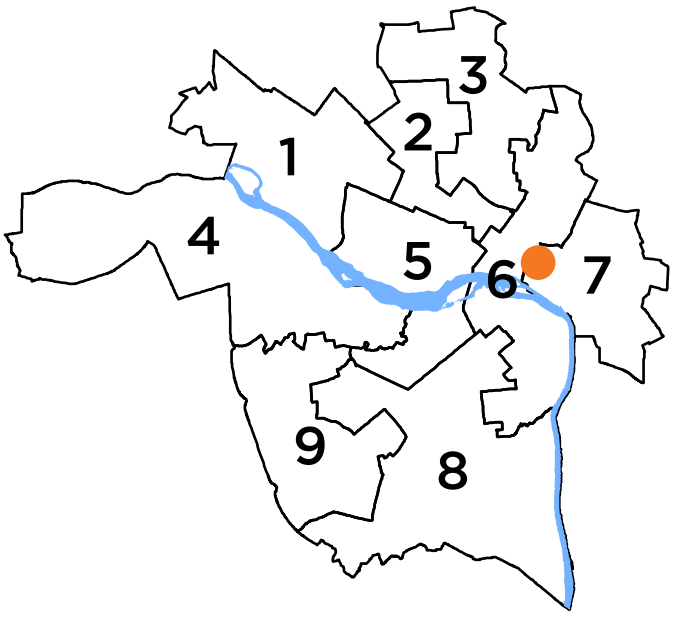
City of Richmond
Department of Planning
and Development Review

