 merge prior to the NB I-95 crossover movement and results in a shorter, safer and enhanced route of achieving the NB I-95 crossover.

MOT Detours: Although there are numerous detours graphically depicted and described in the RFP, we have identified additional ones that will further expedite construction and accommodate the intended schedule. Both detours in the RFP, as well as the additional detours we developed, are described in **Table 14**. Plans for the additional detours are on **Pages 65-67.**

TABLE 14 | MAINTENANCE OF TRAFFIC DETOURS

RFP DETOURS			
Scenario	**Movement Closed**	**Detour Description**	**Uses**
E-1A	WB I-64 to NB I-95 / WB I-64	North 5th Street → Jackson Street → North 3rd Street → West Leigh Street → Belvidere Street → NB I-95 / WB I-64 on ramp	1st Street superstructure construction (demolition, structural steel erection, deck formwork, utility relocations) over NB I-95 / WB I-64 on-ramp to NB I-95.
E-1B	North 7th Street loop ramp to NB I-95 / WB I-64	Jackson Street → North 3rd Street → West Leigh Street → Belvidere Street → NB I-95 / WB I-64 on ramp	7th Street superstructure construction (demolition, structural steel erection, deck formwork, utility relocations) over 7th Street off-ramp to NB I-95.
E-2A	Belvidere Street on ramp to SB I-95 / EB I-64	NB Belvidere Street traffic detoured via West Leigh Street → North 3rd Street → Jackson Street → North 7th Street → SB I-95 on ramp Southbound Belvidere Street traffic detoured via West Marshall Street to North 7th Street → SB I-95 on ramp	We do not foresee using this detour at this time.

E-3A	NB I-95 exit ramp to Broad Street	Interstate traffic detoured to exit ramp at Chamberlayne Ave (Exit 76A) and routed via Chamberlayne Parkway → North Adams Street → Broad Street	Broad Street weekend shutdowns.
E-4A	SB I-95 exit ramp to East Broad Street	Interstate traffic detoured to exit at Belvidere Street (Exit 76B) → West Leigh Street → North 3rd Street → Broad Street	
E-4B	SB I-95 on ramp from East Broad Street	City traffic detoured via East Broad Street → North 7th Street → SB I-95 on ramp	
F	NB I-95 under 4th, 5th, and 7th Street Bridges	NB I-95 vehicles routed to EB I-64; at the Route 360 Mechanicsville Turnpike Interchange traffic will "U-turn" to reverse direction onto WB I-64 to NB I-95	4th, 5th, and 7th Street superstructure construction (initial MOT setup, demolition, structural steel erection, deck formwork, utility relocations) over SB I-95; 1st Street substructure and superstructure work (detour may be used in lieu of conventional lane closures periodically).
7th	7th Street Inbound	7th Street → Hospital Street → 5th Street → 4th Street → 3rd Street → Jackson Street	7th Street MOT, throughout construction of the 7th Street Bridge Phases 1 and 2.

CORMAN KOKOSING/WRA TEAM DETOURS

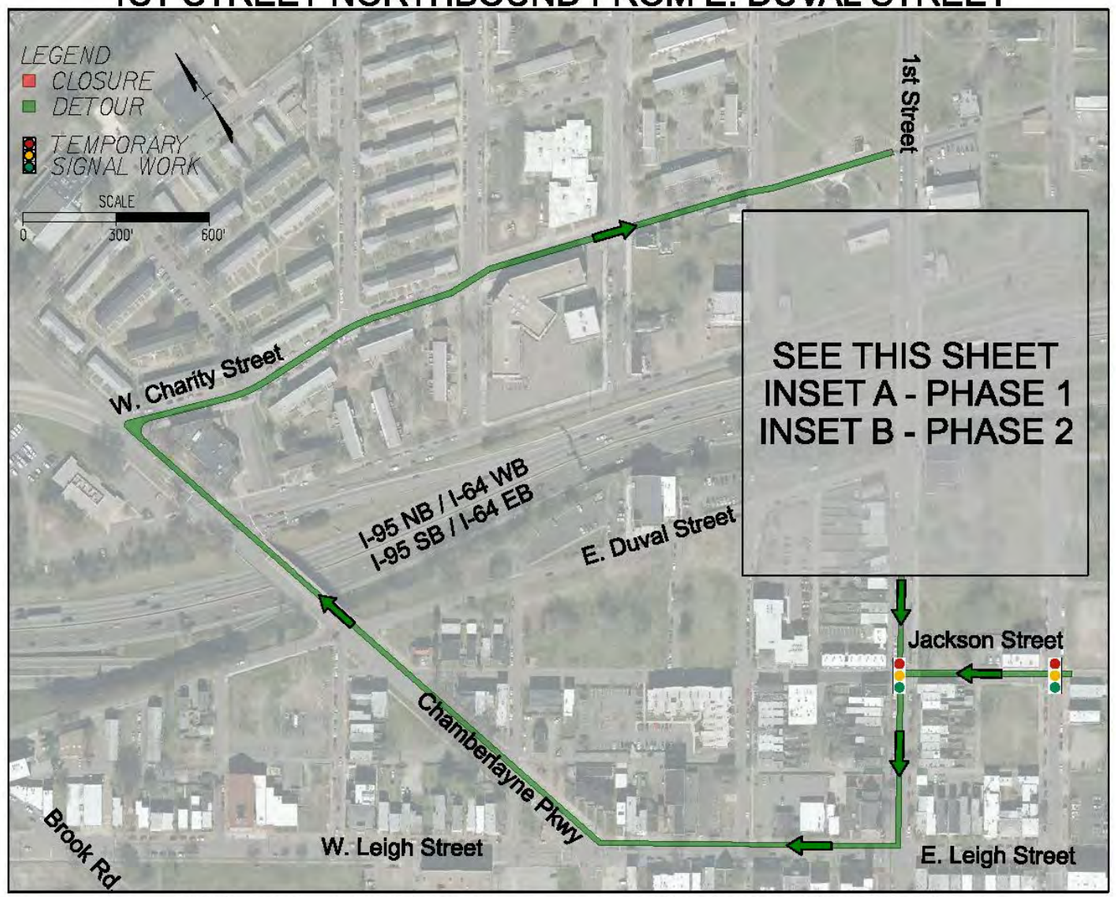
Scenario	Movement Closed	Detour Description	Uses
CK-1 Sheet 42	1st Street NB from E. Duval Street	E. Duval Street vehicles routed South on 1st Street → Chamberlayne Parkway → West Charity Street → 1st Street	1st Street MOT, throughout construction of the 1st Street Bridge Phases 1 and 2.
CK-2 Sheet 43	SB I-95 exit ramp to EB I-64 and 3rd Street	Exit 75 will be closed and SB I-95 traffic routed on I-95 SB to Exit 73 Maury Street / Commerce Road → Maury Street → East 4th Street → NB I-95 on ramp	1st Street superstructure construction (demolition, structural steel erection, deck formwork, utility relocations) over SB I-95 off-ramp to EB I-64 and 3rd Street.
CK-3 Sheet 42	WB I-64 to SB I-95 on ramp (at 5th Street)	WB I-64 routed South on 5th Street → Jackson Street → 7th Street → SB I-95 on ramp	7th Street superstructure construction (demolition, structural steel erection, deck formwork, utility relocations) over WB I-64 off-ramp to SB I-95 at 5th Street.
CK-4 Sheet 43	EB Downtown Expressway to NB I-95	EB Downtown Expressway traffic routed to SB I-95 Exit 73 Maury Street / Commerce Road → Maury Street → East 4th Street → I-95 NB on ramp	Broad Street construction - MOT shifts for NB I-95 (substructure work), utility relocation work over NB I-95, weekend MOT shifts / shutdowns (demolition, superstructure replacement).
CK-5 Sheet 44	SB I-95 under 1st, 4th, 5th, and 7th Street Bridges	SB I-95 vehicles routed to EB I-64 at Exit 75; at the Route 360 Mechanicsville Turnpike Interchange traffic will "U-turn" to reverse direction onto WB I-64 to SB I-95 via the 5th Street on ramp	1st, 4th, 5th and 7th Street superstructure construction (initial MOT setup, demolition, structural steel erection, deck formwork, utility relocations) over SB I-95.

PROJECT MANAGER: ANTHONY HAVERLY, PE
SURVEYED BY, DATE: Woodpecker Inc. May 2020
DESIGN BY: Whitman, Requardt & Associates, (804) 277-8400
SUBSURFACE UTILITY BY, DATE: Accumark Inc. April 2020

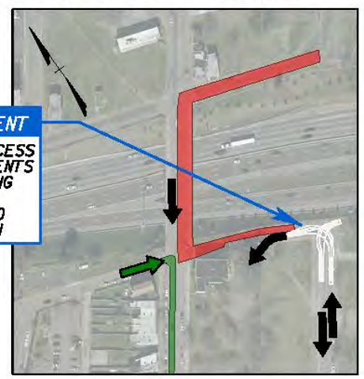
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	U000-127-023,C501 0004-127-051,C501 0064-127-022,C501 9999-127-107,C501 0250-127-050,C501	

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

SCENARIO CK-1
1ST STREET NORTHBOUND FROM E. DUVAL STREET

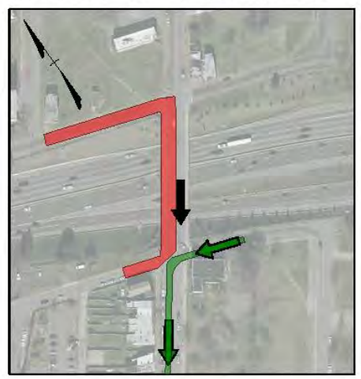


INSET A - PHASE 1



DESIGN ENHANCEMENT
MAINTAIN RESIDENT ACCESS TO THE ROSA APARTMENTS OFF STREET PARKING ENTRANCE WHILE ALLOWING FOR SU-40 THREE POINT TURN

INSET B - PHASE 2



SCENARIO CK-3
I-64 WESTBOUND TO I-95 SOUTHBOUND ON-RAMP AT 5TH STREET

PROJECT MANAGER ANTHONY HAVERLY, PE
SURVEYED BY, DATE Woolpert Inc. May 2020
DESIGN BY Whitman, Requardt & Associates (804) 272-8400
SUBSURFACE UTILITY BY, DATE Accumark Inc. April 2020

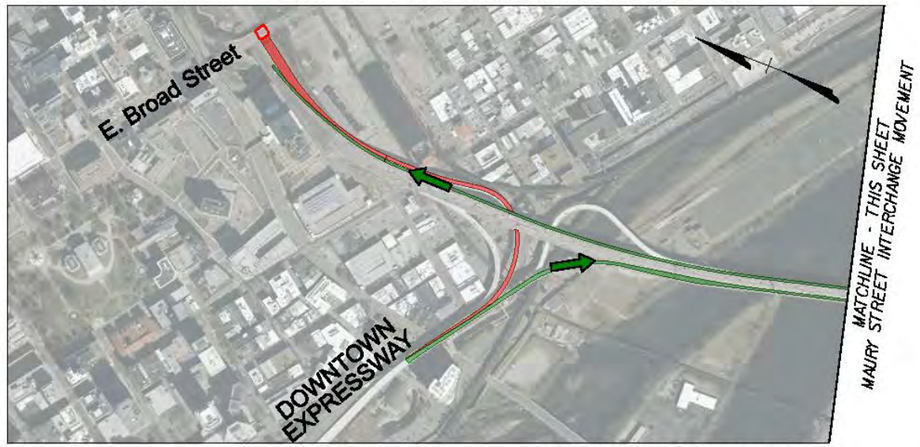
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	U000-127-023,C501 0004-127-051,C501 0064-127-022,C501 9999-127-107,C501 0250-127-050,C501	

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

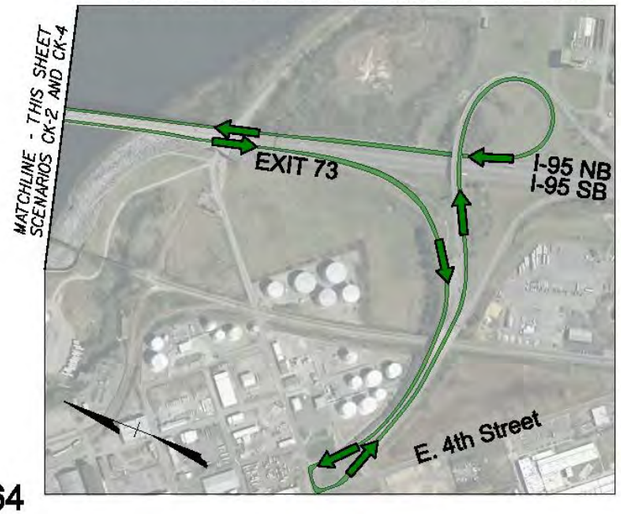
LEGEND
- CLOSURE
- DETOUR
- WORK ZONE

SCALE
0 800' 1600'

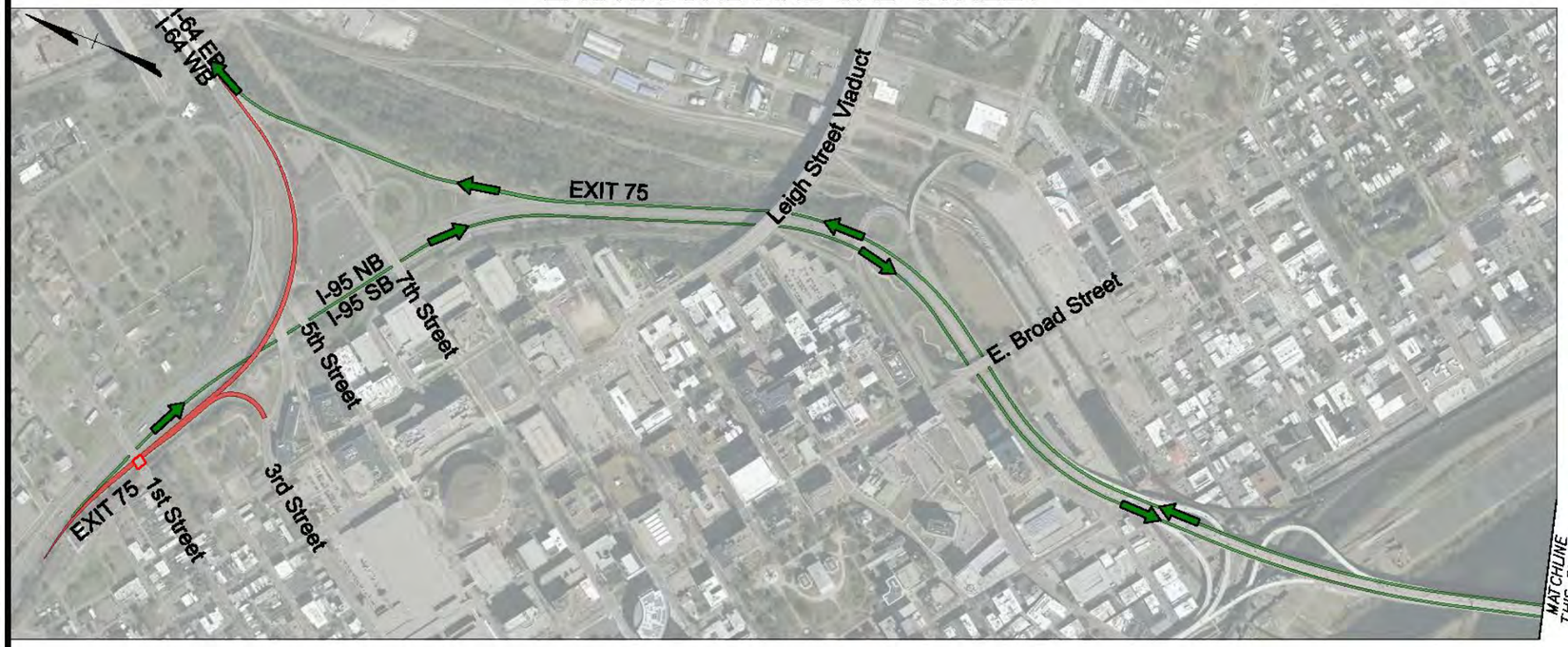
SCENARIO CK-4
EASTBOUND DOWNTOWN EXPRESSWAY TO I-95 NORTHBOUND



SCENARIOS CK-2 AND CK-4
MAURY STREET INTERCHANGE MOVEMENT



SCENARIO CK-2
I-95 SOUTHBOUND EXIT RAMP TO I-64 EASTBOUND AND 3RD STREET



PROJECT MANAGER ANTHONY HAVERLY, PE
SURVEYED BY, DATE Mosaic Inc. May 2020
DESIGN BY Whitman, Requardt & Associates, (804) 272-8400
SUBSURFACE UTILITY BY, DATE Geomatrix Inc. April 2020

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	U000-127-023,C501 0004-127-051,C501 0064-127-022,C501 9999-127-107,C501 0250-127-050,C501	

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

SCENARIO CK-5
I-95 SOUTHBOUND UNDER 1ST, N. 4TH, 5TH AND 7TH STREET BRIDGES

Lane or Ramp Closures/Temporary Detours: The Corman Kokosing/WRA Team developed a Temporary Traffic Control Plan that maintains all existing traffic lanes during construction along I-95. Lane closures and detours will be used during allowable closure hours to perform activities requiring lane closures.

Time-of-Day Restrictions: Corman Kokosing/WRA Team will follow RFP requirements for time-of-day restrictions for short-term lane and shoulder closures. This will be included in the Traffic Management Plan.

***Flagging Operations*:** When flagging operations are required on the City streets, they will be conducted per TTC-23.1, 28.1, or 30.1.

Minimum Lane Widths: Will be as specified in the RFP.

Work Zone Speed Reductions: All elements for our TMP, and specifically any temporary alignments, lane closures and lane shifts will be designed for the posted speed limit per the *Virginia Work Area Protection Manual.*

Major Stakeholders: We identified an initial list of significant stakeholders within the project corridor **(See Table 15)**. Additional stakeholders will be added as identified. Before construction, we will work with VDOT to engage stakeholders to raise awareness and hear concerns. During construction, we will provide VDOT with information to keep them informed of progress, milestones and special considerations as needed.

TABLE 15 | STAKEHOLDERS

TOP TIER	POTENTIAL IMPACTS	MITIGATION
City of Richmond	Perceptions/issues raised by residents, motorists, and business owners.	Notification of traffic impacts.
City of Richmond Citizens	Perceptions/issues raised by residents, motorists, and business owners Construction Noise	Include in design process regarding minor roads/detours. Cooperatively address outreach and responses to businesses/property owners.
Utility Companies	Direct impacts to facilities.	Early coordination during design to locate relocations advantageous for both parties.
LOCAL KEY	**POTENTIAL IMPACTS**	**MITIGATION**
Richmond Metropolitan Transit Authority	Construction and lane closures along bus routes.	Provide advance notice and coordination of lane closures.
Local Businesses/ Organizations	Construction activities near local businesses.	Provide communication and temporary traffic control signage/devices to minimize impact.
J. Sargent Reynolds Community College	Construction and lane closures along bus routes.	During bridge construction, provide adequate lane/ shoulder widths along minor roads. Provide advance notice and coordination of lane closures.
GRTC Transit System	Construction and lane closures along bus routes.	Provide advance notice and coordination of lane closures.
Commonwealth of Virginia	Perceptions/issues raised by residents, motorists, and business owners.	Notification of traffic impacts.
VCU Health	Construction and lane closures along bus routes.	Provide advance notice and coordination of lane closures.
First Responders (PD, FD, EMS)	Reduced / Closed shoulders.	Hold coordination meetings prior to reducing / closing shoulders.

How stakeholders will be impacted by our sequence of construction: The goal of the TMP is to mitigate motorist/key stakeholder impacts and ensure safety during construction. We have enhanced the sequence of construction for each bridge to minimize motorist inconvenience while minimizing limits of construction impacts. After award, these efforts will continue through final design. Our TMP will align with our communications

strategy and be developed in collaboration with our public involvement process. Through effective communications, and in close collaboration with VDOT, we will engage motorists/stakeholders to hear their concerns and minimize impacts caused by our sequence of construction.

Public outreach approach, including keeping stakeholders informed during all project phases: VDOT has engaged the community through the study phase. Our strategy is to build on those communications to enhance the relationships and assist VDOT to create a comprehensive environment of public awareness, participation and support for the project among stakeholders, motorists and the public.

The Corman Kokosing/WRA Team will collaborate with VDOT to engage commuters, motorists, key stakeholders, businesses, hospitals, schools, first responders, tourists and residents with messaging and public engagement throughout the project's concept, planning and construction. We will hold information meetings with affected stakeholders as needed and as directed by VDOT. We will submit a list of affected stakeholders in the project area for VDOT review/approval and host public and direct stakeholder meetings as defined by the approved communications plan. Stakeholders will be notified in advance of meeting dates and locations.

Figure 19: Informational Open House for the Design-Build High Rise Bridge project

We will provide VDOT project updates, information, as well as traffic alerts to be posted on VDOT's website. Information includes project overview, plan of work, schedule, components and features or activities that may cause potential public/ motorist impacts – such as lane and shoulder closures, surface milling and other construction activities. A photographic record of project progress will be maintained and available for review. We are responsible for compliance with applicable city ordinances. Additionally, the Corman Kokosing/WRA Team will coordinate with the City of Richmond to provide regular updates.

An Emergency Contact List of project personnel, as well as a multi-tiered emergency response plan for all incidents within the work zone will be made available to VDOT for review in accordance with IIM-LD-241. Through outreach efforts and contacts, such as meetings with stakeholders and the public, emailed questions or phone inquiries, we will compile and maintain a log of questions, complaints and comments.

How we considered public safety and included measures to limit disruptions to vehicular/pedestrian traffic through work area and adjacent public transportation/facilities/roadways: The Corman Kokosing/WRA Team has focused on public safety throughout Technical Proposal development and will continue to consider additional measures to limit disruptions to vehicular/pedestrian traffic as we complete the final design. To date, accomplishments include:

- 1st Street MOT: One way to prevent risk of head on collisions.
- 5th Street lane reconfiguration for an optimized, safer condition.
- Minimized MOT shifts on mainline I-95.
- Adjusted overpass profiles to maximize vertical clearance for I-95 traffic.
- Integrated vertical shielding in to each bridge pier work zone to protect vehicles from falling debris.
- 7th and 4th Street Bridge superstructure reconstruction not occurring at the same time.
- Broad Street and 7th Street Bridge superstructure reconstruction not occurring at the same time
- Maintaining one open sidewalk/pedestrian routes across each bridge throughout construction per the RFP.
- Supporting existing utilities which minimizes in street impacts and utility interruptions.

The Corman Kokosing/WRA Team has thoroughly reviewed all that is needed throughout the impacted I-95 corridor and associated intersecting streets and connections to ensure public safety and minimize disruptions during execution of this significant project. Our MOT process and design plans will impart specific elements depicting an emphasis on safety for motorists, pedestrians, and bicycle facility users. Our plans will thoroughly indicate placement of temporary signs, barrels, markings, traffic barriers, and traffic control devices required by the *Virginia Work Area Protection Manual,* applicable VDOT standards and Part 2 of the RFP. As construction continues, we will amend our MOT Plan as needed to further advance safety and minimize congestion in conjunction with public needs and as determined by VDOT. Additionally, our design and construction will execute needs for police patrols, first responders, and incident responses.

In Summary: Our plans will be all encompassing in considering safety and effective work zone passage while adjusting to ensure success of these in conjunction with bridge construction.

In regard to public transportation impacts, the Corman Kokosing/WRA Team will coordinate with the GRTC system to ensure notification is made, including any impacts to bus stops along the corridor.

Based on our review, these routes will be affected, including high frequency Routes 2A, 2B, and 2C along 1st Street, and Routes 3A, 3B, and 3C along 4th/5th Street.

The 1st Street Bridge detour for outbound bus traffic may be detoured to East Leigh Street to Chamberlayne Parkway to Charity Street back to 1st Street. This will affect two bus stops: One at Duval Street and 1st Street and one on outbound 1st Street just north of East Baker Street.

4th Street Bridge work will have only light impacts to bus traffic. One bus stop on the outbound lanes may need a temporary relocation. These impacts will be coordinated directly with GRTC as a stakeholder for this project.

4.5.3 | DEMOLITION PLAN

Demolition approach: Understanding the material context of each bridge is critical in determining the right Demolition Plan. In addition, there are several other considerations that further instruct the methods by which a bridge is demolished, such as working conditions in/around traffic and associated vehicle lane usage, available working durations, time-of-day limitations, etc. In developing our demolition approach, we considered both the bridge material context and associated corridor limitations. Material context of each bridge was a primary determination of how to demolish it. Material considerations include the following:

Existing Structure Condition: Each bridge will be thoroughly field inspected to determine any structural limitations or instabilities that would affect the Demolition Plan. Using this information and drawings upon our past experience in preparing customized demolition plans, our plan will contain drawn to scale CAD drawings for each critical step with engineering calculations in support. As an additional step, and as required by internal company policies, all Demolition Plans will be reviewed by a third-party engineering firm and over-stamped by a Virginia Professional Engineer before starting demolition activities. This reduces risks to motorists/workers.

Optimized Demolition: Analysis was performed to determine the most effective Demolition Plan that allows demolition crews to get in and out without major cleanup. We concentrated on the primary mission of demolition without creating extraneous cleanup efforts. This will be key in progressing the project without delays. For example, there are two methods of deck demolition considered for this project:

Method #1: Hoe-ramming the concrete, cutting the rebar and dropping the concrete and rebar into demolition trailers or onto the ground for cleanup

Method #2: Saw cutting into sections and pulling slabs.

For this project, Method #1 was considered more efficient when coupled with dropping directly into a demolition trailer. Method #2 would only be used in select locations (i.e., over existing utility duct banks) and for the Broad Street Bridge to facilitate ABC techniques.

Figure 20: Left: Method #1; Right: Method #2

Utility Support and Location: One demolition concern is protecting existing utilities. As discussed in **Section 4.4.2**, one main goal is to leave the existing utilities in their current location as much as possible to avoid lengthy delays and added cost. During demolition, utilities are temporarily supported by a temporary support beam spanning pier to pier, and then transferred to the new girders and/or supports. The deck above is removed through **Method #2:** Saw cutting and pulling. Corman Kokosing has completed many deck and superstructure replacement projects via these methods when working around existing utilities, including City of Richmond gas and water, as well as power and communication duct banks with zero incidents or service interruptions. This approach will expedite the bridge demolition and reconstruction efforts as it removes this element off the schedule critical path and greatly reduces the risk of project delays.

Demolition over I-95 will occur when traffic is detoured away from the work location which is the safest and most effective approach for public safety. No demolition takes place over live traffic. In our experience, timber decking in between existing girders on the lower flange has a high risk of broken windshields and other safety issues. Where detouring is not possible, there will be lane closures and vertical shielding with heavy-duty breathable tarps secured by clamping them to the existing beams to protect motorists from demolition debris.

Below is generalized means and methods for each bridge. Broad Street Bridge has a unique approach due to ABC construction methods.

General Demolition/Removal Means and Methods: We will systematically demolish each bridge for worker/motorist safety using traffic detours or temporary lane closures during off-peak hours as outlined below:

Step 1	Install temporary utility supports.
Step 2	Once traffic on top of the bridge is shifted into phase, including installing the temporary barrier wall/ parapet, make the phase line sawcut longitudinally on the deck.
Step 3	Start demolition by removing the parapet railing and then removing the parapet using a hydraulic excavator with hoe-ram. Install fall protection for safety as each section of parapet is removed.
Step 4	Demolish the deck using hydraulic excavators with hoe-rams, then drop the concrete and reinforcing steel into demolition trailers below or to the ground. If the concrete is dropped to the ground, the surface may need to be protected from debris. Use saw cutting and pulling method for protected utilities. Clean up debris before restoring traffic on I-95.
Step 5	Where required, install new beams at intermediate locations between the existing girders. Detach utilities from the existing girders and temporary supports and attach to new beams and/or new supports.

Step 6 Systematically hoist girders from the bearings with a crane and load onto trucks. Girders are prepped in advance for efficient removal.

The following is our demolition approach for each bridge:

1ST STREET DEMOLITION

Demolish outbound side of the 1st Street Bridge in Phase 1 with one inbound traffic lane maintained on inbound side of the bridge with a permanent detour in place for outbound traffic.

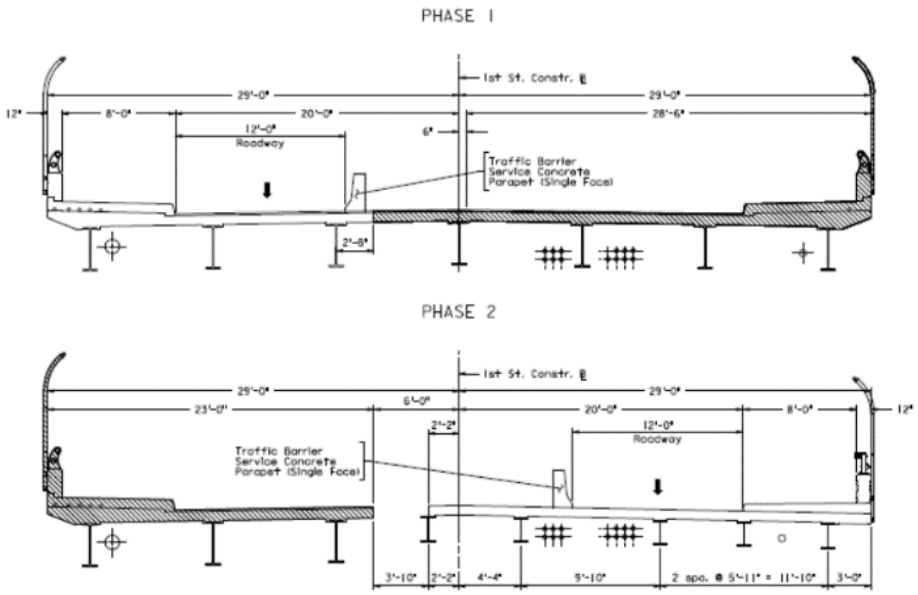


Figure 21: 1st Street Bridge Phasing

Phase 1 Utility Considerations: Phase 1 bridge demolition has two Verizon duct banks and a City of Richmond gas line underneath. The duct banks have hangar systems embedded in the concrete deck above.

First, install a temporary carrier beam supported at the ends using a fabricated bearing that spans over the ducts at the pier locations **(See Figure 21)**. Duct supports are carried up to the carrier beam to temporarily support the ducts while the superstructure is demolished. The temporary carrier beam remains in place until the new girders are installed upon which the existing duct banks will be supported off the new girders via cross supports at which point the temporary carrier beam can be removed.

Remove the City of Richmond gas line with the superstructure demolition during the outage timeframe allowed by the City. We will work with the City of Richmond to completely purge the gas line prior to demolition.

Phase 2 Utility Considerations: Take the City of Richmond waterline located under the Phase 2 portion of the bridge out of service and remove in sections as demolition progresses.

Demolition Approach: Critical bridge demolition elements include the following:

- **Existing Utility Protection:** Due to the condition of the utility duct banks, demolish the concrete deck in the two bays above them via **Method #2:** Sawcut/slab removal.

  Demolish the exterior bays above the existing gas and water lines via **Method #1:** Hoe-ram removal since they will be out-of-service. Remove in sections as demolition progresses.

- **Hazardous Material Considerations:** This bridge contains one asbestos conduit embedded in each sidewalk in the overhang portion of the bridge. During demolition, the friable potential material will remain encapsulated in the concrete. Sections of the deck/sidewalk are temporarily supported by an excavator and then broke loose by **Method #1** hoe-ramming the concrete along the beam line removing the embedded friable potential material in sections. A plunge saw cuts transversely to break the concrete into manageable pieces via *wet* cutting so no asbestos material becomes friable. This will be completed under asbestos abatement subcontractor supervision. Other potential friable materials that are visible per inspection reports include

caulking and conduit wraps and couplers. These will be handled in accordance with our normal asbestos removal procedures described under ***Dealing with Hazardous Materials*** on **page 79.**

- **Normalized Superstructure Demolition:** Make a longitudinal sawcut on the center girder line (Girder Line 4 of 7) and demolish the bridge from south to north via **Method #1:** Hoe-ram removal, working from the Duval Street side to the Baker Street side. This allows equipment/material staging at the laydown site on the corner of Baker and 1st Streets. Start demolition at the *dump span* on the south side of the bridge for both phases.
- **Traffic and MOT Considerations:** There will be no demolition above lanes with live traffic. For demolition areas above lanes, traffic is detoured or shifted away from the work area. Use heavy-duty breathable tarps to protect traffic as needed when there is demolition adjacent to traffic.

  Once the parapet/deck/sidewalk are demolished, remove the steel girders using a crane stationed on I-95 with up to 15-minute shutdowns of NB I-95 and detours for SB I-95 and the EB I-64 off ramp.

4TH STREET DEMOLITION

Demolish outbound side of the 4th Street Bridge with one inbound and one outbound lane maintained on the existing inbound side of the bridge.

Utility Considerations: The existing conduit bank under the bridges is for the City of Richmond lighting, and per our coordination with them, the conduits will be taken out of service during bridge construction with conduits provided on the new bridge to reconnect the lighting.

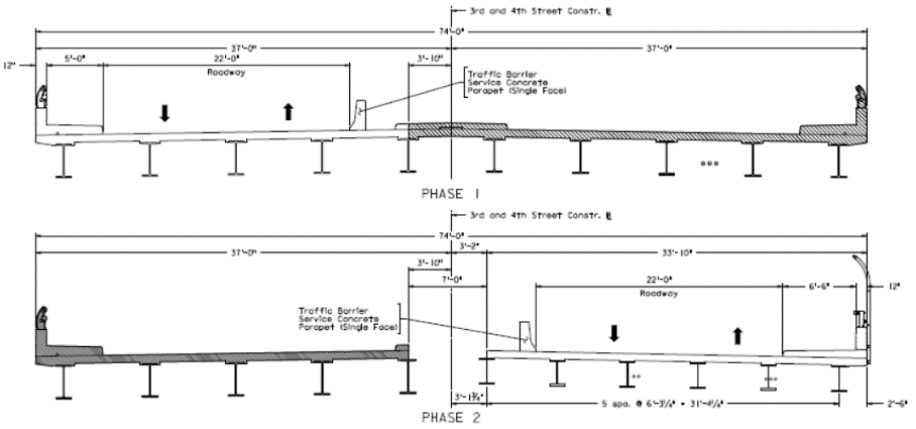


Figure 22: 4th Street Bridge Phasing

Demolition Approach: Critical bridge demolition elements include the following.

- **Constrained Vertical Clearance at EB I-64 Flyover Ramp:** The 4th Street Bridge has a constrained vertical clearance over its' eastern span due to the EB I-64 flyover bridge location. To demolish the bridge deck, we will employ **Method #1:** Hoe-ram removal using full-time spotters with two-way audio communication equipment to keep the excavators away from the overhead steel girders. Supplemental signage will remind operators of the overhead constraint.

  Modify girder removal process from other bridge demolition plans due to this overhead constraint. Once the parapet/median/deck are removed from the northern-most span of this two-span bridge, remove the steel girders with two excavators: one stationed on the deck of the southern-most span of the bridge which has not been demolished yet; the other excavator stationed off the deck where the existing approach slabs are located.

  The 4th Street inbound lane is detoured for tractor trailers to access the existing bridge deck. One by one, pick up the steel girders by an excavator on each end and loaded onto the tractor trailers stationed on the inbound lane. Remove the remaining girders using SB I-95 similar to the other bridge demolition plans.
- **Hazardous Material Considerations:** The bridge contains one asbestos conduit embedded in each sidewalk in the overhang portion of the bridge. During demolition, the potential friable material will remain

encapsulated in the concrete. Sections of the deck/sidewalk are temporarily supported by an excavator and then broke loose via **Method #1:** Hoe-ramming the concrete along the beam line removing the embedded potential friable material in sections. A plunge saw cuts transversely to break the concrete into manageable pieces via wet cutting so no asbestos material becomes friable. This will be completed under asbestos abatement subcontractor supervision. Other potential friable materials that are visible per inspection reports include caulking and conduit, including wraps and couplers. These will be handled in accordance with our normal asbestos removal procedures described under ***Dealing with Hazardous Materials*** on **page 79.**

- **Normalized Superstructure Demolition:** The demolition process begins with a sawcut on top of the fifth girder line that is under the edge of the existing concrete median. Remove ancillary bridge elements, such as light poles (including wiring) and railings.

  Due to the constrained vertical clearance on the northern span (under the EB I-64 flyover), demolish the bridge from north to south. This allows continual access to the laydown and staging area on the southwest corner of the 4th Street/I-95 intersection. Demolish the sidewalk, median and deck via **Method #1:** Hoe-ram removal for maximum efficiency.

- **Traffic and MOT Considerations:** There will be no demolition above lanes with live traffic. For demolition areas above lanes, traffic will be detoured away from the work area. Use heavy-duty breathable tarps as needed to protect traffic as demolition progresses over the slope protection area. Once the parapet/sidewalk/deck are demolished, remove the steel girders using a crane stationed on I-95 while detouring NB and SB I-95 lanes as needed.

5TH STREET DEMOLITION

Demolish inbound side of the 5th Street Bridge while maintaining one lane of inbound traffic on the outbound side of the bridge.

Phase 1 Utility Considerations: Phase 1 side of the bridge has one duct bank and a City of Richmond water line installed under the bridge. Demolish the concrete deck in the bay above the duct bank via **Method #2:** Sawcut/slab removal. We then install a temporary carrier beam supported at the ends using a fabricated bearing that spans over the ducts at the pier locations. Duct supports are carried up to the carrier beam to temporarily support the ducts while demolishing the adjacent superstructure. The temporary carrier beam remain in place until the new girders are installed upon which the existing duct banks will be supported off the new girders via cross supports at which point the temporary carrier beam can be removed.

Take the City of Richmond waterline under the Phase 1 portion of the bridge out of service and remove in sections as demolition progresses.

Phase 2 Utility Considerations: Phase 2 side of the bridge has one duct bank and a City of Richmond gas line installed under the bridge. Temporary support of these ducts will be the same as in Phase 1.

Remove the City of Richmond gas line with the superstructure demolition during the outage timeframe allowed by the City. We will work with the City of Richmond to completely purge the existing gas line prior to demolition.

Demolition Approach: Critical bridge demolition elements include the following:

- **Existing Utility Protection:** Due to the condition of the existing utility duct banks, demolish the concrete deck in the two bays above the duct banks via **Method #2:** Sawcut/slab removal.

  Demolish the exterior bays above the existing gas and water lines via **Method #1:** Hoe-ram removal since they will be out of service. Remove the gas and water lines in sections as demolition progresses.

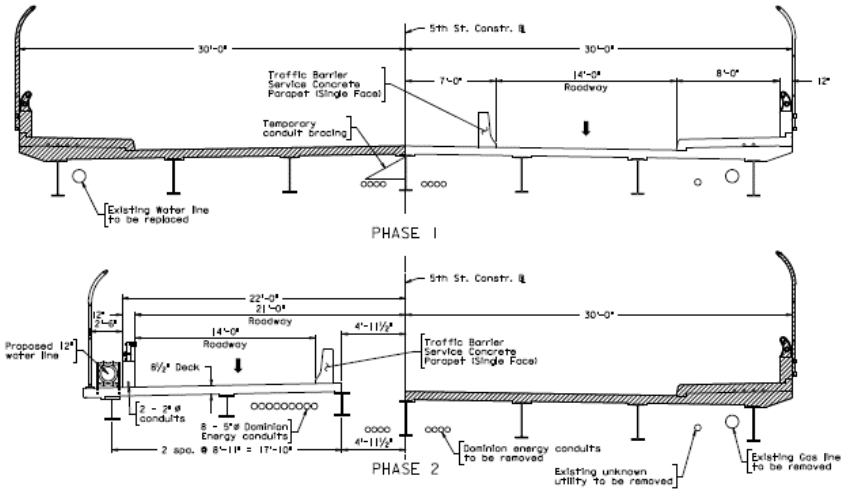


Figure 23: 5th Street Bridge Phasing

- **Hazardous Material Considerations:** This bridge contains one asbestos conduit embedded in the sidewalk on each phase of the bridge which require extensive hand chipping around them to keep the conduits embedded in the concrete for encapsulated removal. Sections of the deck/sidewalk will be temporarily supported by an excavator and then broke loose via **Method #1:** Hoe-ramming the concrete along the beam line removing the embedded potential friable material in sections.

  A plunge saw cuts transversely to break the concrete into manageable pieces via wet cutting so no asbestos material becomes friable. This will be completed under asbestos abatement subcontractor supervision. Other potential friable materials that are visible per inspection reports include caulking, and conduit, including conduit wraps. These will be handled in accordance with our normal asbestos removal procedures described under ***Dealing with Hazardous Materials*** on **page 79.**

- **Normalized Superstructure Demolition:** The longitudinal sawcut will be located on the existing center girder line (Girder Line 4 of 7). Demolish the bridge from south to north via Method #1: Hoe-ram removal. Working away from the City center gives us continual access to a laydown area off the north end of the bridge.

- **Traffic and MOT Considerations:** This approach is similar to the 4th Street Bridge. There will be no demolition above lanes with live traffic as vehicles will be detoured away from the work area. Use heavy-duty breathable tarps as needed to protect traffic as demolition progresses over the slope protection area. Once the parapet/sidewalk/deck are demolished, remove the steel girders using a crane stationed on I-95 while detouring NB and SB I-95 lanes as needed.

7TH STREET DEMOLITION

Demolish outbound side of the 7th Street Bridge with one outbound lane and one turn lane of traffic maintained on the inbound side of the bridge with a permanent detour in place for inbound traffic. To have enough room for this MOT scheme, demolish part of the inbound sidewalk leaving a 6-ft. sidewalk for pedestrian access across the bridge.

Phase 1 Utility Considerations: Phase 1 side of the bridge has two duct banks and a City of Richmond gas line installed under the bridge. Demolish the concrete deck in the bay above the duct bank via **Method #2:** Sawcut/slab

removal and then install a temporary carrier beam supported at the ends using a fabricated bearing that spans over the ducts at the pier locations **(See Figure 24).** Duct supports will be carried up to the carrier beam to temporarily
support the ducts while demolishing the adjacent superstructure. The temporary carrier beam remains in place until the new girders are installed upon which the existing duct banks will be supported off the new girders via cross supports at which point the temporary carrier beam can be removed.

Remove the City of Richmond gas line with the superstructure demolition during the outage timeframe allowed by the City. We will work with the City of Richmond to completely purge the existing gas line prior to demolition.

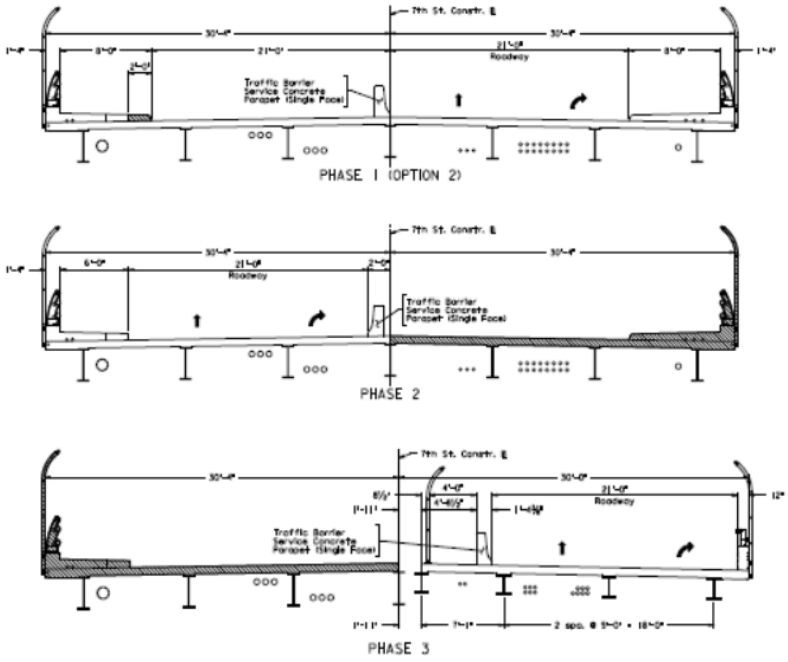


Figure 24: 7th Street Bridge Phasing

Phase 2 Utility Considerations: Phase 2 side of the bridge has two duct banks and a City of Richmond water line installed under the bridge. Temporary support of these ducts will be the same as in Phase 1. Take the City of Richmond waterline out of service and remove in sections as demolition progresses.

Demolition Approach: Critical bridge demolition elements include the following.

- **Existing Utility Protection:** Due to the configuration of the utility duct banks, demolish the concrete deck in the bays above the duct banks via **Method #2:** Sawcut/slab removal. Demolish the exterior bays above the existing gas and water lines via **Method #1:** Hoe-ram removal since they will be out-of-service. Remove the gas and water lines in sections as demolition progresses.
- **Hazardous Material Considerations:** Potential friable materials that are visible per inspection reports include caulking, and conduit, including conduit wraps. These will be handled in accordance with our normal asbestos removal procedures described under ***Dealing with Hazardous Materials*** on **page 79.**
- **Normalized Superstructure Demolition:** The longitudinal sawcut will be located on the existing center girder line (Girder Line 4 of 7). Demolish the bridge from south to north via **Method #1:** Hoe-ram removal with the exception of existing utility bays. Corman Kokosing replaced the 7th Street Bridge deck in the early 2000s using similar methods without causing damage to any utilities.

  Stay-in-place metal deck forms are in place on this structure and require modified methods in comparison to other bridge demolition methods. The deck pans will be collapsed via **Method #1:** Hoe-ram operations to below.
- **Traffic and MOT Considerations:** There will be no demolition above lanes with live traffic as vehicles will be detoured away from the work area. Use heavy-duty breathable tarps as needed to protect traffic as demolition progresses over the slope protection area. Once the parapet/sidewalk/deck are demolished, remove the steel girders using a crane stationed on I-95 while detouring NB and SB I-95 as needed.

BROAD STREET DEMOLITION

Demolition of the Broad Street superstructure has its own set of unique challenges due to using ABC techniques.

We will demolish this bridge during weekend shutdowns of traffic on the structure in conjunction with crossovers of I-95 using bi-directional traffic on either SB or NB I-95. Pedestrian access across the bridge will be maintained at all times, including during weekend shutdowns on the opposite side from where the work is taking place.

Install a barrier along the open sidewalk to separate pedestrians from the bridge deck.

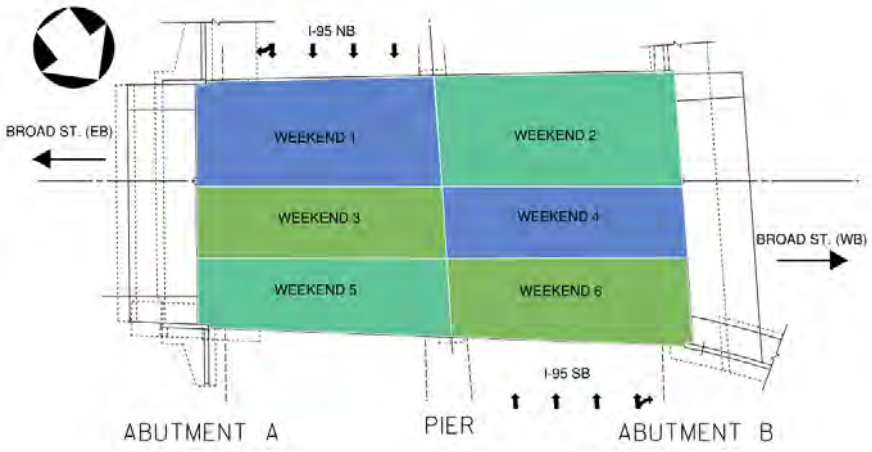


Figure 25: Broad Street Bridge Phasing

The bridge will be demolished in six weekends as follows:

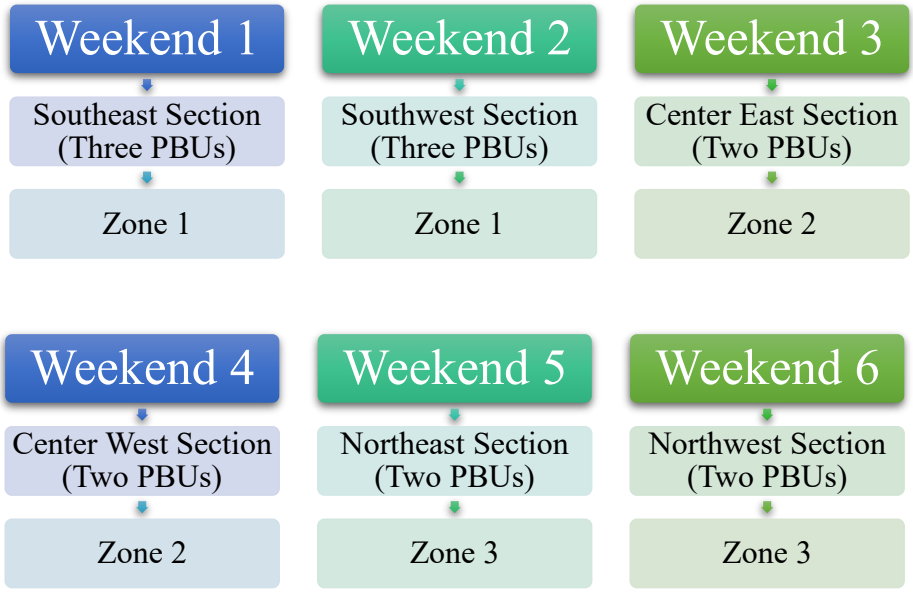


Figure 26: Weekend demolition schedule

Utility Considerations: There are several utilities that will either be abandoned or temporarily supported as part of our Demolition Plan. Dominion Energy has a multi-conduit duct system under the Zone 2 section of the bridge.