Urban Design Committee
17.05 Review

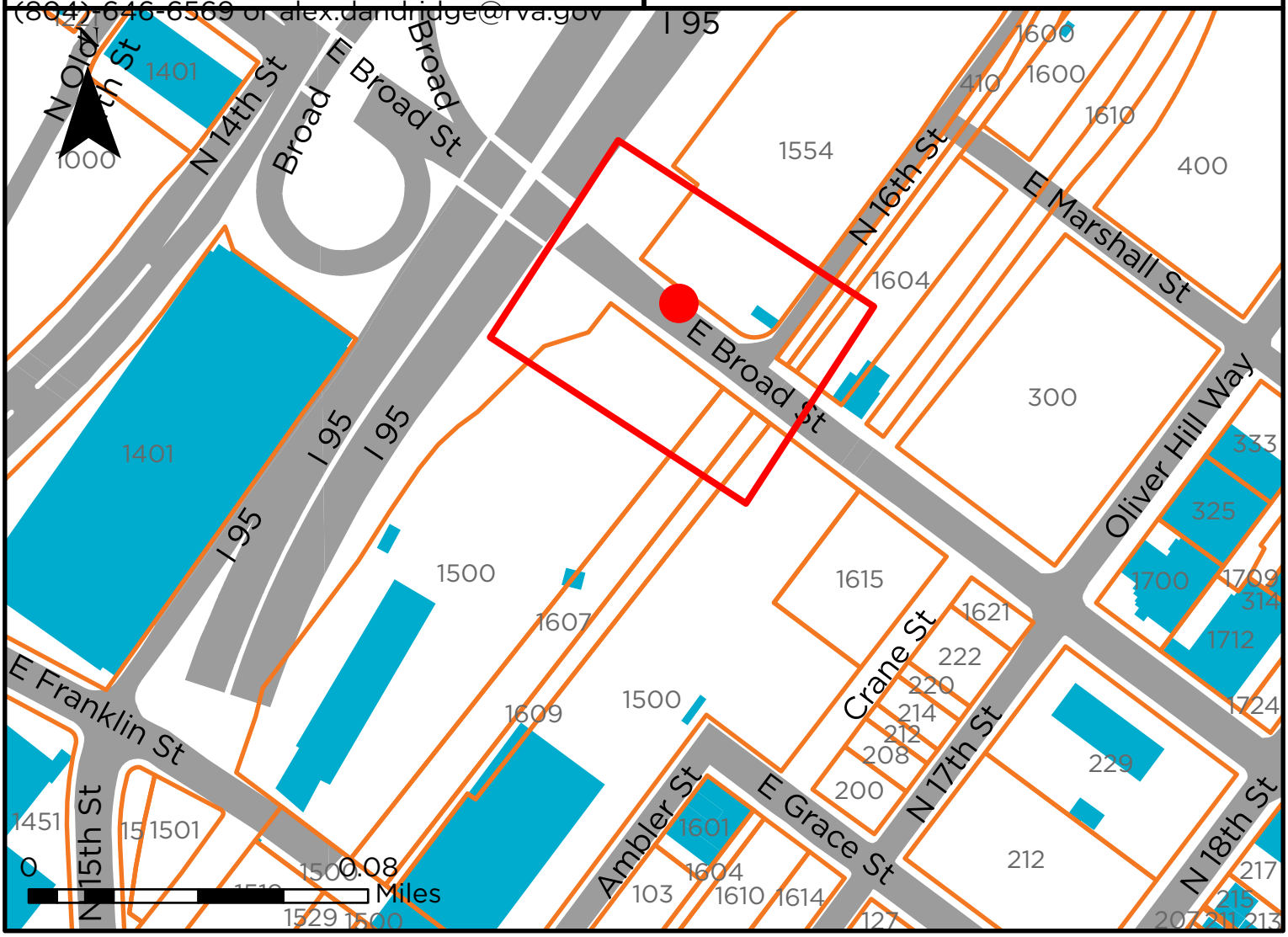
Address: 1554 E. Broad St

Council Distrcit: 7

Description: Conceptual 17.05 review of the replacement of a bridge on E. Broad Street



For questions, please contact Alex Dandridge
(804)-646-6569 or alex.dandridge@rva.gov



Application for Urban Design Committee Review

Department of Planning and Development Review
Planning & Preservation Division
900 E. Broad Street, Room 510
Richmond, Virginia 23219 | (804) 646-6335
www.rva.gov/planning-development-review/urban-design-committee

RICHMOND PLANNING & DEVELOPMENT REVIEW
PDR

Application Type (select one)

- [ ] Location, Character, & Extent
- [x] Section 17.05
- [ ] Other:
- [ ] Encroachment
- [ ] Design Overlay District

Review Type (select one)

- [x] Conceptual
- [ ] Final

Project Information

Submission Date: 04/01/22

Project Name: Broad St over Abandonded RR Spur Bridge Replacement

Project Address: 1554 E. Broad St

Brief Project Description (this is not a replacement for the required detailed narrative):

The purpose for this project is to replace the existing structurally deficient bridge carrying E. Broad Street over abandoned RR spurwith a new structure to eliminate a structurally deficient bridge from the City's inventory. The project is a "bridge only" replacement, meaning no increase to the existing roadway capacity is included in the scope of the project. The project is 100% federally funded in the amount of $ 3,965,000. The estimated construction start date is June 2023. It is the intent of the City to construct the project at the same time VDOT is replacing their bridge over I-95.

Applicant Information (a City representative must be the applicant, with an exception for encroachments)

Name: Thomas Westbrook Email: thomas.westbrook@rva.gov

City Agency: Public Works Phone: (804) 646-3421

Main Contact (if different from Applicant): Ashley Johnson

Company: Timmons Group Phone: (804) 200-6383

Email: Ashley.Johnson@timmons.com

Submittal Deadlines

All applications and support materials must be filed no later than 21 days prior to the scheduled meeting of the Urban Design Committee (UDC). Please see the schedule on page 3 as actual deadlines are adjusted due to City holidays. **Late or incomplete submissions will be deferred to the next meeting.**

Filing

Applications can be mailed or delivered to the attention of "Urban Design Committee" at the address listed at the top of this page. **It is important that the applicant discuss the proposal with appropriate City agencies, Zoning Administration staff, and area civic associations and residents prior to filing the application with the UDC.**

Submittal Deadlines

The UDC is a ten member committee created by City Council in 1968 whose purpose is to advise the City Planning Commission (CPC) on the design of projects on City property or right-of-way. The UDC provides advice of an aesthetic nature in connection with the performance of the duties of the Commission under Sections 17.05, 17.06, and 17.07 of the City Charter. The UDC also advises the Department of Public Works in regards to private encroachments in the public right-of-way.

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Submssion Requirements

•An electronic copy (PDF preferred) of all application materials, which can be emailed, or delivered by FTP or USB.
•Three (3) copies of the application cover sheet and all support materials (see below).
•Plan sheets should be 11" x 17", folded to 8 1/2" x 11". If it is not possible to scale plans to these dimensions, please provide one set of larger, scaled plans.
•All applications must include the attached cover sheet and the following support materials, as applicable to the project, based on Review Type:

Conceptual Review:

•A detailed project narrative which includes the following: purpose of the project, project background, project budget and funding sources, description of construction program and estimated construction start date (description should also provide information on the surrounding area to provide context).
•A site plan for the project indicating site characteristics which include: building footprints, parking areas, pedestrian routes, recreation areas, open areas, and areas of future expansion.
•A set of floor plans and elevations, as detailed as possible.
•A landscaping plan which shows the general location and character of plant materials and notes any existing tree to be removed.

Final Review:

•A detailed project narrative which includes the following: purpose of the project, project background, project budget and funding sources, description of construction program, and estimated construction start date (description should also provide information on the surrounding area to provide context).
•A site plan for the project indicating site characteristics which include: building footprints, parking areas, pedestrian routes, recreation areas, open areas, and areas of future expansion.
•A set of floor plans and elevations, as detailed as possible.
•A landscaping plan that includes a complete plant schedule, the precise location of all plant materials, and a landscape maintenance analysis. The plant schedule must show number, size and type of each planting proposed. If existing trees are to be removed, their size, type, and location must be noted on the landscape plan.
•The location of all lighting units should be noted on a site plan, including wall-mounted, site, and parking lot lighting. Other site details such as benches, trash containers, and special paving materials should also be located. Include specification sheets for each item.
•Samples of all proposed exterior building materials, including but not limited to brick, mortar, shingles, siding, glass, paint, and stain colors. When an actual sample cannot be provided, a product information sheet that shows the item or a photo of an existing item may be substituted.

Review and Processing

•Once an application is received, it is reviewed by Staff, who compiles a report that is sent to the UDC.
•A copy of the report and the meeting agenda will be sent to the applicant prior to the meeting.
•At the UDC meeting, the applicant or a representative should be present or the application may be deferred to the next regularly scheduled meeting. It is also strongly suggested that a representative of the City Agency which will have final responsibility for the item be present at the meeting (if the applicant and the representative are not the same).
•Once the UDC recommends action on the application, it is automatically placed on the agenda for the next City Planning Commission (CPC) meeting. Exceptions to this are encroachment applications, recommendations for which are forwarded to the Department of Public Works.
•At the CPC meeting, the applicant or a representative should be present, or the application may be deferred to the next regularly scheduled meeting.

last revised 6/10/2019

Application for Urban Design Committee Review

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Regular meetings are scheduled on the Thursday after the first Monday of each month at **10:00 a.m. in the 5th floor conference room of City Hall, 900 E. Broad Street**. Special meetings are scheduled as needed.

Meeting Schedule 2020

UDC Meetings	UDC Submission Deadlines	Anticipated Date of Planning Commission Following the UDC Meeting
December 5, 2019	November 14, 2019	December 16, 2019
January 9, 2020	December 12, 2019	January 21, 2020 [1]
February 6, 2020	January 16, 2020	February 18, 2020 [2]
March 5, 2020	February 13, 2020	March 16, 2020
April 9, 2020	March 12, 2020	April 20, 2020
May 7, 2020	April 16, 2020	May 18, 2020
June 4, 2020	May 14, 2020	June 15, 2020
July 9, 2020	June 11, 2020	July 20, 2020
August 6, 2020	July 16, 2020	August 17, 2020 [3]
September 10, 2020	August 13, 2020	September 21, 2020
October 8, 2020	September 17, 2020	October 19, 2020
November 5, 2020	October 15, 2020	November 16, 2020
December 10, 2020	November 12, 2020	December 21, 2020 [4]

[1] Monday, January 20, 2020 is a City of Richmond Holiday.
[2] Monday, February 17, 2020 is a City of Richmond Holiday.
[3] This August CPC Meeting may be canceled. If so, Planning Commission hearing would be Tuesday, September 8, 2020.
[4] This December CPC Meeting may be canceled.

The Richmond Urban Design Committee is a ten member advisory committee created by City Council in 1968. Its purpose is to advise the City Planning Commission on the design of City projects. The Urban Design Committee reviews projects for appropriateness in "location, character, and extent" and for consistency with the City's Master Plan and forwards recommendations to the City Planning Commission. The Urban Design Committee also advises the Department of Public Works in regards to private encroachments in the public right-of-way.