Our approach is to temporarily support the existing ducts from the roadway using shoring towers while the corresponding deck above the utility is removed over two consecutive weekends. Once the PBU sections are installed above, the existing duct is attached to new supports from the adjacent girders. The City of Richmond waterline located under Zone 1 will be taken out of service and relocated to the newly-constructed superstructure. The waterline under Zone 3 will also be taken out of service when work commences in that area and relocated to the newly-constructed superstructure. One of the two waterlines must remain in service at all times.

The City of Richmond gas lines shown under Zones 1 and 3 will be taken out of services, abandoned, and removed from the bridge. We will work with the City of Richmond to completely purge the existing gas line prior to demolition.

Demolition Approach. Critical bridge demolition elements for this bridge include the following.

- **Existing Utility Protection:** Given the general sequence of demolition, abandon the utilities in place and relocate prior to PBU removal. This lowers the risk of inadvertent outages.
- **Hazardous Material Considerations:** Potential friable asbestos materials that are visible per inspection reports include caulking, conduit, and silver coatings on I-beam undersides. These will be abated in accordance with our normal asbestos removal procedures described under ***Dealing with Hazardous Materials*** on **page 79.**
- **Normalized Superstructure Demolition:** Demolish the parapet after removing the fence and railing by saw cutting it into sections through a portion of the sidewalk as a crane holds each section. Crane will be stationed on I-95.

  Remove the deck and beam in sections using a crane. Develop a Crane Pick and Rigging Plan for each section to be removed. Hoe-ram slots for rigging through the sidewalk or deck and rig up the section prior to sawing the section. Once a section has been sawcut and the diaphragms are unbolted, cut loose the girders at the bearings and remove the section.

  The east end where the bridge was widened to accommodate the Downtown Expressway on ramp will be handled as a separate section. Separate the girders/deck at the hinge for removal during each phase with the girders/deck from the pier to the hinge removed first and the hinge to the abutment second.
- **Traffic and MOT Considerations:** There will be no demolition above lanes with live traffic. Demolish the Broad Street Bridge during weekend shutdowns of traffic on the structure in conjunction with crossovers of I-95 using bi-directional traffic on either SB or NB I-95. Maintain pedestrian access across the bridge at all times, including during weekend shutdowns on the opposite side from where the work is taking place. Install a barrier along the open sidewalk to separate pedestrians from the bridge deck.

Demolition Personnel Training Initiatives: Corman Kokosing employs training initiatives that focuses on structure demolition:

- All project supervisors complete training before demolition. Mandated courses are *OSHA 30-Hour, Fall Protection Competent Person, Respirable Crystalline Silica Competent Person, Confined Space Competent Person and Basic or Qualified Rigging and Signaling.*
- All supervisors and craft team members must complete training in *Fall Protection, Working Around Cranes, Cranes Working Near Powerlines, Crane Designated Spotter, Fire Watch, Light Plant Usage, Handheld Power Saws, Walk-Behind Saws, Jackhammers and Handheld Power Chipping Tools and Heavy Equipment Used to Fracture Silica-Containing Materials.*
- Daily demolition checklists confirm all aspects of the demolition operation are covered and double-checked. Demolition crews have a documented pre-shift meeting to review the plan for that shift, hazards associated with each task and how to eliminate incidents/injuries while completing those tasks.

Dealing with Hazardous Materials (Lead Paint and Asbestos Conduit): As required by law, before the project begins, the Virginia Dept. of Labor and Industry is notified of demolition of bridges that contain lead-based paint and friable asbestos materials. All of the bridges contain lead-based paint which creates a hazard for the workers during demolition.

We will develop a Site-Specific Lead Exposure Control Plan which limits disturbing the lead paint before and during demolition. After removing the steel girders, they are immediately hauled to a local scrap steel recycling plant. Workers are trained in lead exposure, medical surveillance and exposure monitoring and given Personal Protective Equipment (PPE) to complete their work in compliance with OSHA regulations. Administrative controls, such as delineating regulated areas, limiting team member exposure time and personal hygiene plans will be used. Corman Kokosing Safety Managers will inspect the project regularly for compliance with the company's Safety and Health Policy and Procedures, as well as the project's Site-Specific Safety Plan.

The bridges have asbestos conduit embedded in the parapets and sidewalks, as well as attached underneath in some of them. The conduit that is supported underneath the bridges will not be disturbed and will be supported/ protected until it can be attached to the new bridge superstructures. Demolition of structural concrete with asbestos conduit embedded in itself is challenging and can be extremely hazardous to workers if not handled properly.

Corman Kokosing has completed projects with embedded asbestos conduit, including several in the City of Richmond and will tap into that experience for this project. We will employ a subcontractor that specializes in hazardous material demolition, including asbestos, to develop/execute an Asbestos Demolition and Disposal Plan with the main requirement of keeping all asbestos conduit to be demolished encapsulated in the existing concrete so that it cannot become friable before disposing the material per regulations. To accomplish this, concrete around the conduits will be demolished within a specified limit after which the concrete is sawcut into manageable pieces with a wet saw. Any slurry from the sawing is vacuumed up and disposed properly.

4.6 | Proposal Schedule

4.6 SCHEDULE

4.6.1 | SCHEDULE

The Corman Kokosing/WRA Team thoroughly understands the requirements and complexities of this project and developed a solution to deliver it ahead of schedule. Our project schedule in Volume II and the following narrative explain how we will successfully complete this project.

4.6.2 | SCHEDULE NARRATIVE

Plan to Accomplish the Work: Corman Kokosing developed the proposal schedule detailing our plan to successfully accomplish the work in accordance with the contract documents. Our narrative explains the sequencing, description and critical path, proposed means and methods, and other key assumptions on which our schedule is based. We used Primavera P6 Professional and developed a Critical Path Method (CPM) schedule based on the RFP information, available resources, design concepts and construction means we have chosen.

SCHEDULE OVERVIEW

Notice of Intent to Award:	9/30/21
CTB Approval/Notice to Proceed:	10/20/21
Design Activities:	October 2021 – October 2022
Construction:	March 2022 – November 2024
RFP Final Completion:	12/20/24
Proposed Final Completion	11/27/24

Design: Design phase includes preparation, QA/QC reviews, and submitting Intermediate, Final, and Ready for Construction (RFC) design stages of structural, MOT, and roadway project elements. Included are the 21-day periods for VDOT reviews. Supporting plan preparation are survey coordination and mapping, geotechnical investigation, and utility designations. There are activities for field investigations, reports, and VDOT's review of the Geotechnical Report prior to submitting the final bridge roadway packages.

The design phase will start on most locations (specifically, 1st and 7th Streets) immediately upon Notice to Award to begin advancing the Concept Plans to the intermediate stage. Design effort for these two elements begin on the project critical path.

We will complete each design package before commencing construction of that package, with priority on the advanced MOT design package for the 1st, 5th, and 7th Street Bridges, as well as the 1st Street Structural Plans. This package also includes access for temporary work areas at each of the early bridge locations.

Non-Schedule critical design elements, such as landscaping, signals, and striping, will be held as part of a final RFC plan submission so the critical design elements can be submitted/approved, allowing construction to start. We will obtain a VDPES permit based on a conservative estimate of the disturbed project area and preliminary plans as allowed by the regulations.

Field Investigations and Geotechnical: Upon receiving Notice to Proceed, our design and construction teams start working on Scope Validation while field survey updates take place, including evaluating property information, validating existing pavement elevations/limits, and locating existing underground utilities. Concurrent with the field survey, geotechnical investigations start with submitting a Boring Plan and for VDOT informational purposes and staking out the boring locations in the field. Roadway design also begins concurrently

with the survey update and the geotechnical investigations and will be adjusted as necessary to accommodate results of the field work.

Environmental Permitting: Our schedule contains environmental and permitting activities and allows time for information to be developed as needed for the permit submittal process and the environmental site assessment. All permitted construction activities will be a hold point to ensure no work is performed without permits in place.

ROW Acquisition and Utility Relocations: These will be coordinated to begin at the Notice to Proceed date, using the RFP and Design Concept Plans to start work immediately. This gives the maximum amount of time for negotiations and allows the utility owners as much time as possible to develop the most optimized relocation plans based on the project's proposed bridge plans and sequencing. Corman Kokosing and WRA already held preliminary meetings with the utility companies that require relocation pre-bid to get a handle on scope and complexity. As noted in the construction topic below, all construction that is a prerequisite for utility relocations will be included in the prioritized early plans to help manage the schedule risk that the relocations pose.

Final Design: While work shown in the early plans is ongoing, final plans with any non-critical roadway elements will be developed/submitted to VDOT for review.

Quality Assurance/Quality Control (QA/QC): QA/QC activities are performed as per contract and relevant tasks are included in our proposal schedule including:

- QA/QC Plan submittal.
- QA/QC Plan presentation.
- QA/QC review of design packages.
- Preparatory Inspection Meetings.
- Witness and hold points.
- VDOT inspections.

Construction: The first construction phase involves utility relocations, substructure repairs, and demolition at the 1st, 5th, and 7th Bridges. These are all activities that can begin based on an early design package while the final plans continue to be developed.

Once plans are approved, construction is scheduled to take place with multiple crews with most work constructed simultaneously. 1st and 7th Street Bridge work is prioritized to allow Phase 1 1st Street to be completed during the 2022 gas main replacement window, and to allow 4th Street work to start following completion of 7th Street. Superstructure replacements soon follow at 5th Street, as well as work at 4th and Broad Streets that does not affect traffic flow overhead, such as substructure repairs and utility relocations.

As the project progresses, the 7th Street Bridge is completed first, allowing 4th Street Bridge demolition to commence. As work on the 1st and 5th Street Bridges finishes up, work on Broad Street begins.

Our work schedule/sequencing is shown in our project schedule in Volume II.

Critical Path: The critical path starts with generating the bridge plans for the 7th Street Bridge replacements. This bridge is most critical of the three early bridges as it is the only one that needs to be completed in order to begin construction on the 4th Street and Broad Street bridge replacements.

As the design progresses into Stage 2, the critical path flows into the production/approval of the 7th Street structural steel shop drawings, followed by the structural steel production and delivery into setting beams. The critical paths stays on the 7th Street Bridge replacement through the rest of Phase 1 and on through Phase 2. Once

7th Street is in its final configuration, the critical path moves to the Broad Street Bridge replacement through the end of the project.

Phase 1 of the 1st Street Bridge replacement is on the near-critical path as it needs to be completed in the 2022 window of time during which gas main work can occur. Once the gas main is back online, work at 1st Street falls back off the critical path.

Work Breakdown Structure (WBS): This is a multi-level, hierarchical arrangement of the work to be completed. The Corman Kokosing/WRA Team has laid out the WBS to break down the major phases of the project by *Type of Work* and *Locations.* Level 1 was given to the project name. A brief description of Level 2 is below, followed by **Table 16** showing the Level 2 – Level 4 WBS used on the project.

1. **Project Milestones:** As per the RFP, the major project milestones are included, including contractual, such as Notice to Proceed and Final Completion, as well Utility Milestones, showing when utility services are taken offline and restored.
2. **General Conditions:** Work activities associated with our contractual obligation to administer the project. QC and QA efforts to meet VDOT minimum requirements for design build are included here, along with any contractual hold points.
3. **Design:** All design efforts with their respective submission and review/approval timeline is included. Further breakdown of this division is shown in **Table 16**.
4. **Administrative:** Includes approval/delivery of major offsite materials and construction support not provided by the designer, and closeout activities.
5. **Construction:** This section depicts construction activities grouped by *Type of Work* and *Locations* (See further breakdowns in **Table 16)**.

TABLE 16 | TYPE OF WORK AND LOCATIONS

LEVEL 2 WBS	LEVEL 3 | LEVEL 4 WBS
PROJECT MILESTONES	Project Milestones
GENERAL CONDITIONS	Scope Validation QA/QC Project Management
ENGINEERING AND DESIGN	Project wide 1st Street 4th Street 5th Street 7th Street Broad Street

LEVEL 2 WBS	LEVEL 3 | LEVEL 4 WBS
ADMINISTRATIVE	Procurement Closeout
CONSTRUCTION	Construction Mobilization MOT 1st Street Bridge 4th Street Bridge 5th Street Bridge 7th Street Bridge Broad Street Bridge

Calendars: The following project calendars were used in the schedule:

1. **Calendar Days -** Based on seven days per week. This is used for VDOT and other agency review periods and other activities whose durations are defined as calendar days in the contract. This is also used for some long duration utility and permitting activities.
2. **95 DB 5 Days with Holidays -** Based on five working days per week and includes holiday restrictions. Used for most design activities and other work not impacted by adverse weather.
3. **95 DB 5 Days with Holidays and Weather -** Based on five working days per week, accounting for holiday restrictions and anticipated weather days. See below for the assumptions used to determine weather days. This calendar was used for most construction activities.
4. **95 DB Weekend Shutdown –** Only allows work between 8 PM on Friday and 6 AM on Monday mornings. All hours between these days are considered work hours.
5. **95 DB Gas Main Outage –** Starting January 2022, does not allow any work in November, December, January or February. This is assigned to Phase 1 of the 1st Street Bridge only, which is replacing a gas main.

Weather days were estimated using 30-Year Climate Normals Average from locally available NOAA data. This data is updated every 10 years (updated this year, so we are using 1991-2020 Normals) **(See Table 17)**.

TABLE 17 | Estimated Monthly Weather Days Allowed

	Average Precipitation Greater than 0.25"											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Probability	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3
Work Days (Mon-Fri) Lost in Calendar Days	4.0	5.0	6.7	6.8	6.4	5.0	7.1	5.6	4.8	3.8	4.0	4.9
Nonworking Mon-Fri days shown in calendar due to weather	2	3	4	4	4	2	4	3	2	2	2	2

For the purpose of calculating lost work days per month, it was assumed that Saturdays were available as a makeup day in the event of weather, and approximately 50% of the lost days would be made up on Saturdays. This is why the calendar shows no Saturdays as working days, and about ½ the number of lost days at the lost day probability would indicate.

Schedule Management

Implementation: Our proposal schedule will be updated and submitted to VDOT within 15 days of Notice to Proceed as our preliminary schedule. The baseline schedule will be finalized/submitted to VDOT within 90 calendar days of Notice to Proceed and includes cost and resource loading, all submittals required by the contract documents, as well as a definable critical path. Key personnel represented by all disciplines (design, construction, safety, quality, controls, and procurement) will engage and start in-depth planning of the project activities and schedule refinement.

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

- Weekly design/construction scheduling and coordination meetings during design phase.
- Weekly construction scheduling meeting during construction phase.
- Utility relocation tracking sheets during design and construction phases.
- ROW progress tracking spreadsheets (if needed) during design and construction phases.
- Review/approval tracking spreadsheets of design element submittals.
- Shop drawings status tracking sheets.
- Material submittals and delivery schedules.
- Non-conformance logs by QC and QA for design and construction.
- RFI logs.
- Monthly progress/partnering meetings with major stakeholders, including VDOT, Corman Kokosing/ WRA Team's designers, major subcontractors/vendors and local businesses. Affected utilities will be invited for the current stage of work.

At internal weekly meetings, issues/concerns are identified using the above tracking aids and action items and assigned to someone who can resolve it. Three-week, and long-term *look-ahead schedules* are prepared and discussed to analyze schedule and quality impacts. Similar information is discussed, and action items assigned at the Monthly Progress/Partnering meetings with key stakeholders. Other stakeholders may be invited for anticipated issues during upcoming schedule activities.

Updating Process: Each month, starting with the month following Notice to Proceed, the preliminary schedule is updated as we prepare, submit and receive approval on the baseline schedule. Once approved, it is updated/ submitted to VDOT for approval monthly until project final completion. Each update is accompanied with a narrative report and tables as prescribed in the *Design-Build Project Schedule* special provision. The updated schedule and narrative reflect:

- Activities started or completed during the period.
- Actual start and finish dates.
- Ongoing activities during the period.
- Remaining duration for ongoing activities.

- Modified relationships to correct out-of-sequence progress.
- Modified relationships to reflect our plan for completing remaining work.
- Change orders.
- Relief events.
- Compensation events.

Schedule Recovery: If changes or unforeseen circumstances arise during the project that impact the schedule, we will immediately notify VDOT (and other appropriate stakeholders) and set up a schedule recovery plan to recoup lost time, including increasing work shifts, adding crews/resources to construct critical path activities concurrently, changing MOT schemes or modifying the design to remove activities from the critical path. If the impact is early on, schedule recovery may need adjustments by any or all of the discipline managers, including design, permitting, right-of-way, utility relocations, and construction. In the event all other design-build disciplines have completed their tasks, re-sequencing the construction schedule by the CM will be the primary focus to mitigate impacts.

Mitigating Risks: The experience the Corman Kokosing/WRA Team obtained in working on similar projects will be critical to the timeliness of resolving design and construction hurdles as they occur. We have successfully used a rolling design process on other jobs that enables critical construction phases and activities requiring normally long lead times to be under production simultaneously with final designs. We pride ourselves in solving construction and design issues rapidly without sacrificing quality. Based on our preliminary knowledge of the proposed scope of work and our experience on similar projects, the following risks or issues may cause schedule delay and may need to be mitigated:

- **Broad Street Weekend Shutdowns:** On this project, the eight allowable weekends where Broad Street will be replaced using ABC methods involve significant risks to delaying the project schedule and possible disruptions to the traveling public.

  Mitigation: The key to ensuring that each weekend runs smoothly is to plan each individual weekend thoroughly and develop contingencies for all of the most likely events that disrupt operations. A specific hour-by-hour schedule will be developed for each weekend. A draft version of one of these schedules (SE corner of Broad, Zone 1 Phase 2) was prepared as part of our Technical Proposal and is included in Volume II following the proposal schedule.

- **Utility Relocations:** Utility relocations are on the critical path. There is a risk in schedule delay if the utility companies take longer than anticipated to relocate their utilities. Early utility coordination is a must to mitigate potential damages.

  Mitigation: We will aggressively work to design and coordinate the utility relocation process to avoid project schedule impacts. We have already met with each affected utility to determine feasibility of the proposed design, with anticipated durations provided directly from the utility. The proposal plans incorporate feedback from the utilities to minimize the areas where the project is directly waiting for relocation activities.

- **Right of Way:** Right-of-way acquisition/relocations can take several months to negotiate and if eminent domain is necessary, even longer.

  Mitigation: We will hit the ground running as soon as we receive Notice to Proceed and aggressively complete the right-of-way and relocation process. In the event of delays in this area, we will shift the design

focus to other areas of the project to avoid final project completion date impacts. To mitigate this risk, we propose a reduction in the ROW needed compared to RFP plans, as shown in **Table 4 of Section 4.3**.

- **Design Approvals:** The design approval process could exceed what is anticipated in our CPM schedule which can shorten the time available for construction.

  Mitigation: To fully take advantage of the design-build process, we must develop the construction plans in a manner conducive to staying *one step ahead* of construction. Since plans must be approved and signed for construction by VDOT before anything can start, our plans will be developed/submitted to VDOT as detailed on our CPM. By breaking up the design into packages, we can obtain signature for construction sooner to avoid delays.

- **Environmental Impacts and Permits:** Permit review period restrictions can extend the approval period causing a delay in the schedule. Early submission for permits is vital to allow as much time as possible for approvals. Acquiring permits from affected agencies takes diligence by the team and VDOT.

  Mitigation: A proactive approach will help to incorporate those agencies as stakeholders and generate a partnering approach.

- **Subcontractor Scheduling:** There is a high workload for priority subcontractors and scheduling must be completed well in advance to avoid schedule delays.

  Mitigation: We will mitigate potential delays via a partnering approach of open/constant communication with subcontractors.

Material Lead Time: The Corman Kokosing/WRA Team identified schedule critical elements associated with longer lead time materials (i.e., girders, moveable traffic barrier, bridge railing) and has shown when they are needed to prioritize design of these elements. This will also expedite the shop drawing process to ensure there are no project schedule delays.

COMMITMENT: *The Corman Kokosing/WRA Team developed a proposal schedule and narrative that demonstrates our understanding of the complexities and interrelationships of the technical elements of the project. Our schedule considers internal plan reviews, VDOT plan reviews/approvals, environmental permitting, ROW acquisitions, utility relocations, and construction activities.*

We are committed to continuously fine tune our schedule to better serve VDOT, stakeholders, and motorists. Once we receive Notice to Proceed, we will band together to work and make this project a success for VDOT and the citizens of Virginia.

Appendix

ATTACHMENT 4.0.1.1

VDOT BRIDGES OVER I-95 BUNDLING

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

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

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Technical Proposal Checklist and Contents	Attachment 4.0.1.1	Section 4.0.1.1	no	111
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	114
List of Approved ATCs Included in Technical Proposal	Attachment 3.6.7		no	115
Letter of Submittal	NA	Sections 4.1		
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	1
Identify the full legal name and address of Offeror	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
Point of Contact information	NA	Section 4.1.4	yes	1
Principal Officer information	NA	Section 4.1.5	yes	1
Final Completion Date	NA	Section 4.1.6	yes	1
Unique Milestone Date	NA	Section 4.1.7	yes	1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.8	no	116
Certification Regarding Debarment Forms	Attachment 11.9.6(a) Attachment 11.9.6(b)	Section 4.1.9	no	120
Written statement of percent DBE participation (9%)	NA	Section 4.1.10	yes	1

ATTACHMENT 4.0.1.1

VDOT BRIDGES OVER I-95 BUNDLING

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
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 4.2.1	yes	2
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	2
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	N/A
Design Concept	NA	Section 4.3		
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	3-15/16-38
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	3-15/16-38
Project Approach	NA	Section 4.4		
Environmental Management	NA	Section 4.4.1	yes	39
Utilities	NA	Section 4.4.2	yes	40
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.3	yes	46
Construction of Project	NA	Section 4.5		
Sequence of Construction	NA	Section 4.5.1	yes	51
Transportation Management Plan	NA	Section 4.5.2	yes	56

ATTACHMENT 4.0.1.1

VDOT BRIDGES OVER I-95 BUNDLING

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Demolition Plan	NA	Section 4.5.3	yes	70
Proposal Schedule	NA	Section 4.6		
Proposal Schedule	NA	Section 4.6	no	80
Proposal Schedule Narrative	NA	Section 4.6	no	104
Proposal Schedule in electronic format (PDF)	NA	Section 4.6	no	Separate
				Document

ATTACHMENT 3.7

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFP NO. C00111300DB107

PROJECT: VDOT Bridges Over I-95 Bundling

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 RFP – April 7, 2021 (Date)
2. Cover letter of RFP Addendum No. 1 – May 14, 2021 (Date)
3. Cover letter of RFP Addendum No. 2 – June 11, 2021 (Date)
4. Cover letter of RFP Addendum No. 3 – August 9, 2021 (Date)
4. Cover letter of RFP Addendum No. 4 – August 25, 2021 (Date)

SIGNATURE — DATE: 8/25/21

Gregory A. Hamilton, PE, DBIA — PRINTED NAME

Regional Sr. Vice President — TITLE

ATTACHMENT 3.6.7
LIST OF APPROVED ATCs INCLUDED IN TECHNICAL PROPOSAL

OFFEROR:

List all approved ATCs included in the Technical Proposal along with the page number references from Technical Proposal.

ATC ID Number	ATC Name Description	Date ATC Approved	Technical Proposal Reference Page(s) #
	NONE		

By signing this document, the Offeror hereby confirms that they are agreeing to all conditions that may have accompanied the ATC approval(s). The Offerors shall make a note of RFP Part 4 Section 2.1.10

"If the Contract Documents incorporate any ATCs and Design-Builder, for whatever reason: (a) does not comply with one or more Department conditions of pre-approval for the ATC; (b) does not obtain required third-party approval for the ATC; or (c) fails to implement the ATC, then Design-Builder shall: (1) provide written notice thereof to Department; and (2) comply with the requirements in the Contract Documents that would have applied in the absence of such ATC. Such compliance shall be without any increase in the Contract Price or extension to the Contract Time(s). For the avoidance of doubt, Design-Builder shall not be entitled to any increase in the Contract Price or extension of the Contract Time(s) as a result of any delay, inability or cost associated with the acquisition of any property that may be required to implement any ATC".

[Signature: Offerors POC or Principal Officer]

Gregory A. Hamilton, PE, DBIA

[Printed Name]

Regional Sr. Vice President

[Title]

DATE: 8/27/21

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this "Agreement") is made and entered into as of this ____ day of _____, 20__, by and between the Virginia Department of Transportation ("VDOT"), and Corman Kokosing Construction Co. ("Offeror").

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs") pursuant to VDOT's December 15, 2020 Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the VDOT Bridges Over I-95 Superstructure Replacement and Rehabilitation Bundling, Contract ID No. C00111300DB107 ("Project"), under a design-build contract with VDOT ("Design-Build Contract"); and

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

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

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

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

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

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

3. **Proposal Payment**. VDOT agrees to pay Offeror the lump sum amount of **fifty thousand and 00/100 Dollars ($50,000.00)** ("Proposal Payment"), which payment constitutes payment in full to Offeror for the conveyance of Offeror's Intellectual Property to VDOT in accordance with this Agreement. Payment of the Proposal Payment is conditioned upon: (a) Offeror's Proposal being, in the sole discretion of VDOT, responsive to the RFP; (b) Offeror complying with all other terms and conditions of this Agreement; and (c) either (i) Offeror is not awarded the Design-Build Contract, or (ii) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror.

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

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

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

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

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

9. Miscellaneous.

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

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

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

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

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

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

VIRGINIA DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

[Insert Offeror's Name] Corman Kokosing Construction Company

By: _____

Name: Gregory A. Hamilton, PE, DBIA

Title: Regional Senior Vice President

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project: **VDOT Bridges Over I-95 Superstructure Replacement and Rehabilitation Bundling**
Contract ID No.: **C00111300DB107**

1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; and have not been convicted of any violations of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property;

c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1) b) of this certification; and

d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

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

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

Signature	8/18/21 Date	Regional Sr. Vice President Title

Corman Kokosing Construction Company
Name of Firm

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

Project: **VDOT Bridges Over I-95 Superstructure Replacement and Rehabilitation Bundling**
Contract ID No.: **C00111300DB107**

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

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

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

Signature	8/9/2021	Sr. Vice President
	Date	Title

Whitman, Requardt & Associates, LLP
Name of Firm

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

Project: **VDOT Bridges Over I-95 Superstructure Replacement and Rehabilitation Bundling**
Contract ID No.: **C00111300DB107**

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

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

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

Signature	8/10/2021	President
	Date	Title

Athavale, Lystad & Associates, Inc.
Name of Firm

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

Project: **VDOT Bridges Over I-95 Superstructure Replacement and Rehabilitation Bundling**
Contract ID No.: **C00111300DB107**

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

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

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

Signature	Date	Title
[signature]	8-9-21	Vice President

H&B Surveying & Mapping, LLC
Name of Firm

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

Project: **VDOT Bridges Over I-95 Superstructure Replacement and Rehabilitation Bundling**
Contract ID No.: **C00111300DB107**

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

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

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

Signature	Date	Title
	8/9/2021	PRESIDENT

KDR REAL ESTATE SERVICES
Name of Firm

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

Project: **VDOT Bridges Over I-95 Superstructure Replacement and Rehabilitation Bundling**
Contract ID No.: **C00111300DB107**

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

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

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


8/9/2021 Sr. Vice President

Signature Date Title

Century Engineering, Inc. dba NXL

Name of Firm

VDOT

CORMAN KOKOSING

WRA

VDOT

A Design-Build Project

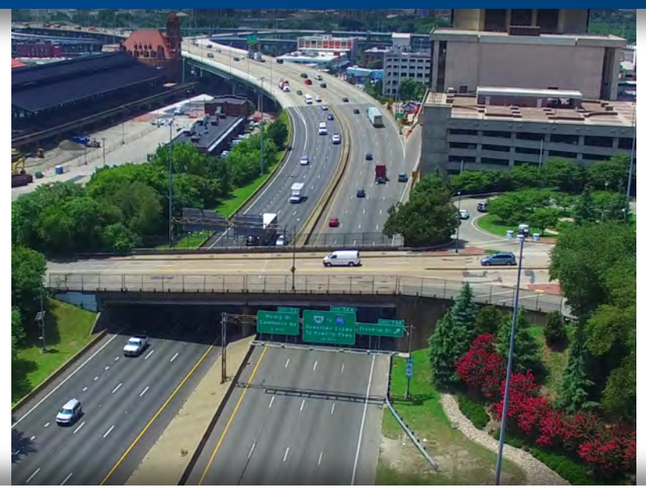
VOLUME II: TECHNICAL PROPOSAL

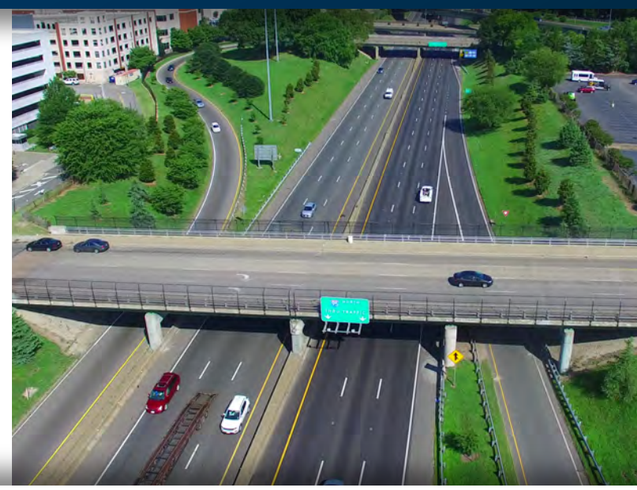
August 27, 2021

VDOT BRIDGES OVER I-95 SUPERSTRUCTURE REPLACEMENT AND REHABILITATION BUNDLING

UPC 111300 (U000-127-023, P101, R201, C501, B601; STP-5A27(802))
UPC 111294 (0064-127-022, P101, B661; NHPP-064-3(510))
UPC 113375 (0250-127-050, P101, R201, C501; NHPP-BR04(307))
UPC 113388 (0004-127-051, P101, R201, C501; NHPP-BR04(308))
UPC 118484 (9999-127-107, P101, R202, C501, B602; NHPP-5A27(784))

CONTRACT ID NUMBER: C00111300DB107



CORMAN KOKOSING

WRA

4.3.1 | 4.3.2 | Design Concept | Conceptual Roadway and Structural Plans

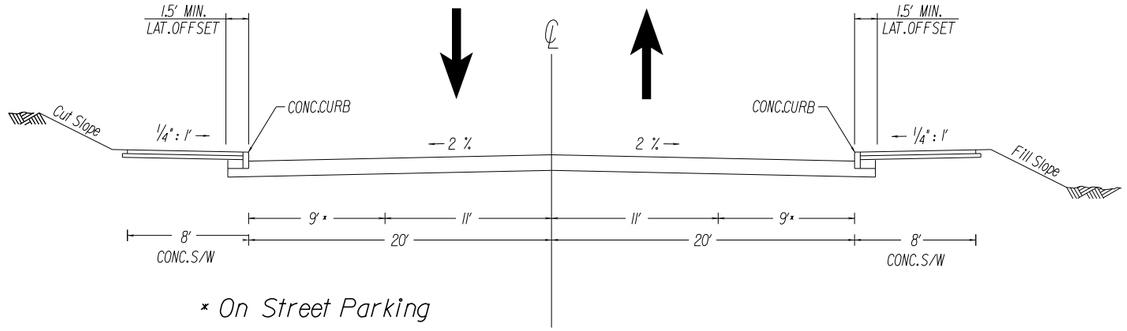
PROJECT MANAGER ANTHONY HAVERLY, PE
SURVEYED BY, DATE Woolpert Inc. May 2020
DESIGN BY Whitman, Requardt & Associates (804) 272-8400
SUBSURFACE UTILITY BY, DATE Accumark Inc. April 2020

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	U000-127-023, C501 0004-127-051, C501 0064-127-022, C501 9999-127-107, C501 0250-127-050, C501	2A

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

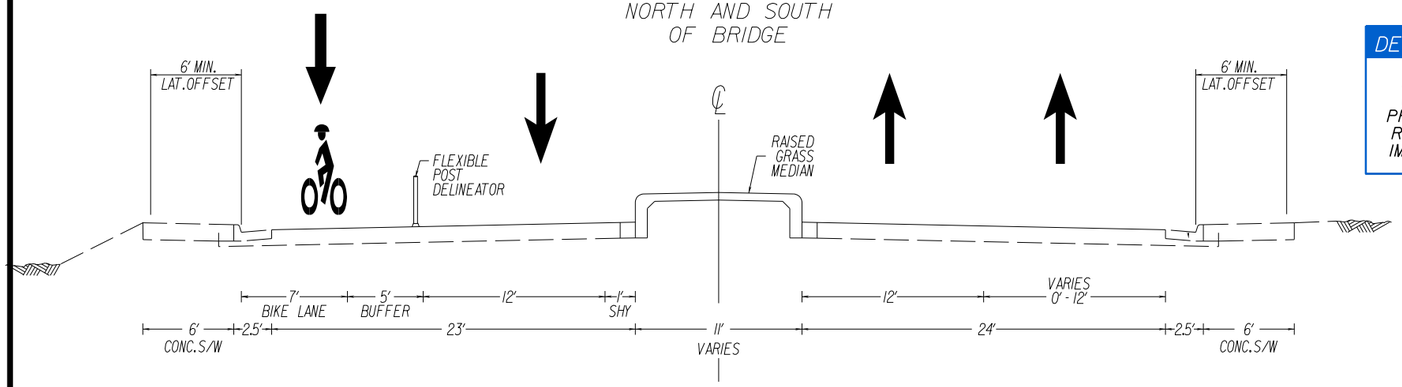
TYPICAL SECTIONS

N 1ST STREET NORTH AND SOUTH OF BRIDGE

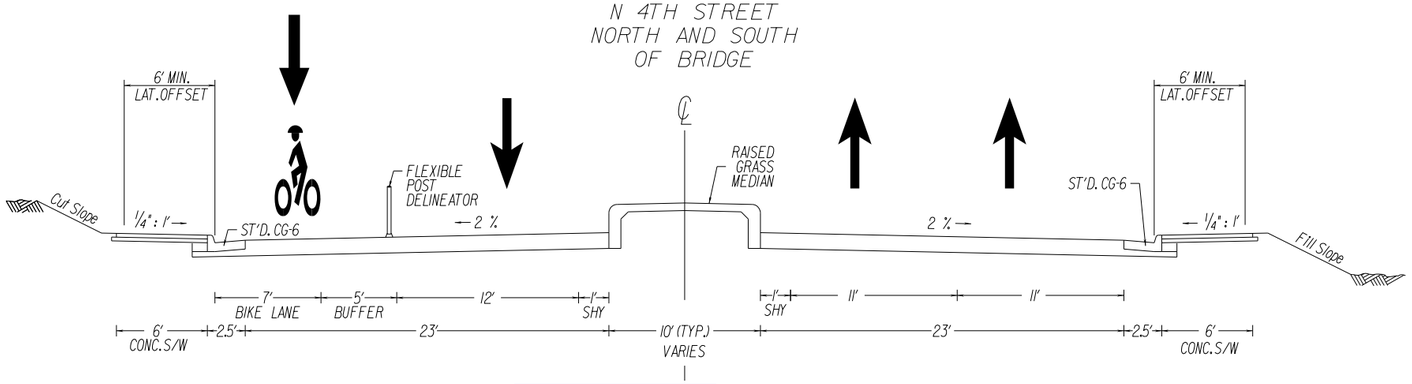


* On Street Parking

N 3RD/4TH STREET NORTH AND SOUTH OF BRIDGE



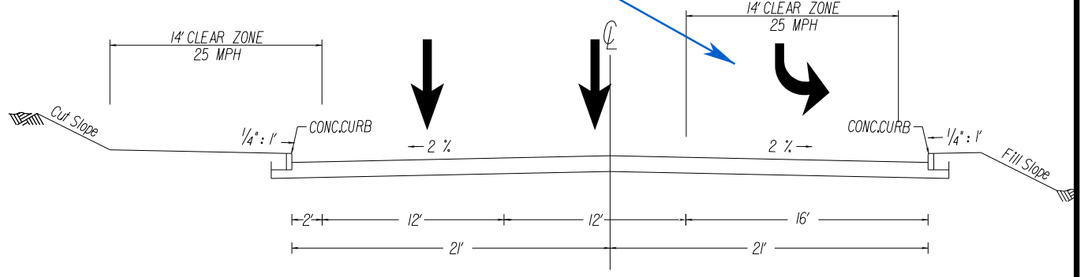
N 4TH STREET NORTH AND SOUTH OF BRIDGE



DESIGN ENHANCEMENT

MODIFIED LANE CONFIGURATION TO IMPROVE TRAFFIC OPERATIONS

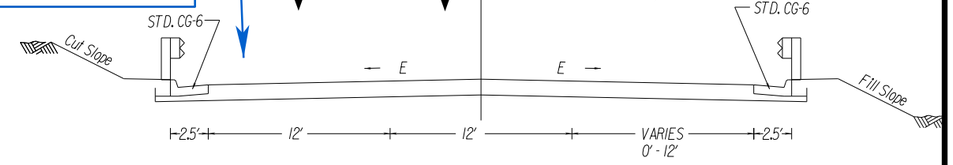
N 5TH STREET SOUTH OF BRIDGE



DESIGN ENHANCEMENT

MODIFIED SHOULDER WIDTHS TO MINIMIZE PROPERTY IMPACTS AND REDUCE CONSTRUCTION IMPACTS TO MOTORISTS

N 5TH STREET NORTH OF BRIDGE



CURVE DATA

4TH STREET CURVE DATA

PI = 403+35.26
DELTA = 37°14'12.77" (LT)
D = 13°28'53"
T = 143.18'
L = 276.21'
R = 425.00'
PC = 401+92.08
PT = 404+68.29
e = NC
V = 30 MPH

PI = 411+76.89
DELTA = 16°25'45.70" (LT)
D = 03°34'52"
T = 230.98'
L = 458.79'
R = 1,600.00'
PC = 409+45.90
PT = 414+04.70
e = NC
V = 30 MPH

5TH STREET CURVE DATA

PI = 52+64.40
DELTA = 00°16'51.92" (RT)
D = 00°22'55"
T = 36.79'
L = 73.59'
R = 15,000.00'
PC = 52+27.60
PT = 53+01.19
e = NC
V = 25 MPH

PI = 56+33.96
DELTA = 09°16'35.25" (RT)
D = 10°54'49"
T = 42.59'
L = 85.00'
R = 525.00'
PC = 55+91.37
PT = 56+76.37
e = NC
V = 25 MPH

PI = 57+75.84
DELTA = 26°38'52.91" (RT)
D = 13°38'31"
T = 99.47'
L = 195.34'
R = 420.00'
PC = 56+76.37
PT = 58+71.71
e = NC
V = 25 MPH

PI = 61+07.91
DELTA = 17°58'09.30" (LT)
D = 04°51'20"
T = 186.57'
L = 370.07'
R = 1,180.00'
PC = 59+21.34
PT = 62+91.42
e = NC
V = 25 MPH

VOLUME II
TECHNICAL PLANS

DATE: 8/27/2021

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

ADDITIONAL EASEMENTS FOR UTILITY RELOCATIONS MAY BE REQUIRED BEYOND THE PROPOSED RIGHT- OF-WAY SHOWN ON THESE PLANS.

CORMAN KOKOSING | WRA

TYPICAL SECTIONS

SCALE	PROJECT	SHEET NO.
NOT TO SCALE	SEE ABOVE	2A

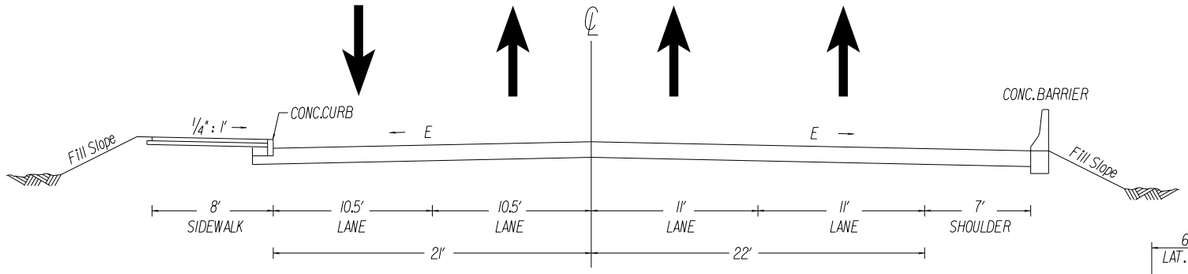
PROJECT MANAGER _ANTHONY HAVERLY, PE_ _ _ _ _ _ _ _ _ _ _ _
SURVEYED BY, DATE _Woolpert Inc. May 2020_ _ _ _ _ _ _ _ _ _ _
DESIGN BY _Whitman, Requardt & Associates (804) 272-8400_ _ _ _ _ _ _
SUBSURFACE UTILITY BY, DATE _Accumark Inc. April 2020_ _ _ _ _ _

TYPICAL SECTIONS

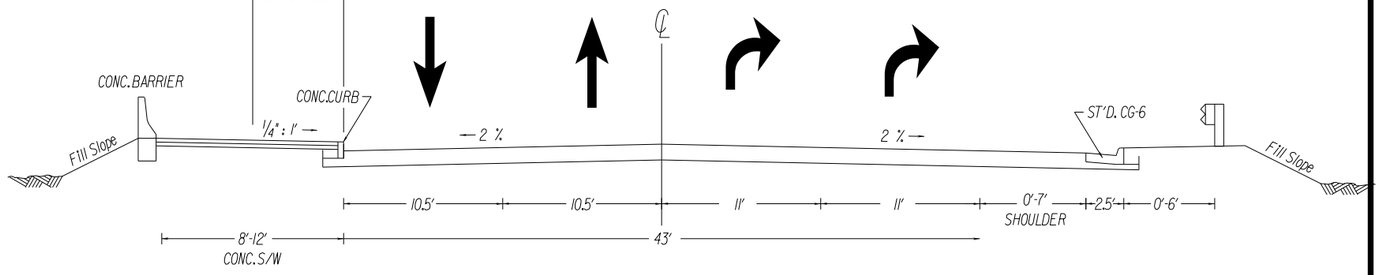
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	U000-127-023, C501 0004-127-051, C501 0064-127-022, C501 9999-127-107, C501 0250-127-050, C501	2B

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

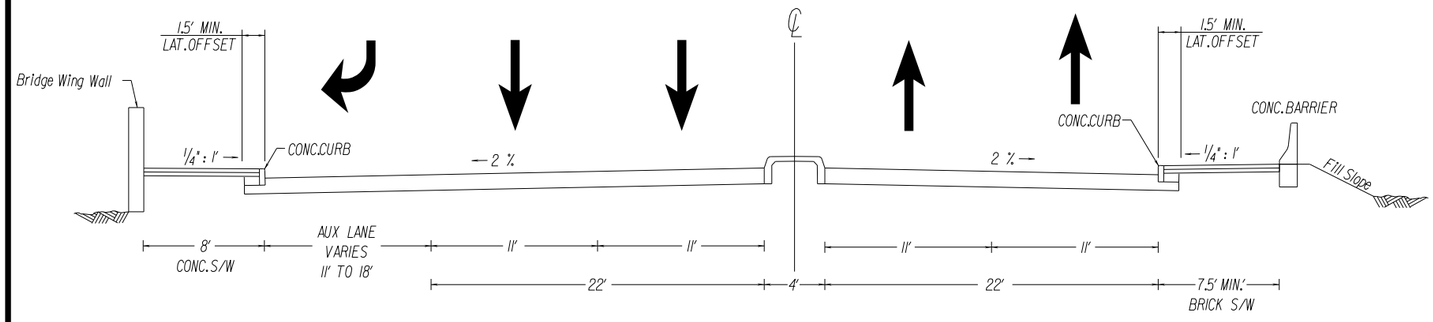
N 7TH STREET SOUTH OF BRIDGE



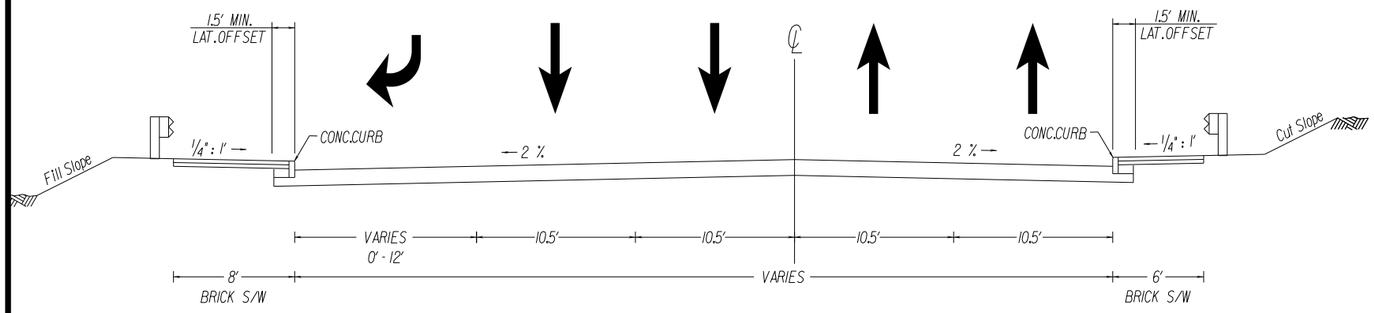
N 7TH STREET NORTH OF BRIDGE



E BROAD STREET WEST OF BRIDGE



E BROAD STREET EAST OF BRIDGE



VOLUME II
TECHNICAL PLANS

DATE: 8/27/2021

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ADDITIONAL EASEMENTS FOR UTILITY RELOCATIONS MAY BE REQUIRED BEYOND THE PROPOSED RIGHT- OF-WAY SHOWN ON THESE PLANS.