For more information, please contact the Planning and Preservation Division staff at (804) 646-6335 or Alex Dandridge at (804) 646-6569 or at alex.dandridge@richmondgov.com.

BROAD STREET (ROUTE. 250) OVER CSXT ROW: PRELIMINARY STRUCTURES REPORT

JUNE 25, 2020

PREPARED FOR:

City of Richmond Department of Public Works
900 E. Broad Street
Richmond, Virginia 23219

PREPARED BY:

Timmons Group
1001 Boulders Parkway, Suite 300
Richmond, Virginia 23225

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

Table of Contents

Introduction

Authority

This study was authorized by the Department of Public Works of the City of Richmond (the City) as part of the design services for the subject project. Timmons Group (Timmons) is providing the Stage I bridge design services under an on-call contract with the City and based on the executed scope and fee letter dated March 20, 2020.

Project Purpose

The purpose for this project is to replace the existing structurally deficient bridge carrying Broad Street over CSXT Right-of-Way with a new structure to eliminate a structurally deficient bridge from the City's inventory. The project is a "bridge only" replacement, meaning no increase to the existing roadway capacity is included in the scope of the project.

The scope of work for this project consists of preliminary design. Preliminary design includes the development of 30% bridge plans, this Stage I Report, and an initial cost estimate.

Roadway Functional Classifications Information

The functional classification of Broad Street (Route 250) over abandoned CSXT Right-of-Way is a Principal Arterial. The current average annual daily traffic (AADT) is estimated to be 28,000 vehicles per day (from VDOT Traffic Engineering Division 2019 data) with approximately 1% truck traffic and 1% bus traffic. According to the VDOT Road Design Manual, the required design speed is 25 mph. The current posted speed limit along Broad Street is 25 mph.

Roadway Geometry

The roadway alignment along Broad Street runs west to east. The existing roadway is approximately 42 feet wide, which includes four travel lanes with two in each direction, approximately 10 feet wide.

The total roadway width for an urban principal arterial with curb and gutter roadway, based on VDOT geometric design criteria, is controlled by lane width set at 11' when design speed is 40 mph or less. However, for instances which carry restrictions on truck traffic, the lane width may be reduced by 1'. Truck restrictions are imposed due to railroad trestle east of the bridge location which limits the height of the travel way.

As is customary on low speed corridors, and in agreement with VDOT guidelines, we propose to use a design speed of 25 mph, which matches the currently posted speed limit. In an effort to reduce right-of-way, environmental, and utility impacts of the new bridge the approach roadway alignment will not be shifted. The proposed roadway typical sections will remain consistent with those currently in place.

Data Sources

The following data sources were used in the development of this report:

- Structure Inspection Report (Timmons Group April 2020)
- Design Drawings (December 1906, revised March 31, 1909)
- Field notes and project meeting minutes
- City of Richmond provided utility mapping

Design Criteria

The following design criteria were used to develop the Stage I Report and preliminary bridge plans

- AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017
- VDOT Modifications to the AASHTO LRFD Bridge Design Specifications (IIM-S&B-80.6) dated October 31, 2018
- VDOT Road and Bridge Standards, 2016
- VDOT Road and Bridge Specifications, 2020
- VDOT Manual of the Structure and Bridge Division, Part 2 – Design Aides & Typical Details
- VDOT Manual of the Structure and Bridge Division, Part 5 – Prestressed Concrete Adjacent Member Standards
- VDOT Road Design Manual (January 2005), revised January 2019
- VDOT Drainage Manual (April 2002), revised March 2019
- VDOT Work Area Protection Manual (WAPM), 2011, revised April 2015
- VDOT Traffic Engineering Traffic Count Data (2017)

Site Description

The existing bridge and approach roadway consists of a four-lane facility located in an urban area. The roadway is classified as a Primary Arterial with a posted speed limit of 25 mph.

The existing 34-foot, single span structure was constructed in 1909 and consists of a concrete encased multi-steel beam superstructure set on reinforced concrete substructure with slight skew. The framing system consists of 53 steel I-beams (16” deep) spaced at approximately 2’-0” on center. The bridge carries four travel lanes of Broad Street.

The travel width of the existing bridge is approximately 42’-0” measured face-to-face of curb with an out-to-out width of approximately 66’-0”.

The land in the immediate vicinity of the project is generally urban with some historical areas nearby.