CORMAN KOKOSING | WRA

TYPICAL SECTIONS

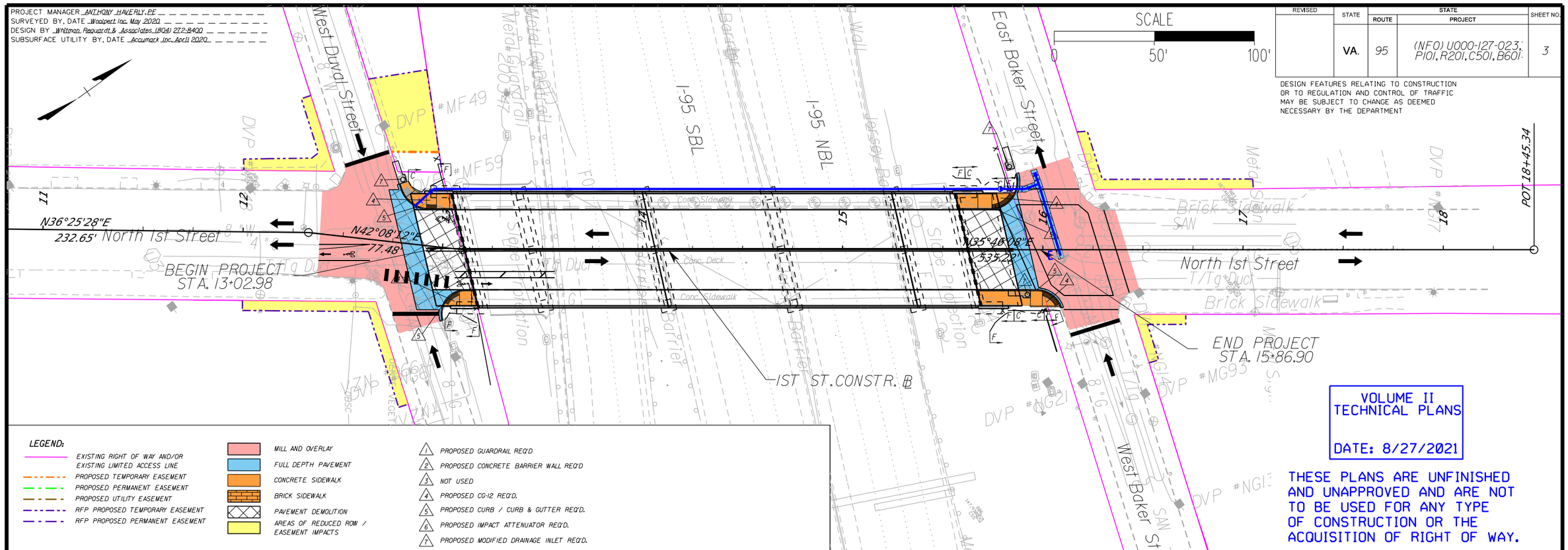
SCALE	PROJECT	SHEET NO.
NOT TO SCALE	SEE ABOVE	2B

PROJECT MANAGER: ANTHONY HAVERLY, PE
SURVEYED BY, DATE: Woolpert Inc. May 2020
DESIGN BY: Whitman, Requardt & Associates (804) 272-8400
SUBSURFACE UTILITY BY, DATE: Accumark Inc. April 2020

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	(NFO) U000-127-023; P101, R201, C501, B601	3

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

SCALE 0 50' 100'



LEGEND:

- EXISTING RIGHT OF WAY AND/OR EXISTING LIMITED ACCESS LINE
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED UTILITY EASEMENT
- RFP PROPOSED TEMPORARY EASEMENT
- RFP PROPOSED PERMANENT EASEMENT
- MILL AND OVERLAY
- FULL DEPTH PAVEMENT
- CONCRETE SIDEWALK
- BRICK SIDEWALK
- PAVEMENT DEMOLITION
- AREAS OF REDUCED ROW / EASEMENT IMPACTS
- —x— PROPOSED FENCE
- PROPOSED TRAFFIC MOVEMENTS
- 1 PROPOSED GUARDRAIL REQ'D
- 2 PROPOSED CONCRETE BARRIER WALL REQ'D
- 3 NOT USED
- 4 PROPOSED CG-12 REQ'D.
- 5 PROPOSED CURB / CURB & GUTTER REQ'D.
- 6 PROPOSED IMPACT ATTENUATOR REQ'D.
- 7 PROPOSED MODIFIED DRAINAGE INLET REQ'D.
- C DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL
- 12" W PROPOSED WATER RELOCATION

VOLUME II
TECHNICAL PLANS

DATE: 8/27/2021

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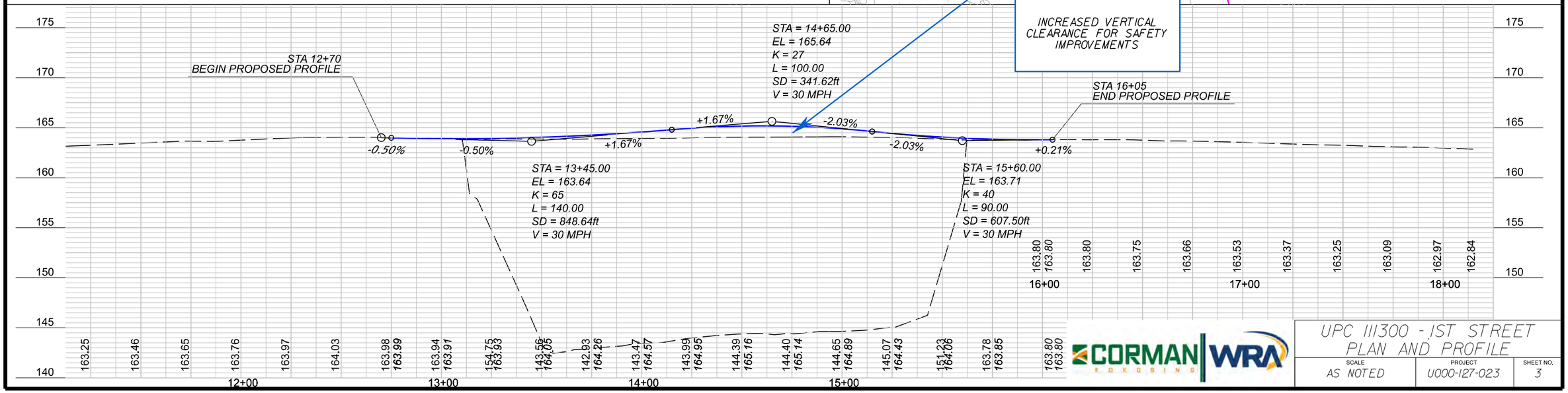
DESIGN ENHANCEMENT

INCREASED VERTICAL CLEARANCE FOR SAFETY IMPROVEMENTS



CORMAN | WRA KOKOSING

UPC 111300 - 1ST STREET PLAN AND PROFILE

SCALE	PROJECT	SHEET NO.
AS NOTED	U000-127-023	3

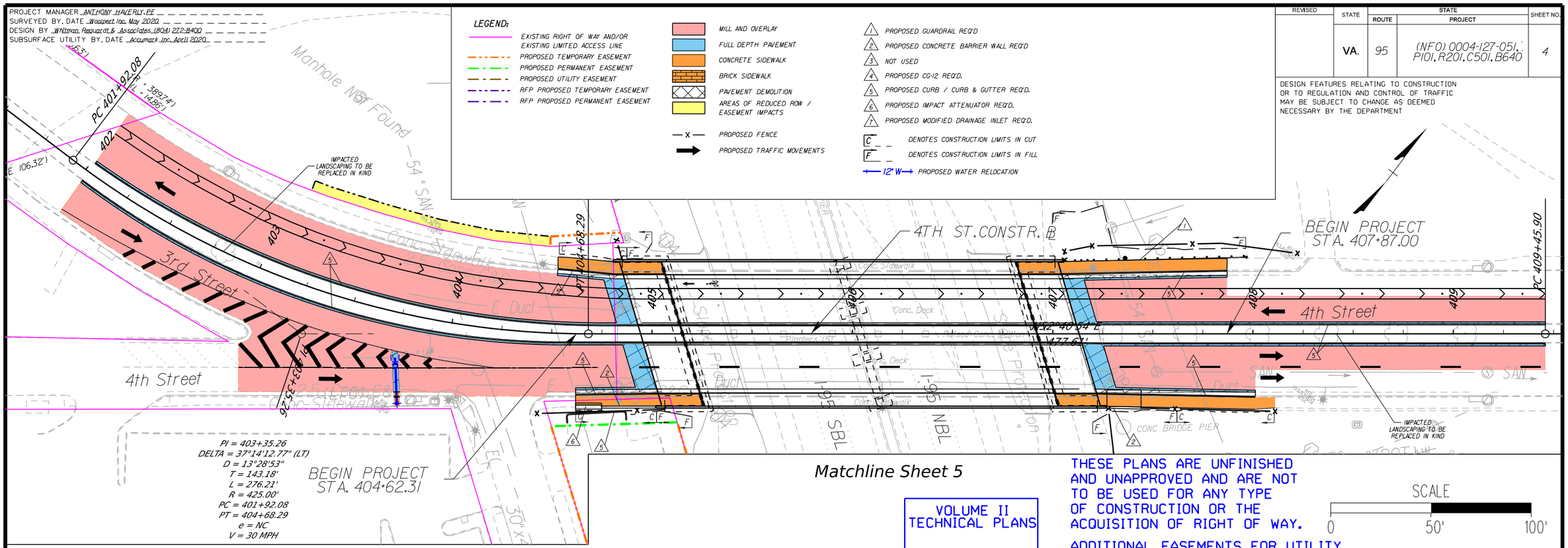
PROJECT MANAGER: ANTHONY HAVERLY, PE
SURVEYED BY, DATE: Woolpert Inc. May 2020
DESIGN BY: Whitman, Requardt & Associates (804) 272-8400
SUBSURFACE UTILITY BY, DATE: Accumark Inc. April 2020

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	(NFO) 0004-127-051, PI01, R201, C501, B640	4

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

LEGEND:

- EXISTING RIGHT OF WAY AND/OR EXISTING LIMITED ACCESS LINE
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED UTILITY EASEMENT
- RFP PROPOSED TEMPORARY EASEMENT
- RFP PROPOSED PERMANENT EASEMENT
- MILL AND OVERLAY
- FULL DEPTH PAVEMENT
- CONCRETE SIDEWALK
- BRICK SIDEWALK
- PAVEMENT DEMOLITION
- AREAS OF REDUCED ROW / EASEMENT IMPACTS
- PROPOSED FENCE
- PROPOSED TRAFFIC MOVEMENTS
- 1 PROPOSED GUARDRAIL REQ'D
- 2 PROPOSED CONCRETE BARRIER WALL REQ'D
- 3 NOT USED
- 4 PROPOSED CG-12 REQ'D.
- 5 PROPOSED CURB / CURB & GUTTER REQ'D.
- 6 PROPOSED IMPACT ATTENUATOR REQ'D.
- 7 PROPOSED MODIFIED DRAINAGE INLET REQ'D.
- C DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL
- 12" W PROPOSED WATER RELOCATION



VOLUME II
TECHNICAL PLANS

DATE: 8/27/2021

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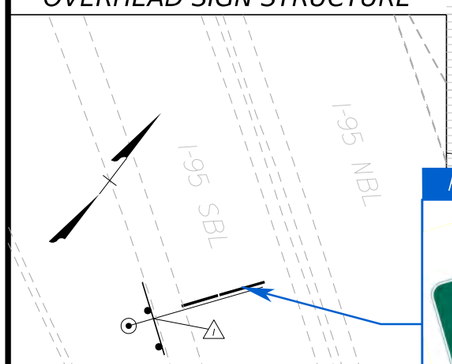
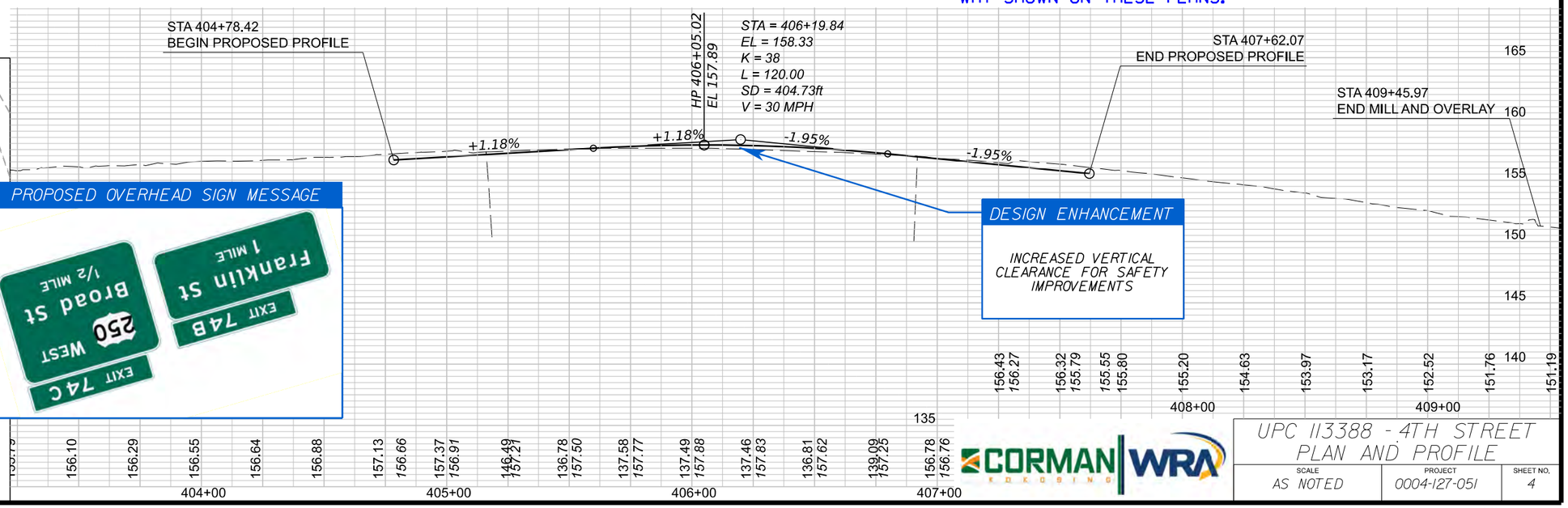
ADDITIONAL EASEMENTS FOR UTILITY RELOCATIONS MAY BE REQUIRED BEYOND THE PROPOSED RIGHT- OF- WAY SHOWN ON THESE PLANS.

SCALE
0 50' 100'

INSET A
PROPOSED CANTILEVER OVERHEAD SIGN STRUCTURE





CORMAN WRA ENGINEERING

UPC 113388 - 4TH STREET
PLAN AND PROFILE

SCALE	PROJECT	SHEET NO.
AS NOTED	0004-127-051	4

PROJECT MANAGER _ANTHONY HAVERLY, PE_
SURVEYED BY, DATE _Woolpert Inc. May 2020_
DESIGN BY _Whitman, Requardt & Associates, (804) 272-8400_
SUBSURFACE UTILITY BY, DATE _Accumark Inc. April 2020_

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	(NFO) 0064-127-022; PI01, R201, C501, B661;	5

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

VOLUME II
TECHNICAL PLANS

DATE: 8/27/2021

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ADDITIONAL EASEMENTS FOR UTILITY RELOCATIONS MAY BE REQUIRED BEYOND THE PROPOSED RIGHT- OF-WAY SHOWN ON THESE PLANS.

SCALE 0 50' 100'

DESIGN ENHANCEMENT
MODIFIED LANE CONFIGURATION TO IMPROVE TRAFFIC OPERATIONS

DESIGN ENHANCEMENT
MODIFIED SHOULDER WIDTHS TO MINIMIZE PROPERTY IMPACTS AND REDUCE CONSTRUCTION IMPACTS TO MOTORISTS

Matchline Sheet 4

BEGIN PROJECT STA. 53+10.00

END PROJECT STA. 55+62.50

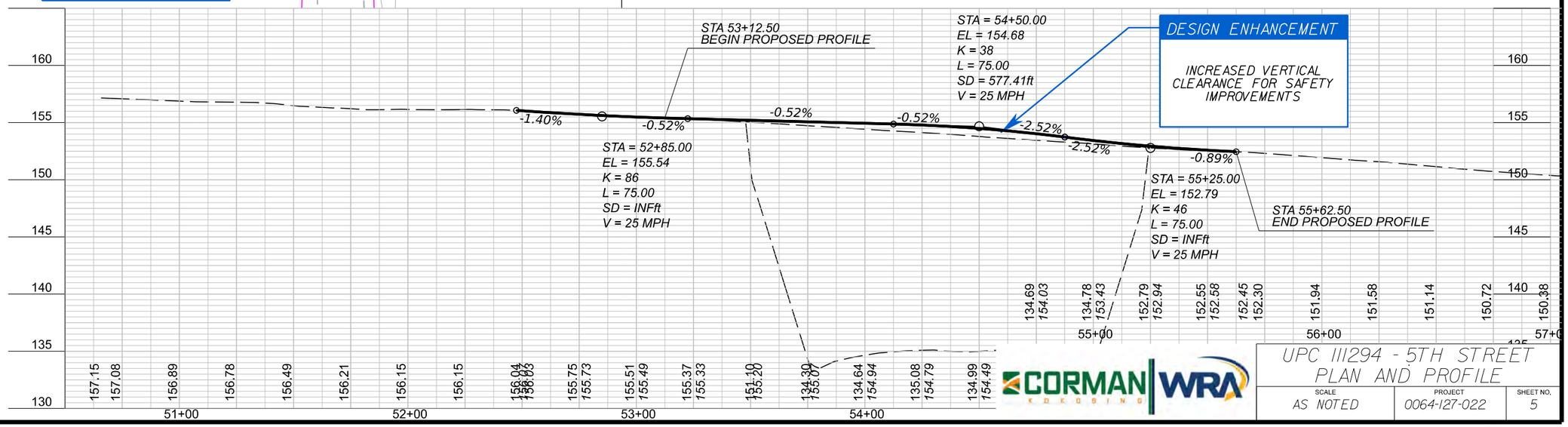
PROPOSED OVERHEAD SIGN MESSAGE

PI = 52+64.40
DELTA = 00°16'51.92" (RT)
D = 00°22'55"
T = 36.79'
L = 73.59'
R = 15,000.00'
PC = 52+27.60
PT = 53+01.19
e = NC
V = 25 MPH

PI = 56+33.96
DELTA = 09°16'35.25" (RT)
D = 10°54'49"
T = 42.59'
L = 85.00'
R = 525.00'
PC = 55+91.37
PT = 56+76.37
e = NC
V = 25 MPH

DESIGN ENHANCEMENT
ELIMINATED THE SWM BASINS TO REDUCE IMPACTS

LEGEND:
- EXISTING RIGHT OF WAY AND/OR EXISTING LIMITED ACCESS LINE
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED UTILITY EASEMENT
- RFP PROPOSED TEMPORARY EASEMENT
- RFP PROPOSED PERMANENT EASEMENT
- MILL AND OVERLAY
- FULL DEPTH PAVEMENT
- CONCRETE SIDEWALK
- BRICK SIDEWALK
- PAVEMENT DEMOLITION
- AREAS OF REDUCED ROW / EASEMENT IMPACTS
- PROPOSED FENCE
- PROPOSED TRAFFIC MOVEMENTS
- 1 PROPOSED GUARDRAIL REQ'D
- 2 PROPOSED CONCRETE BARRIER WALL REQ'D
- 3 NOT USED
- 4 PROPOSED CG-12 REQ'D.
- 5 PROPOSED CURB / CURB & GUTTER REQ'D.
- 6 PROPOSED IMPACT ATTENUATOR REQ'D.
- 7 PROPOSED MODIFIED DRAINAGE INLET REQ'D.
- C DENOTES CONSTRUCTION LIMITS IN CUT
- F DENOTES CONSTRUCTION LIMITS IN FILL
- 12" W PROPOSED WATER RELOCATION



CORMAN WRA KOKOSING

UPC 111294 - 5TH STREET PLAN AND PROFILE

SCALE	PROJECT	SHEET NO.
AS NOTED	0064-127-022	5

PROJECT MANAGER: ANTHONY HAVERLY, PE
SURVEYED BY, DATE: Woolpert Inc. May 2020
DESIGN BY: Whitman, Requardt & Associates, (804) 272-8400
SUBSURFACE UTILITY BY, DATE: Accumark Inc. April 2020

VOLUME II
TECHNICAL PLANS

DATE: 8/27/2021

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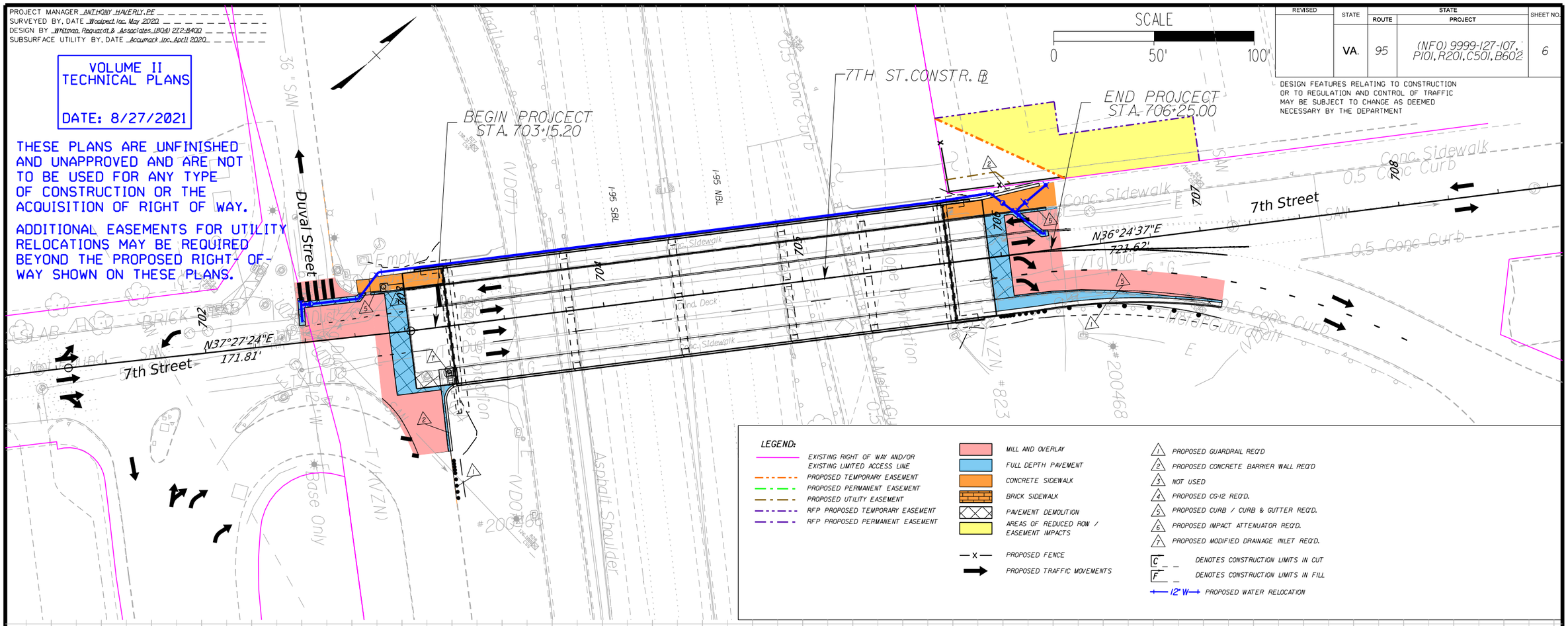
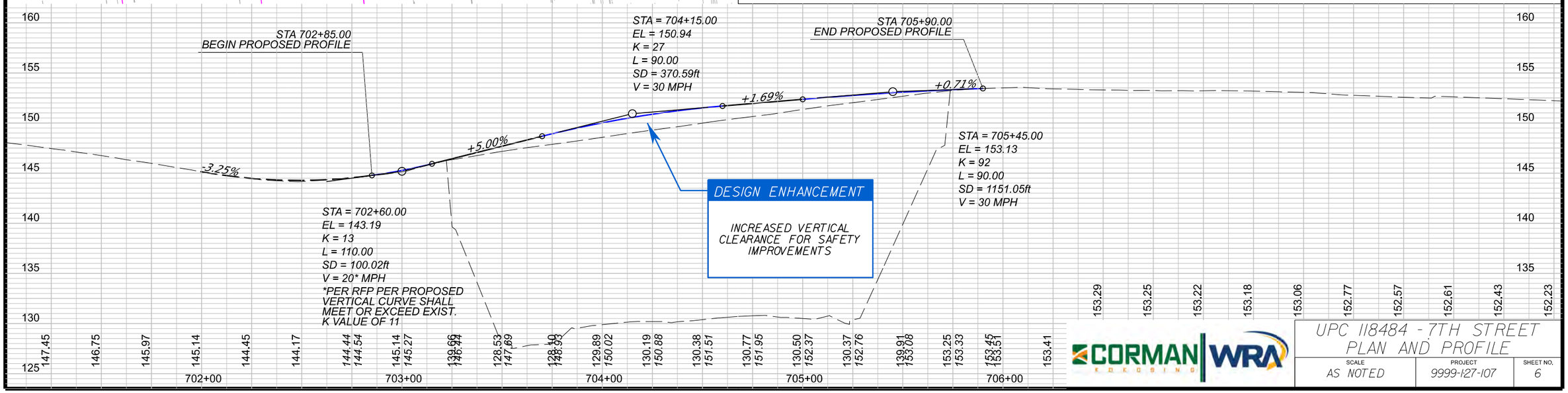
ADDITIONAL EASEMENTS FOR UTILITY RELOCATIONS MAY BE REQUIRED BEYOND THE PROPOSED RIGHT- OF-WAY SHOWN ON THESE PLANS.

SCALE
0 50' 100'

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	(NFO) 9999-127-107, PIOI, R201, C501, B602	6

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





CORMAN | WRA KOKOSING

UPC 118484 - 7TH STREET
PLAN AND PROFILE

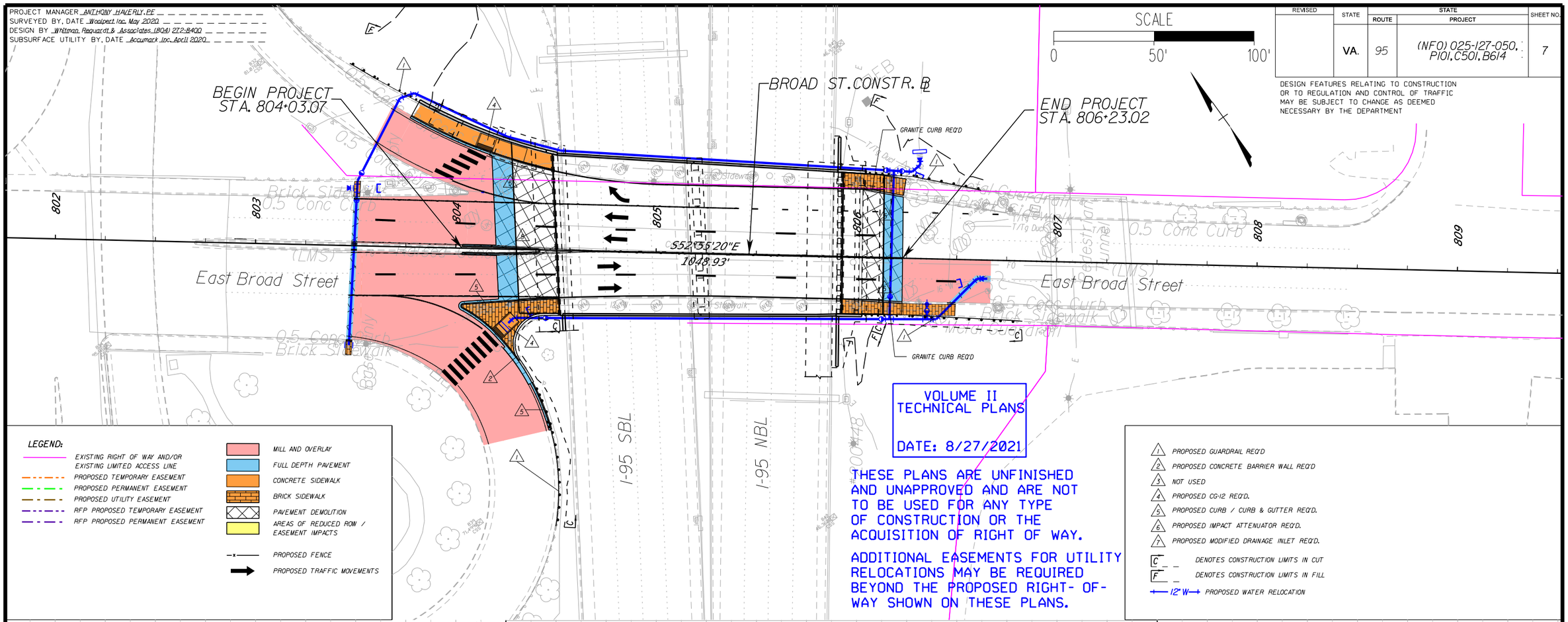
SCALE	PROJECT	SHEET NO.
AS NOTED	9999-127-107	6

PROJECT MANAGER: ANTHONY HAVERLY, PE
SURVEYED BY, DATE: Woolpert Inc. May 2020
DESIGN BY: Whitman, Requardt & Associates, (804) 272-8400
SUBSURFACE UTILITY BY, DATE: Accumark Inc., April 2020

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	(NFO) 025-127-050, P101, C501, B614	7

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

SCALE
0 50' 100'



VOLUME II
TECHNICAL PLANS

DATE: 8/27/2021

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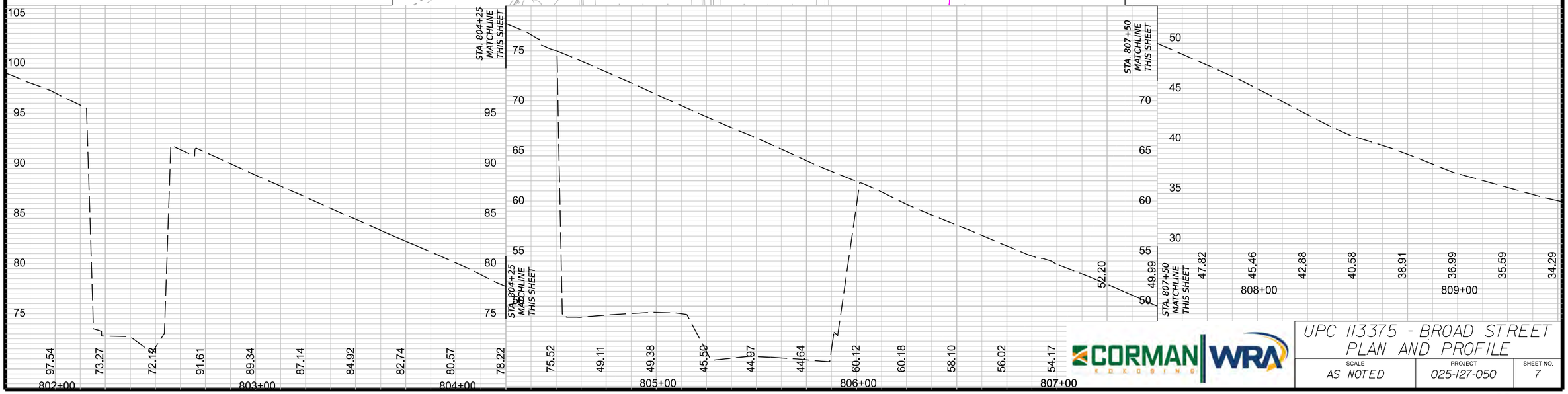
ADDITIONAL EASEMENTS FOR UTILITY RELOCATIONS MAY BE REQUIRED BEYOND THE PROPOSED RIGHT- OF-WAY SHOWN ON THESE PLANS.

LEGEND:

- EXISTING RIGHT OF WAY AND/OR EXISTING LIMITED ACCESS LINE
- PROPOSED TEMPORARY EASEMENT
- PROPOSED PERMANENT EASEMENT
- PROPOSED UTILITY EASEMENT
- RFP PROPOSED TEMPORARY EASEMENT
- RFP PROPOSED PERMANENT EASEMENT
- MILL AND OVERLAY
- FULL DEPTH PAVEMENT
- CONCRETE SIDEWALK
- BRICK SIDEWALK
- PAVEMENT DEMOLITION
- AREAS OF REDUCED ROW / EASEMENT IMPACTS
- PROPOSED FENCE
- PROPOSED TRAFFIC MOVEMENTS

1. PROPOSED GUARDRAIL REQ'D
2. PROPOSED CONCRETE BARRIER WALL REQ'D
3. NOT USED
4. PROPOSED CG-12 REQ'D.
5. PROPOSED CURB / CURB & GUTTER REQ'D.
6. PROPOSED IMPACT ATTENUATOR REQ'D.
7. PROPOSED MODIFIED DRAINAGE INLET REQ'D.

C _ _ DENOTES CONSTRUCTION LIMITS IN CUT
F _ _ DENOTES CONSTRUCTION LIMITS IN FILL
12" W PROPOSED WATER RELOCATION

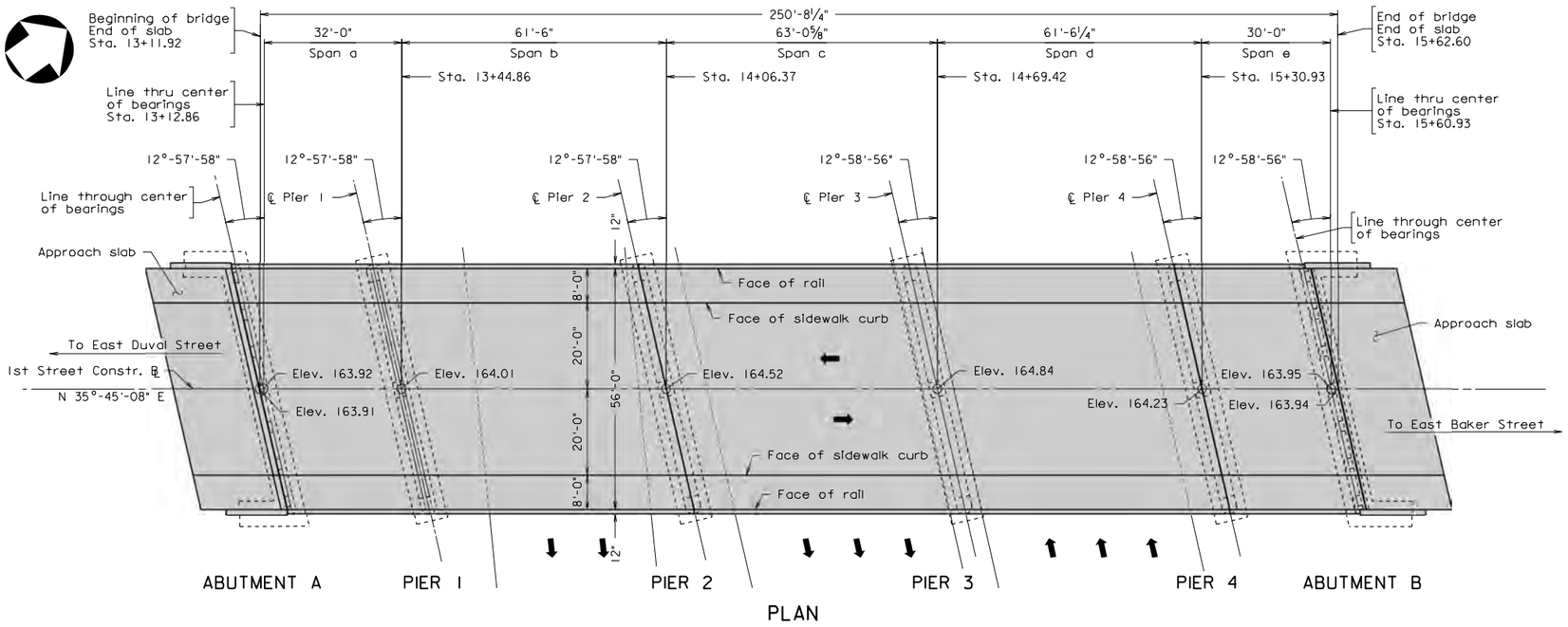


CORMAN | WRA KOKOSING

UPC 113375 - BROAD STREET
PLAN AND PROFILE

SCALE	PROJECT	SHEET NO.
AS NOTED	025-127-050	7

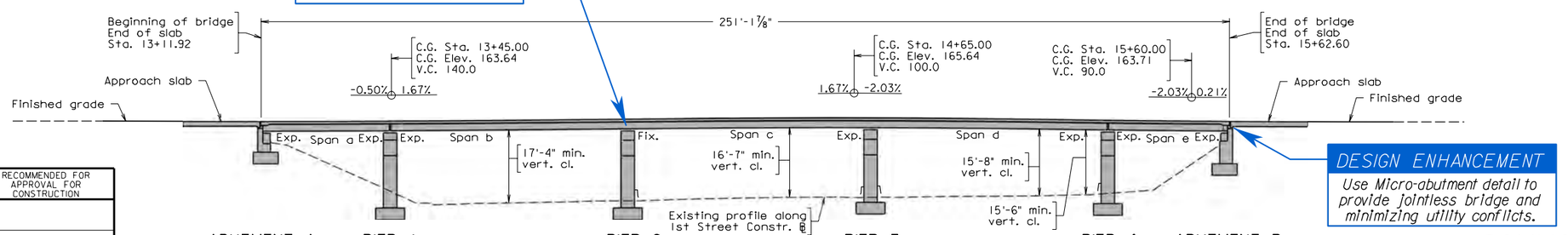
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	STP-BR04(287)	95	U000-127-023, B601	
Federal Structure No. 000000000021282			FHWA Construction and Scour Code:	X271-SN	
Federal Stewardship and Oversight Code: NFO				UPC No. 111300	



PLAN

DESIGN ENHANCEMENT

Eliminated haunches indicated in RFP plans.



DEVELOPED SECTION ALONG 1st STREET CONSTR. ℄

DESIGN ENHANCEMENT

Use Micro-abutment detail to provide jointless bridge and minimizing utility conflicts.

DESIGN ENHANCEMENT

Increase vertical Clearance to 15'-6" or greater in Span d and greater than 16'-6" in all other spans.

DESIGN EXCEPTION(S):

Reduced minimum vertical clearance from 16'-6" to 15'-0". Approved by State Structure and Bridge Engineer on March 31, 2021.

GENERAL NOTES:

Width: 8'-0" sidewalk, 40'-0" roadway, 8'-0" sidewalk. Overall width 56'-0" face-to-face of rails.

Span layout: 32'-0" - 61'-6" - 63'-0⅝" - 61'-6¼" - 30'-0" steel plate girder spans.

Capacity: Superstructure - HL-93 loading (proposed design).
Substructure - Per Original Design Code in accordance with RFP

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2020.

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; and VDOT Modifications (new elements only)

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

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

This project is to be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, August 2011 and latest revisions.

Design loading includes 20 psf allowance for construction tolerances and construction method.

Bridge No. of existing bridge is 8016. Plan No. are 176-16, 176-19, 195-16, 195-16C and 196-16C.

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

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION

VDOT PROJECT MANAGER

DISTRICT CONSTRUCTION ENGINEER

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

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

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS

For Table of Revisions, see Sheet 2.

VDOT

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF TRANSPORTATION

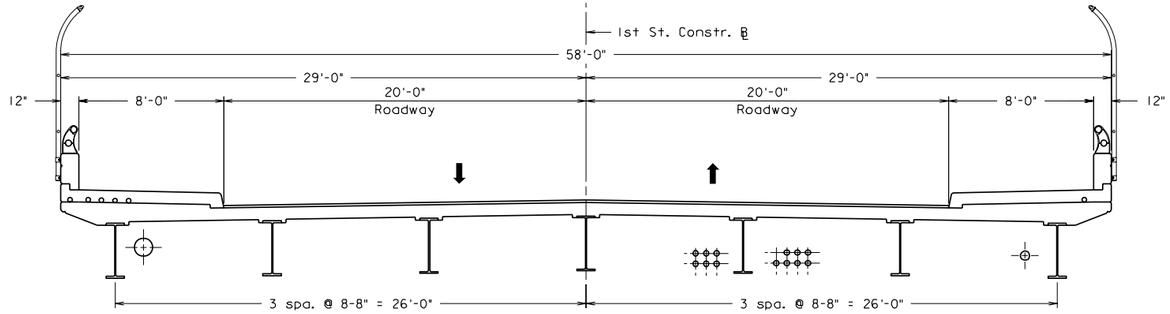
PROPOSED SUPERSTRUCTURE REPLACEMENT ON
1ST STREET OVER I-95 AND I-64
CITY OF RICHMOND
PROJ. U000-127-023, B601

Recommended for Approval: _____ _____
District Project Development Engineer Date

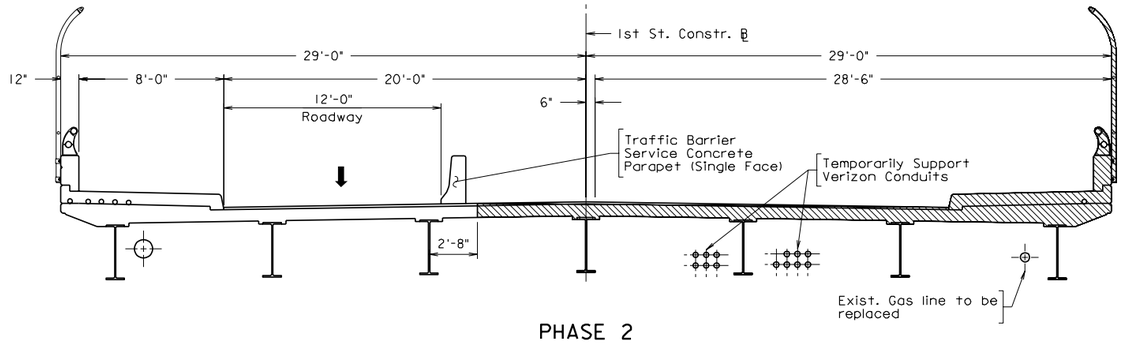
Approved: _____ _____
District Administrator Date

Date: _____

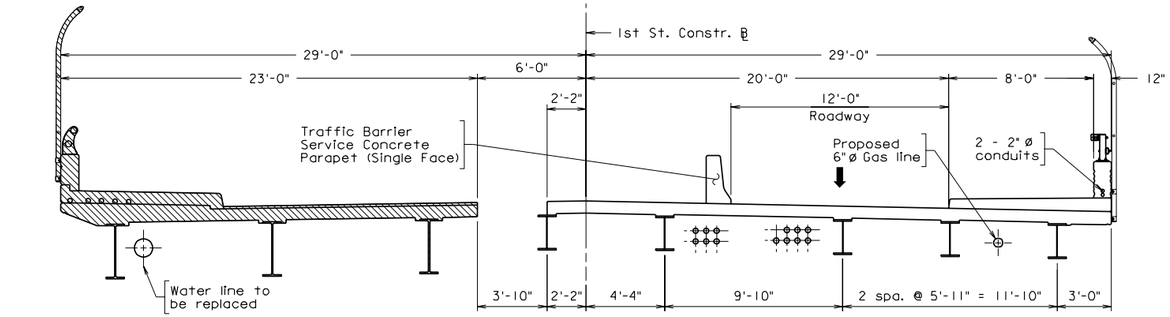
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	——	STP-5A27(802)	95	U000-127-023,B601	



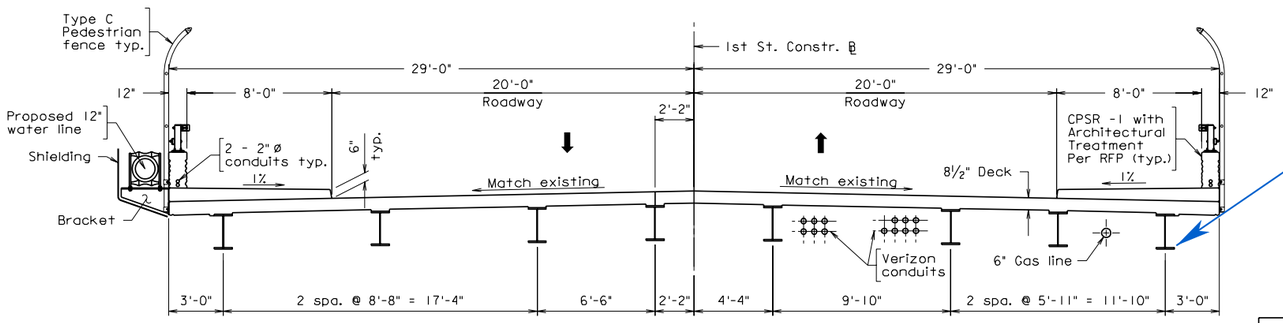
PHASE 1



PHASE 2



PHASE 3



PHASE 4

DESIGN ENHANCEMENT

Reduced number of girder lines from RFP plans, reducing future maintenance and improving access for inspection.

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

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

No.	Description	Date
	Revisions	

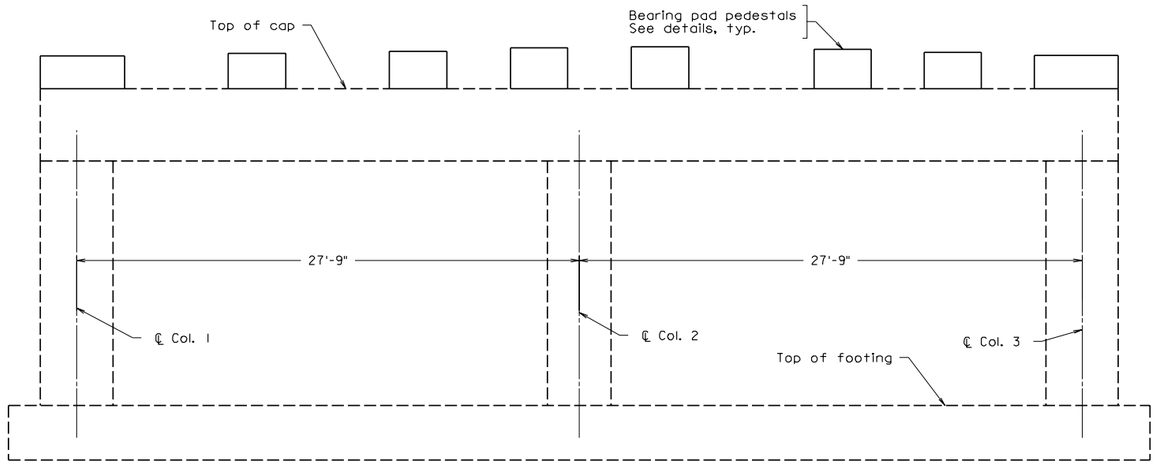
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

1st STREET
SEQUENCE OF CONSTRUCTION

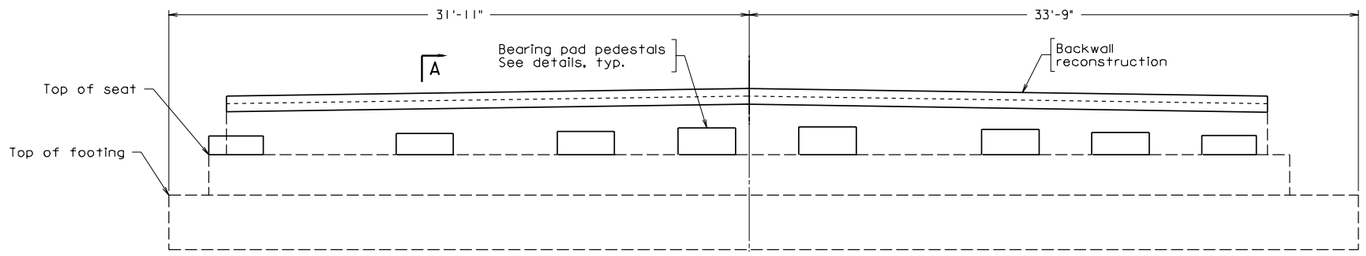
Designed:	Date	Plan No.	Sheet No.
Drawn:			
Checked:			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	STP-5A27(802)	95	U000-127-023,B601	



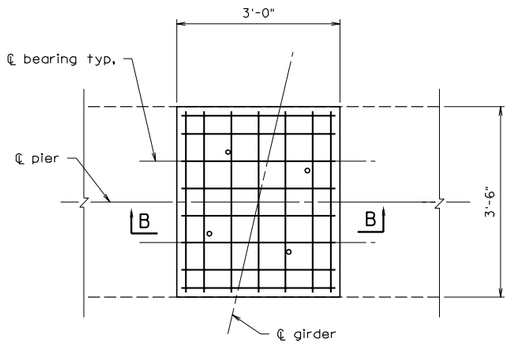
TYPICAL PIER ELEVATION

Showing proposed pedestals. See notes.



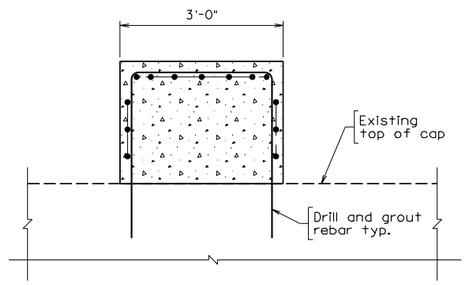
ABUTMENT ELEVATION

Showing backwall resonstruction and proposed pedestals.
Existing and proposed utilites and wingwalls not shown for clarity.



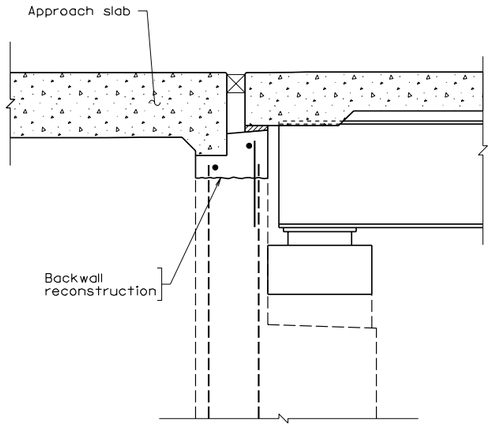
PART PLAN AT PEDESTAL

Pier pedestal shown. Abutment pedestal similar
Not to scale



SECTION B-B

Not to scale



SECTION A-A

Not to scale

Notes:

The cap for piers 1 & 4 to be strengthened with Carbon Fiber Wrap for additional moment capacity. The cap for piers 2 & 3 to be strengthened with Carbon Fiber Wrap for additional moment and shear capacity.

Perform substructure surface repairs in accordance with RFP.

DESIGN ENHANCEMENT

Minimized modification of all existing units by design to eliminate excavation adjacent to traffic.

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
	Revisions	

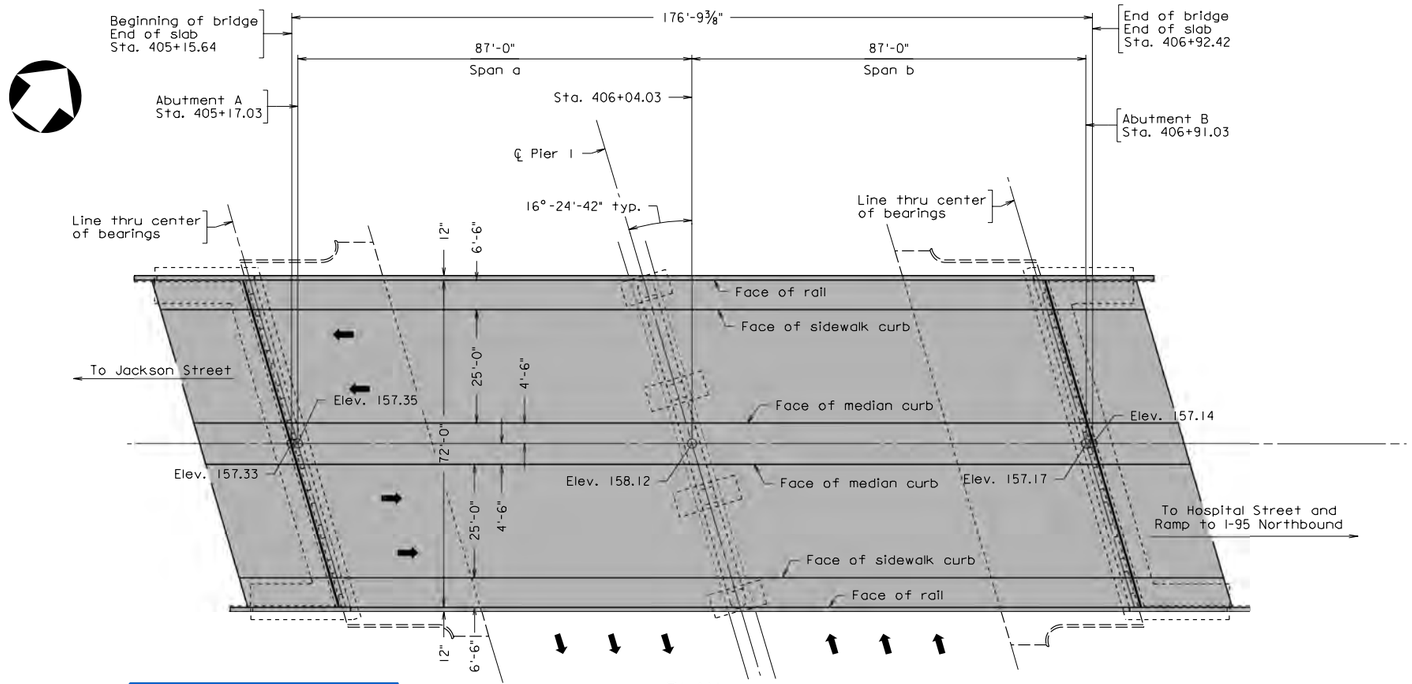
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

1st STREET SUBSTRUCTURE MODIFICATIONS

Designed:	Date	Plan No.	Sheet No.
Drawn:			
Checked:			

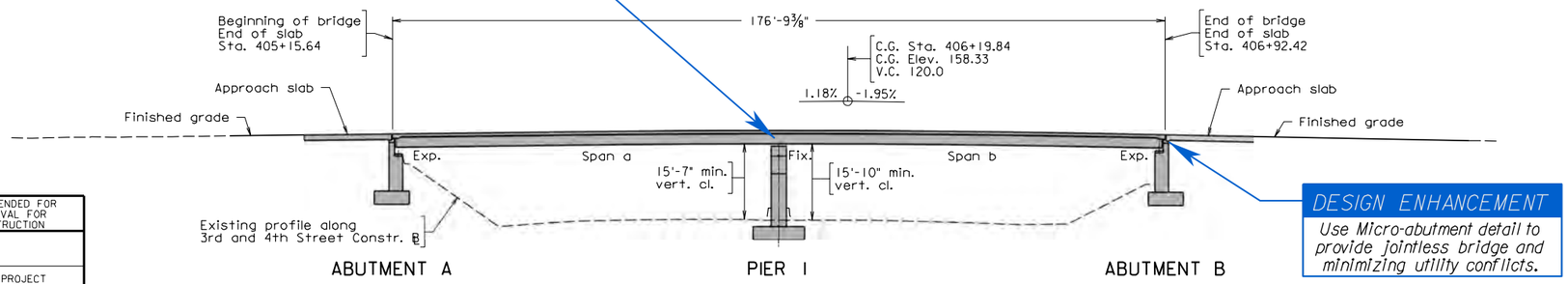
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-BR04(308)	95	0004-127-051, B640	
Federal Structure No. 000000000021284			FHWA Construction and Scour Code:		X271-SN
Federal Stewardship and Oversight Code:		NFO		UPC No.	113388



PLAN

DESIGN ENHANCEMENT

Eliminated haunches indicated in RFP plans.



ABUTMENT A PIER 1 ABUTMENT B

DESIGN ENHANCEMENT

Use Micro-abutment detail to provide jointless bridge and minimizing utility conflicts.

DEVELOPED SECTION ALONG 3RD AND 4TH STREET CONSTR. ℄

DESIGN ENHANCEMENT

Increase vertical Clearance to 15'-7" or greater.

DESIGN EXCEPTION(S):

Reduced minimum vertical clearance from 16'-6" to 15'-0". Approved by State Structure and Bridge Engineer on March 31, 2021

GENERAL NOTES:

Width: 6'-6" sidewalk, 25'-0" roadway, 9'-0" median, 25'-0" roadway, 6'-6" sidewalk. Overall width 72'-0" face-to-face of rails.

Span layout: 87'-0" - 87'-0" steel plate girder spans.

Capacity: Superstructure - HL-93 loading (proposed design).
Substructure - Per Original Design Code in accordance with RFP

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; and VDOT Modifications (new elements only)

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

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

This project is to be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, August 2011 and latest revisions.

Design loading includes 20psf allowance for construction tolerance and construction methods.

Bridge No. of existing bridge is 8017. Plan No. is 176-18.

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

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION

VDOT PROJECT MANAGER

DISTRICT CONSTRUCTION ENGINEER

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

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

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS

For Table of Revisions, see Sheet 2.

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

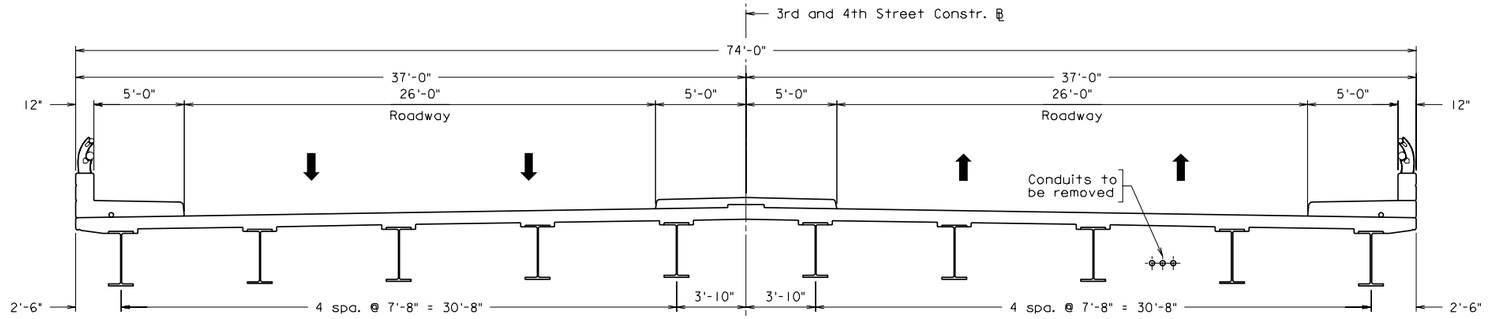
PROPOSED SUPERSTRUCTURE REPLACEMENT
3RD AND 4TH. STREET OVER I-95
CITY OF RICHMOND
PROJ.: 0004-127-051, B640

Recommended for Approval: _____ District Project Development Engineer Date

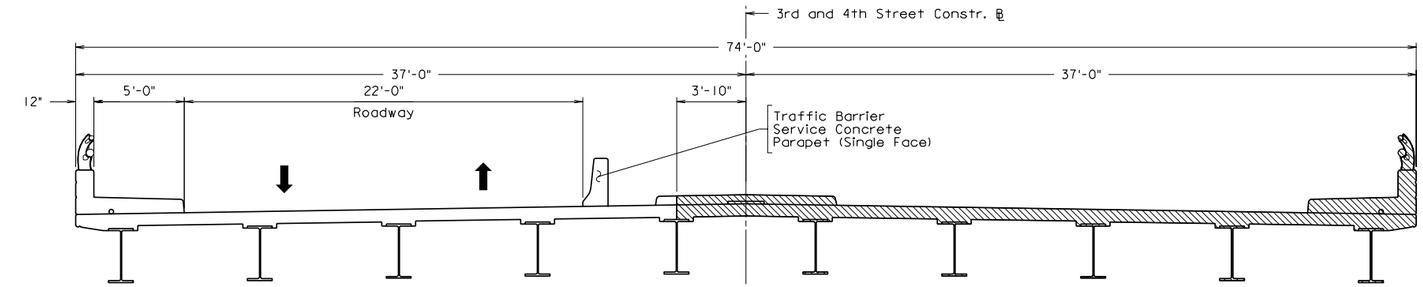
Approved: _____ District Administrator Date

Date: _____

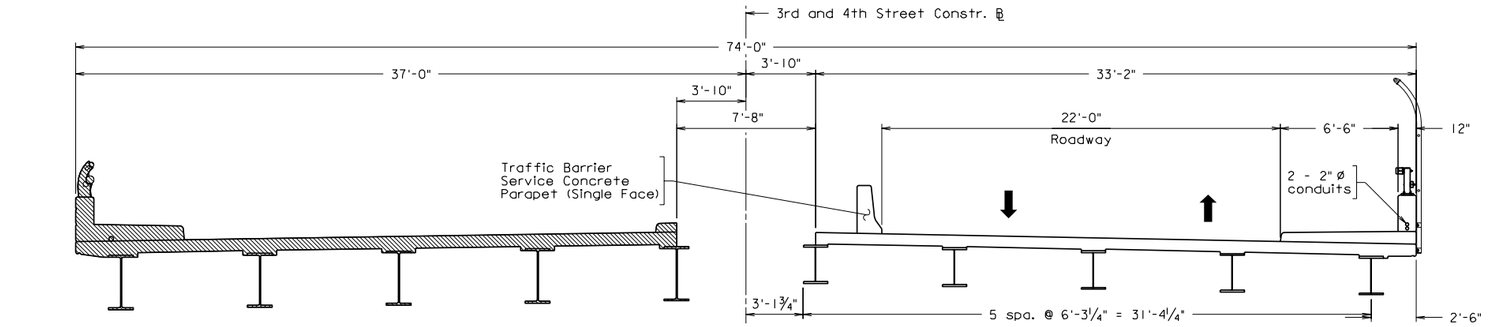
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-BR04(308)	95	004-127-051, C501	



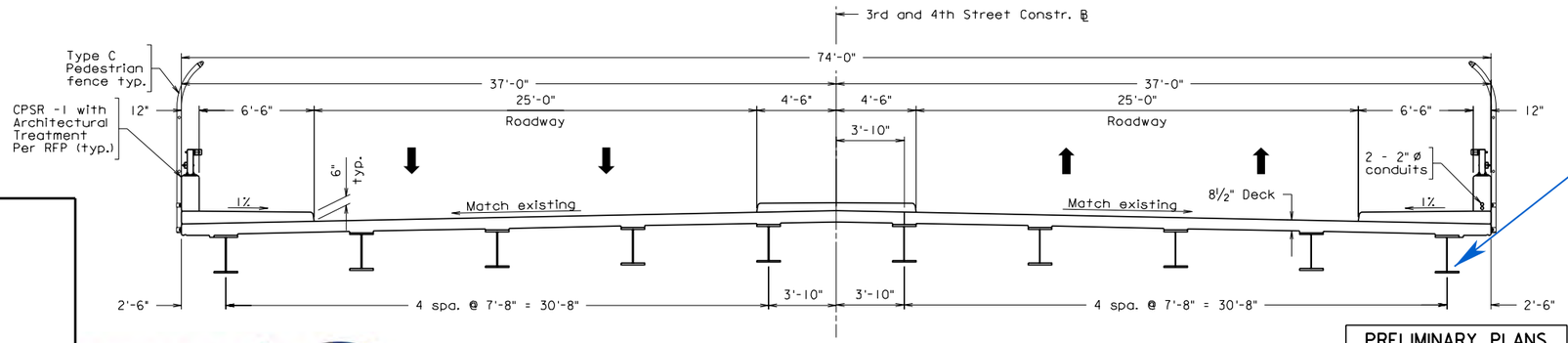
EXISTING TRANSVERSE SECTION



PHASE 1



PHASE 2



PHASE 3

DESIGN ENHANCEMENT

Reduced number of girder lines from RFP plans, reducing future maintenance and improving access for inspection.

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
	Revisions	

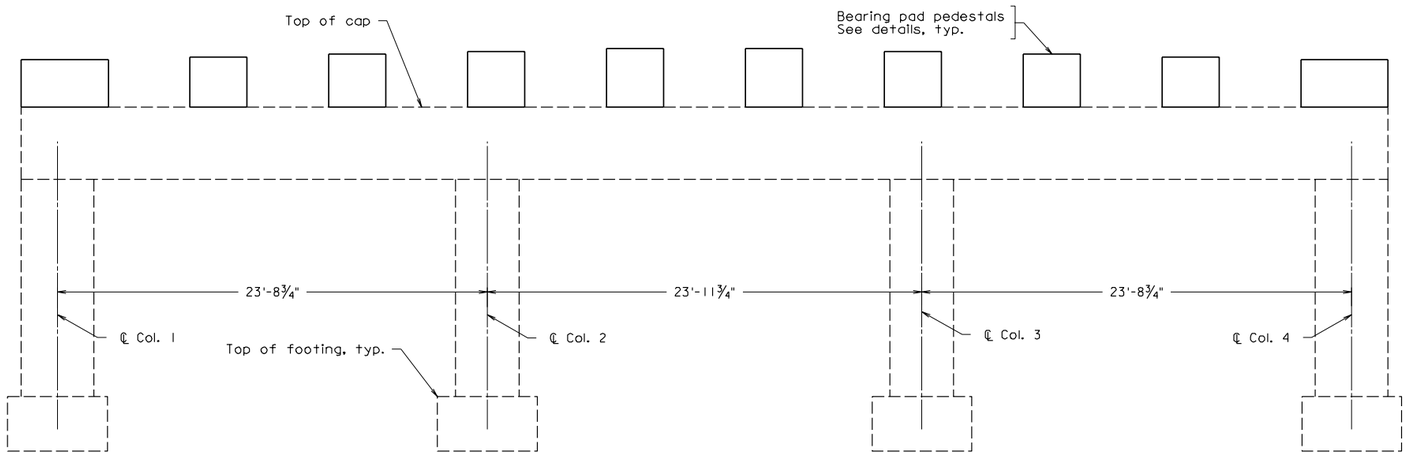
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

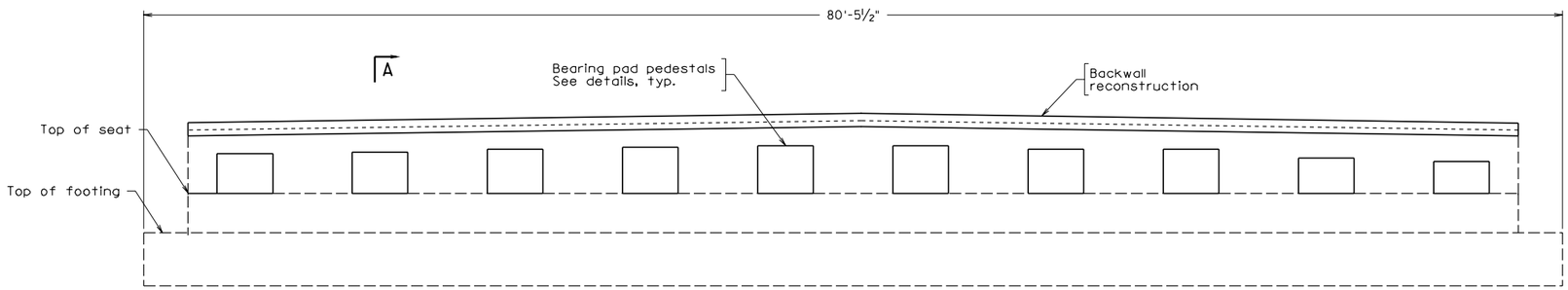
3rd AND 4th STREET SEQUENCE OF CONSTRUCTION

Designed:	Date	Plan No.	Sheet No.
Drawn:			
Checked:			

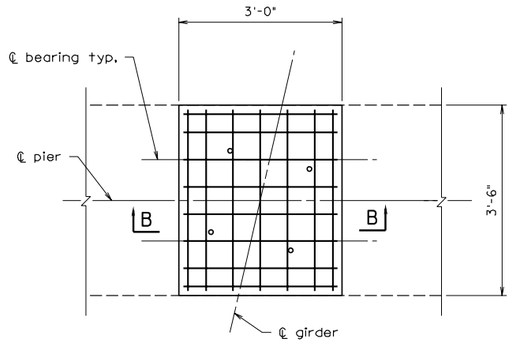
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-BR04(308)	95	004-127-051, C501	



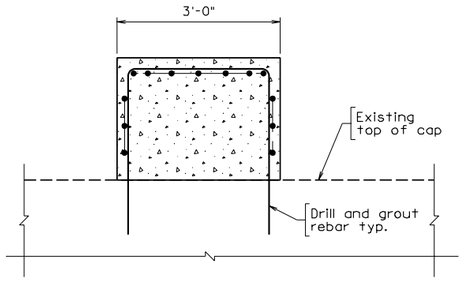
TYPICAL PIER ELEVATION
Showing proposed pedestals. See notes.



ABUTMENT ELEVATION
Showing backwall reconstruction and proposed pedestals.
Existing and proposed utilites and wingwalls not shown for clarity.



PART PLAN AT PEDESTAL
Pier pedestal shown, Abutment pedestal similar
Not to scale



SECTION B-B
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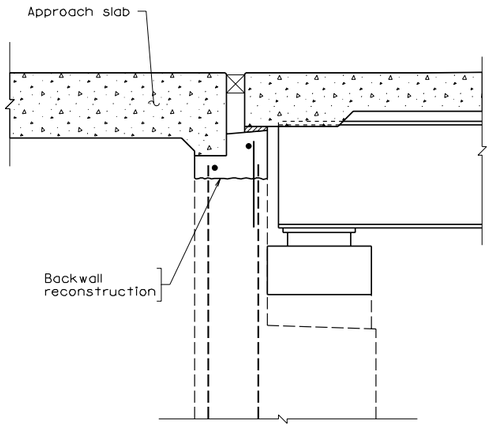


SECTION A-A
Not to scale

Notes:

Perform substructure surface repairs in accordance with RFP.

DESIGN ENHANCEMENT

Minimized modification of all existing units by design to eliminate excavation adjacent to traffic.

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

Scale: ¼" = 1'-0" unless otherwise noted

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

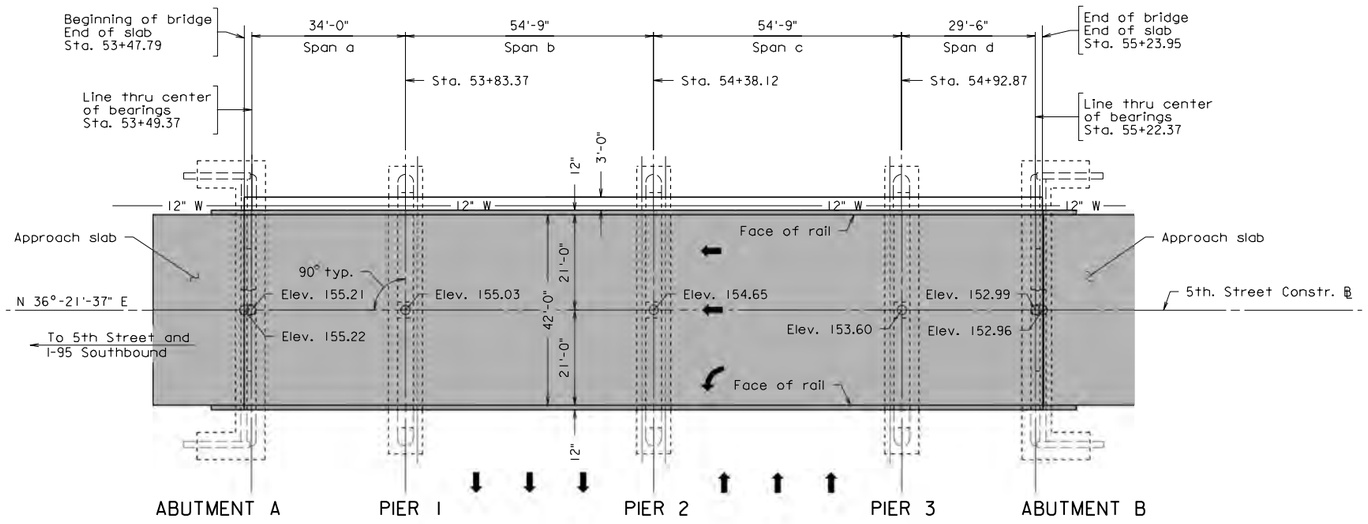
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

3rd AND 4th STREET SUBSTRUCTURE MODIFICATIONS

Designed:	Date	Plan No.	Sheet No.
Drawn:			
Checked:			

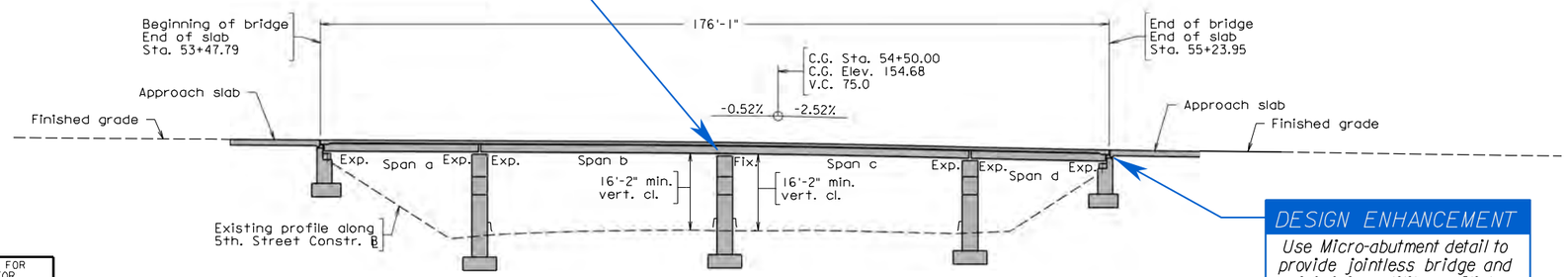
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-064-3(510)	95	0064-127-022, B661	1
Federal Structure No. 000000000021287			FHWA Construction and Scour Code:		X271-SN
Federal Stewardship and Oversight Code: NFO				UPC No. 111294	



PLAN

DESIGN ENHANCEMENT

Eliminated haunches indicated in RFP plans.



DEVELOPED SECTION ALONG 5th STREET CONSTR. ℄

DESIGN ENHANCEMENT

Use Micro-abutment detail to provide jointless bridge and minimizing utility conflicts.

DESIGN ENHANCEMENT

Increase vertical Clearance to greater than 16'-0" eliminating the need for impact struts.

DESIGN EXCEPTION(S):

Reduced minimum vertical clearance from 16'-6" to 15'-0". Approved by State Structure and Bridge Engineer on March 31, 2021.

GENERAL NOTES:

Widths: 42'-0" roadway. Overall width 42'-0" face-to-face of rails.

Span layout: 34'-0" - 54'-9" - 54'-9" - 29'-6" steel plate girder spans.

Capacity: Superstructure - HL-93 loading (proposed design).
Substructure - Per Original Design Code in accordance with RFP

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2020.

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; and VDOT Modifications (new elements only)

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

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

This project is to be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, August 2011 and latest revisions.

Bridge No. of existing bridge is 8019. Plan No. are 195-17, 195-17A, 195-17B, 195-17C, 195-17D, and 195-17E.

Design loading includes 20psf allowance for construction tolerance and construction methods.

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

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION

VDOT PROJECT MANAGER

DISTRICT CONSTRUCTION ENGINEER

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

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

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS

For Table of Revisions, see Sheet 2.

VDOT

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF TRANSPORTATION

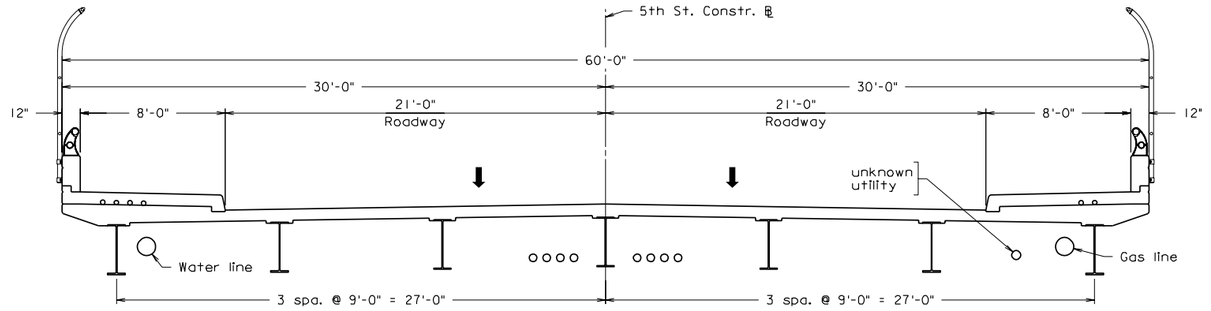
PROPOSED BRIDGE REPAIR
I-64 WB RAMP TO 5TH STREET
AND I-95 SB OVER I-95
CITY OF RICHMOND
PROJ. 0064-127-022, B661

Recommended for Approval: _____ _____
District Project Development Engineer Date

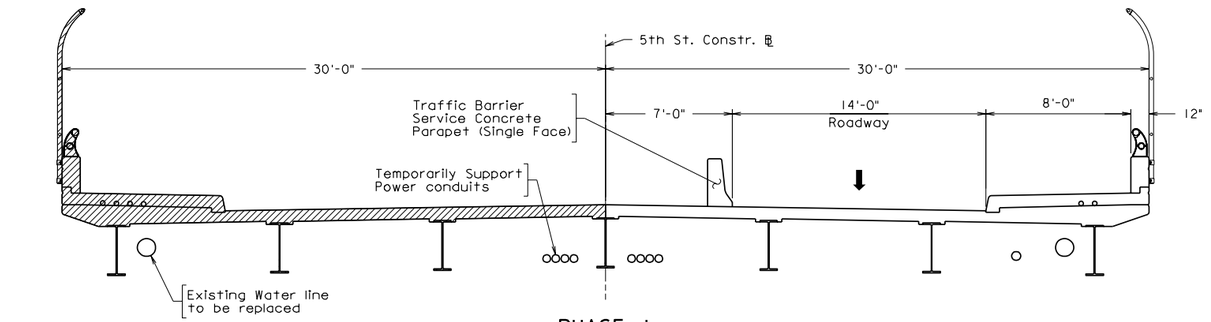
Approved: _____ _____
District Administrator Date

Date: _____

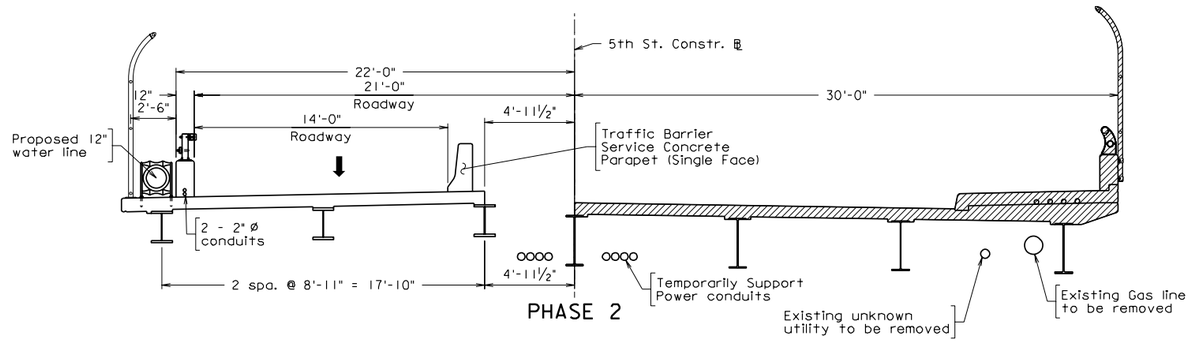
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-064-3(510)	95	0064-127-022, B661	



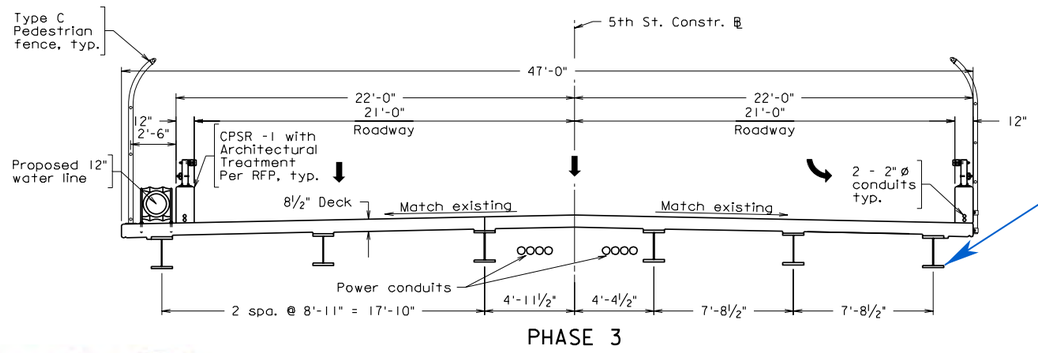
EXISTING TRANSVERSE SECTION



PHASE 1



PHASE 2



PHASE 3

DESIGN ENHANCEMENT

Reduced structure width and number of girder lines from RFP plans, reducing future maintenance.

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

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

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

No.	Description	Date
Revisions		

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

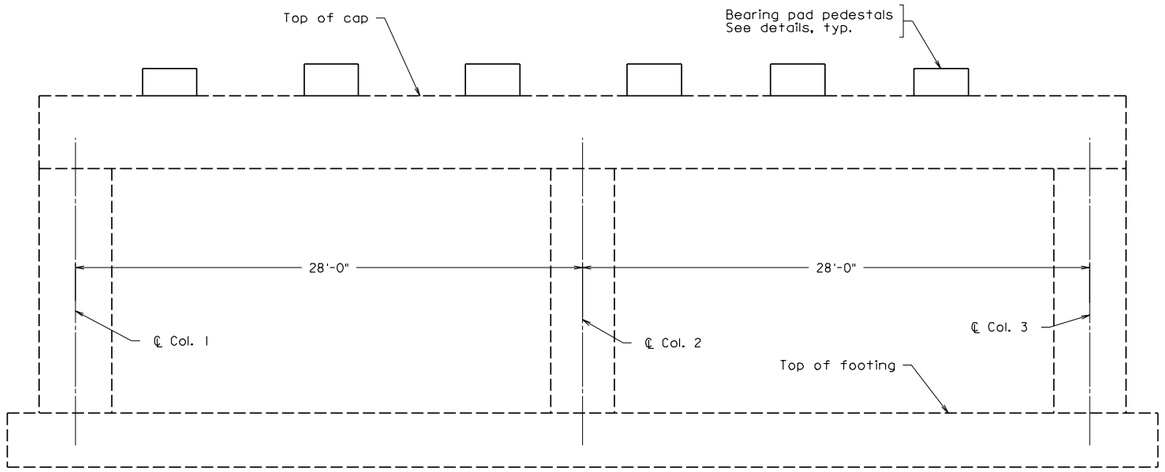
STRUCTURE AND BRIDGE DIVISION

5th STREET SEQUENCE OF CONSTRUCTION

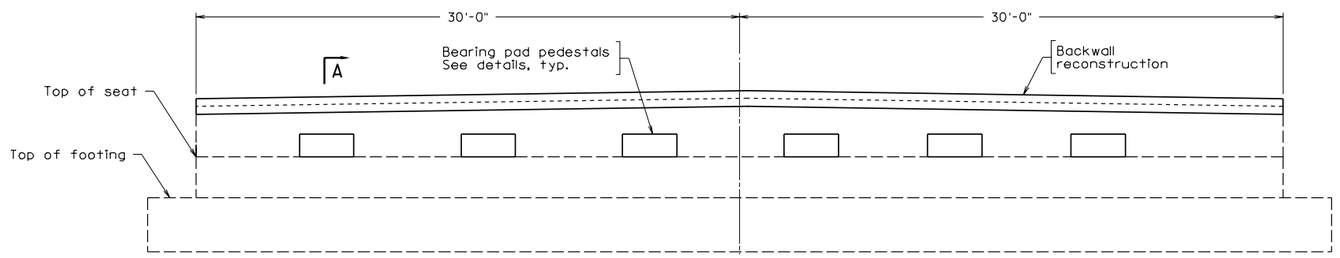
Designed: .....
Drawn: .....
Checked: .....

Date	Plan No.	Sheet No.

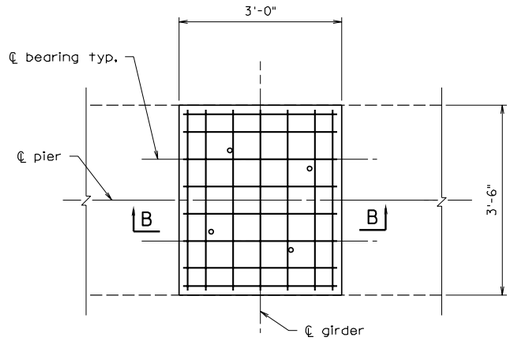
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-064-3(510)	95	0064-127-022, B661	



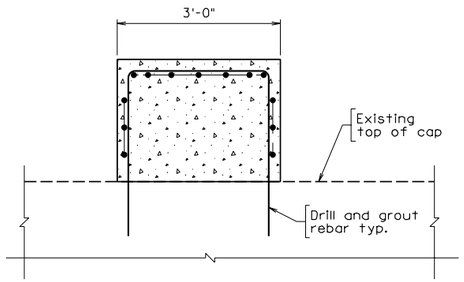
TYPICAL PIER ELEVATION
Showing proposed pedestals. See notes.



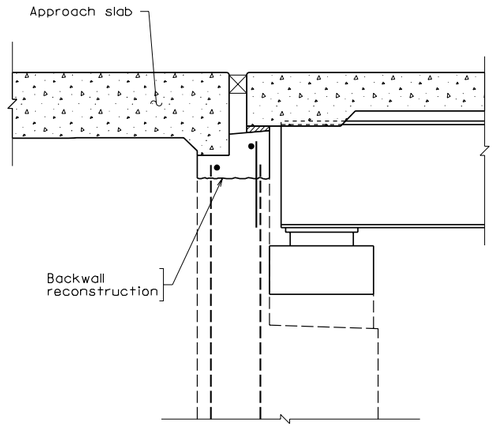
ABUTMENT ELEVATION
Showing backwall reconstruction and proposed pedestals.
Existing and proposed utilites and wingwalls not shown for clarity.



PART PLAN AT PEDESTAL
Pier pedestal shown, Abutment pedestal similar
Not to scale



SECTION B-B
Not to scale



SECTION A-A
Not to scale

Notes:

The cap for piers 1 through 3 to be strengthened with Carbon Fiber Wrap for additional moment capacity.

Perform substructure surface repairs in accordance with RFP.

DESIGN ENHANCEMENT

Minimized modification of all existing units by design to eliminate excavation adjacent to traffic.

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

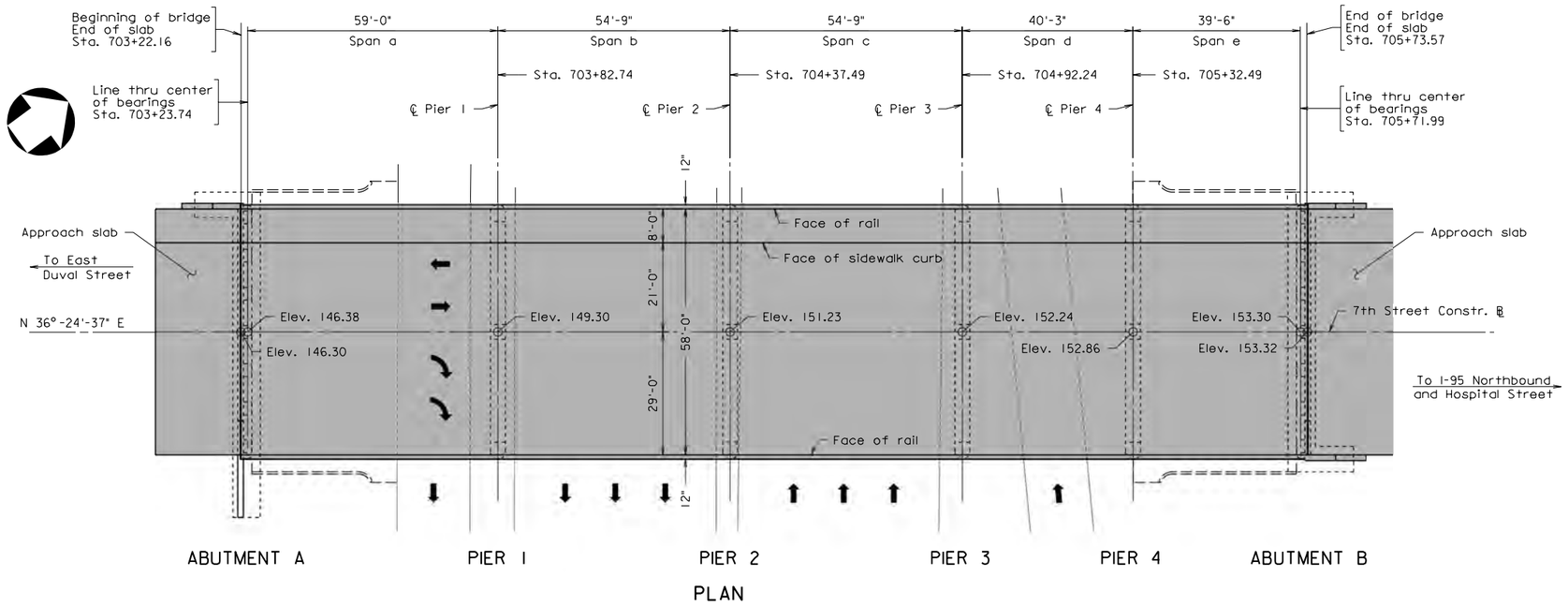
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

5th STREET SUBSTRUCTURE MODIFICATIONS

Designed:	Date	Plan No.	Sheet No.
Drawn:			
Checked:			



PLAN

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-5A27(784)	95	9999-127-107, B602	
Federal Structure No. 000000000021289			FHWA Construction and Scour Code:	X271-SN	
Federal Stewardship and Oversight Code: NFO				UPC No. 118484	

DESIGN EXCEPTION(S):

Reduced minimum vertical clearance from 16'-6" to 15'-0". Approved by State Structure and Bridge Engineer on March 31, 2021.

GENERAL NOTES:

Widths: 8'-0" sidewalk, 50'-0" roadway. Overall width 58'-0" face-to-face of rails.

Span layout: 59'-0" - 54'-9" - 54'-9" - 40'-3" - 39'-6" steel plate girder spans.

Capacity: Superstructure - HL-93 loading (proposed design).
Substructure - Per Original Design Code in accordance with RFP

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2020.

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; and VDOT Modifications (new elements only)

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

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

This project is to be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, August 2011 and latest revisions.

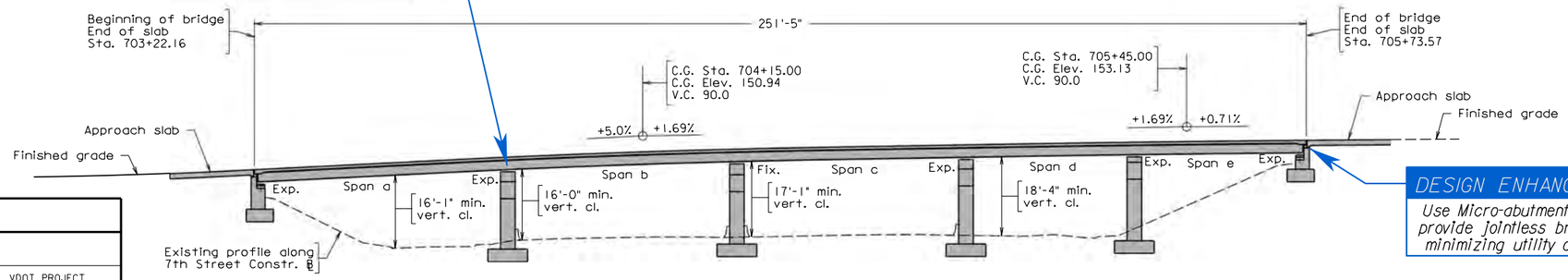
Design loading includes 20psf allowance for construction tolerance and construction methods.

Bridge No. of existing bridge is 8020. Plan No. are 195-18, 176-19, 176-19A, 195-18A, 195-18B, 195-18C, 195-18D, and 195-18E.

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

DESIGN ENHANCEMENT

Eliminated haunches indicated in RFP plans.



DEVELOPED SECTION ALONG 7th STREET CONSTR. ℄

DESIGN ENHANCEMENT

Use Micro-abutment detail to provide jointless bridge and minimizing utility conflicts.

DESIGN ENHANCEMENT

Increase vertical Clearance to greater than 16'-0" eliminating the need for impact struts. Vertical Clearance in Span c and d exceed 16'-6"

VDOT

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF TRANSPORTATION

PROPOSED SUPERSTRUCTURE REPLACEMENT
7TH STREET OVER I-95, LOOP J AND RAMP B
CITY OF RICHMOND
PROJ.: 9999-127-107, B602

VDOT PROJECT MANAGER

DISTRICT CONSTRUCTION ENGINEER

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

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

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS

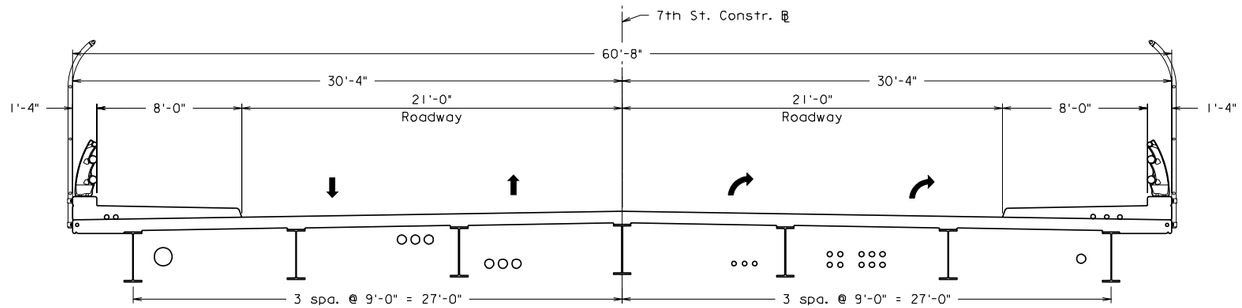
For Table of Revisions, see Sheet 2.

Recommended for Approval: _____ _____
District Project Development Engineer Date

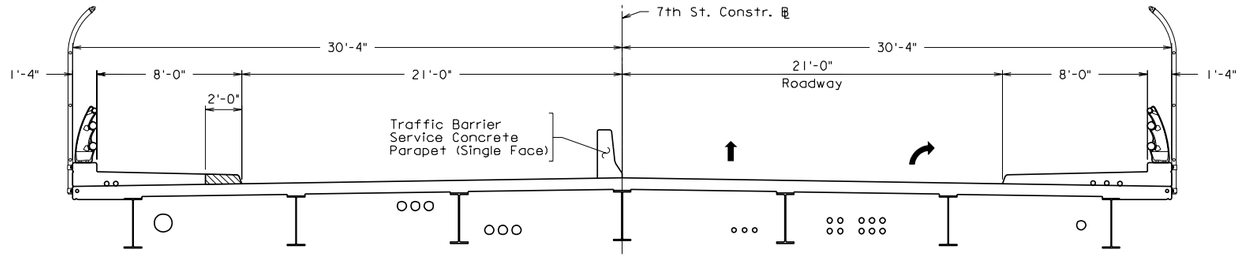
Approved: _____ _____
District Administrator Date

Date: _____

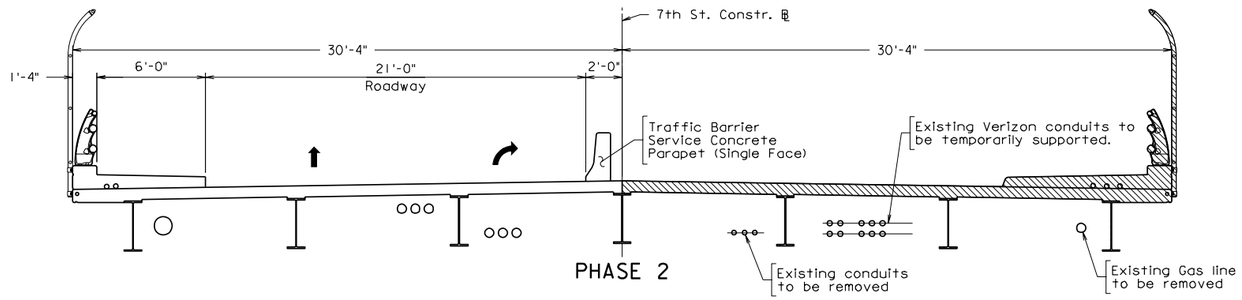
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-5A27(784)	95	9999-127-107, B602	



EXISTING TRANSVERSE SECTION



PHASE 1 (OPTION 2)



PHASE 2

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

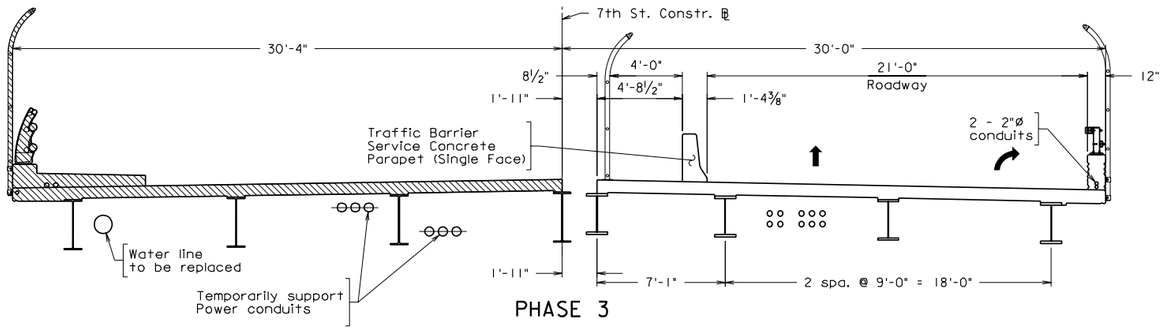
STRUCTURE AND BRIDGE DIVISION

7th STREET
SEQUENCE OF CONSTRUCTION
SHEET 1 OF 2

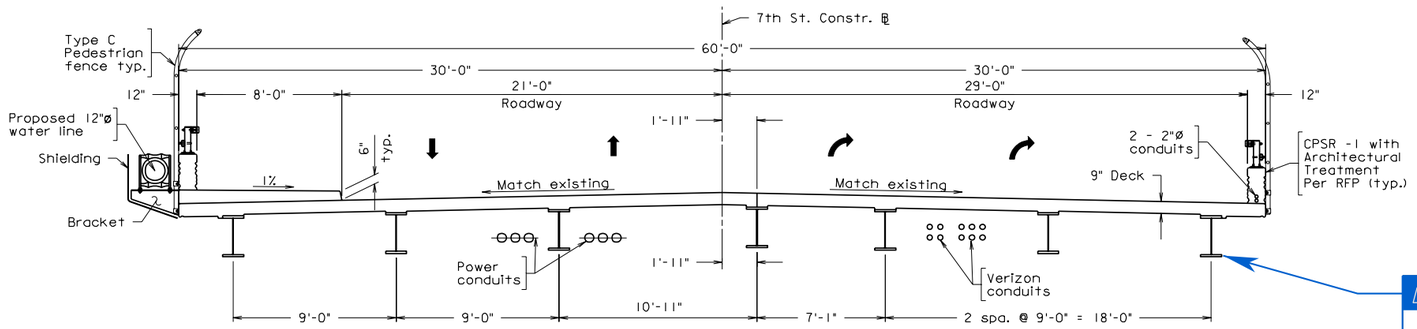
Designed: .....
Drawn: .....
Checked: .....

Date	Plan No.	Sheet No.

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-5A27(784)	95	9999-127-107, B602	



PHASE 3



PHASE 4

DESIGN ENHANCEMENT

Reduced number of girder lines from RFP plans, reducing future maintenance and improving access for inspection.