Project Location

The bridge is located within the City of Richmond limits on Broad Street over abandoned CSXT Right-of-Way, approximately 1,000 feet west of the intersection of Broad Street and 18th Street. The bridge is adjacent to the Lumpkin’s Slave Jail and Richmond African Burial Ground. The project location map is provided in Attachment 1 of this report. The proposed tunnel will be constructed in the same location as the existing bridge.

Geotechnical Description

Based on observations noted in the previous bridge inspection report and during Timmons’ field visit, the existing bridge is believed to be founded on shallow foundations, utilizing a gravity-type abutment structure.

According to the 1993 Geologic Map of Virginia, the project site is located in the Coastal Plane Physiographic Province. Locally, the site appears to be underlain by the Chesapeake Group formation, which typically consists of Tertiary aged deposits of fluvial sand, gravel and clays.

While there are currently no borings for the subject site available, borings are available for the adjacent bridge over I-95. Reviewing these borings, preliminary geotechnical recommendations are to support the proposed

tunnel on a shallow foundation system consisting of spread footings placed onto dense natural soils. Anticipated bearing capacity is 6 ksf to 8 ksf. Undercut is anticipated to control settlement. We anticipate that the project will require extensive quantities of fill soils to bury the proposed tunnel and bring the grade up to keep the current vertical alignment of Broad Street.

The geotechnical design will be further refined during final design as bridge loads are refined and a full geotechnical report will be developed. While shallow spread footings are currently assumed to be the preferred foundation alternative, other options will be considered during final design to ensure the most efficient foundation design is utilized.

Lighting

It is recommended that lighting inside the culvert be included as part of the final design.

Ventilation

It is recommended that ventilation inside the culvert be natural or passive as opposed to active/mechanically assisted.

Utilities

The existing utilities within the Broad Street corridor at the bridge is compiled based on survey field notes, documents from the original bridge plans, City utility records (as included an appendix) and information from private utility representatives. There is evidence that as many five utility lines or utility conduits have been or are currently housed within the superstructure of the existing bridge. The utilities listed from the original record drawings progressing from the southern end to the northern end are a 20” natural gas line, a 16” water main, a 8” water main, a 12” power line duct bank conduit, and a 10” telecommunications duct bank conduit.

According to the City gas inventory mapping, we believe that a 20” gas line is abandoned or is being used to house another utility at present time. According to the City waterline inventory mapping, we believe that the 8” watermain is abandoned or is being used to house another utility at present time. The other three lines are expected to be active and in use at this time.

There is an existing 3-phase overhead power line crossing Broad Street just east of the bridge that is active and must be kept in mind by the contractor on crane usage expected in the demolition of the bridge and/or the placement of the tunnel.

Timmons has made initial contact with Jonathan Cosby in the City’s Department of Public Utilities (DPU) regarding the planned 16” waterline replacement along Broad Street in the area of this bridge. The coordination of this effort should continue through final design.

There is no evidence of there being any sanitary sewer (CSO or otherwise) in the immediate vicinity of the bridge (refer to appendix).

There is a City non-encased street light power service line that runs along the northern side of Broad Street east of the bridge, a City encased street light power service line that runs along the northern side of Broad Street west of the bridge, and a City non-encased street light power service line under the bridge from the north end to the south end of the bridge providing power to a pedestal light pole in the northwest quadrant of the tunnel.

There is a 24” storm sewer system running directly under the proposed box culvert. According to City mapping (included in the appendix), this line is referred to as the “Western Interceptor” line and is recorded as a precast reinforced concrete (PRC) pipe. This storm sewer may run the risk of being damaged from the construction. Timmons recommends that measures be taken to ensure it is not damaged as part of the final design. If this is not feasible, it either be replaced in its current location or offset adjacent to the culvert as part of this project.

According to record plans of the trail design (circa 2017), there are also three (3) parallel underdrain lines (two 6” and one 12”) running under the bridge.

A utility field review meeting should be held on-site with all the utility owner representatives to initiate discussions of necessary relocation work assuming all lines are still required.

Traffic Engineering

Broad Street over the abandoned CSXT Right-of-Way is a highly traveled roadway with an Average Annual Daily Traffic (AADT) of 28,000 vehicles per day. The area that is serviced by Broad Street is a predominantly central business district and intermediate areas with low truck volumes.