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

Scale: ¼" = 1'-0"

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

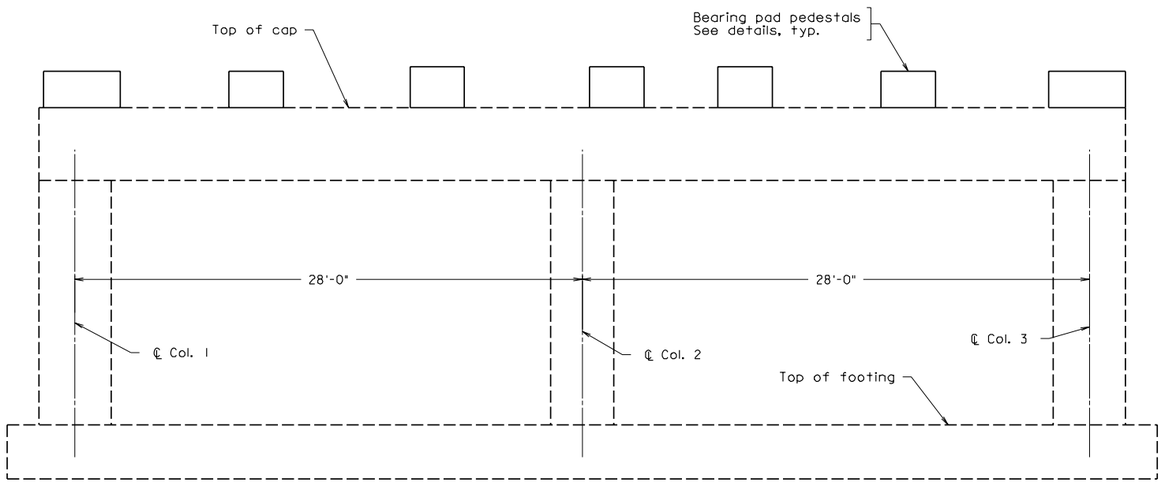
STRUCTURE AND BRIDGE DIVISION

7th STREET
SEQUENCE OF CONSTRUCTION
SHEET 2 OF 2

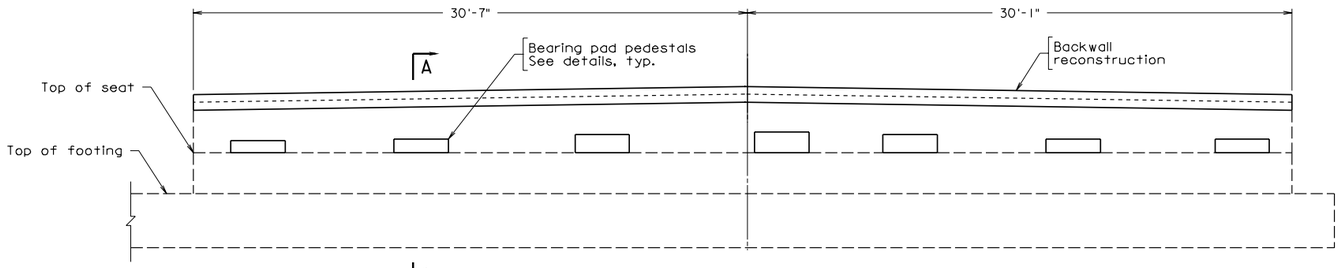
Designed: .....
Drawn: .....
Checked: .....

Date	Plan No.	Sheet No.

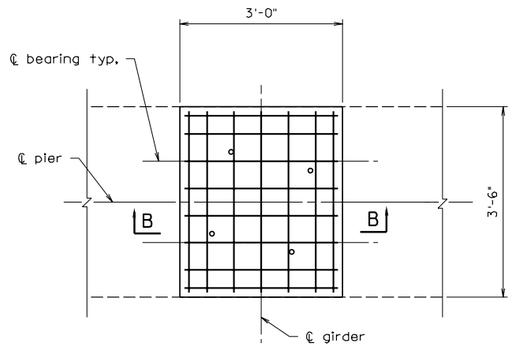
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-5A27(784)	95	9999-127-107, B602	



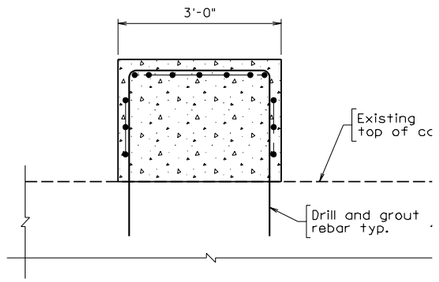
TYPICAL PIER ELEVATION
Showing proposed pedestals. See notes.



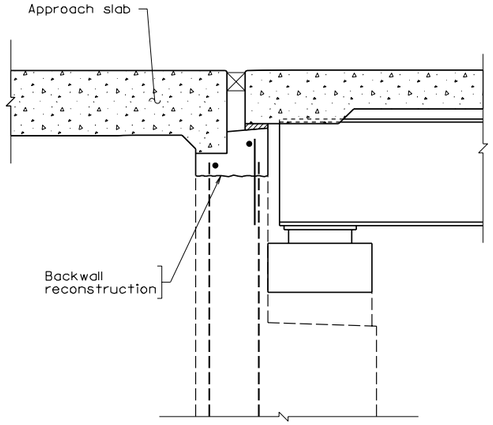
ABUTMENT ELEVATION
Showing backwall reconstruction and proposed pedestals.
Existing and proposed utilites and wingwalls not shown for clarity.



PART PLAN AT PEDESTAL
Pier pedestal shown. Abutment pedestal similar
Not to scale



SECTION B-B
Not to scale



SECTION A-A
Not to scale

Notes:

The cap for piers 1 & 4 to be strengthened with Carbon Fiber Wrap for additional moment capacity. The cap for piers 2 & 3 to be strengthened with Carbon Fiber Wrap for additional moment and shear capacity.

Perform substructure surface repairs in accordance with RFP.

DESIGN ENHANCEMENT

Minimized modification of all existing units by design to eliminate excavation adjacent to traffic.

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

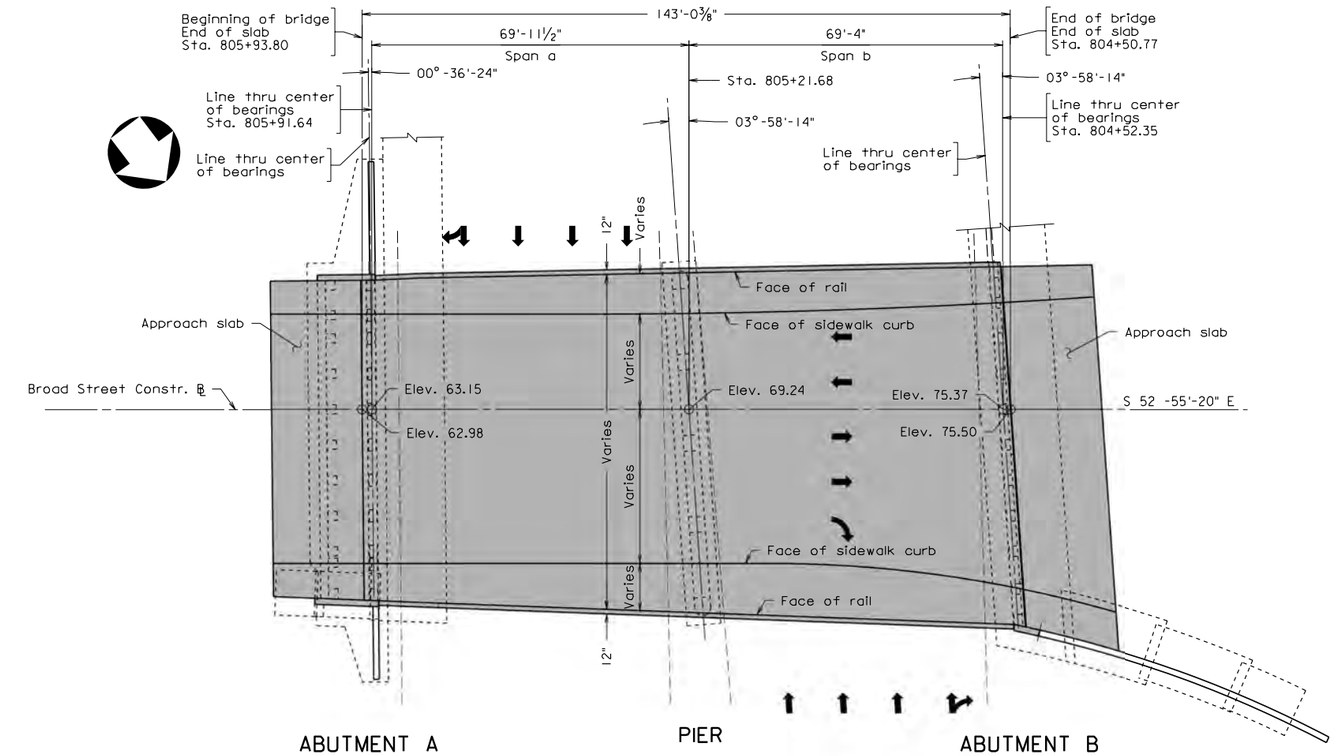
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

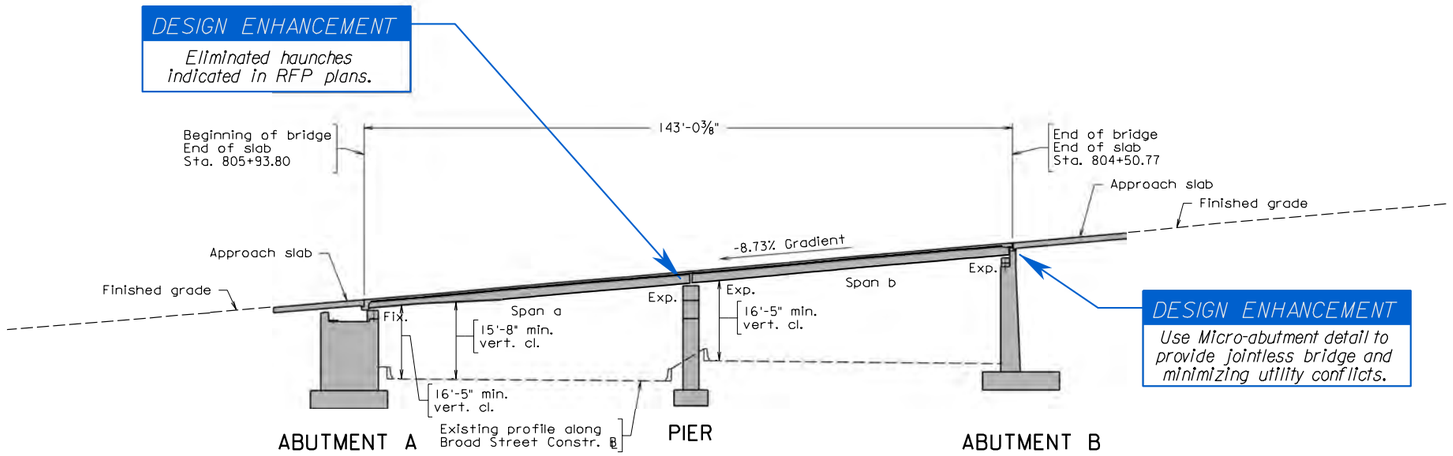
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

7th STREET SUBSTRUCTURE MODIFICATIONS

Designed:	Date	Plan No.	Sheet No.
Drawn:			
Checked:			





DEVELOPED SECTION ALONG BROAD STREET CONSTR. ℄

DESIGN ENHANCEMENT
Increase vertical Clearance to 15'-8" over NBL exit ramp and greater that 16'-0" over mainline.

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

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	NHPP-BR04(307)	250	0250-127-050, B614	
Federal Structure No. 000000000021569			FHWA Construction and Scour Code:	X271-SN	
Federal Stewardship and Oversight Code: NFO				UPC No. 113375	

DESIGN EXCEPTION(S):

Reduced minimum vertical clearance from 16'-6" to 15'-0". Approved by State Structure and Bridge Engineer on March 31, 2021

GENERAL NOTES:

Width: Varies face-to-face of rails.

Span layout: 69'-11⅜" - 69'-4" steel plate girder spans

Drainage Area:

Capacity: Superstructure - HL-93 loading (proposed design).
Substructure - Per Original Design Code in accordance with RFP

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2020.

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; and VDOT Modifications (new elements only)

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

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

This project is to be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, August 2011 and latest revisions.

Design loading includes 20psf allowance for construction tolerance and construction methods.

Bridge No. of existing bridge is 1820. Plan No. are 195-20 and 255-30.

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

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION

VDOT PROJECT MANAGER

DISTRICT CONSTRUCTION ENGINEER

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

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

CORMAN KOKOSING | WRA

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

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

VDOT

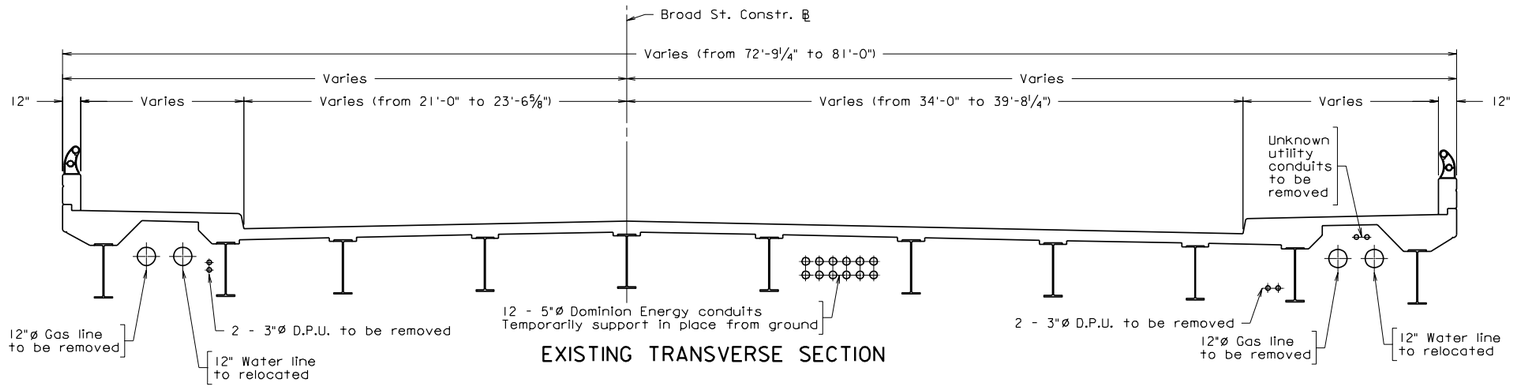
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED SUPERSTRUCTURE REPLACEMENT ON BROAD STREET OVER I-95
CITY OF RICHMOND
PROJECT 0250-127-050, B614

Recommended for Approval: _____ _____
District Project Development Engineer Date

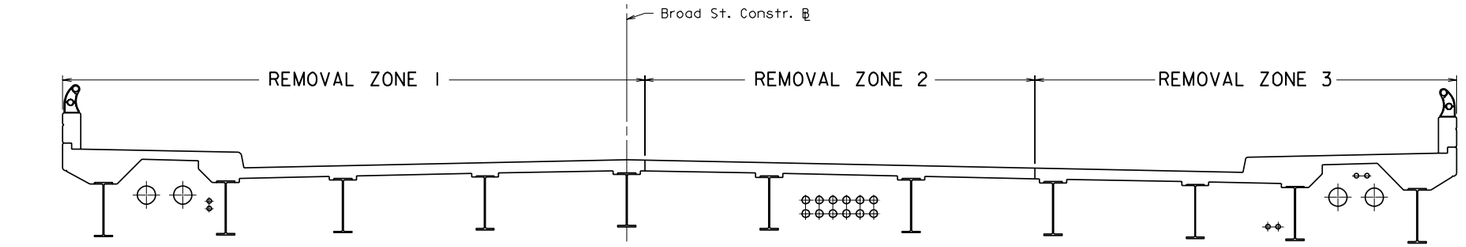
Approved: _____ _____
District Administrator Date

Date: _____

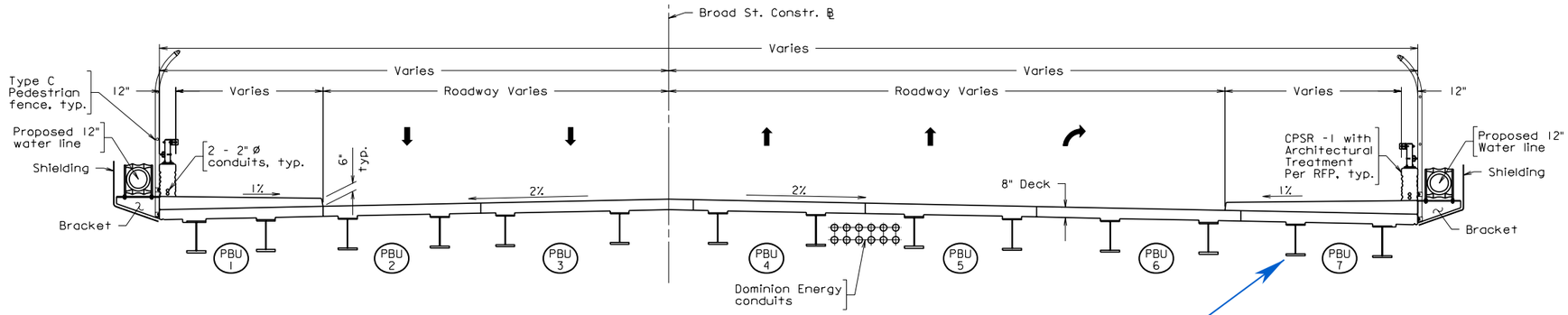
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	STP-5A27(802)	95	U000-127-023,B601	



EXISTING TRANSVERSE SECTION



REMOVAL ZONE LAYOUT



PROPOSED TRANSVERSE SECTION

DESIGN ENHANCEMENT

Reduced number of girder lines from RFP plans, reducing future maintenance and improving access for inspection.

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

Scale: ¼" = 1'-0"

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
	Revisions	

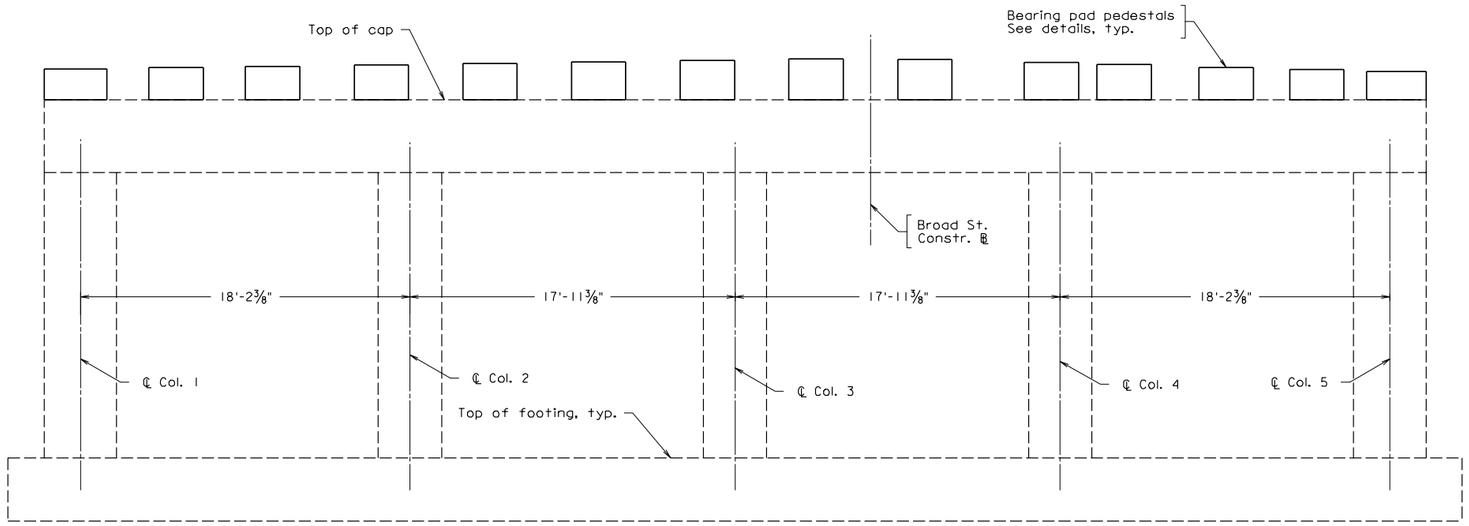
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

BROAD STREET SEQUENCE OF CONSTRUCTION

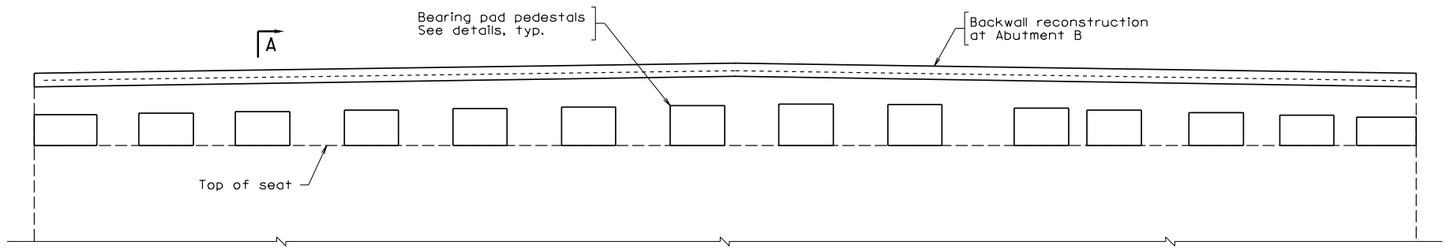
Designed: ..... Drawn: ..... Checked:	Date	Plan No.	Sheet No.

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	STP-BR04(287)	250	0250-127-050, B614	



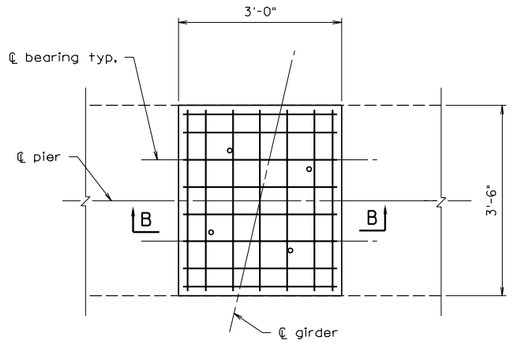
TYPICAL PIER ELEVATION

Showing proposed pedestals. See notes.



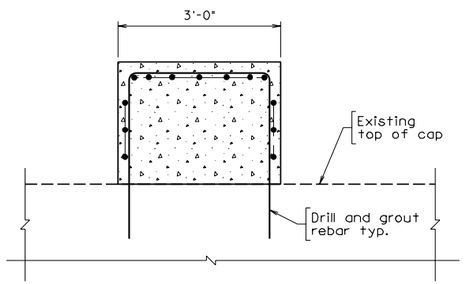
ABUTMENT ELEVATION

Showing backwall reconstruction and proposed pedestals.
Existing and proposed utilites and wingwalls not shown for clarity.



PART PLAN AT PEDESTAL

Pier pedestal shown, Abutment pedestal similar
Not to scale



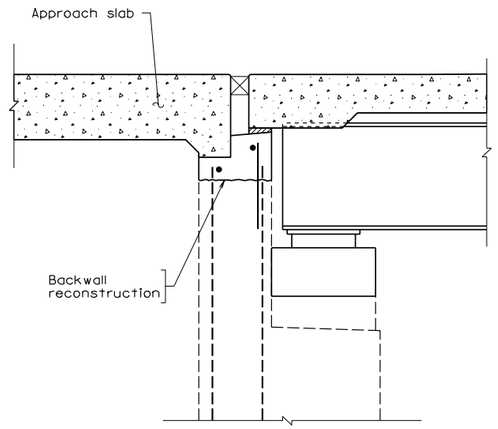
SECTION B-B

Not to scale

Notes:

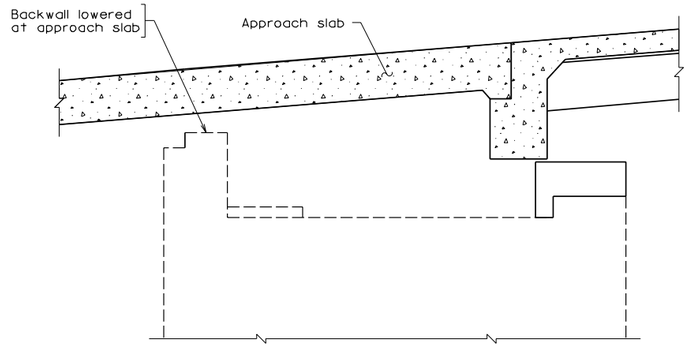
The cap for piers 1 to be strengthened with Carbon Fiber Wrap for additional moment capacity.

Perform substructure surface repairs in accordance with RFP.



SECTION A-A AT ABUTMENT B

Not to scale



SECTION A-A AT ABUTMENT A

Not to scale

DESIGN ENHANCEMENT

Minimize modification of all existing units by design to eliminate excavation adjacent to traffic.

WHITMAN REQUARDT & ASSOCIATES
RICHMOND, VA
STRUCTURAL ENGINEER

CORMAN KOKOSING | WRA

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

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

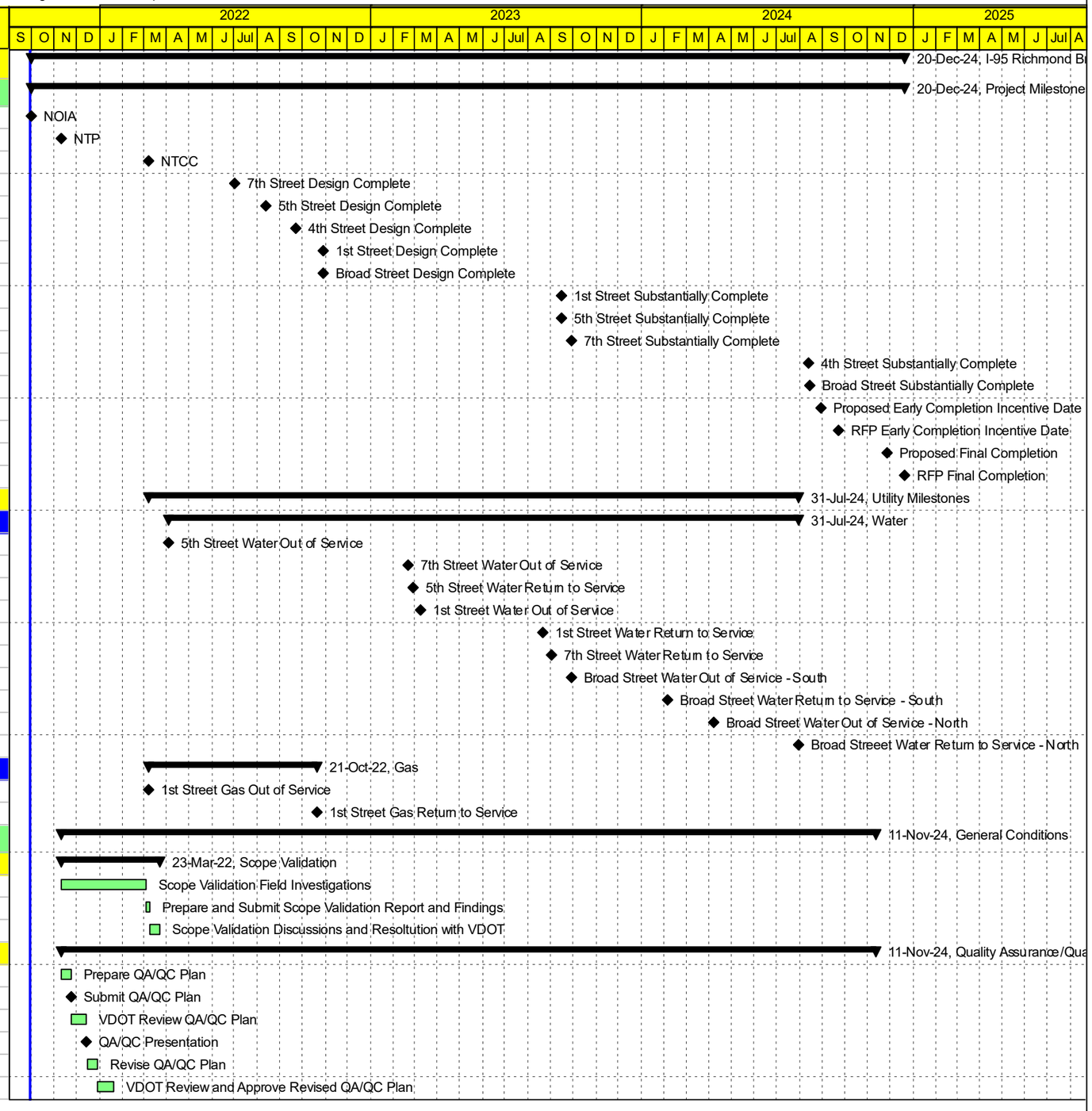
STRUCTURE AND BRIDGE DIVISION

BROAD STREET SUBSTRUCTURE MODIFICATIONS

Designed:	Date	Plan No.	Sheet No.
Drawn:			
Checked:			

4.6.1 | Proposal Schedule

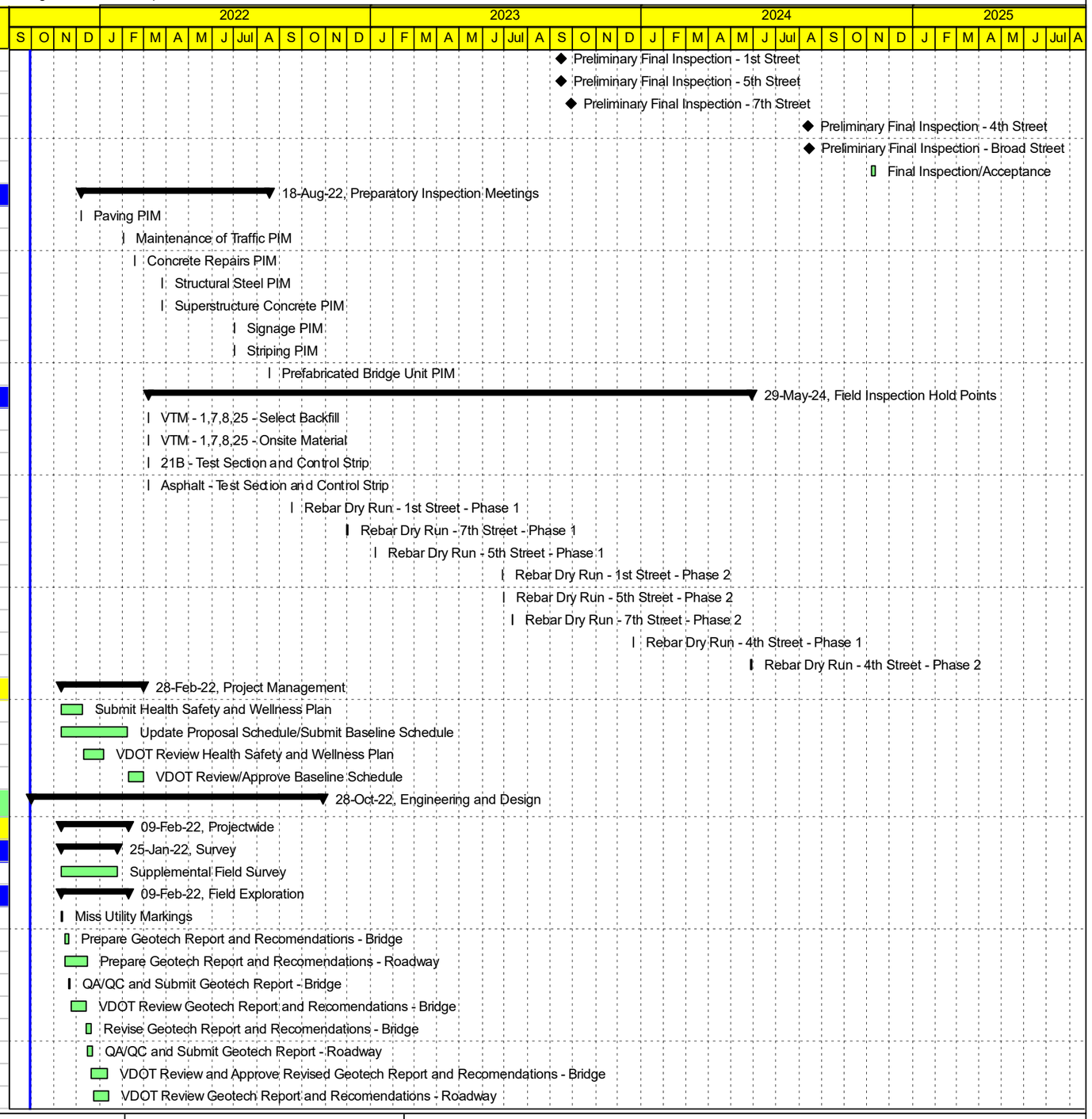
Activity ID	Activity Name	Original Duration	Start	Finish
I-95 Richmond Bridge Bundle DB		830	30-Sep-21	20-Dec-24
Project Milestones		830	30-Sep-21	20-Dec-24
A1020	NOIA	0	30-Sep-21*	
A1000	NTP	0	10-Nov-21*	
A3200	NTCC	0	07-Mar-22	
A1260	7th Street Design Complete	0		01-Jul-22
A1250	5th Street Design Complete	0		12-Aug-22
A1240	4th Street Design Complete	0		22-Sep-22
A1230	1st Street Design Complete	0		28-Oct-22
A1270	Broad Street Design Complete	0		28-Oct-22
A3150	1st Street Substantially Complete	0		14-Sep-23
A3160	5th Street Substantially Complete	0		14-Sep-23
A3170	7th Street Substantially Complete	0		29-Sep-23
A3180	4th Street Substantially Complete	0		13-Aug-24
A3190	Broad Street Substantially Complete	0		14-Aug-24
A3210	Proposed Early Completion Incentive Date	0		29-Aug-24*
A3230	RFP Early Completion Incentive Date	0	22-Sep-24*	
A1010	Proposed Final Completion	0		27-Nov-24*
A3220	RFP Final Completion	0	20-Dec-24*	
Utility Milestones		621	07-Mar-22	31-Jul-24
Water		519	04-Apr-22	31-Jul-24
A2140	5th Street Water Out of Service	0	04-Apr-22	
A2090	7th Street Water Out of Service	0	21-Feb-23	
A2210	5th Street Water Return to Service	0		27-Feb-23
A2080	1st Street Water Out of Service	0	09-Mar-23	
A2230	1st Street Water Return to Service	0		21-Aug-23
A2220	7th Street Water Return to Service	0		01-Sep-23
A2110	Broad Street Water Out of Service - South	0	29-Sep-23	
A2190	Broad Street Water Return to Service - South	0		05-Feb-24
A2120	Broad Street Water Out of Service - North	0	08-Apr-24	
A2200	Broad Streeet Water Return to Service - North	0		31-Jul-24
Gas		161	07-Mar-22	21-Oct-22
A2180	1st Street Gas Out of Service	0	07-Mar-22*	
A2240	1st Street Gas Return to Service	0		21-Oct-22*
General Conditions		773	10-Nov-21	11-Nov-24
Scope Validation		134	10-Nov-21	23-Mar-22
D1570	Scope Validation Field Investigations	115	10-Nov-21	04-Mar-22
D1580	Prepare and Submit Scope Validation Report and Findings	5	05-Mar-22	09-Mar-22
D1590	Scope Validation Discussions and Resoltution with VDOT	14	10-Mar-22	23-Mar-22
Quality Assurance/Quality Control		773	10-Nov-21	11-Nov-24
D1040	Prepare QA/QC Plan	10	10-Nov-21	23-Nov-21
D1170	Submit QA/QC Plan	0		23-Nov-21
D1180	VDOT Review QA/QC Plan	21	24-Nov-21	14-Dec-21
D1210	QA/QC Presentation	0		14-Dec-21
D1200	Revise QA/QC Plan	10	15-Dec-21	29-Dec-21
D1190	VDOT Review and Approve Revised QA/QC Plan	21	29-Dec-21	19-Jan-22



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

TASK filter: All Activities

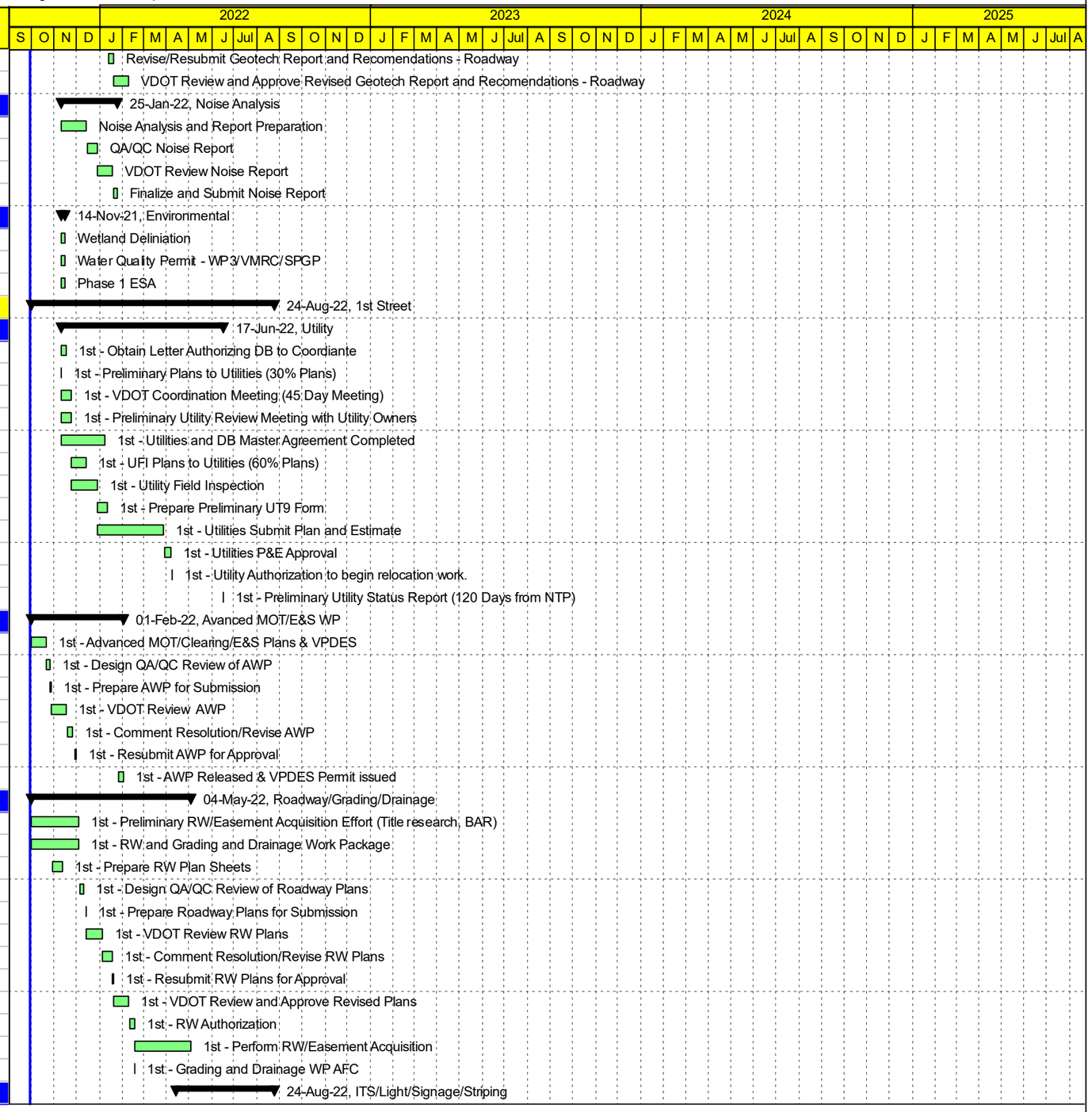
Activity ID	Activity Name	Original Duration	Start	Finish
D1230	Preliminary Final Inspection - 1st Street	0		14-Sep-23
D5070	Preliminary Final Inspection - 5th Street	0		14-Sep-23
D5080	Preliminary Final Inspection - 7th Street	0		29-Sep-23
D5060	Preliminary Final Inspection - 4th Street	0		13-Aug-24
D5090	Preliminary Final Inspection - Broad Street	0		14-Aug-24
D5100	Final Inspection/Acceptance	5	07-Nov-24	11-Nov-24
Preparatory Inspection Meetings		255	07-Dec-21	18-Aug-22
D5120	Paving PIM	1	07-Dec-21	07-Dec-21
D5110	Maintenance of Traffic PIM	1	01-Feb-22	02-Feb-22
D5150	Concrete Repairs PIM	1	17-Feb-22	17-Feb-22
D5160	Structural Steel PIM	1	25-Mar-22	26-Mar-22
D5180	Superstructure Concrete PIM	1	25-Mar-22	26-Mar-22
D5130	Signage PIM	1	02-Jul-22	02-Jul-22
D5140	Striping PIM	1	02-Jul-22	02-Jul-22
D5170	Prefabricated Bridge Unit PIM	1	18-Aug-22	18-Aug-22
Field Inspection Hold Points		815	07-Mar-22	29-May-24
D5190	VTM - 1,7,8,25 - Select Backfill	1	07-Mar-22	07-Mar-22
D5200	VTM - 1,7,8,25 - Onsite Material	1	07-Mar-22	07-Mar-22
D5210	21B - Test Section and Control Strip	1	07-Mar-22	07-Mar-22
D5230	Asphalt - Test Section and Control Strip	1	07-Mar-22	07-Mar-22
D5220	Rebar Dry Run - 1st Street - Phase 1	1	17-Sep-22	17-Sep-22
D5290	Rebar Dry Run - 7th Street - Phase 1	1	30-Nov-22	01-Dec-22
D5270	Rebar Dry Run - 5th Street - Phase 1	1	07-Jan-23	07-Jan-23
D5240	Rebar Dry Run - 1st Street - Phase 2	1	28-Jun-23	28-Jun-23
D5280	Rebar Dry Run - 5th Street - Phase 2	1	30-Jun-23	30-Jun-23
D5300	Rebar Dry Run - 7th Street - Phase 2	1	11-Jul-23	12-Jul-23
D5250	Rebar Dry Run - 4th Street - Phase 1	1	21-Dec-23	22-Dec-23
D5260	Rebar Dry Run - 4th Street - Phase 2	1	28-May-24	29-May-24
Project Management		111	10-Nov-21	28-Feb-22
D5310	Submit Health Safety and Wellness Plan	30	10-Nov-21	09-Dec-21
D5330	Update Proposal Schedule/Submit Baseline Schedule	90	10-Nov-21	07-Feb-22
D5320	VDOT Review Health Safety and Wellness Plan	28	10-Dec-21	06-Jan-22
D5340	VDOT Review/Approve Baseline Schedule	21	08-Feb-22	28-Feb-22
Engineering and Design		275	30-Sep-21	28-Oct-22
Projectwide		62	10-Nov-21	09-Feb-22
Survey		50	10-Nov-21	25-Jan-22
D1220	Supplemental Field Survey	50	10-Nov-21	25-Jan-22
Field Exploration		62	10-Nov-21	09-Feb-22
D1250	Miss Utility Markings	3	10-Nov-21	12-Nov-21
D1270	Prepare Geotech Report and Recomendations - Bridge	5	15-Nov-21	19-Nov-21
D1320	Prepare Geotech Report and Recomendations - Roadway	21	15-Nov-21	15-Dec-21
D1360	QA/QC and Submit Geotech Report - Bridge	3	20-Nov-21	22-Nov-21
D1280	VDOT Review Geotech Report and Recomendations - Bridge	21	23-Nov-21	13-Dec-21
D5050	Revise Geotech Report and Recomendations - Bridge	5	14-Dec-21	20-Dec-21
D1370	QA/QC and Submit Geotech Report - Roadway	7	16-Dec-21	22-Dec-21
D1300	VDOT Review and Approve Revised Geotech Report and Recomenc	21	21-Dec-21	10-Jan-22
D1330	VDOT Review Geotech Report and Recomendations - Roadway	21	23-Dec-21	12-Jan-22



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

TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish
D1340	Revise/Resubmit Geotech Report and Recomendations - Roadway	7	13-Jan-22	19-Jan-22
D1350	VDOT Review and Approve Revised Geotech Report and Recomenc	21	20-Jan-22	09-Feb-22
Noise Analysis		77	10-Nov-21	25-Jan-22
D1380	Noise Analysis and Report Preparation	35	10-Nov-21	14-Dec-21
D1390	QA/QC Noise Report	14	15-Dec-21	28-Dec-21
D1400	VDOT Review Noise Report	21	29-Dec-21	18-Jan-22
D1410	Finalize and Submit Noise Report	7	19-Jan-22	25-Jan-22
Environmental		5	10-Nov-21	14-Nov-21
D1050	Wetland Deliniation	5	10-Nov-21	14-Nov-21
D1420	Water Quality Permit - WP3/VMRC/SPGP	5	10-Nov-21	14-Nov-21
D1430	Phase 1 ESA	5	10-Nov-21	14-Nov-21
1st Street		229	30-Sep-21	24-Aug-22
Utility		220	10-Nov-21	17-Jun-22
D1440	1st - Obtain Letter Authorizing DB to Coordiante	7	10-Nov-21	16-Nov-21
D1450	1st - Preliminary Plans to Utilities (30% Plans)	1	10-Nov-21	10-Nov-21
D1460	1st - VDOT Coordination Meeting (45 Day Meeting)	14	10-Nov-21	23-Nov-21
D1470	1st - Preliminary Utility Review Meeting with Utility Owners	14	10-Nov-21	23-Nov-21
D1540	1st - Utilities and DB Master Agreement Completed	60	10-Nov-21	08-Jan-22
D1480	1st - UFI Plans to Utilities (60% Plans)	21	24-Nov-21	14-Dec-21
D1490	1st - Utility Field Inspection	35	24-Nov-21	28-Dec-21
D1500	1st - Prepare Preliminary UT9 Form	14	29-Dec-21	11-Jan-22
D1520	1st - Utilities Submit Plan and Estimate	90	29-Dec-21	28-Mar-22
D1530	1st - Utilities P&E Approval	10	29-Mar-22	07-Apr-22
D1550	1st - Utility Authorization to begin relocation work.	1	08-Apr-22	08-Apr-22
D1510	1st - Preliminary Utility Status Report (120 Days from NTP)	1	17-Jun-22	17-Jun-22
Avanced MOT/E&S WP		85	30-Sep-21	01-Feb-22
D1560	1st - Advanced MOT/Clearing/E&S Plans & VPDES	15	30-Sep-21	20-Oct-21
D1600	1st - Design QA/QC Review of AWP	3	21-Oct-21	25-Oct-21
D1610	1st - Prepare AWP for Submission	2	26-Oct-21	27-Oct-21
D1620	1st - VDOT Review AWP	21	28-Oct-21	17-Nov-21
D1630	1st - Comment Resolution/Revise AWP	5	18-Nov-21	24-Nov-21
D1640	1st - Resubmit AWP for Approval	1	29-Nov-21	29-Nov-21
D1650	1st - AWP Released & VPDES Permit issued	5	26-Jan-22	01-Feb-22
Roadway/Grading/Drainage		151	30-Sep-21	04-May-22
D1810	1st - Preliminary RW/Easement Acquisition Effort (Title research, BAF	45	30-Sep-21	03-Dec-21
D1730	1st - RW and Grading and Drainage Work Package	45	30-Sep-21	03-Dec-21
D1800	1st - Prepare RW Plan Sheets	10	29-Oct-21	11-Nov-21
D1740	1st - Design QA/QC Review of Roadway Plans	5	06-Dec-21	10-Dec-21
D1750	1st - Prepare Roadway Plans for Submission	2	13-Dec-21	14-Dec-21
D1760	1st - VDOT Review RW Plans	21	14-Dec-21	04-Jan-22
D1770	1st - Comment Resolution/Revise RW Plans	10	04-Jan-22	18-Jan-22
D1780	1st - Resubmit RW Plans for Approval	1	18-Jan-22	19-Jan-22
D1820	1st - VDOT Review and Approve Revised Plans	21	19-Jan-22	09-Feb-22
D1790	1st - RW Authorization	5	10-Feb-22	16-Feb-22
D1830	1st - Perform RW/Easement Acquisition	55	17-Feb-22	04-May-22
D1840	1st - Grading and Drainage WP AFC	1	17-Feb-22	17-Feb-22
ITS/Light/Signage/Striping		94	13-Apr-22	24-Aug-22

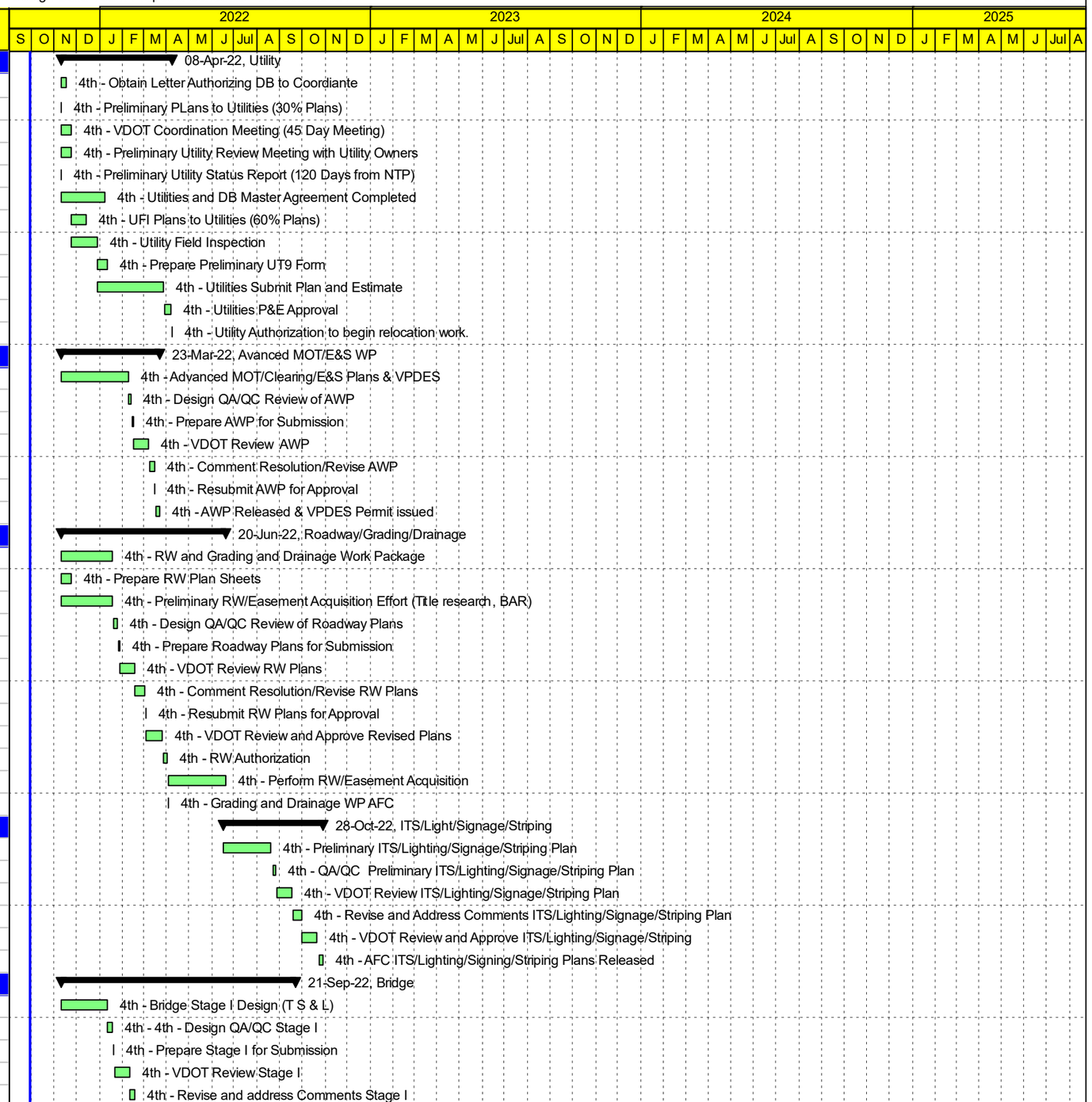


Activity ID	Activity Name	Original Duration	Start	Finish
D1850	1st - Prelimnary ITS/Lighting/Signage/Striping Plan	45	13-Apr-22	15-Jun-22
D1860	1st - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	16-Jun-22	22-Jun-22
D1880	1st - VDOT Review ITS/Lighting/Signage/Striping Plan	21	23-Jun-22	13-Jul-22
D1890	1st - Revise and Address Comments ITS/Lighting/Signage/Striping P	10	14-Jul-22	27-Jul-22
D1900	1st - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	28-Jul-22	17-Aug-22
D1910	1st - AFC ITS/Lighting/Signing/Striping Plans Released	5	18-Aug-22	24-Aug-22
Bridge		148	30-Sep-21	29-Apr-22
D1980	1st - Bridge Stage I Design (T S & L)	20	30-Sep-21	27-Oct-21
D1990	1st - Design QA/QC Stage I	5	28-Oct-21	03-Nov-21
D2000	1st - Prepare Stage I for Submission	2	04-Nov-21	05-Nov-21
D2010	1st - VDOT Review Stage I	21	06-Nov-21	26-Nov-21
D2020	1st - Revise and address Comments Stage I	5	29-Nov-21	03-Dec-21
D2030	1st - Stage II Bridge Design	50	06-Dec-21	16-Feb-22
D2040	1st - Design QA/QC Stage II Bridge Design	10	17-Feb-22	02-Mar-22
D2050	1st - Prepare Stage II for Submission	2	03-Mar-22	04-Mar-22
D2060	1st - VDOT Review Stage II	21	04-Mar-22	25-Mar-22
D2070	1st - Revise and address Comments Stage II	10	28-Mar-22	08-Apr-22
D2080	1st - VDOT Review and Approved Revised Stage II Plans	21	09-Apr-22	29-Apr-22
Final Roadway		58	12-Nov-21	07-Feb-22
D2090	1st - Roadway Plans/Incorporate/Resolve	30	12-Nov-21	28-Dec-21
D2140	1st - Design QA/QC Review of Roadway Plans	5	29-Dec-21	06-Jan-22
D2150	1st - Prepare Roadway Plans for Submission	2	07-Jan-22	10-Jan-22
D2100	1st - VDOT Review/Approve Final Design Plans	21	10-Jan-22	31-Jan-22
D2110	1st - AFC Roadway Plans Released	5	01-Feb-22	07-Feb-22
I-95		155	10-Nov-21	21-Jun-22
Avanced MOT/E&S WP		67	10-Nov-21	16-Feb-22
D1660	1st - Advanced MOT/Clearing/E&S Plans & VPDES	35	10-Nov-21	04-Jan-22
D1670	1st - Design QA/QC Review of AWP	3	05-Jan-22	07-Jan-22
D1680	1st - Prepare AWP for Submission	2	10-Jan-22	11-Jan-22
D1690	1st - VDOT Review AWP	21	12-Jan-22	01-Feb-22
D1700	1st - Comment Resolution/Revise AWP	5	02-Feb-22	08-Feb-22
D1710	1st - Resubmit AWP for Approval	1	09-Feb-22	09-Feb-22
D1720	1st - AWP Released & VPDES Permit issued	5	10-Feb-22	16-Feb-22
ITS/Light/Signage/Striping		99	02-Feb-22	21-Jun-22
D1920	1st - Prelimnary ITS/Lighting/Signage/Striping Plan	50	02-Feb-22	12-Apr-22
D1930	1st - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	13-Apr-22	19-Apr-22
D1940	1st - VDOT Review ITS/Lighting/Signage/Striping Plan	21	20-Apr-22	10-May-22
D1950	1st - Revise and Address Comments ITS/Lighting/Signage/Striping P	10	11-May-22	24-May-22
D1960	1st - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	25-May-22	14-Jun-22
D1970	1st - AFC ITS/Lighting/Signing/Striping Plans Released	5	15-Jun-22	21-Jun-22
Final Roadway		57	17-Feb-22	06-May-22
D2160	1st - Roadway Plans/Incorporate/Resolve	30	17-Feb-22	30-Mar-22
D2170	1st - Design QA/QC Review of Roadway Plans	5	31-Mar-22	06-Apr-22
D2180	1st - Prepare Roadway Plans for Submission	2	07-Apr-22	08-Apr-22
D2190	1st - VDOT Review/Approve Final Design Plans	21	09-Apr-22	29-Apr-22
D2200	1st - AFC Roadway Plans Released	5	02-May-22	06-May-22
4th Street		246	10-Nov-21	28-Oct-22

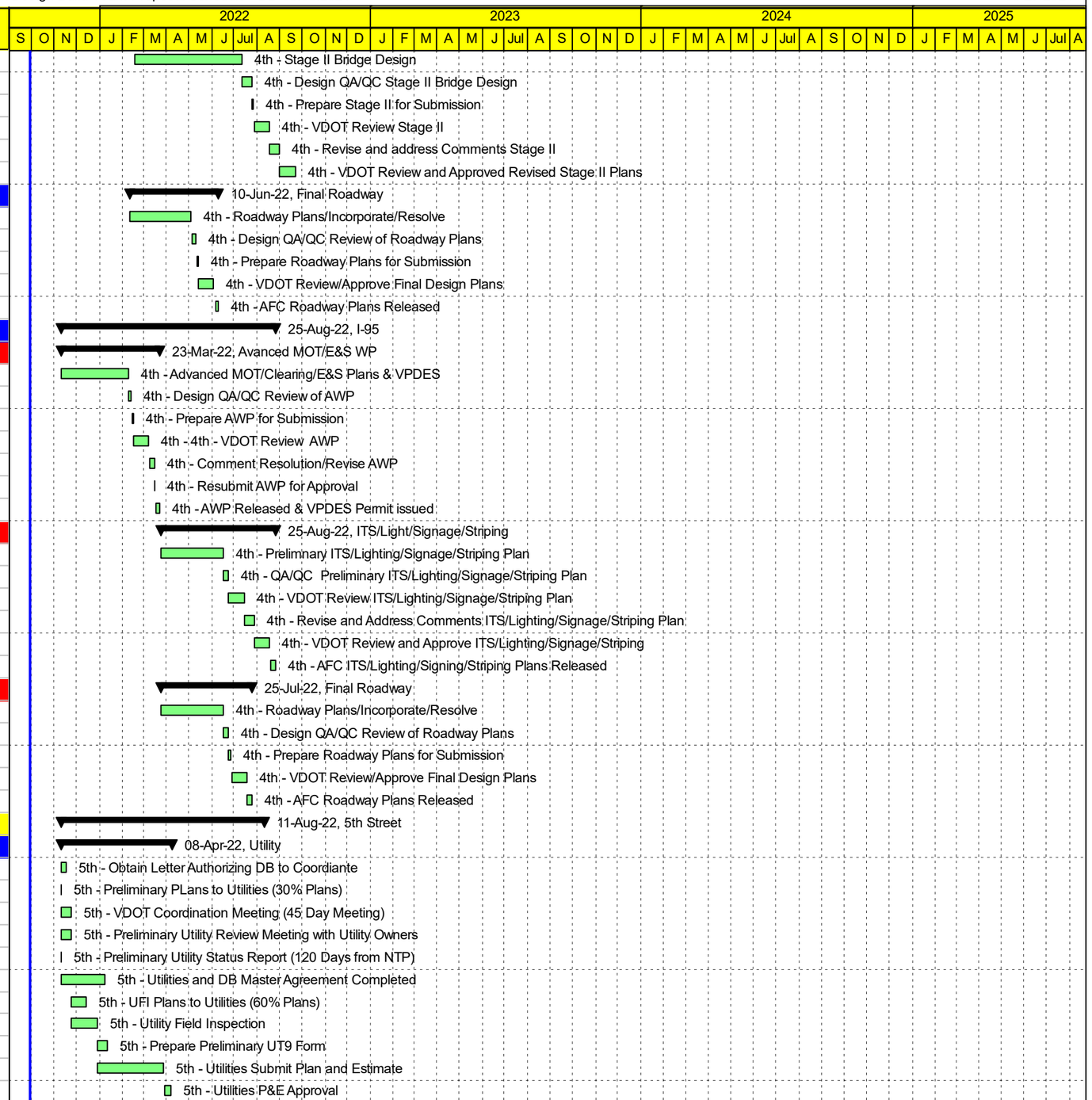
Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

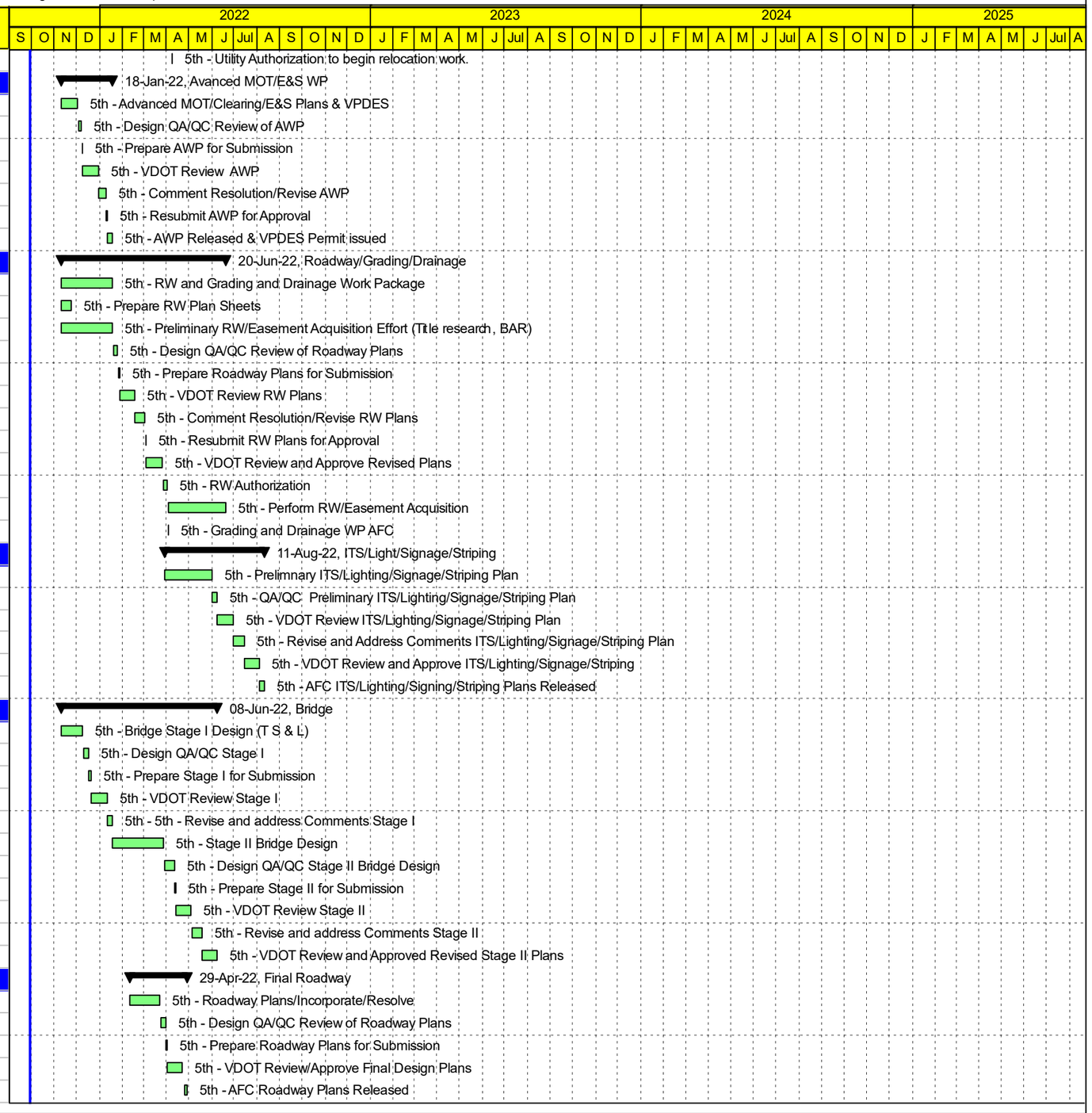
Activity ID	Activity Name	Original Duration	Start	Finish
Utility		150	10-Nov-21	08-Apr-22
D2210	4th - Obtain Letter Authorizing DB to Coordiante	7	10-Nov-21	16-Nov-21
D2220	4th - Preliminary PLans to Utilities (30% Plans)	1	10-Nov-21	10-Nov-21
D2230	4th - VDOT Coordination Meeting (45 Day Meeting)	14	10-Nov-21	23-Nov-21
D2240	4th - Preliminary Utility Review Meeting with Utility Owners	14	10-Nov-21	23-Nov-21
D2280	4th - Preliminary Utility Status Report (120 Days from NTP)	1	10-Nov-21	10-Nov-21
D2310	4th - Utilities and DB Master Agreement Completed	60	10-Nov-21	08-Jan-22
D2250	4th - UFI Plans to Utilities (60% Plans)	21	24-Nov-21	14-Dec-21
D2260	4th - Utility Field Inspection	35	24-Nov-21	28-Dec-21
D2270	4th - Prepare Preliminary UT9 Form	14	29-Dec-21	11-Jan-22
D2290	4th - Utilities Submit Plan and Estimate	90	29-Dec-21	28-Mar-22
D2300	4th - Utilities P&E Approval	10	29-Mar-22	07-Apr-22
D2320	4th - Utility Authorization to begin relocation work.	1	08-Apr-22	08-Apr-22
Avanced MOT/E&S WP		92	10-Nov-21	23-Mar-22
D2330	4th - Advanced MOT/Clearing/E&S Plans & VPDES	60	10-Nov-21	08-Feb-22
D2340	4th - Design QA/QC Review of AWP	3	09-Feb-22	11-Feb-22
D2350	4th - Prepare AWP for Submission	2	14-Feb-22	15-Feb-22
D2360	4th - VDOT Review AWP	21	15-Feb-22	08-Mar-22
D2370	4th - Comment Resolution/Revise AWP	5	09-Mar-22	15-Mar-22
D2380	4th - Resubmit AWP for Approval	1	16-Mar-22	16-Mar-22
D2390	4th - AWP Released & VPDES Permit issued	5	17-Mar-22	23-Mar-22
Roadway/Grading/Drainage		154	10-Nov-21	20-Jun-22
D2470	4th - RW and Grading and Drainage Work Package	45	10-Nov-21	18-Jan-22
D2540	4th - Prepare RW Plan Sheets	10	10-Nov-21	23-Nov-21
D2550	4th - Preliminary RW/Easement Acquisition Effort (Title research, BAF	45	10-Nov-21	18-Jan-22
D2480	4th - Design QA/QC Review of Roadway Plans	5	19-Jan-22	25-Jan-22
D2490	4th - Prepare Roadway Plans for Submission	2	26-Jan-22	27-Jan-22
D2500	4th - VDOT Review RW Plans	21	28-Jan-22	17-Feb-22
D2510	4th - Comment Resolution/Revise RW Plans	10	18-Feb-22	03-Mar-22
D2520	4th - Resubmit RW Plans for Approval	1	04-Mar-22	04-Mar-22
D2560	4th - VDOT Review and Approve Revised Plans	21	04-Mar-22	25-Mar-22
D2530	4th - RW Authorization	5	28-Mar-22	01-Apr-22
D2570	4th - Perform RW/Easement Acquisition	55	04-Apr-22	20-Jun-22
D2580	4th - Grading and Drainage WP AFC	1	04-Apr-22	04-Apr-22
ITS/Light/Signage/Striping		94	17-Jun-22	28-Oct-22
D2590	4th - Prelimnary ITS/Lighting/Signage/Striping Plan	45	17-Jun-22	19-Aug-22
D2600	4th - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	22-Aug-22	26-Aug-22
D2610	4th - VDOT Review ITS/Lighting/Signage/Striping Plan	21	27-Aug-22	16-Sep-22
D2620	4th - Revise and Address Comments ITS/Lighting/Signage/Striping F	10	19-Sep-22	30-Sep-22
D2630	4th - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	01-Oct-22	21-Oct-22
D2640	4th - AFC ITS/Lighting/Signing/Striping Plans Released	5	24-Oct-22	28-Oct-22
Bridge		219	10-Nov-21	21-Sep-22
D2710	4th - Bridge Stage I Design (T S & L)	40	10-Nov-21	11-Jan-22
D2720	4th - 4th - Design QA/QC Stage I	5	12-Jan-22	18-Jan-22
D2730	4th - Prepare Stage I for Submission	2	19-Jan-22	20-Jan-22
D2740	4th - VDOT Review Stage I	21	21-Jan-22	10-Feb-22
D2750	4th - Revise and address Comments Stage I	5	11-Feb-22	17-Feb-22



Activity ID	Activity Name	Original Duration	Start	Finish
D2760	4th - Stage II Bridge Design	100	18-Feb-22	11-Jul-22
D2770	4th - Design QA/QC Stage II Bridge Design	10	12-Jul-22	25-Jul-22
D2780	4th - Prepare Stage II for Submission	2	26-Jul-22	27-Jul-22
D2790	4th - VDOT Review Stage II	21	28-Jul-22	17-Aug-22
D2800	4th - Revise and address Comments Stage II	10	18-Aug-22	31-Aug-22
D2810	4th - VDOT Review and Approved Revised Stage II Plans	21	01-Sep-22	21-Sep-22
Final Roadway		86	10-Feb-22	10-Jun-22
D2820	4th - Roadway Plans/Incorporate/Resolve	60	10-Feb-22	04-May-22
D2850	4th - Design QA/QC Review of Roadway Plans	5	05-May-22	11-May-22
D2860	4th - Prepare Roadway Plans for Submission	2	12-May-22	13-May-22
D2830	4th - VDOT Review/Approve Final Design Plans	21	14-May-22	03-Jun-22
D2840	4th - AFC Roadway Plans Released	5	06-Jun-22	10-Jun-22
I-95		201	10-Nov-21	25-Aug-22
Avanced MOT/E&S WP		92	10-Nov-21	23-Mar-22
D2400	4th - Advanced MOT/Clearing/E&S Plans & VPDES	60	10-Nov-21	08-Feb-22
D2410	4th - Design QA/QC Review of AWP	3	09-Feb-22	11-Feb-22
D2420	4th - Prepare AWP for Submission	2	14-Feb-22	15-Feb-22
D2430	4th - 4th - VDOT Review AWP	21	15-Feb-22	08-Mar-22
D2440	4th - Comment Resolution/Revise AWP	5	09-Mar-22	15-Mar-22
D2450	4th - Resubmit AWP for Approval	1	16-Mar-22	16-Mar-22
D2460	4th - AWP Released & VPDES Permit issued	5	17-Mar-22	23-Mar-22
ITS/Light/Signage/Striping		109	24-Mar-22	25-Aug-22
D2650	4th - Prelimnary ITS/Lighting/Signage/Striping Plan	60	24-Mar-22	16-Jun-22
D2660	4th - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	17-Jun-22	23-Jun-22
D2670	4th - VDOT Review ITS/Lighting/Signage/Striping Plan	21	24-Jun-22	14-Jul-22
D2680	4th - Revise and Address Comments ITS/Lighting/Signage/Striping F	10	15-Jul-22	28-Jul-22
D2690	4th - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	29-Jul-22	18-Aug-22
D2700	4th - AFC ITS/Lighting/Signing/Striping Plans Released	5	19-Aug-22	25-Aug-22
Final Roadway		86	24-Mar-22	25-Jul-22
D2870	4th - Roadway Plans/Incorporate/Resolve	60	24-Mar-22	16-Jun-22
D2900	4th - Design QA/QC Review of Roadway Plans	5	17-Jun-22	23-Jun-22
D2910	4th - Prepare Roadway Plans for Submission	2	24-Jun-22	27-Jun-22
D2880	4th - VDOT Review/Approve Final Design Plans	21	28-Jun-22	18-Jul-22
D2890	4th - AFC Roadway Plans Released	5	19-Jul-22	25-Jul-22
5th Street		191	10-Nov-21	11-Aug-22
Utility		150	10-Nov-21	08-Apr-22
D3630	5th - Obtain Letter Authorizing DB to Coordiante	7	10-Nov-21	16-Nov-21
D3640	5th - Preliminary PLans to Utilities (30% Plans)	1	10-Nov-21	10-Nov-21
D3650	5th - VDOT Coordination Meeting (45 Day Meeting)	14	10-Nov-21	23-Nov-21
D3660	5th - Preliminary Utility Review Meeting with Utility Owners	14	10-Nov-21	23-Nov-21
D3700	5th - Preliminary Utility Status Report (120 Days from NTP)	1	10-Nov-21	10-Nov-21
D3730	5th - Utilities and DB Master Agreement Completed	60	10-Nov-21	08-Jan-22
D3670	5th - UFI Plans to Utilities (60% Plans)	21	24-Nov-21	14-Dec-21
D3680	5th - Utility Field Inspection	35	24-Nov-21	28-Dec-21
D3690	5th - Prepare Preliminary UT9 Form	14	29-Dec-21	11-Jan-22
D3710	5th - Utilities Submit Plan and Estimate	90	29-Dec-21	28-Mar-22
D3720	5th - Utilities P&E Approval	10	29-Mar-22	07-Apr-22



Activity ID	Activity Name	Original Duration	Start	Finish
D3740	5th - Utility Authorization to begin relocation work.	1	08-Apr-22	08-Apr-22
Avanced MOT/E&S WP		46	10-Nov-21	18-Jan-22
D3750	5th - Advanced MOT/Clearing/E&S Plans & VPDES	15	10-Nov-21	02-Dec-21
D3760	5th - Design QA/QC Review of AWP	3	03-Dec-21	07-Dec-21
D3770	5th - Prepare AWP for Submission	2	08-Dec-21	09-Dec-21
D3780	5th - VDOT Review AWP	21	09-Dec-21	30-Dec-21
D3790	5th - Comment Resolution/Revise AWP	5	30-Dec-21	10-Jan-22
D3800	5th - Resubmit AWP for Approval	1	10-Jan-22	11-Jan-22
D3810	5th - AWP Released & VPDES Permit issued	5	11-Jan-22	18-Jan-22
Roadway/Grading/Drainage		154	10-Nov-21	20-Jun-22
D3890	5th - RW and Grading and Drainage Work Package	45	10-Nov-21	18-Jan-22
D3960	5th - Prepare RW Plan Sheets	10	10-Nov-21	23-Nov-21
D3970	5th - Preliminary RW/Easement Acquisition Effort (Title research, BAF	45	10-Nov-21	18-Jan-22
D3900	5th - Design QA/QC Review of Roadway Plans	5	19-Jan-22	25-Jan-22
D3910	5th - Prepare Roadway Plans for Submission	2	26-Jan-22	27-Jan-22
D3920	5th - VDOT Review RW Plans	21	28-Jan-22	17-Feb-22
D3930	5th - Comment Resolution/Revise RW Plans	10	18-Feb-22	03-Mar-22
D3940	5th - Resubmit RW Plans for Approval	1	04-Mar-22	04-Mar-22
D3980	5th - VDOT Review and Approve Revised Plans	21	04-Mar-22	25-Mar-22
D3950	5th - RW Authorization	5	28-Mar-22	01-Apr-22
D3990	5th - Perform RW/Easement Acquisition	55	04-Apr-22	20-Jun-22
D4000	5th - Grading and Drainage WP AFC	1	04-Apr-22	04-Apr-22
ITS/Light/Signage/Striping		95	29-Mar-22	11-Aug-22
D4010	5th - Prelimnary ITS/Lighting/Signage/Striping Plan	45	29-Mar-22	01-Jun-22
D4020	5th - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	01-Jun-22	08-Jun-22
D4030	5th - VDOT Review ITS/Lighting/Signage/Striping Plan	21	08-Jun-22	29-Jun-22
D4040	5th - Revise and Address Comments ITS/Lighting/Signage/Striping F	10	29-Jun-22	14-Jul-22
D4050	5th - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	14-Jul-22	04-Aug-22
D4060	5th - AFC ITS/Lighting/Signing/Striping Plans Released	5	04-Aug-22	11-Aug-22
Bridge		146	10-Nov-21	08-Jun-22
D4130	5th - Bridge Stage I Design (T S & L)	20	10-Nov-21	09-Dec-21
D4140	5th - Design QA/QC Stage I	5	10-Dec-21	16-Dec-21
D4150	5th - Prepare Stage I for Submission	2	17-Dec-21	20-Dec-21
D4160	5th - VDOT Review Stage I	21	21-Dec-21	10-Jan-22
D4170	5th - 5th - Revise and address Comments Stage I	5	11-Jan-22	17-Jan-22
D4180	5th - Stage II Bridge Design	50	18-Jan-22	28-Mar-22
D4190	5th - Design QA/QC Stage II Bridge Design	10	29-Mar-22	11-Apr-22
D4200	5th - Prepare Stage II for Submission	2	12-Apr-22	13-Apr-22
D4210	5th - VDOT Review Stage II	21	14-Apr-22	04-May-22
D4220	5th - Revise and address Comments Stage II	10	05-May-22	18-May-22
D4230	5th - VDOT Review and Approved Revised Stage II Plans	21	19-May-22	08-Jun-22
Final Roadway		57	10-Feb-22	29-Apr-22
D4240	5th - Roadway Plans/Incorporate/Resolve	30	10-Feb-22	23-Mar-22
D4270	5th - Design QA/QC Review of Roadway Plans	5	24-Mar-22	30-Mar-22
D4280	5th - Prepare Roadway Plans for Submission	2	31-Mar-22	01-Apr-22
D4250	5th - VDOT Review/Approve Final Design Plans	21	02-Apr-22	22-Apr-22
D4260	5th - AFC Roadway Plans Released	5	25-Apr-22	29-Apr-22



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

TASK filter: All Activities

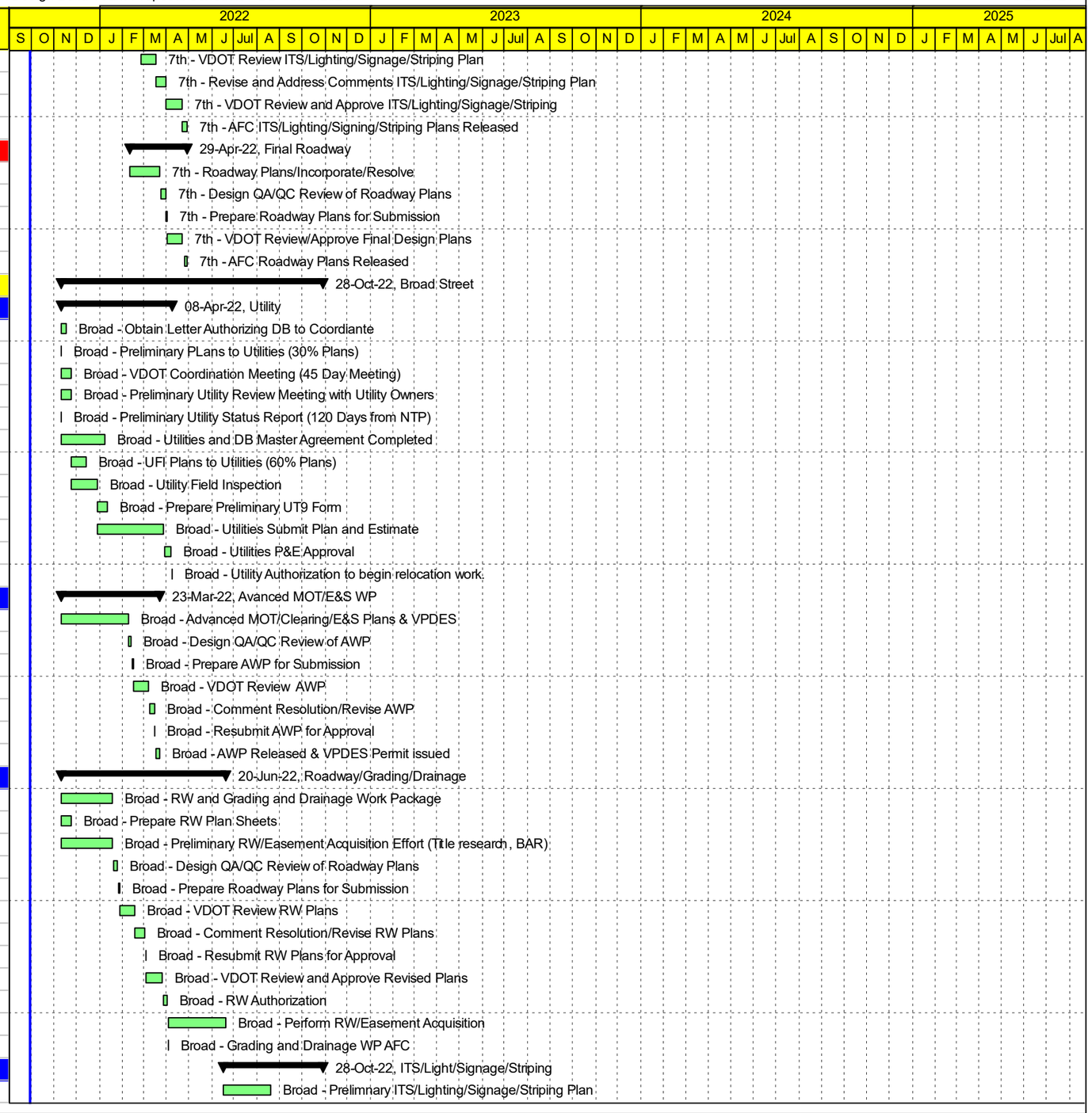
Activity ID	Activity Name	Original Duration	Start	Finish
I-95		145	10-Nov-21	07-Jun-22
Avanced MOT/E&S WP		67	10-Nov-21	16-Feb-22
D3820	5th - Advanced MOT/Clearing/E&S Plans & VPDES	35	10-Nov-21	04-Jan-22
D3830	5th - Design QA/QC Review of AWP	3	05-Jan-22	07-Jan-22
D3840	5th - Prepare AWP for Submission	2	10-Jan-22	11-Jan-22
D3850	5th - VDOT Review AWP	21	12-Jan-22	01-Feb-22
D3860	5th - Comment Resolution/Revise AWP	5	02-Feb-22	08-Feb-22
D3870	5th - Resubmit AWP for Approval	1	09-Feb-22	09-Feb-22
D3880	5th - AWP Released & VPDES Permit issued	5	10-Feb-22	16-Feb-22
ITS/Light/Signage/Striping		99	18-Jan-22	07-Jun-22
D4070	5th - Prelimnary ITS/Lighting/Signage/Striping Plan	50	18-Jan-22	29-Mar-22
D4080	5th - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	29-Mar-22	05-Apr-22
D4090	5th - VDOT Review ITS/Lighting/Signage/Striping Plan	21	05-Apr-22	26-Apr-22
D4100	5th - Revise and Address Comments ITS/Lighting/Signage/Striping F	10	26-Apr-22	10-May-22
D4110	5th - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	10-May-22	31-May-22
D4120	5th - AFC ITS/Lighting/Signing/Striping Plans Released	5	31-May-22	07-Jun-22
Final Roadway		57	17-Feb-22	06-May-22
D4290	5th - Roadway Plans/Incorporate/Resolve	30	17-Feb-22	30-Mar-22
D4320	5th - Design QA/QC Review of Roadway Plans	5	31-Mar-22	06-Apr-22
D4330	5th - Prepare Roadway Plans for Submission	2	07-Apr-22	08-Apr-22
D4300	5th - VDOT Review/Approve Final Design Plans	21	09-Apr-22	29-Apr-22
D4310	5th - AFC Roadway Plans Released	5	02-May-22	06-May-22
7th Street		193	30-Sep-21	05-Jul-22
Utility		150	30-Sep-21	26-Feb-22
D4340	7th - Obtain Letter Authorizing DB to Coordiante	7	30-Sep-21	06-Oct-21
D4350	7th - Preliminary PLans to Utilities (30% Plans)	1	30-Sep-21	30-Sep-21
D4360	7th - VDOT Coordination Meeting (45 Day Meeting)	14	30-Sep-21	13-Oct-21
D4370	7th - Preliminary Utility Review Meeting with Utility Owners	14	30-Sep-21	13-Oct-21
D4410	7th - Preliminary Utility Status Report (120 Days from NTP)	1	30-Sep-21	30-Sep-21
D4440	7th - Utilities and DB Master Agreement Completed	60	30-Sep-21	28-Nov-21
D4380	7th - UFI Plans to Utilities (60% Plans)	21	14-Oct-21	03-Nov-21
D4390	7th - Utility Field Inspection	35	14-Oct-21	17-Nov-21
D4400	7th - Prepare Preliminary UT9 Form	14	18-Nov-21	01-Dec-21
D4420	7th - Utilities Submit Plan and Estimate	90	18-Nov-21	15-Feb-22
D4430	7th - Utilities P&E Approval	10	16-Feb-22	25-Feb-22
D4450	7th - Utility Authorization to begin relocation work.	1	26-Feb-22	26-Feb-22
Avanced MOT/E&S WP		46	30-Sep-21	06-Dec-21
D4460	7th - Advanced MOT/Clearing/E&S Plans & VPDES	15	30-Sep-21	20-Oct-21
D4470	7th - Design QA/QC Review of AWP	3	21-Oct-21	25-Oct-21
D4480	7th - Prepare AWP for Submission	2	26-Oct-21	27-Oct-21
D4490	7th - VDOT Review AWP	21	28-Oct-21	17-Nov-21
D4500	7th - Comment Resolution/Revise AWP	5	18-Nov-21	24-Nov-21
D4510	7th - Resubmit AWP for Approval	1	29-Nov-21	29-Nov-21
D4520	7th - AWP Released & VPDES Permit issued	5	30-Nov-21	06-Dec-21
Roadway/Grading/Drainage		164	10-Nov-21	05-Jul-22
D4670	7th - Prepare RW Plan Sheets	10	10-Nov-21	23-Nov-21
D4600	7th - RW and Grading and Drainage Work Package	45	24-Nov-21	01-Feb-22

Activity ID	Activity Name	Original Duration	Start	Finish
D4680	7th - Preliminary RW/Easement Acquisition Effort (Title research, BAF	45	24-Nov-21	01-Feb-22
D4610	7th - Design QA/QC Review of Roadway Plans	5	02-Feb-22	08-Feb-22
D4620	7th - Prepare Roadway Plans for Submission	2	09-Feb-22	10-Feb-22
D4630	7th - VDOT Review RW Plans	21	11-Feb-22	03-Mar-22
D4640	7th - Comment Resolution/Revise RW Plans	10	04-Mar-22	17-Mar-22
D4650	7th - Resubmit RW Plans for Approval	1	18-Mar-22	18-Mar-22
D4690	7th - VDOT Review and Approve Revised Plans	21	18-Mar-22	08-Apr-22
D4660	7th - RW Authorization	5	08-Apr-22	15-Apr-22
D4700	7th - Perform RW/Easement Acquisition	55	15-Apr-22	05-Jul-22
D4710	7th - Grading and Drainage WP AFC	1	15-Apr-22	18-Apr-22
ITS/Light/Signage/Striping		95	18-Feb-22	01-Jul-22
D4720	7th - Prelimnary ITS/Lighting/Signage/Striping Plan	45	18-Feb-22	21-Apr-22
D4730	7th - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	22-Apr-22	28-Apr-22
D4740	7th - VDOT Review ITS/Lighting/Signage/Striping Plan	21	29-Apr-22	19-May-22
D4750	7th - Revise and Address Comments ITS/Lighting/Signage/Striping F	10	20-May-22	03-Jun-22
D4760	7th - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	04-Jun-22	24-Jun-22
D4770	7th - AFC ITS/Lighting/Signing/Striping Plans Released	5	27-Jun-22	01-Jul-22
Bridge		151	30-Sep-21	04-May-22
D4840	7th - Bridge Stage I Design (T S & L)	21	30-Sep-21	28-Oct-21
D4850	7th - Design QA/QC Stage I	5	29-Oct-21	04-Nov-21
D4860	7th - Prepare Stage I for Submission	4	05-Nov-21	10-Nov-21
D4870	7th - VDOT Review Stage I	21	11-Nov-21	01-Dec-21
D4880	7th - Revise and address Comments Stage I	5	02-Dec-21	08-Dec-21
D4890	7th - Stage II Bridge Design	50	09-Dec-21	21-Feb-22
D4900	7th - Design QA/QC Stage II Bridge Design	10	22-Feb-22	07-Mar-22
D4910	7th - Prepare Stage II for Submission	2	08-Mar-22	09-Mar-22
D4920	7th - VDOT Review Stage II	21	10-Mar-22	30-Mar-22
D4930	7th - Revise and address Comments Stage II	10	31-Mar-22	13-Apr-22
D4940	7th - VDOT Review and Approved Revised Stage II Plans	21	14-Apr-22	04-May-22
Final Roadway		57	10-Feb-22	29-Apr-22
D4950	7th - Roadway Plans/Incorporate/Resolve	30	10-Feb-22	23-Mar-22
D4980	7th - Design QA/QC Review of Roadway Plans	5	24-Mar-22	30-Mar-22
D4990	7th - Prepare Roadway Plans for Submission	2	31-Mar-22	01-Apr-22
D4960	7th - VDOT Review/Approve Final Design Plans	21	02-Apr-22	22-Apr-22
D4970	7th - AFC Roadway Plans Released	5	25-Apr-22	29-Apr-22
I-95		148	30-Sep-21	29-Apr-22
Avanced MOT/E&S WP		65	30-Sep-21	04-Jan-22
D4530	7th - Advanced MOT/Clearing/E&S Plans & VPDES	35	30-Sep-21	17-Nov-21
D4540	7th - Design QA/QC Review of AWP	3	18-Nov-21	22-Nov-21
D4550	7th - Prepare AWP for Submission	2	23-Nov-21	24-Nov-21
D4560	7th - VDOT Review AWP	21	24-Nov-21	15-Dec-21
D4570	7th - Comment Resolution/Revise AWP	5	15-Dec-21	22-Dec-21
D4580	7th - Resubmit AWP for Approval	1	22-Dec-21	23-Dec-21
D4590	7th - AWP Released & VPDES Permit issued	5	23-Dec-21	04-Jan-22
ITS/Light/Signage/Striping		101	07-Dec-21	28-Apr-22
D4780	7th - Prelimnary ITS/Lighting/Signage/Striping Plan	50	07-Dec-21	17-Feb-22
D4790	7th - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	18-Feb-22	24-Feb-22

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

TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish
D4800	7th - VDOT Review ITS/Lighting/Signage/Striping Plan	21	25-Feb-22	17-Mar-22
D4810	7th - Revise and Address Comments ITS/Lighting/Signage/Striping F	10	18-Mar-22	31-Mar-22
D4820	7th - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	01-Apr-22	21-Apr-22
D4830	7th - AFC ITS/Lighting/Signing/Striping Plans Released	5	22-Apr-22	28-Apr-22
Final Roadway		57	10-Feb-22	29-Apr-22
D5000	7th - Roadway Plans/Incorporate/Resolve	30	10-Feb-22	23-Mar-22
D5030	7th - Design QA/QC Review of Roadway Plans	5	24-Mar-22	30-Mar-22
D5040	7th - Prepare Roadway Plans for Submission	2	31-Mar-22	01-Apr-22
D5010	7th - VDOT Review/Approve Final Design Plans	21	02-Apr-22	22-Apr-22
D5020	7th - AFC Roadway Plans Released	5	25-Apr-22	29-Apr-22
Broad Street		246	10-Nov-21	28-Oct-22
Utility		150	10-Nov-21	08-Apr-22
D2920	Broad - Obtain Letter Authorizing DB to Coordiante	7	10-Nov-21	16-Nov-21
D2930	Broad - Preliminary PLans to Utilities (30% Plans)	1	10-Nov-21	10-Nov-21
D2940	Broad - VDOT Coordination Meeting (45 Day Meeting)	14	10-Nov-21	23-Nov-21
D2950	Broad - Preliminary Utility Review Meeting with Utility Owners	14	10-Nov-21	23-Nov-21
D2990	Broad - Preliminary Utility Status Report (120 Days from NTP)	1	10-Nov-21	10-Nov-21
D3020	Broad - Utilities and DB Master Agreement Completed	60	10-Nov-21	08-Jan-22
D2960	Broad - UFI Plans to Utilities (60% Plans)	21	24-Nov-21	14-Dec-21
D2970	Broad - Utility Field Inspection	35	24-Nov-21	28-Dec-21
D2980	Broad - Prepare Preliminary UT9 Form	14	29-Dec-21	11-Jan-22
D3000	Broad - Utilities Submit Plan and Estimate	90	29-Dec-21	28-Mar-22
D3010	Broad - Utilities P&E Approval	10	29-Mar-22	07-Apr-22
D3030	Broad - Utility Authorization to begin relocation work.	1	08-Apr-22	08-Apr-22
Avanced MOT/E&S WP		92	10-Nov-21	23-Mar-22
D3040	Broad - Advanced MOT/Clearing/E&S Plans & VPDES	60	10-Nov-21	08-Feb-22
D3050	Broad - Design QA/QC Review of AWP	3	09-Feb-22	11-Feb-22
D3060	Broad - Prepare AWP for Submission	2	14-Feb-22	15-Feb-22
D3070	Broad - VDOT Review AWP	21	15-Feb-22	08-Mar-22
D3080	Broad - Comment Resolution/Revise AWP	5	09-Mar-22	15-Mar-22
D3090	Broad - Resubmit AWP for Approval	1	16-Mar-22	16-Mar-22
D3100	Broad - AWP Released & VPDES Permit issued	5	17-Mar-22	23-Mar-22
Roadway/Grading/Drainage		154	10-Nov-21	20-Jun-22
D3180	Broad - RW and Grading and Drainage Work Package	45	10-Nov-21	18-Jan-22
D3250	Broad - Prepare RW Plan Sheets	10	10-Nov-21	23-Nov-21
D3260	Broad - Preliminary RW/Easement Acquisition Effort (Title research, E	45	10-Nov-21	18-Jan-22
D3190	Broad - Design QA/QC Review of Roadway Plans	5	19-Jan-22	25-Jan-22
D3200	Broad - Prepare Roadway Plans for Submission	2	26-Jan-22	27-Jan-22
D3210	Broad - VDOT Review RW Plans	21	28-Jan-22	17-Feb-22
D3220	Broad - Comment Resolution/Revise RW Plans	10	18-Feb-22	03-Mar-22
D3230	Broad - Resubmit RW Plans for Approval	1	04-Mar-22	04-Mar-22
D3270	Broad - VDOT Review and Approve Revised Plans	21	04-Mar-22	25-Mar-22
D3240	Broad - RW Authorization	5	28-Mar-22	01-Apr-22
D3280	Broad - Perform RW/Easement Acquisition	55	04-Apr-22	20-Jun-22
D3290	Broad - Grading and Drainage WP AFC	1	04-Apr-22	04-Apr-22
ITS/Light/Signage/Striping		94	17-Jun-22	28-Oct-22
D3300	Broad - Prelimnary ITS/Lighting/Signage/Striping Plan	45	17-Jun-22	19-Aug-22

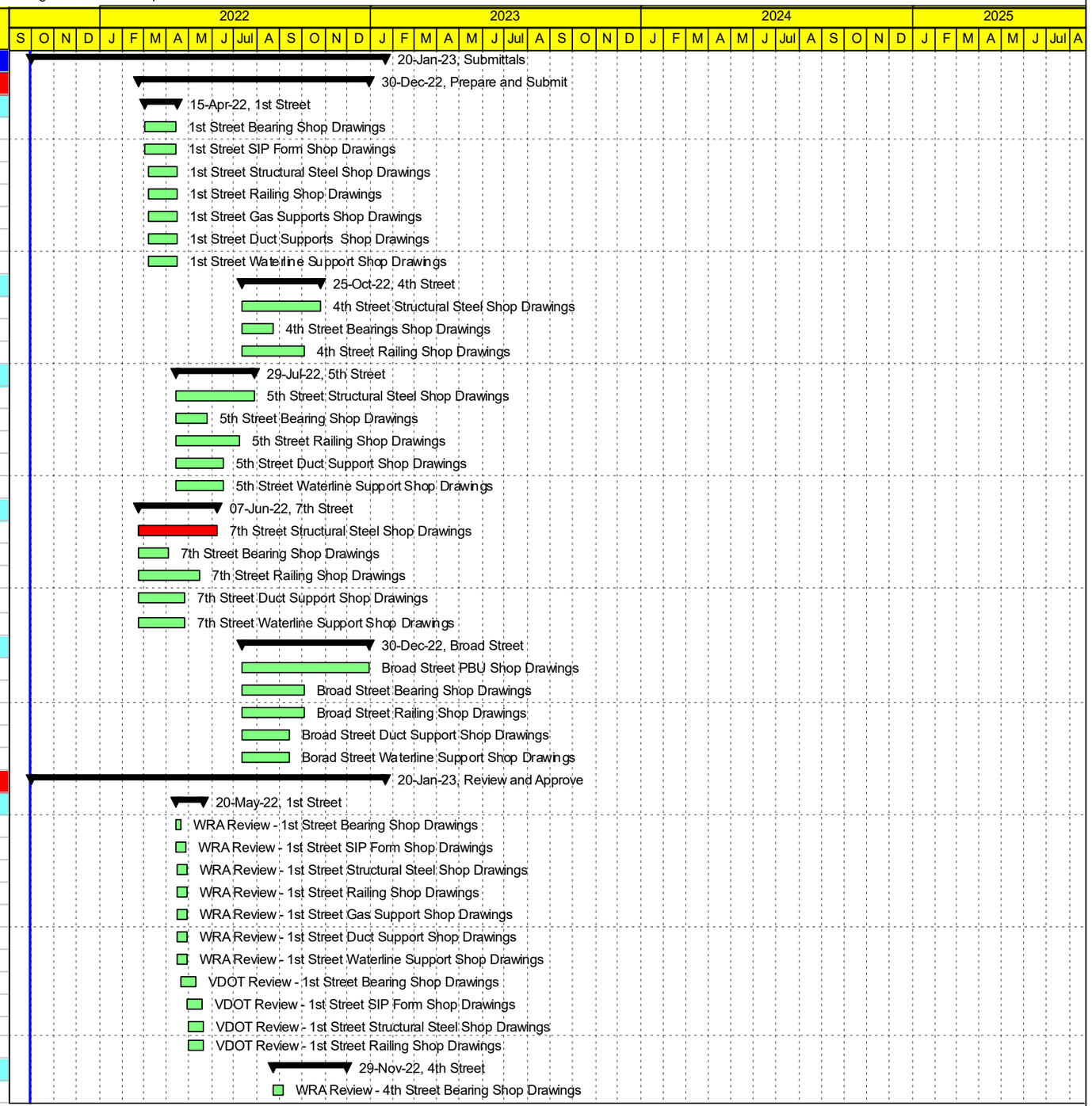


Activity ID	Activity Name	Original Duration	Start	Finish
D3310	Broad - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	22-Aug-22	26-Aug-22
D3320	Broad - VDOT Review ITS/Lighting/Signage/Striping Plan	21	27-Aug-22	16-Sep-22
D3330	Broad - Revise and Address Comments ITS/Lighting/Signage/Stripin	10	19-Sep-22	30-Sep-22
D3340	Broad - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	01-Oct-22	21-Oct-22
D3350	Broad - AFC ITS/Lighting/Signing/Striping Plans Released	5	24-Oct-22	28-Oct-22
Bridge		219	10-Nov-21	21-Sep-22
D3420	Broad - Bridge Stage I Design (T S & L)	40	10-Nov-21	11-Jan-22
D3430	Broad - Design QA/QC Stage I	5	12-Jan-22	18-Jan-22
D3440	Broad - Prepare Stage I for Submission	2	19-Jan-22	20-Jan-22
D3450	Broad - VDOT Review Stage I	21	21-Jan-22	10-Feb-22
D3460	Broad - Revise and address Comments Stage I	5	11-Feb-22	17-Feb-22
D3470	Broad - Stage II Bridge Design	100	18-Feb-22	11-Jul-22
D3480	Broad - QA/QC Stage II Bridge Design	10	12-Jul-22	25-Jul-22
D3490	Broad - Prepare Stage II for Submission	2	26-Jul-22	27-Jul-22
D3500	Broad - VDOT Review Stage II	21	28-Jul-22	17-Aug-22
D3510	Broad - Revise and address Comments Stage II	10	18-Aug-22	31-Aug-22
D3520	Broad - VDOT Review and Approved Revised Stage II Plans	21	01-Sep-22	21-Sep-22
FInal Roadway		88	24-Nov-21	31-Mar-22
D3530	Broad - Roadway Plans/Incorporate/Resolve	60	24-Nov-21	22-Feb-22
D3560	Broad - Design QA/QC Review of Roadway Plans	5	23-Feb-22	01-Mar-22
D3570	Broad - Prepare Roadway Plans for Submission	2	02-Mar-22	03-Mar-22
D3540	Broad - VDOT Review/Approve Final Design Plans	21	04-Mar-22	24-Mar-22
D3550	Broad - AFC Roadway Plans Released	5	25-Mar-22	31-Mar-22
I-95		201	10-Nov-21	25-Aug-22
Avanced MOT/E&S WP		92	10-Nov-21	23-Mar-22
D3110	Broad - Advanced MOT/Clearing/E&S Plans & VPDES	60	10-Nov-21	08-Feb-22
D3120	Broad - Design QA/QC Review of AWP	3	09-Feb-22	11-Feb-22
D3130	Broad - Prepare AWP for Submission	2	14-Feb-22	15-Feb-22
D3140	Broad - VDOT Review AWP	21	15-Feb-22	08-Mar-22
D3150	Broad - Comment Resolution/Revise AWP	5	09-Mar-22	15-Mar-22
D3160	Broad - Resubmit AWP for Approval	1	16-Mar-22	16-Mar-22
D3170	Broad - Broad - AWP Released & VPDES Permit issued	5	17-Mar-22	23-Mar-22
ITS/Light/Signage/Striping		109	24-Mar-22	25-Aug-22
D3360	Broad - Prelimnary ITS/Lighting/Signage/Striping Plan	60	24-Mar-22	16-Jun-22
D3370	Broad - QA/QC Preliminary ITS/Lighting/Signage/Striping Plan	5	17-Jun-22	23-Jun-22
D3380	Broad - VDOT Review ITS/Lighting/Signage/Striping Plan	21	24-Jun-22	14-Jul-22
D3390	Broad - Revise and Address Comments ITS/Lighting/Signage/Stripin	10	15-Jul-22	28-Jul-22
D3400	Broad - VDOT Review and Approve ITS/Lighting/Signage/Striping	21	29-Jul-22	18-Aug-22
D3410	Broad - AFC ITS/Lighting/Signing/Striping Plans Released	5	19-Aug-22	25-Aug-22
Final Roadway		86	24-Mar-22	25-Jul-22
D3580	Broad - Roadway Plans/Incorporate/Resolve	60	24-Mar-22	16-Jun-22
D3610	Broad - Design QA/QC Review of Roadway Plans	5	17-Jun-22	23-Jun-22
D3620	Broad - Prepare Roadway Plans for Submission	2	24-Jun-22	27-Jun-22
D3590	Broad - VDOT Review/Approve Final Design Plans	21	28-Jun-22	18-Jul-22
D3600	Broad - AFC Roadway Plans Released	5	19-Jul-22	25-Jul-22
Administrative		814	30-Sep-21	27-Nov-24
Procurement		437	30-Sep-21	19-Jun-23

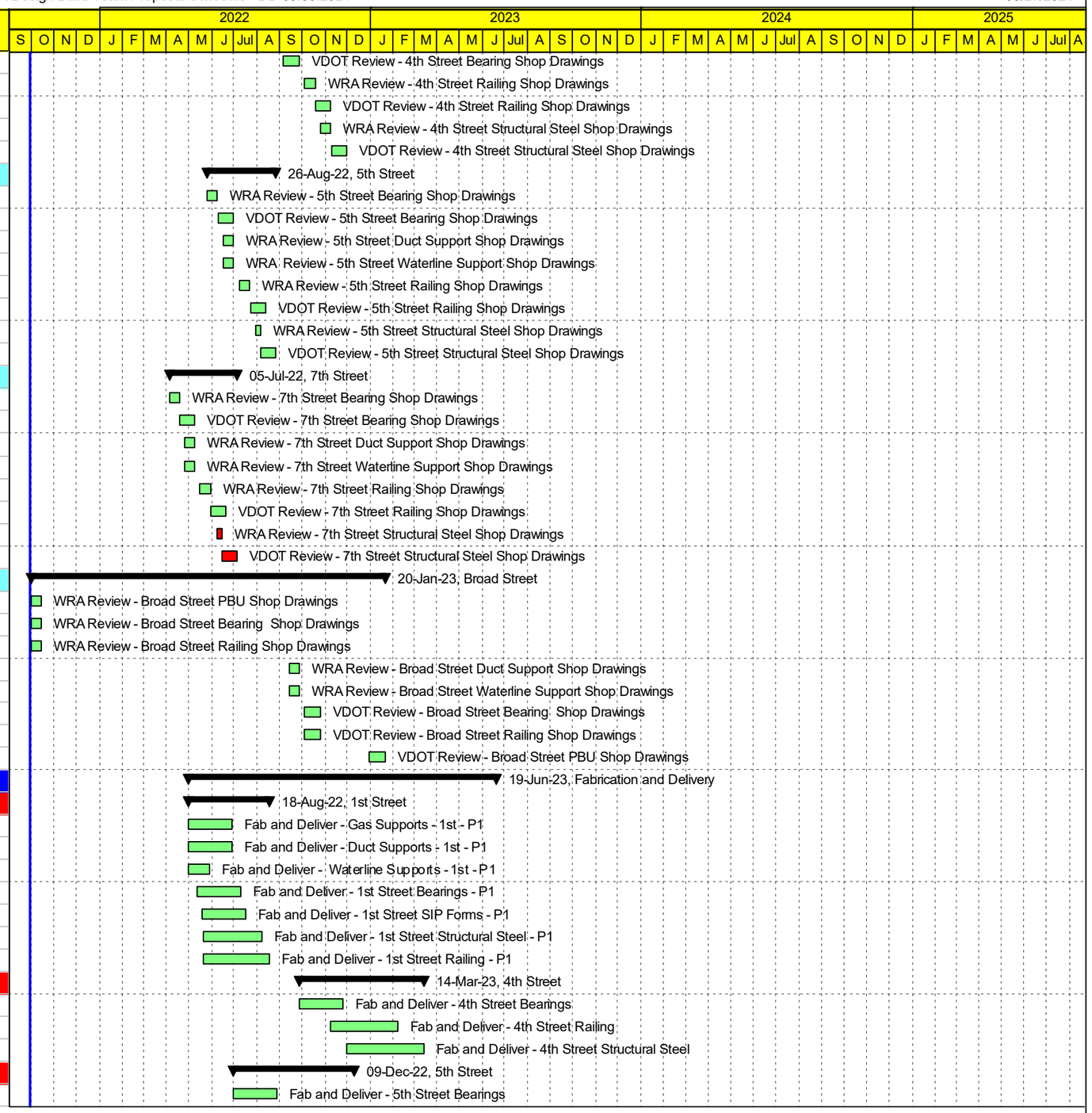
Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish
Submittals		331	30-Sep-21	20-Jan-23
Prepare and Submit		218	22-Feb-22	30-Dec-22
1st Street		32	03-Mar-22	15-Apr-22
1770	1st Street Bearing Shop Drawings	30	03-Mar-22	13-Apr-22
2710	1st Street SIP Form Shop Drawings	30	03-Mar-22	13-Apr-22
1720	1st Street Structural Steel Shop Drawings	30	07-Mar-22	15-Apr-22
1820	1st Street Railing Shop Drawings	30	07-Mar-22	15-Apr-22
1880	1st Street Gas Supports Shop Drawings	30	07-Mar-22	15-Apr-22
1890	1st Street Duct Supports Shop Drawings	30	07-Mar-22	15-Apr-22
2210	1st Street Waterline Support Shop Drawings	30	07-Mar-22	15-Apr-22
4th Street		75	12-Jul-22	25-Oct-22
1750	4th Street Structural Steel Shop Drawings	75	12-Jul-22	25-Oct-22
1800	4th Street Bearings Shop Drawings	30	12-Jul-22	22-Aug-22
1850	4th Street Railing Shop Drawings	60	12-Jul-22	04-Oct-22
5th Street		75	14-Apr-22	29-Jul-22
1730	5th Street Structural Steel Shop Drawings	75	14-Apr-22	29-Jul-22
1780	5th Street Bearing Shop Drawings	30	14-Apr-22	25-May-22
1830	5th Street Railing Shop Drawings	60	14-Apr-22	08-Jul-22
1910	5th Street Duct Support Shop Drawings	45	14-Apr-22	16-Jun-22
2230	5th Street Waterline Support Shop Drawings	45	14-Apr-22	16-Jun-22
7th Street		75	22-Feb-22	07-Jun-22
1740	7th Street Structural Steel Shop Drawings	75	22-Feb-22	07-Jun-22
1790	7th Street Bearing Shop Drawings	30	22-Feb-22	04-Apr-22
1840	7th Street Railing Shop Drawings	60	22-Feb-22	16-May-22
1920	7th Street Duct Support Shop Drawings	45	22-Feb-22	25-Apr-22
2240	7th Street Waterline Support Shop Drawings	45	22-Feb-22	25-Apr-22
Broad Street		120	12-Jul-22	30-Dec-22
1760	Broad Street PBU Shop Drawings	120	12-Jul-22	30-Dec-22
1810	Broad Street Bearing Shop Drawings	60	12-Jul-22	04-Oct-22
1860	Broad Street Railing Shop Drawings	60	12-Jul-22	04-Oct-22
1930	Broad Street Duct Support Shop Drawings	45	12-Jul-22	13-Sep-22
2250	Borad Street Waterline Support Shop Drawings	45	12-Jul-22	13-Sep-22
Review and Approve		478	30-Sep-21	20-Jan-23
1st Street		37	14-Apr-22	20-May-22
2730	WRA Review - 1st Street Bearing Shop Drawings	7	14-Apr-22	20-Apr-22
2790	WRA Review - 1st Street SIP Form Shop Drawings	14	14-Apr-22	27-Apr-22
2740	WRA Review - 1st Street Structural Steel Shop Drawings	14	16-Apr-22	29-Apr-22
2750	WRA Review - 1st Street Railing Shop Drawings	14	16-Apr-22	29-Apr-22
2760	WRA Review - 1st Street Gas Support Shop Drawings	14	16-Apr-22	29-Apr-22
2770	WRA Review - 1st Street Duct Support Shop Drawings	14	16-Apr-22	29-Apr-22
2780	WRA Review - 1st Street Waterline Support Shop Drawings	14	16-Apr-22	29-Apr-22
1990	VDOT Review - 1st Street Bearing Shop Drawings	21	21-Apr-22	11-May-22
2720	VDOT Review - 1st Street SIP Form Shop Drawings	21	28-Apr-22	18-May-22
1940	VDOT Review - 1st Street Structural Steel Shop Drawings	21	30-Apr-22	20-May-22
2040	VDOT Review - 1st Street Railing Shop Drawings	21	30-Apr-22	20-May-22
4th Street		99	23-Aug-22	29-Nov-22
2820	WRA Review - 4th Street Bearing Shop Drawings	14	23-Aug-22	05-Sep-22



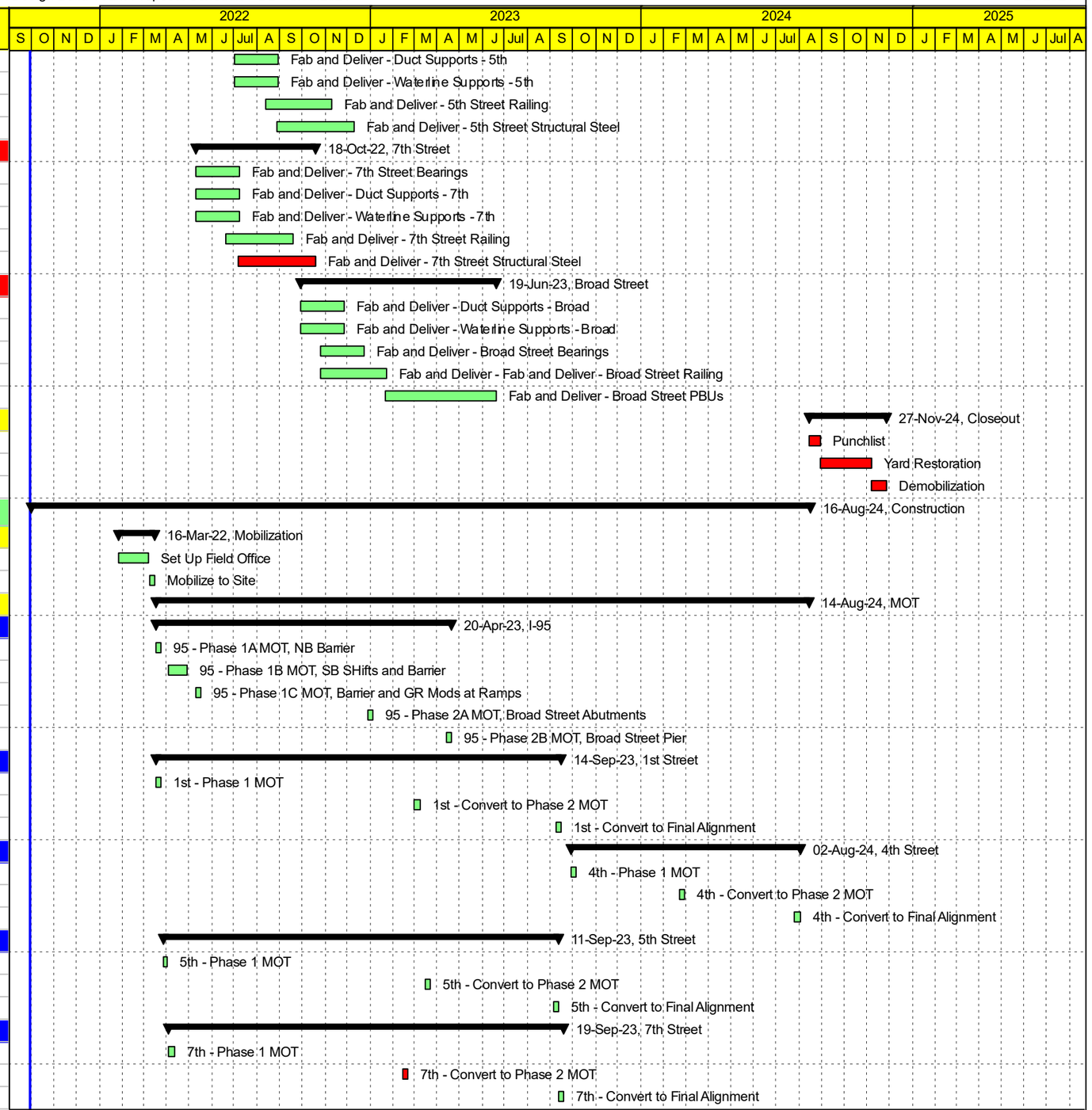
Activity ID	Activity Name	Original Duration	Start	Finish
2020	VDOT Review - 4th Street Bearing Shop Drawings	21	06-Sep-22	26-Sep-22
2830	WRA Review - 4th Street Railing Shop Drawings	14	04-Oct-22	18-Oct-22
2070	VDOT Review - 4th Street Railing Shop Drawings	21	18-Oct-22	08-Nov-22
2840	WRA Review - 4th Street Structural Steel Shop Drawings	14	26-Oct-22	08-Nov-22
1970	VDOT Review - 4th Street Structural Steel Shop Drawings	21	09-Nov-22	29-Nov-22
5th Street		93	26-May-22	26-Aug-22
2850	WRA Review - 5th Street Bearing Shop Drawings	14	26-May-22	08-Jun-22
2000	VDOT Review - 5th Street Bearing Shop Drawings	21	09-Jun-22	29-Jun-22
2130	WRA Review - 5th Street Duct Support Shop Drawings	14	17-Jun-22	30-Jun-22
2180	WRA Review - 5th Street Waterline Support Shop Drawings	14	17-Jun-22	30-Jun-22
2860	WRA Review - 5th Street Railing Shop Drawings	14	09-Jul-22	22-Jul-22
2050	VDOT Review - 5th Street Railing Shop Drawings	21	23-Jul-22	12-Aug-22
2870	WRA Review - 5th Street Structural Steel Shop Drawings	7	30-Jul-22	05-Aug-22
1950	VDOT Review - 5th Street Structural Steel Shop Drawings	21	06-Aug-22	26-Aug-22
7th Street		92	05-Apr-22	05-Jul-22
2880	WRA Review - 7th Street Bearing Shop Drawings	14	05-Apr-22	18-Apr-22
2010	VDOT Review - 7th Street Bearing Shop Drawings	21	19-Apr-22	09-May-22
2140	WRA Review - 7th Street Duct Support Shop Drawings	14	26-Apr-22	09-May-22
2190	WRA Review - 7th Street Waterline Support Shop Drawings	14	26-Apr-22	09-May-22
2890	WRA Review - 7th Street Railing Shop Drawings	14	16-May-22	30-May-22
2060	VDOT Review - 7th Street Railing Shop Drawings	21	30-May-22	20-Jun-22
2900	WRA Review - 7th Street Structural Steel Shop Drawings	7	08-Jun-22	14-Jun-22
1960	VDOT Review - 7th Street Structural Steel Shop Drawings	21	15-Jun-22	05-Jul-22
Broad Street		478	30-Sep-21	20-Jan-23
2930	WRA Review - Broad Street PBU Shop Drawings	14	30-Sep-21	13-Oct-21
2910	WRA Review - Broad Street Bearing Shop Drawings	14	30-Sep-21	13-Oct-21
2920	WRA Review - Broad Street Railing Shop Drawings	14	30-Sep-21	13-Oct-21
2150	WRA Review - Broad Street Duct Support Shop Drawings	14	14-Sep-22	27-Sep-22
2200	WRA Review - Broad Street Waterline Support Shop Drawings	14	14-Sep-22	27-Sep-22
2030	VDOT Review - Broad Street Bearing Shop Drawings	21	04-Oct-22	25-Oct-22
2080	VDOT Review - Broad Street Railing Shop Drawings	21	04-Oct-22	25-Oct-22
1980	VDOT Review - Broad Street PBU Shop Drawings	21	31-Dec-22	20-Jan-23
Fabrication and Delivery		416	30-Apr-22	19-Jun-23
1st Street		111	30-Apr-22	18-Aug-22
2290	Fab and Deliver - Gas Supports - 1st - P1	60	30-Apr-22	28-Jun-22
2300	Fab and Deliver - Duct Supports - 1st - P1	60	30-Apr-22	28-Jun-22
2310	Fab and Deliver - Waterline Supports - 1st - P1	30	30-Apr-22	29-May-22
2270	Fab and Deliver - 1st Street Bearings - P1	60	12-May-22	10-Jul-22
2800	Fab and Deliver - 1st Street SIP Forms - P1	60	19-May-22	17-Jul-22
2260	Fab and Deliver - 1st Street Structural Steel - P1	80	21-May-22	08-Aug-22
2280	Fab and Deliver - 1st Street Railing - P1	90	21-May-22	18-Aug-22
4th Street		169	27-Sep-22	14-Mar-23
2330	Fab and Deliver - 4th Street Bearings	60	27-Sep-22	25-Nov-22
2340	Fab and Deliver - 4th Street Railing	90	08-Nov-22	06-Feb-23
2320	Fab and Deliver - 4th Street Structural Steel	105	30-Nov-22	14-Mar-23
5th Street		163	30-Jun-22	09-Dec-22
2380	Fab and Deliver - 5th Street Bearings	60	30-Jun-22	28-Aug-22



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

TASK filter: All Activities

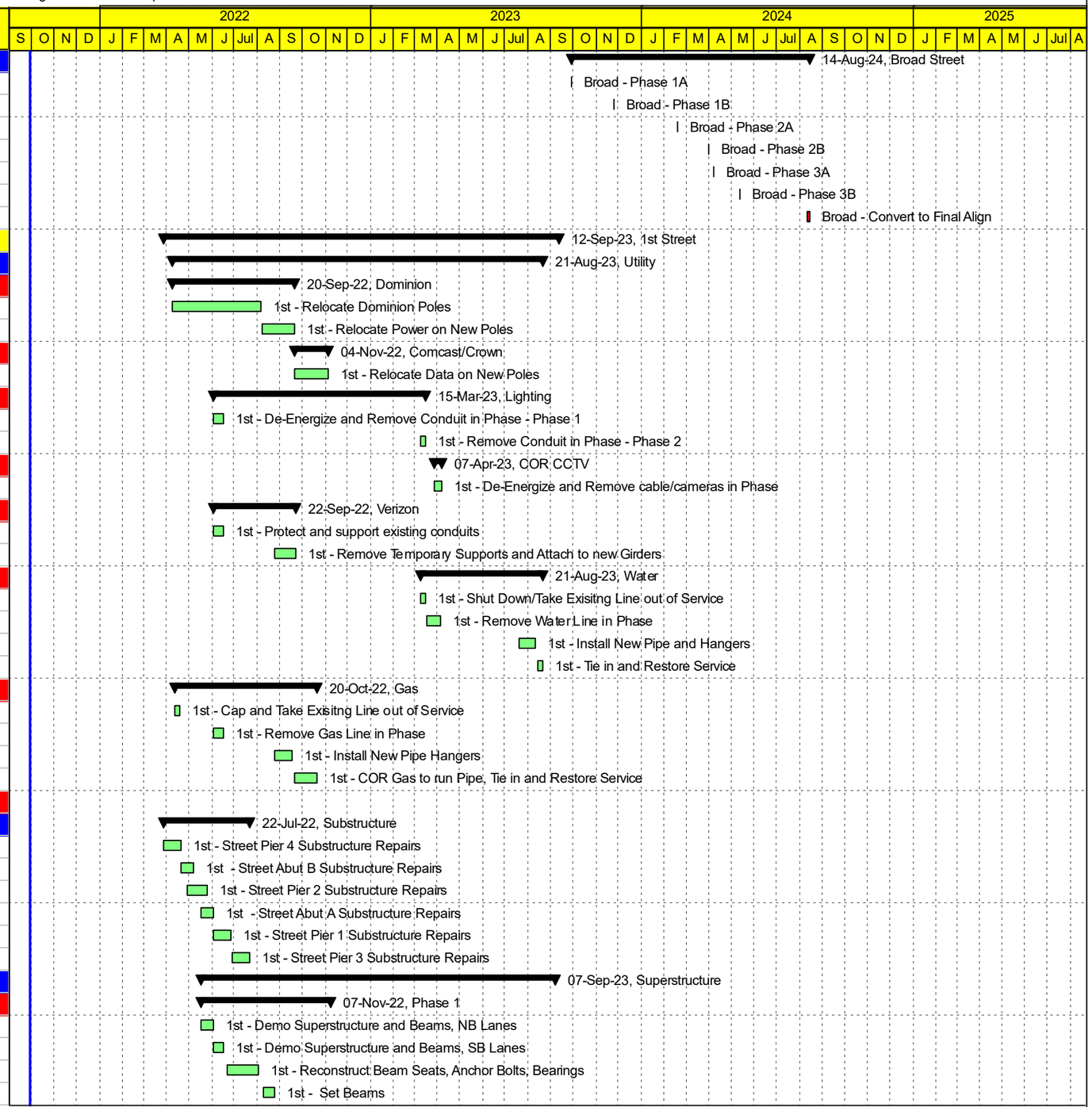
Activity ID	Activity Name	Original Duration	Start	Finish
2400	Fab and Deliver - Duct Supports - 5th	60	01-Jul-22	29-Aug-22
2410	Fab and Deliver - Waterline Supports - 5th	60	01-Jul-22	29-Aug-22
2390	Fab and Deliver - 5th Street Railing	90	13-Aug-22	10-Nov-22
2370	Fab and Deliver - 5th Street Structural Steel	105	27-Aug-22	09-Dec-22
7th Street		162	10-May-22	18-Oct-22
2430	Fab and Deliver - 7th Street Bearings	60	10-May-22	08-Jul-22
2450	Fab and Deliver - Duct Supports - 7th	60	10-May-22	08-Jul-22
2460	Fab and Deliver - Waterline Supports - 7th	60	10-May-22	08-Jul-22
2440	Fab and Deliver - 7th Street Railing	90	20-Jun-22	18-Sep-22
2420	Fab and Deliver - 7th Street Structural Steel	105	06-Jul-22	18-Oct-22
Broad Street		265	28-Sep-22	19-Jun-23
2500	Fab and Deliver - Duct Supports - Broad	60	28-Sep-22	26-Nov-22
2510	Fab and Deliver - Waterline Supports - Broad	60	28-Sep-22	26-Nov-22
2480	Fab and Deliver - Broad Street Bearings	60	25-Oct-22	24-Dec-22
2490	Fab and Deliver - Fab and Deliver - Broad Street Railing	90	25-Oct-22	23-Jan-23
2470	Fab and Deliver - Broad Street PBUs	150	21-Jan-23	19-Jun-23
Closeout		70	15-Aug-24	27-Nov-24
2810	Punchlist	10	15-Aug-24	29-Aug-24
1460	Yard Restoration	45	30-Aug-24	06-Nov-24
1470	Demobilization	15	07-Nov-24	27-Nov-24
Construction		741	30-Sep-21	16-Aug-24
Mobilization		36	26-Jan-22	16-Mar-22
2530	Set Up Field Office	30	26-Jan-22	08-Mar-22
2520	Mobilize to Site	5	09-Mar-22	16-Mar-22
MOT		623	17-Mar-22	14-Aug-24
I-95		245	17-Mar-22	20-Apr-23
1200	95 - Phase 1A MOT, NB Barrier	5	17-Mar-22	24-Mar-22
1270	95 - Phase 1B MOT, SB SHifts and Barrier	15	04-Apr-22	28-Apr-22
1350	95 - Phase 1C MOT, Barrier and GR Mods at Ramps	5	10-May-22	17-May-22
1440	95 - Phase 2A MOT, Broad Street Abutments	5	28-Dec-22	04-Jan-23
1450	95 - Phase 2B MOT, Broad Street Pier	5	13-Apr-23	20-Apr-23
1st Street		333	17-Mar-22	14-Sep-23
1360	1st - Phase 1 MOT	5	17-Mar-22	24-Mar-22
1400	1st - Convert to Phase 2 MOT	5	28-Feb-23	08-Mar-23
1670	1st - Convert to Final Alignment	5	08-Sep-23	14-Sep-23
4th Street		188	29-Sep-23	02-Aug-24
1370	4th - Phase 1 MOT	5	29-Sep-23	06-Oct-23
1410	4th - Convert to Phase 2 MOT	5	22-Feb-24	29-Feb-24
1680	4th - Convert to Final Alignment	5	25-Jul-24	02-Aug-24
5th Street		325	28-Mar-22	11-Sep-23
1380	5th - Phase 1 MOT	5	28-Mar-22	01-Apr-22
1420	5th - Convert to Phase 2 MOT	5	16-Mar-23	23-Mar-23
1690	5th - Convert to Final Alignment	5	05-Sep-23	11-Sep-23
7th Street		326	04-Apr-22	19-Sep-23
1390	7th - Phase 1 MOT	5	04-Apr-22	12-Apr-22
1430	7th - Convert to Phase 2 MOT	5	13-Feb-23	21-Feb-23
1700	7th - Convert to Final Alignment	5	12-Sep-23	19-Sep-23



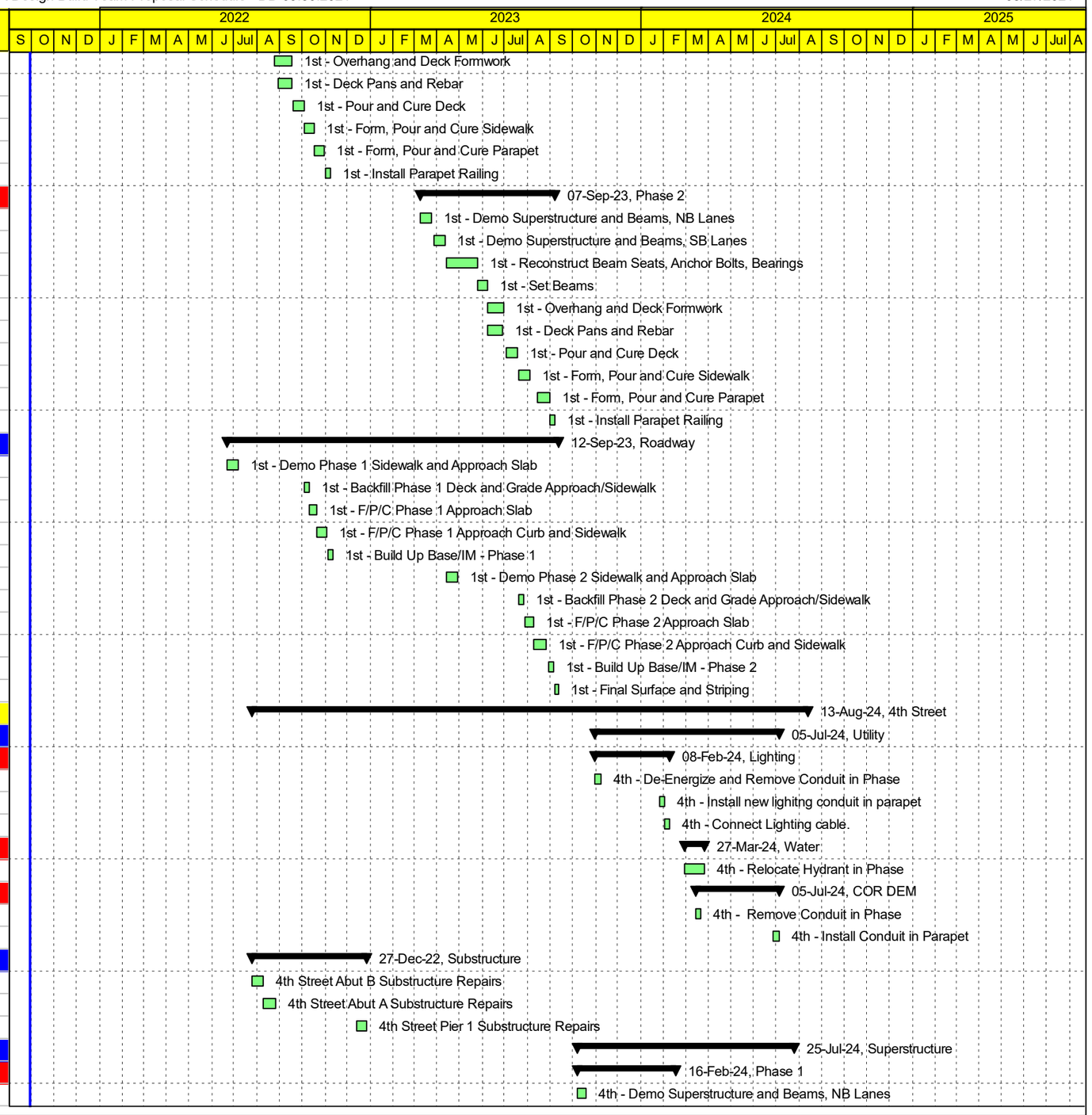
Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish
Broad Street		229	29-Sep-23	14-Aug-24
1600	Broad - Phase 1A	0	29-Sep-23	29-Sep-23
1580	Broad - Phase 1B	0	25-Nov-23	25-Nov-23
1620	Broad - Phase 2A	0	19-Feb-24	19-Feb-24
1610	Broad - Phase 2B	0	31-Mar-24	31-Mar-24
1640	Broad - Phase 3A	0	06-Apr-24	06-Apr-24
1630	Broad - Phase 3B	0	12-May-24	12-May-24
1710	Broad - Convert to Final Align	3	12-Aug-24	14-Aug-24
1st Street		375	28-Mar-22	12-Sep-23
Utility		349	09-Apr-22	21-Aug-23
Dominion		165	09-Apr-22	20-Sep-22
1170	1st - Relocate Dominion Poles	120	09-Apr-22	06-Aug-22
1180	1st - Relocate Power on New Poles	45	07-Aug-22	20-Sep-22
Comcast/Crown		45	21-Sep-22	04-Nov-22
1190	1st - Relocate Data on New Poles	45	21-Sep-22	04-Nov-22
Lighting		198	03-Jun-22	15-Mar-23
2540	1st - De-Energize and Remove Conduit in Phase - Phase 1	10	03-Jun-22	16-Jun-22
2550	1st - Remove Conduit in Phase - Phase 2	5	09-Mar-23	15-Mar-23
COR CCTV		10	27-Mar-23	07-Apr-23
2560	1st - De-Energize and Remove cable/cameras in Phase	10	27-Mar-23	07-Apr-23
Verizon		78	03-Jun-22	22-Sep-22
1650	1st - Protect and support existing conduits	10	03-Jun-22	16-Jun-22
1660	1st - Remove Temporary Supports and Attach to new Girders	20	25-Aug-22	22-Sep-22
Water		98	09-Mar-23	21-Aug-23
A2320	1st - Shut Down/Take Exisitng Line out of Service	5	09-Mar-23	16-Mar-23
A2330	1st - Remove Water Line in Phase	10	17-Mar-23	04-Apr-23
A2340	1st - Install New Pipe and Hangers	15	20-Jul-23	11-Aug-23
A2350	1st - Tie in and Restore Service	5	14-Aug-23	21-Aug-23
Gas		135	12-Apr-22	20-Oct-22
A2280	1st - Cap and Take Exisitng Line out of Service	5	12-Apr-22	19-Apr-22
A2290	1st - Remove Gas Line in Phase	10	03-Jun-22	17-Jun-22
A2300	1st - Install New Pipe Hangers	15	25-Aug-22	16-Sep-22
A2310	1st - COR Gas to run Pipe, Tie in and Restore Service	30	21-Sep-22	20-Oct-22
COR DEM		0		
Substructure		70	28-Mar-22	22-Jul-22
1210	1st - Street Pier 4 Substructure Repairs	15	28-Mar-22	20-Apr-22
1220	1st - Street Abut B Substructure Repairs	10	21-Apr-22	06-May-22
1280	1st - Street Pier 2 Substructure Repairs	15	29-Apr-22	25-May-22
1490	1st - Street Abut A Substructure Repairs	10	18-May-22	02-Jun-22
1500	1st - Street Pier 1 Substructure Repairs	15	03-Jun-22	27-Jun-22
1480	1st - Street Pier 3 Substructure Repairs	15	28-Jun-22	22-Jul-22
Superstructure		293	18-May-22	07-Sep-23
Phase 1		109	18-May-22	07-Nov-22
A1280	1st - Demo Superstructure and Beams, NB Lanes	10	18-May-22	02-Jun-22
A1330	1st - Demo Superstructure and Beams, SB Lanes	10	03-Jun-22	17-Jun-22
A1340	1st - Reconstruct Beam Seats, Anchor Bolts, Bearings	25	21-Jun-22	02-Aug-22
A1370	1st - Set Beams	10	09-Aug-22	24-Aug-22



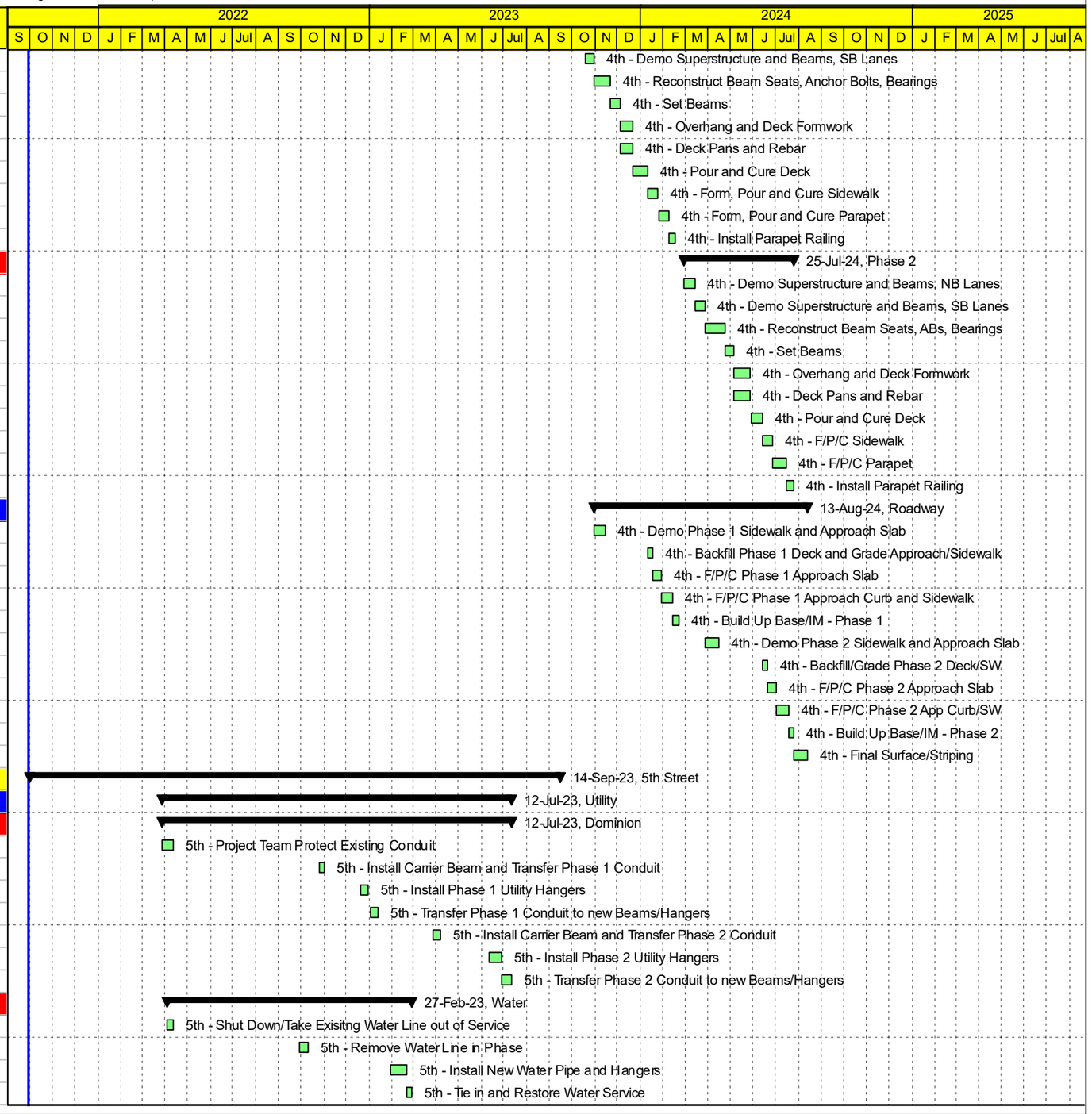
Activity ID	Activity Name	Original Duration	Start	Finish
A1400	1st - Overhang and Deck Formwork	15	25-Aug-22	16-Sep-22
A1410	1st - Deck Pans and Rebar	12	30-Aug-22	16-Sep-22
A1420	1st - Pour and Cure Deck	10	19-Sep-22	03-Oct-22
A1430	1st - Form, Pour and Cure Sidewalk	10	04-Oct-22	17-Oct-22
A1440	1st - Form, Pour and Cure Parapet	10	18-Oct-22	31-Oct-22
A1450	1st - Install Parapet Railing	5	01-Nov-22	07-Nov-22
Phase 2		108	09-Mar-23	07-Sep-23
A1580	1st - Demo Superstructure and Beams, NB Lanes	10	09-Mar-23	24-Mar-23
A1590	1st - Demo Superstructure and Beams, SB Lanes	10	27-Mar-23	12-Apr-23
A1600	1st - Reconstruct Beam Seats, Anchor Bolts, Bearings	25	13-Apr-23	25-May-23
A1610	1st - Set Beams	8	26-May-23	07-Jun-23
A1620	1st - Overhang and Deck Formwork	15	08-Jun-23	30-Jun-23
A1630	1st - Deck Pans and Rebar	12	08-Jun-23	27-Jun-23
A1640	1st - Pour and Cure Deck	10	03-Jul-23	18-Jul-23
A1650	1st - Form, Pour and Cure Sidewalk	10	20-Jul-23	04-Aug-23
A1660	1st - Form, Pour and Cure Parapet	10	14-Aug-23	30-Aug-23
A1670	1st - Install Parapet Railing	5	31-Aug-23	07-Sep-23
Roadway		276	21-Jun-22	12-Sep-23
A3760	1st - Demo Phase 1 Sidewalk and Approach Slab	10	21-Jun-22	06-Jul-22
A3770	1st - Backfill Phase 1 Deck and Grade Approach/Sidewalk	5	04-Oct-22	10-Oct-22
A3780	1st - F/P/C Phase 1 Approach Slab	8	11-Oct-22	20-Oct-22
A3790	1st - F/P/C Phase 1 Approach Curb and Sidewalk	10	21-Oct-22	03-Nov-22
A3800	1st - Build Up Base/IM - Phase 1	5	04-Nov-22	11-Nov-22
A3810	1st - Demo Phase 2 Sidewalk and Approach Slab	10	13-Apr-23	28-Apr-23
A3820	1st - Backfill Phase 2 Deck and Grade Approach/Sidewalk	5	20-Jul-23	27-Jul-23
A3830	1st - F/P/C Phase 2 Approach Slab	8	28-Jul-23	09-Aug-23
A3840	1st - F/P/C Phase 2 Approach Curb and Sidewalk	10	10-Aug-23	25-Aug-23
A3850	1st - Build Up Base/IM - Phase 2	5	29-Aug-23	05-Sep-23
A3860	1st - Final Surface and Striping	5	06-Sep-23	12-Sep-23
4th Street		531	26-Jul-22	13-Aug-24
Utility		178	31-Oct-23	05-Jul-24
Lighting		68	31-Oct-23	08-Feb-24
2570	4th - De-Energize and Remove Conduit in Phase	5	31-Oct-23	07-Nov-23
2580	4th - Install new lighitng conduit in parapet	5	25-Jan-24	01-Feb-24
2610	4th - Connect Lighting cable.	5	01-Feb-24	08-Feb-24
Water		15	29-Feb-24	27-Mar-24
A2460	4th - Relocate Hydrant in Phase	15	29-Feb-24	27-Mar-24
COR DEM		79	14-Mar-24	05-Jul-24
2590	4th - Remove Conduit in Phase	5	14-Mar-24	21-Mar-24
2600	4th - Install Conduit in Parapet	5	27-Jun-24	05-Jul-24
Substructure		100	26-Jul-22	27-Dec-22
1230	4th Street Abut B Substructure Repairs	10	26-Jul-22	09-Aug-22
1290	4th Street Abut A Substructure Repairs	10	10-Aug-22	25-Aug-22
1510	4th Street Pier 1 Substructure Repairs	10	13-Dec-22	27-Dec-22
Superstructure		178	06-Oct-23	25-Jul-24
Phase 1		85	06-Oct-23	16-Feb-24
A1880	4th - Demo Superstructure and Beams, NB Lanes	8	06-Oct-23	19-Oct-23



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

TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish
A1890	4th - Demo Superstructure and Beams, SB Lanes	8	19-Oct-23	31-Oct-23
A1900	4th - Reconstruct Beam Seats, Anchor Bolts, Bearings	15	31-Oct-23	22-Nov-23
A1910	4th - Set Beams	6	22-Nov-23	04-Dec-23
A1920	4th - Overhang and Deck Formwork	12	04-Dec-23	21-Dec-23
A1930	4th - Deck Pans and Rebar	12	04-Dec-23	21-Dec-23
A1940	4th - Pour and Cure Deck	10	22-Dec-23	10-Jan-24
A1950	4th - Form, Pour and Cure Sidewalk	10	10-Jan-24	25-Jan-24
A1960	4th - Form, Pour and Cure Parapet	10	25-Jan-24	08-Feb-24
A1970	4th - Install Parapet Railing	5	08-Feb-24	16-Feb-24
Phase 2		85	29-Feb-24	25-Jul-24
A1980	4th - Demo Superstructure and Beams, NB Lanes	8	29-Feb-24	14-Mar-24
A1990	4th - Demo Superstructure and Beams, SB Lanes	8	14-Mar-24	28-Mar-24
A2000	4th - Reconstruct Beam Seats, ABs, Bearings	15	28-Mar-24	24-Apr-24
A2010	4th - Set Beams	6	24-Apr-24	06-May-24
A2020	4th - Overhang and Deck Formwork	12	06-May-24	28-May-24
A2030	4th - Deck Pans and Rebar	12	06-May-24	28-May-24
A2040	4th - Pour and Cure Deck	10	29-May-24	13-Jun-24
A2050	4th - F/P/C Sidewalk	10	13-Jun-24	27-Jun-24
A2060	4th - F/P/C Parapet	10	27-Jun-24	16-Jul-24
A2070	4th - Install Parapet Railing	5	16-Jul-24	25-Jul-24
Roadway		205	31-Oct-23	13-Aug-24
A3650	4th - Demo Phase 1 Sidewalk and Approach Slab	10	31-Oct-23	15-Nov-23
A3660	4th - Backfill Phase 1 Deck and Grade Approach/Sidewalk	5	10-Jan-24	18-Jan-24
A3670	4th - F/P/C Phase 1 Approach Slab	8	18-Jan-24	30-Jan-24
A3680	4th - F/P/C Phase 1 Approach Curb and Sidewalk	10	30-Jan-24	14-Feb-24
A3690	4th - Build Up Base/IM - Phase 1	5	14-Feb-24	22-Feb-24
A3700	4th - Demo Phase 2 Sidewalk and Approach Slab	10	28-Mar-24	15-Apr-24
A3710	4th - Backfill/Grade Phase 2 Deck/SW	5	13-Jun-24	20-Jun-24
A3720	4th - F/P/C Phase 2 Approach Slab	8	20-Jun-24	02-Jul-24
A3730	4th - F/P/C Phase 2 App Curb/SW	8	02-Jul-24	18-Jul-24
A3740	4th - Build Up Base/IM - Phase 2	5	18-Jul-24	26-Jul-24
A3750	4th - Final Surface/Striping	10	26-Jul-24	13-Aug-24
5th Street		500	30-Sep-21	14-Sep-23
Utility		331	28-Mar-22	12-Jul-23
Dominion		290	28-Mar-22	12-Jul-23
A2480	5th - Project Team Protect Existing Conduit	10	28-Mar-22	12-Apr-22
A3090	5th - Install Carrier Beam and Transfer Phase 1 Conduit	5	26-Oct-22	01-Nov-22
A3280	5th - Install Phase 1 Utility Hangers	8	20-Dec-22	30-Dec-22
A3290	5th - Transfer Phase 1 Conduit to new Beams/Hangers	8	03-Jan-23	12-Jan-23
A3300	5th - Install Carrier Beam and Transfer Phase 2 Conduit	5	28-Mar-23	06-Apr-23
A3310	5th - Install Phase 2 Utility Hangers	10	12-Jun-23	27-Jun-23
A3320	5th - Transfer Phase 2 Conduit to new Beams/Hangers	10	28-Jun-23	12-Jul-23
Water		205	04-Apr-22	27-Feb-23
A2360	5th - Shut Down/Take Exisitng Water Line out of Service	5	04-Apr-22	12-Apr-22
A2370	5th - Remove Water Line in Phase	10	28-Sep-22	11-Oct-22
A2380	5th - Install New Water Pipe and Hangers	15	30-Jan-23	20-Feb-23
A2390	5th - Tie in and Restore Water Service	4	21-Feb-23	27-Feb-23



Activity ID	Activity Name	Original Duration	Start	Finish
Sidewalks		91	26-Oct-22	07-Mar-23
2620	5th - Remove Conduit in Phase	5	26-Oct-22	01-Nov-22
2630	5th - Install New Spare conduit in parapet	5	01-Mar-23	07-Mar-23
Gas		10	28-Apr-23	12-May-23
A2450	5th - Remove Abandoned Gas Line in Phase	10	28-Apr-23	12-May-23
Substructure		40	26-Jul-22	27-Sep-22
1520	5th Street Pier 2 Substructure Repairs	10	26-Jul-22	09-Aug-22
1240	5th Street Abut B Substructure Repairs	10	10-Aug-22	25-Aug-22
1250	5th Street Pier 3 Substructure Repairs	10	26-Aug-22	12-Sep-22
1300	5th Street Abut A Substructure Repairs	10	26-Aug-22	12-Sep-22
1310	5th Street Pier 1 Substructure Repairs	10	13-Sep-22	27-Sep-22
Superstructure		210	28-Sep-22	01-Sep-23
Phase 1		106	28-Sep-22	09-Mar-23
A1290	5th - Demo Superstructure and Beams, NB Lanes	10	28-Sep-22	11-Oct-22
A1310	5th - Demo Superstructure and Beams, SB Lanes	10	12-Oct-22	25-Oct-22
A1350	5th - Reconstruct Beam Seats, Anchor Bolts, Bearings	20	26-Oct-22	23-Nov-22
A1380	5th - Set Beams	6	12-Dec-22	19-Dec-22
A1460	5th - Overhang and Deck Formwork	15	20-Dec-22	11-Jan-23
A1470	5th - Deck Pans and Rebar	12	20-Dec-22	06-Jan-23
A1480	5th - Pour and Cure Deck	10	13-Jan-23	27-Jan-23
A1490	5th - Form, Pour and Cure Sidewalk	10	30-Jan-23	10-Feb-23
A1500	5th - Form, Pour and Cure Parapet	10	13-Feb-23	28-Feb-23
A1510	5th - Install Parapet Railing	5	02-Mar-23	09-Mar-23
Phase 2		96	24-Mar-23	01-Sep-23
A1680	5th - Demo Superstructure and Beams, NB Lanes	10	24-Mar-23	10-Apr-23
A1690	5th - Demo Superstructure and Beams, SB Lanes	10	12-Apr-23	26-Apr-23
A1700	5th - Reconstruct Beam Seats, Anchor Bolts, Bearings	20	28-Apr-23	01-Jun-23
A1710	5th - Set Beams	6	02-Jun-23	09-Jun-23
A1720	5th - Overhang and Deck Formwork	15	12-Jun-23	05-Jul-23
A1730	5th - Deck Pans and Rebar	12	12-Jun-23	29-Jun-23
A1740	5th - Pour and Cure Deck	10	06-Jul-23	21-Jul-23
A1750	5th - Form, Pour and Cure Sidewalk	10	24-Jul-23	08-Aug-23
A1760	5th - Form, Pour and Cure Parapet	10	09-Aug-23	24-Aug-23
A1770	5th - Install Parapet Railing	5	25-Aug-23	01-Sep-23
Roadway		427	30-Sep-21	14-Sep-23
A3870	5th - Final Surface and Striping	5	30-Sep-21	07-Oct-21
A3540	5th - Demo Phase 1 Sidewalk and Approach Slab	10	26-Oct-22	09-Nov-22
A3550	5th - Backfill Phase 1 Deck and Grade Approach/Sidewalk	5	30-Jan-23	03-Feb-23
A3560	5th - F/P/C Phase 1 Approach Slab	8	06-Feb-23	16-Feb-23
A3570	5th - F/P/C Phase 1 Approach Curb and Sidewalk	10	17-Feb-23	07-Mar-23
A3580	5th - Build Up Base/IM - Phase 1	5	08-Mar-23	15-Mar-23
A3590	5th - Demo Phase 2 Sidewalk and Approach Slab	10	28-Apr-23	12-May-23
A3600	5th - Backfill Phase 2 Deck and Grade Approach/Sidewalk	5	24-Jul-23	01-Aug-23
A3610	5th - F/P/C Phase 2 Approach Slab	8	02-Aug-23	11-Aug-23
A3620	5th - F/P/C Phase 2 Approach Curb and Sidewalk	10	14-Aug-23	30-Aug-23
A3630	5th - Build Up Base/IM - Phase 2	5	31-Aug-23	07-Sep-23
A3640	5th - Final Surface and Striping	5	08-Sep-23	14-Sep-23

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

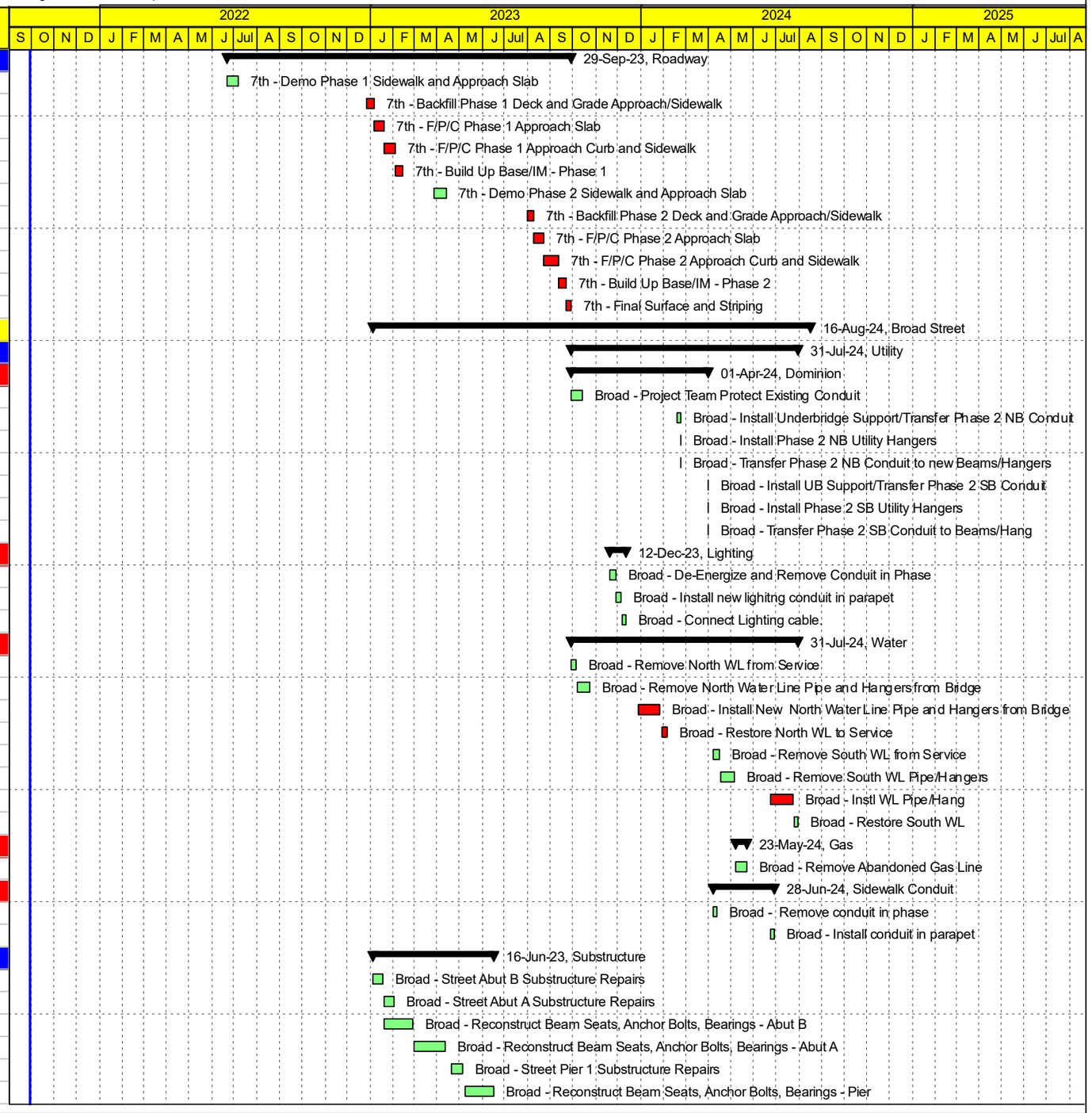
TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish
7th Street		376	13-Apr-22	29-Sep-23
Utility		356	13-Apr-22	01-Sep-23
Dominion		264	13-Apr-22	15-Jun-23
A3110	7th - Project Team Protect Existing Conduit	10	13-Apr-22	28-Apr-22
A3330	7th - Install Carrier Beam and Transfer Conduit	5	28-Mar-23	06-Apr-23
A3340	7th - Install Utility Hangers	10	12-May-23	01-Jun-23
A3350	7th - Transfer Conduit to new Beams/Hangers	10	01-Jun-23	15-Jun-23
Water		113	21-Feb-23	01-Sep-23
A2400	7th - Shut Down/Take Exisitng Water Line out of Service	5	21-Feb-23	02-Mar-23
A2410	7th - Remove Water Line in Phase	10	02-Mar-23	20-Mar-23
A2420	7th - Install New Water Pipe and Hangers	15	01-Aug-23	24-Aug-23
A2430	7th - Tie in and Restore Water Service	5	24-Aug-23	01-Sep-23
Sidewalks		158	03-Jun-22	18-Jan-23
2640	7th - Remove Conduit in Phase	5	03-Jun-22	09-Jun-22
2650	7th - Install New Spare conduit in parapet	5	11-Jan-23	18-Jan-23
Gas		10	21-Jun-22	06-Jul-22
A2440	7th - Remove Abandoned Gas Line in Phase	10	21-Jun-22	06-Jul-22
Substructure		60	13-Sep-22	12-Dec-22
1260	7th Street Pier 3 Substructure Repairs	10	13-Sep-22	27-Sep-22
1320	7th Street Pier 4 Substructure Repairs	10	28-Sep-22	11-Oct-22
1330	7th Street Pier 1 Substructure Repairs	10	12-Oct-22	25-Oct-22
1340	7th Street Abut B Substructure Repairs	10	26-Oct-22	09-Nov-22
1530	7th Street Pier 2 Substructure Repairs	10	10-Nov-22	23-Nov-22
1540	7th Street Abut A Substructure Repairs	10	28-Nov-22	12-Dec-22
Superstructure		296	18-May-22	12-Sep-23
Phase 1		165	18-May-22	02-Feb-23
A1300	7th - Demo Superstructure and Beams, NB Lanes	10	18-May-22	02-Jun-22
A1320	7th - Demo Superstructure and Beams, SB Lanes	10	03-Jun-22	17-Jun-22
A1360	7th - Reconstruct Beam Seats, Anchor Bolts, Bearings	25	12-Jul-22	19-Aug-22
A1390	7th - Set Beams	13	19-Oct-22	04-Nov-22
A1520	7th - Overhang and Deck Formwork	20	04-Nov-22	08-Dec-22
A1530	7th - Deck Pans and Rebar	15	04-Nov-22	30-Nov-22
A1540	7th - Pour and Cure Deck	12	08-Dec-22	27-Dec-22
A1550	7th - Form, Pour and Cure Sidewalk	10	27-Dec-22	11-Jan-23
A1560	7th - Form, Pour and Cure Parapet	10	11-Jan-23	26-Jan-23
A1570	7th - Install Parapet Railing	5	26-Jan-23	02-Feb-23
Phase 2		119	21-Feb-23	12-Sep-23
A1780	7th - Demo Superstructure and Beams, NB Lanes	10	21-Feb-23	10-Mar-23
A1790	7th - Demo Superstructure and Beams, SB Lanes	10	10-Mar-23	28-Mar-23
A1800	7th - Reconstruct Beam Seats, Anchor Bolts, Bearings	25	10-Mar-23	24-Apr-23
A1810	7th - Set Beams	12	24-Apr-23	12-May-23
A1820	7th - Overhang and Deck Formwork	20	12-May-23	14-Jun-23
A1830	7th - Deck Pans and Rebar	15	15-Jun-23	11-Jul-23
A1840	7th - Pour and Cure Deck	10	12-Jul-23	01-Aug-23
A1850	7th - Form, Pour and Cure Sidewalk	10	01-Aug-23	15-Aug-23
A1860	7th - Form, Pour and Cure Parapet	10	15-Aug-23	01-Sep-23
A1870	7th - Install Parapet Railing	6	01-Sep-23	12-Sep-23

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

TASK filter: All Activities

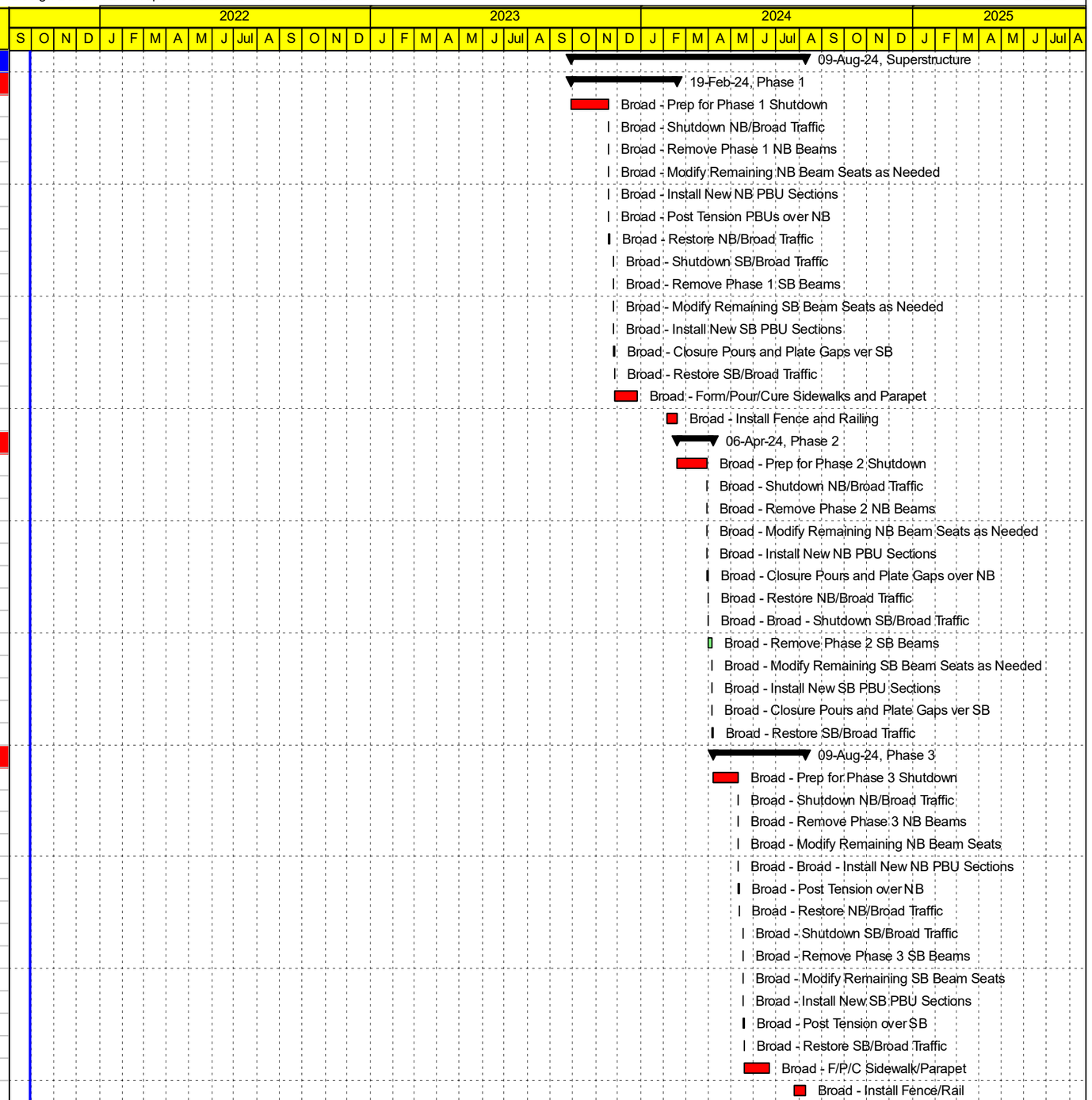
Activity ID	Activity Name	Original Duration	Start	Finish
Roadway		288	21-Jun-22	29-Sep-23
A3430	7th - Demo Phase 1 Sidewalk and Approach Slab	10	21-Jun-22	06-Jul-22
A3440	7th - Backfill Phase 1 Deck and Grade Approach/Sidewalk	6	27-Dec-22	05-Jan-23
A3450	7th - F/P/C Phase 1 Approach Slab	10	05-Jan-23	19-Jan-23
A3460	7th - F/P/C Phase 1 Approach Curb and Sidewalk	10	19-Jan-23	03-Feb-23
A3470	7th - Build Up Base/IM - Phase 1	6	03-Feb-23	13-Feb-23
A3480	7th - Demo Phase 2 Sidewalk and Approach Slab	10	28-Mar-23	14-Apr-23
A3490	7th - Backfill Phase 2 Deck and Grade Approach/Sidewalk	6	01-Aug-23	09-Aug-23
A3500	7th - F/P/C Phase 2 Approach Slab	8	09-Aug-23	23-Aug-23
A3510	7th - F/P/C Phase 2 Approach Curb and Sidewalk	12	23-Aug-23	12-Sep-23
A3520	7th - Build Up Base/IM - Phase 2	6	12-Sep-23	21-Sep-23
A3530	7th - Final Surface and Striping	6	21-Sep-23	29-Sep-23
Broad Street		422	05-Jan-23	16-Aug-24
Utility		219	29-Sep-23	31-Jul-24
Dominion		131	29-Sep-23	01-Apr-24
A3240	Broad - Project Team Protect Existing Conduit	10	29-Sep-23	13-Oct-23
A3360	Broad - Install Underbridge Support/Transfer Phase 2 NB Conduit	1	19-Feb-24	24-Feb-24
A3370	Broad - Install Phase 2 NB Utility Hangers	1	24-Feb-24	24-Feb-24
A3380	Broad - Transfer Phase 2 NB Conduit to new Beams/Hangers	1	24-Feb-24	24-Feb-24
A3390	Broad - Install UB Support/Transfer Phase 2 SB Conduit	1	31-Mar-24	31-Mar-24
A3400	Broad - Install Phase 2 SB Utility Hangers	1	31-Mar-24	01-Apr-24
A3410	Broad - Transfer Phase 2 SB Conduit to Beams/Hang	1	01-Apr-24	01-Apr-24
Lighting		15	20-Nov-23	12-Dec-23
2660	Broad - De-Energize and Remove Conduit in Phase	5	20-Nov-23	28-Nov-23
2670	Broad - Install new lighitng conduit in parapet	5	29-Nov-23	05-Dec-23
2680	Broad - Connect Lighting cable.	5	06-Dec-23	12-Dec-23
Water		187	29-Sep-23	31-Jul-24
A2640	Broad - Remove North WL from Service	5	29-Sep-23	06-Oct-23
A2650	Broad - Remove North Water Line Pipe and Hangers from Bridge	10	06-Oct-23	23-Oct-23
A2670	Broad - Install New North Water Line Pipe and Hangers from Bridge	20	28-Dec-23	26-Jan-24
A2660	Broad - Restore North WL to Service	6	29-Jan-24	05-Feb-24
A2680	Broad - Remove South WL from Service	6	08-Apr-24	16-Apr-24
A2690	Broad - Remove South WL Pipe/Hangers	10	18-Apr-24	06-May-24
A2700	Broad - Instl WL Pipe/Hang	18	24-Jun-24	24-Jul-24
A2710	Broad - Restore South WL	4	25-Jul-24	31-Jul-24
Gas		10	07-May-24	23-May-24
A2720	Broad - Remove Abandoned Gas Line	10	07-May-24	23-May-24
Sidewalk Conduit		59	08-Apr-24	28-Jun-24
2690	Broad - Remove conduit in phase	5	08-Apr-24	12-Apr-24
2700	Broad - Install conduit in parapet	5	24-Jun-24	28-Jun-24
Substructure		117	05-Jan-23	16-Jun-23
1550	Broad - Street Abut B Substructure Repairs	10	05-Jan-23	18-Jan-23
1560	Broad - Street Abut A Substructure Repairs	10	19-Jan-23	02-Feb-23
A2490	Broad - Reconstruct Beam Seats, Anchor Bolts, Bearings - Abut B	25	19-Jan-23	27-Feb-23
A2500	Broad - Reconstruct Beam Seats, Anchor Bolts, Bearings - Abut A	25	28-Feb-23	12-Apr-23
1570	Broad - Street Pier 1 Substructure Repairs	10	21-Apr-23	05-May-23
A2510	Broad - Reconstruct Beam Seats, Anchor Bolts, Bearings - Pier	25	08-May-23	16-Jun-23



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

TASK filter: All Activities

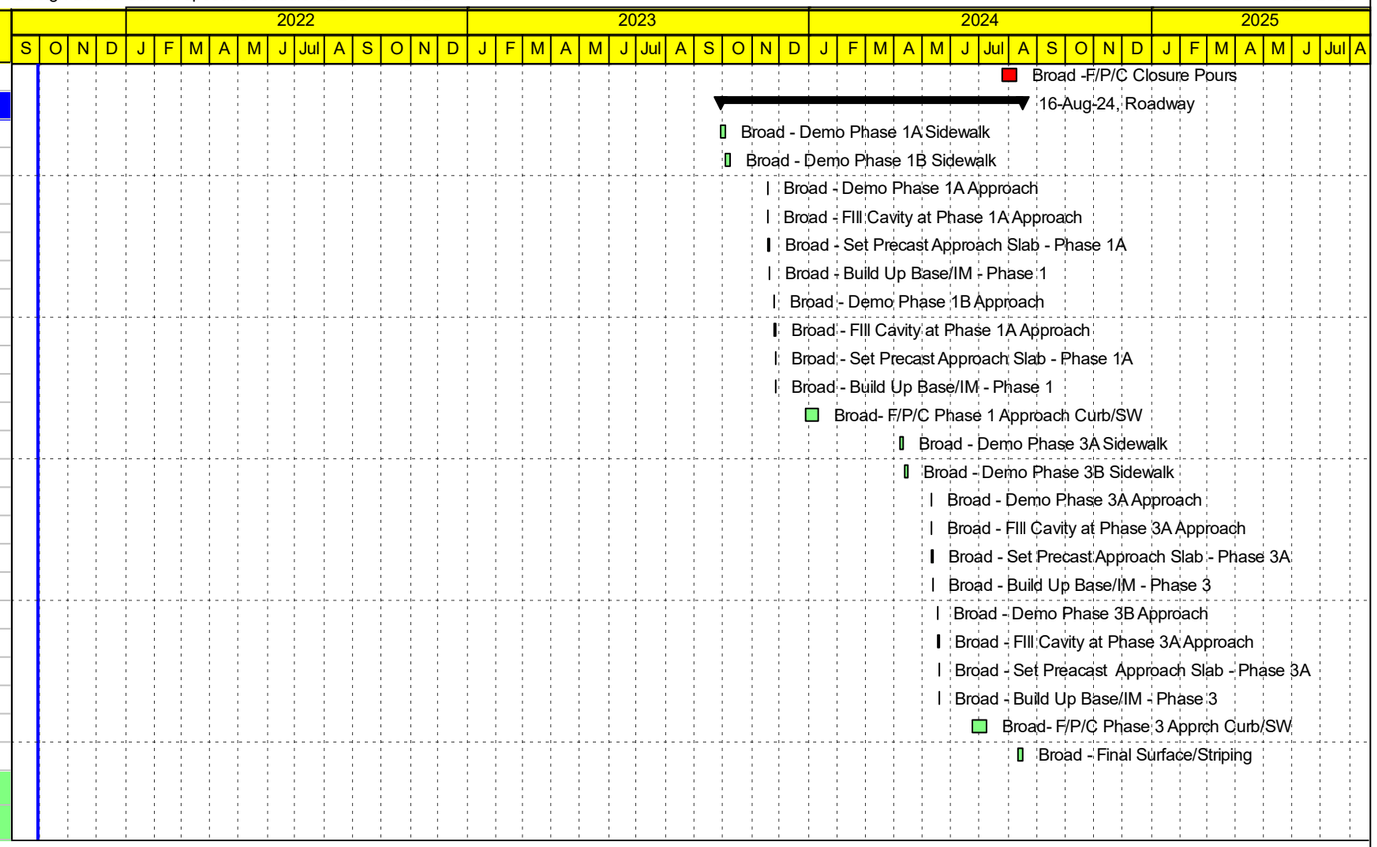
Activity ID	Activity Name	Original Duration	Start	Finish
Superstructure		226	29-Sep-23	09-Aug-24
Phase 1		101	29-Sep-23	19-Feb-24
A3060	Broad - Prep for Phase 1 Shutdown	34	29-Sep-23	17-Nov-23
A2520	Broad - Shutdown NB/Broad Traffic	1	18-Nov-23	18-Nov-23
A2530	Broad - Remove Phase 1 NB Beams	1	18-Nov-23	18-Nov-23
A2540	Broad - Modify Remaining NB Beam Seats as Needed	1	18-Nov-23	18-Nov-23
A2550	Broad - Install New NB PBU Sections	1	18-Nov-23	18-Nov-23
A2560	Broad - Post Tension PBUs over NB	1	18-Nov-23	19-Nov-23
A2570	Broad - Restore NB/Broad Traffic	1	19-Nov-23	19-Nov-23
A2580	Broad - Shutdown SB/Broad Traffic	1	25-Nov-23	25-Nov-23
A2590	Broad - Remove Phase 1 SB Beams	1	25-Nov-23	25-Nov-23
A2600	Broad - Modify Remaining SB Beam Seats as Needed	1	25-Nov-23	25-Nov-23
A2610	Broad - Install New SB PBU Sections	1	25-Nov-23	25-Nov-23
A2620	Broad - Closure Pours and Plate Gaps ver SB	1	25-Nov-23	26-Nov-23
A2630	Broad - Restore SB/Broad Traffic	1	26-Nov-23	26-Nov-23
A2970	Broad - Form/Pour/Cure Sidewalks and Parapet	20	27-Nov-23	27-Dec-23
A2980	Broad - Install Fence and Railing	9	05-Feb-24	19-Feb-24
Phase 2		35	19-Feb-24	06-Apr-24
A3070	Broad - Prep for Phase 2 Shutdown	25	19-Feb-24	29-Mar-24
A2730	Broad - Shutdown NB/Broad Traffic	1	30-Mar-24	30-Mar-24
A2740	Broad - Remove Phase 2 NB Beams	1	30-Mar-24	30-Mar-24
A2750	Broad - Modify Remaining NB Beam Seats as Needed	1	30-Mar-24	30-Mar-24
A2760	Broad - Install New NB PBU Sections	1	30-Mar-24	30-Mar-24
A2770	Broad - Closure Pours and Plate Gaps over NB	1	30-Mar-24	31-Mar-24
A2780	Broad - Restore NB/Broad Traffic	1	31-Mar-24	31-Mar-24
A2790	Broad - Broad - Shutdown SB/Broad Traffic	1	01-Apr-24	01-Apr-24
A2800	Broad - Remove Phase 2 SB Beams	1	01-Apr-24	05-Apr-24
A2810	Broad - Modify Remaining SB Beam Seats as Needed	1	05-Apr-24	06-Apr-24
A2820	Broad - Install New SB PBU Sections	1	06-Apr-24	06-Apr-24
A2830	Broad - Closure Pours and Plate Gaps ver SB	1	06-Apr-24	06-Apr-24
A2840	Broad - Restore SB/Broad Traffic	1	06-Apr-24	06-Apr-24
Phase 3		90	08-Apr-24	09-Aug-24
A3080	Broad - Prep for Phase 3 Shutdown	19	08-Apr-24	10-May-24
A2850	Broad - Shutdown NB/Broad Traffic	1	11-May-24	11-May-24
A2860	Broad - Remove Phase 3 NB Beams	1	11-May-24	11-May-24
A2870	Broad - Modify Remaining NB Beam Seats	1	11-May-24	11-May-24
A2880	Broad - Broad - Install New NB PBU Sections	1	11-May-24	11-May-24
A2890	Broad - Post Tension over NB	1	11-May-24	12-May-24
A2900	Broad - Restore NB/Broad Traffic	1	12-May-24	12-May-24
A2910	Broad - Shutdown SB/Broad Traffic	1	17-May-24	18-May-24
A2920	Broad - Remove Phase 3 SB Beams	1	18-May-24	18-May-24
A2930	Broad - Modify Remaining SB Beam Seats	1	18-May-24	18-May-24
A2940	Broad - Install New SB PBU Sections	1	18-May-24	18-May-24
A2950	Broad - Post Tension over SB	1	18-May-24	19-May-24
A2960	Broad - Restore SB/Broad Traffic	1	19-May-24	19-May-24
A3030	Broad - F/P/C Sidewalk/Parapet	22	20-May-24	21-Jun-24
A3040	Broad - Install Fence/Rail	10	25-Jul-24	09-Aug-24



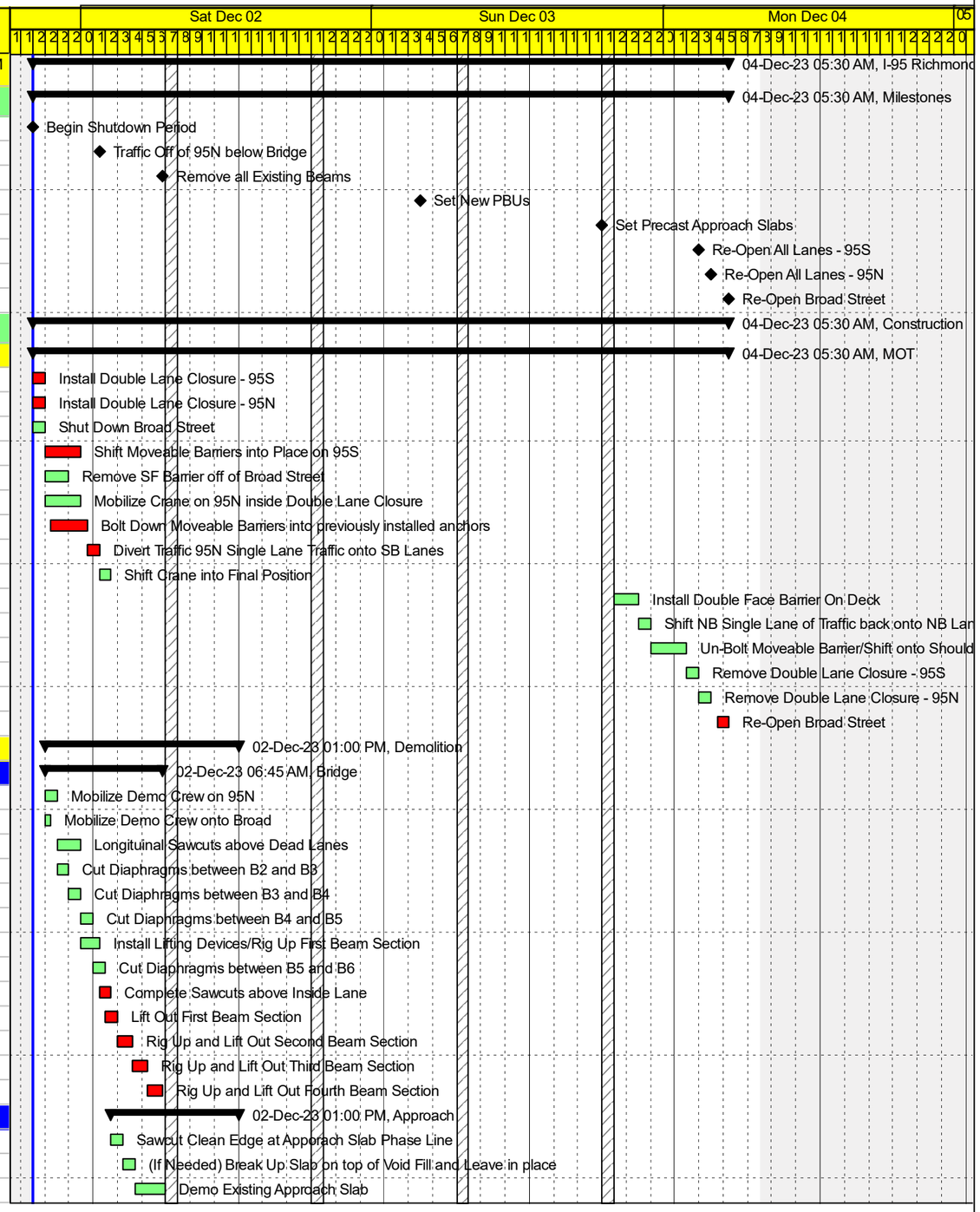
Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish
A3050	Broad -F/P/C Closure Pours	10	25-Jul-24	09-Aug-24
Roadway		231	29-Sep-23	16-Aug-24
A3880	Broad - Demo Phase 1A Sidewalk	3	29-Sep-23	04-Oct-23
A3990	Broad - Demo Phase 1B Sidewalk	3	04-Oct-23	09-Oct-23
A4010	Broad - Demo Phase 1A Approach	1	18-Nov-23	18-Nov-23
A3890	Broad - Fill Cavity at Phase 1A Approach	1	18-Nov-23	19-Nov-23
A3900	Broad - Set Precast Approach Slab - Phase 1A	1	19-Nov-23	19-Nov-23
A3920	Broad - Build Up Base/IM - Phase 1	1	19-Nov-23	19-Nov-23
A4040	Broad - Demo Phase 1B Approach	1	25-Nov-23	25-Nov-23
A4050	Broad - Fill Cavity at Phase 1A Approach	1	25-Nov-23	26-Nov-23
A4060	Broad - Set Precast Approach Slab - Phase 1A	1	26-Nov-23	26-Nov-23
A4070	Broad - Build Up Base/IM - Phase 1	1	26-Nov-23	26-Nov-23
A3910	Broad- F/P/C Phase 1 Approach Curb/SW	10	28-Dec-23	11-Jan-24
A4080	Broad - Demo Phase 3A Sidewalk	3	08-Apr-24	11-Apr-24
A4090	Broad - Demo Phase 3B Sidewalk	3	12-Apr-24	16-Apr-24
A4100	Broad - Demo Phase 3A Approach	1	11-May-24	11-May-24
A4110	Broad - Fill Cavity at Phase 3A Approach	1	11-May-24	12-May-24
A4120	Broad - Set Precast Approach Slab - Phase 3A	1	12-May-24	12-May-24
A4130	Broad - Build Up Base/IM - Phase 3	1	12-May-24	12-May-24
A4140	Broad - Demo Phase 3B Approach	1	18-May-24	18-May-24
A4150	Broad - Fill Cavity at Phase 3A Approach	1	18-May-24	18-May-24
A4160	Broad - Set Preacast Approach Slab - Phase 3A	1	18-May-24	19-May-24
A4170	Broad - Build Up Base/IM - Phase 3	1	19-May-24	19-May-24
A4180	Broad- F/P/C Phase 3 Apprch Curb/SW	10	24-Jun-24	09-Jul-24
A3980	Broad - Final Surface/Striping	5	12-Aug-24	16-Aug-24
Allowances		0		
Contingency		0		



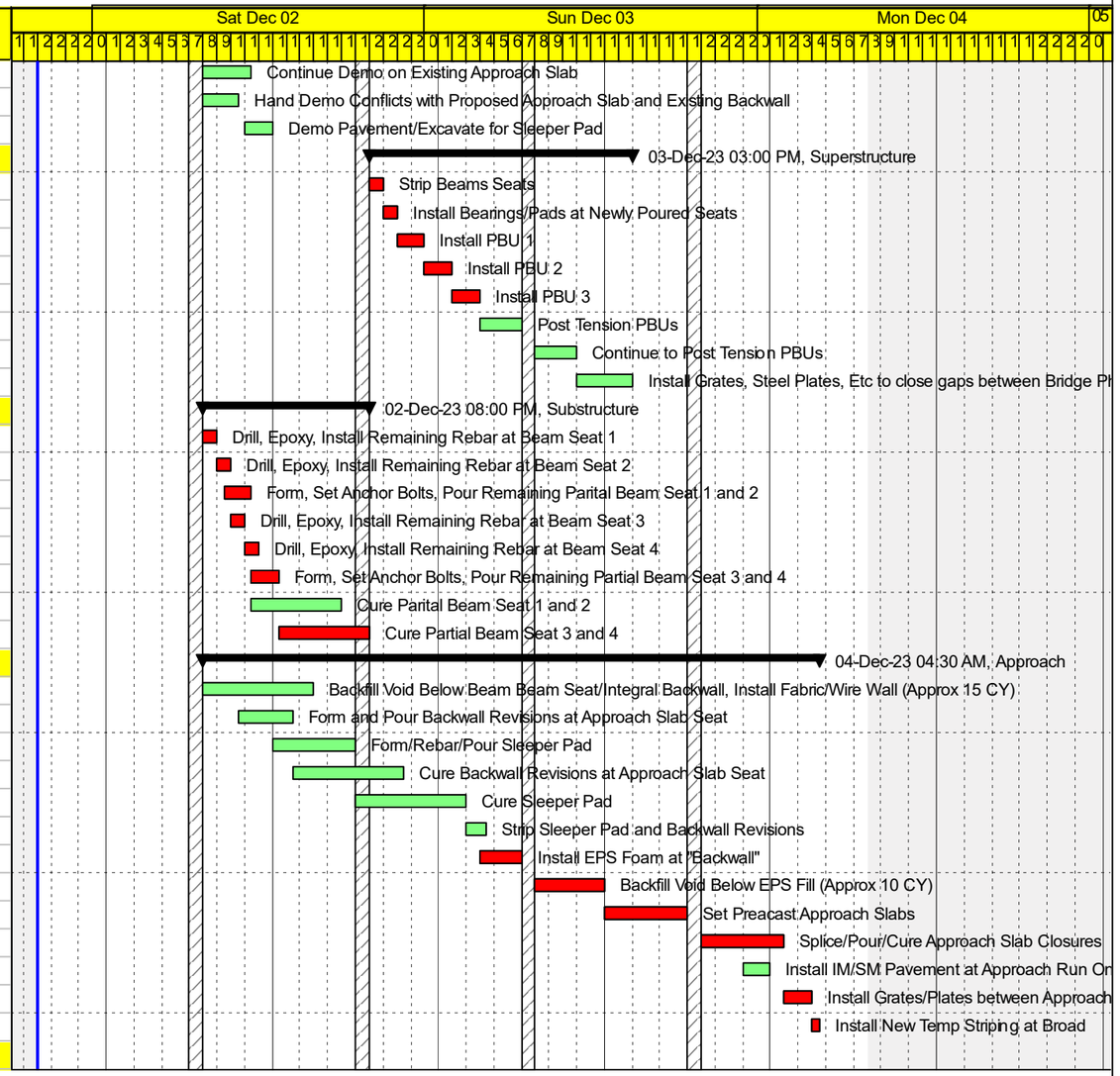
Activity ID	Activity Name	Planned Duration	Start	Finish
I-95 Richmond Bridge Bundle DB - Broad Street Weekend Shutdown		58	01-Dec-23 08:00 PM	04-Dec-23 05:30 AM
Milestones		58	01-Dec-23 08:00 PM	04-Dec-23 05:30 AM
A4230	Begin Shutdown Period	0	01-Dec-23 08:00 PM	
A4240	Traffic Off of 95N below Bridge	0		02-Dec-23 01:30 AM
A4810	Remove all Existing Beams	0		02-Dec-23 06:45 AM
A4820	Set New PBUs	0		03-Dec-23 04:00 AM
A4830	Set Precast Approach Slabs	0		03-Dec-23 07:00 PM
A4760	Re-Open All Lanes - 95S	0		04-Dec-23 03:00 AM
A4770	Re-Open All Lanes - 95N	0		04-Dec-23 04:00 AM
A4780	Re-Open Broad Street	0		04-Dec-23 05:30 AM
Construction		58	01-Dec-23 08:00 PM	04-Dec-23 05:30 AM
MOT		58	01-Dec-23 08:00 PM	04-Dec-23 05:30 AM
A4180	Install Double Lane Closure - 95S	1	01-Dec-23 08:00 PM	01-Dec-23 09:00 PM
A4190	Install Double Lane Closure - 95N	1	01-Dec-23 08:00 PM	01-Dec-23 09:00 PM
A4200	Shut Down Broad Street	1	01-Dec-23 08:00 PM	01-Dec-23 09:00 PM
A4210	Shift Moveable Barriers into Place on 95S	3	01-Dec-23 09:00 PM	02-Dec-23 12:00 AM
A4250	Remove SF Barrier off of Broad Street	2	01-Dec-23 09:00 PM	01-Dec-23 11:00 PM
A4270	Mobilize Crane on 95N inside Double Lane Closure	3	01-Dec-23 09:00 PM	02-Dec-23 12:00 AM
A4290	Bolt Down Moveable Barriers into previously installed anchors	3	01-Dec-23 09:30 PM	02-Dec-23 12:30 AM
A4220	Divert Traffic 95N Single Lane Traffic onto SB Lanes	1	02-Dec-23 12:30 AM	02-Dec-23 01:30 AM
A4280	Shift Crane into Final Position	1	02-Dec-23 01:30 AM	02-Dec-23 02:30 AM
A4700	Install Double Face Barrier On Deck	2	03-Dec-23 08:00 PM	03-Dec-23 10:00 PM
A4730	Shift NB Single Lane of Traffic back onto NB Lanes	1	03-Dec-23 10:00 PM	03-Dec-23 11:00 PM
A4740	Un-Bolt Moveable Barrier/Shift onto Shoulder	3	03-Dec-23 11:00 PM	04-Dec-23 02:00 AM
A4750	Remove Double Lane Closure - 95S	1	04-Dec-23 02:00 AM	04-Dec-23 03:00 AM
A4790	Remove Double Lane Closure - 95N	1	04-Dec-23 03:00 AM	04-Dec-23 04:00 AM
A4800	Re-Open Broad Street	1	04-Dec-23 04:30 AM	04-Dec-23 05:30 AM
Demolition		16	01-Dec-23 09:00 PM	02-Dec-23 01:00 PM
Bridge		10	01-Dec-23 09:00 PM	02-Dec-23 06:45 AM
A4340	Mobilize Demo Crew on 95N	1	01-Dec-23 09:00 PM	01-Dec-23 10:00 PM
A4350	Mobilize Demo Crew onto Broad	1	01-Dec-23 09:00 PM	01-Dec-23 09:30 PM
A4260	Longituinal Sawcuts above Dead Lanes	2	01-Dec-23 10:00 PM	02-Dec-23 12:00 AM
A4300	Cut Diaphragms between B2 and B3	1	01-Dec-23 10:00 PM	01-Dec-23 11:00 PM
A4310	Cut Diaphragms between B3 and B4	1	01-Dec-23 11:00 PM	02-Dec-23 12:00 AM
A4320	Cut Diaphragms between B4 and B5	1	02-Dec-23 12:00 AM	02-Dec-23 01:00 AM
A4360	Install Lifting Devices/Rig Up First Beam Section	2	02-Dec-23 12:00 AM	02-Dec-23 01:30 AM
A4330	Cut Diaphragms between B5 and B6	1	02-Dec-23 01:00 AM	02-Dec-23 02:00 AM
A4370	Complete Sawcuts above Inside Lane	1	02-Dec-23 01:30 AM	02-Dec-23 02:30 AM
A4380	Lift Out First Beam Section	1	02-Dec-23 02:00 AM	02-Dec-23 03:00 AM
A4390	Rig Up and Lift Out Second Beam Section	1	02-Dec-23 03:00 AM	02-Dec-23 04:15 AM
A4400	Rig Up and Lift Out Third Beam Section	1	02-Dec-23 04:15 AM	02-Dec-23 05:30 AM
A4410	Rig Up and Lift Out Fourth Beam Section	1	02-Dec-23 05:30 AM	02-Dec-23 06:45 AM
Approach		11	02-Dec-23 02:30 AM	02-Dec-23 01:00 PM
A4420	Sawcut Clean Edge at Apporach Slab Phase Line	1	02-Dec-23 02:30 AM	02-Dec-23 03:30 AM
A4430	(If Needed) Break Up Slab on top of Void Fill and Leave in place	1	02-Dec-23 03:30 AM	02-Dec-23 04:30 AM
A4440	Demo Existing Approach Slab	3	02-Dec-23 04:30 AM	02-Dec-23 07:00 AM



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

TASK filter: All Activities

Activity ID	Activity Name	Planned Duration	Start	Finish
A4450	Continue Demo on Existing Approach Slab	4	02-Dec-23 08:00 AM	02-Dec-23 11:30 AM
A4540	Hand Demo Conflicts with Proposed Approach Slab and Existing Backwall	3	02-Dec-23 08:00 AM	02-Dec-23 10:30 AM
A4570	Demo Pavement/Excavate for Sleeper Pad	2	02-Dec-23 11:00 AM	02-Dec-23 01:00 PM
Superstructure		19	02-Dec-23 08:00 PM	03-Dec-23 03:00 PM
A4600	Strip Beams Seats	1	02-Dec-23 08:00 PM	02-Dec-23 09:00 PM
A4610	Install Bearings/Pads at Newly Poured Seats	1	02-Dec-23 09:00 PM	02-Dec-23 10:00 PM
A4620	Install PBU 1	2	02-Dec-23 10:00 PM	03-Dec-23 12:00 AM
A4630	Install PBU 2	2	03-Dec-23 12:00 AM	03-Dec-23 02:00 AM
A4640	Install PBU 3	2	03-Dec-23 02:00 AM	03-Dec-23 04:00 AM
A4670	Post Tension PBUs	3	03-Dec-23 04:00 AM	03-Dec-23 07:00 AM
A4680	Continue to Post Tension PBUs	3	03-Dec-23 08:00 AM	03-Dec-23 11:00 AM
A4720	Install Grates, Steel Plates, Etc to close gaps between Bridge Phases	4	03-Dec-23 11:00 AM	03-Dec-23 03:00 PM
Substructure		12	02-Dec-23 08:00 AM	02-Dec-23 08:00 PM
A4460	Drill, Epoxy, Install Remaining Rebar at Beam Seat 1	1	02-Dec-23 08:00 AM	02-Dec-23 09:00 AM
A4470	Drill, Epoxy, Install Remaining Rebar at Beam Seat 2	1	02-Dec-23 09:00 AM	02-Dec-23 10:00 AM
A4500	Form, Set Anchor Bolts, Pour Remaining Parital Beam Seat 1 and 2	2	02-Dec-23 09:30 AM	02-Dec-23 11:30 AM
A4480	Drill, Epoxy, Install Remaining Rebar at Beam Seat 3	1	02-Dec-23 10:00 AM	02-Dec-23 11:00 AM
A4490	Drill, Epoxy, Install Remaining Rebar at Beam Seat 4	1	02-Dec-23 11:00 AM	02-Dec-23 12:00 PM
A4510	Form, Set Anchor Bolts, Pour Remaining Partial Beam Seat 3 and 4	2	02-Dec-23 11:30 AM	02-Dec-23 01:30 PM
A4520	Cure Parital Beam Seat 1 and 2	7	02-Dec-23 11:30 AM	02-Dec-23 06:00 PM
A4530	Cure Partial Beam Seat 3 and 4	7	02-Dec-23 01:30 PM	02-Dec-23 08:00 PM
Approach		45	02-Dec-23 08:00 AM	04-Dec-23 04:30 AM
A3890	Backfill Void Below Beam Beam Seat/Integral Backwall, Install Fabric/Wire Wall (Appr	8	02-Dec-23 08:00 AM	02-Dec-23 04:00 PM
A4550	Form and Pour Backwall Revisions at Approach Slab Seat	4	02-Dec-23 10:30 AM	02-Dec-23 02:30 PM
A4580	Form/Rebar/Pour Sleeper Pad	6	02-Dec-23 01:00 PM	02-Dec-23 07:00 PM
A4560	Cure Backwall Revisions at Approach Slab Seat	8	02-Dec-23 02:30 PM	02-Dec-23 10:30 PM
A4590	Cure Sleeper Pad	8	02-Dec-23 07:00 PM	03-Dec-23 03:00 AM
A4690	Strip Sleeper Pad and Backwall Revisions	2	03-Dec-23 03:00 AM	03-Dec-23 04:30 AM
A4650	Install EPS Foam at "Backwall"	3	03-Dec-23 04:00 AM	03-Dec-23 07:00 AM
A4660	Backfill Void Below EPS Fill (Approx 10 CY)	5	03-Dec-23 08:00 AM	03-Dec-23 01:00 PM
A3900	Set Preacast Approach Slabs	6	03-Dec-23 01:00 PM	03-Dec-23 07:00 PM
A4710	Splice/Pour/Cure Approach Slab Closures	6	03-Dec-23 08:00 PM	04-Dec-23 02:00 AM
A4840	Install IM/SM Pavement at Approach Run On	2	03-Dec-23 11:00 PM	04-Dec-23 01:00 AM
A4850	Install Grates/Plates between Approach Phases	2	04-Dec-23 02:00 AM	04-Dec-23 04:00 AM
A4860	Install New Temp Striping at Broad	1	04-Dec-23 04:00 AM	04-Dec-23 04:30 AM
Utility		0		



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TASK filter: All Activities

VDOT

CORMAN KOKOSING

WRA