The stretch of Broad Street around the bridge is mostly used as an access point to the I-95 on-ramps and as a major east-west arterial between office land uses from the west and residential & mixed use land uses from the east. There are only two access points off Broad Street in this area, one is for a small business, Hungerford Heating & Cooling facility approximately 300 feet east of the bridge, and the other is the entrance to a public and Virginia Commonwealth University (VCU) parking lot approximately 450 feet east of the bridge. Access to both entrances are planned to be maintained during the duration of construction.

Broad Street Pedestrian Crossing

There is a proposed pedestrian Hawk Signal and high visibility crossing just west of the proposed structure. The City is waiting for VDOT advertisement authorization and anticipates the proposed project to be in construction by fall or winter of 2020. City desires to not bundle this pedestrian signal with the subject work; however, coordination between the projects is anticipated as temporary signals may be necessary during construction and pavement markings may be impacted.

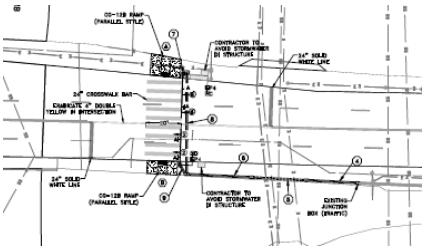


Figure 1: Broad Street Pedestrian Crossing

Sequence of Construction

Based on the condition and framing system of the existing bridge and available right-of-way limits, it is feasible to maintain traffic in both directions on Broad Street during construction of the new tunnel, although the through lanes will be reduced to one eastbound lane and one westbound lane for most of the construction duration. It is proposed to close one side of Broad Street to through traffic within the limits of the project to demolish the existing superstructure. Phasing the construction of the new road will permit limited traffic flow through this area.

The existing bridge plans do not relay enough information to rule out the possibility that the abutments are not self-supporting (i.e. – this is a possibility that the existing bridge superstructure provides support for the abutments through frame action). We have outlined in the plans a sequence of demolition/construction that takes this into account. There will be a need for partial backfill adjacent to the new culvert prior to removal of the superstructure in order to support the abutments that will be buried and remain in place. It is anticipated to use VDOT-specified select backfill material for the first stages of backfill to facilitate drainage as well as avoid compaction issues.

Environmental

Coordination with the Department of Historic Resources (DHR) will be performed through the submission of project information to DHR’s Electronic Project Information Exchange (ePIX). It is anticipated that there will need to be special provisions taken for the adjacent historical properties and accessory items such as signage.

At this time it appears that there are no wetlands or jurisdictional waters of the U.S. features in the vicinity of the project and that the project should be below RSMP requirements, strict adherence to applicable state and local erosion and sediment control/storm water management regulations will be recommended by the regulatory agencies.

Drainage

Existing approach roadway drainage flows off the paved surface to curb and gutters on either side of Broad Street. The drainage gutters direct the water into stormwater infrastructure in the surrounding area, and ultimately outlet to the James River. The existing bridge has no drainage system and debris and vegetation are collecting along the curb-lines and parapets.

For the proposed structure and approach roadway, the existing drainage patterns will be maintained. The drainage gutters will be maintained to keep water away from the structure. There will otherwise not be a need for new drainage structures in the immediate area.

Constructability and Duration

A construction duration of 9-12 months is estimated. With 28,000 VPD on Broad street, traffic reduced to two lanes during construction will have a significant impact. Consideration to incentive clauses may be considered to minimize this traffic disruption.

Access to both sides of the proposed tunnel will be achieved from the existing roadway approaches and right-of-way. Temporary construction easements will likely be required for construction of the structure.

Aesthetic Considerations

The City has voiced their intention of having 20-foot-wide cross section for a pedestrian walkway which was deemed acceptable with a concrete arch concept as to mimic that of a railway tunnel. The proposed height of the arch was determined with a focus on minimizing required grading at the termini while meeting AASHTO and VDOT minimum requirements for pedestrian use.

The preliminary structural plans have terminal walls that are perpendicular to the culvert. These walls afford the opportunity for signage, artwork, or information regarding the surrounding area. This opportunity is recommended be investigated further as part of final design. A similar system was utilized by the VDOT Route 27 / Route 244 Interchange design build project in Alexandria.

It is assumed that this project will need to go through the Urban Design Committee (UDC) process, and before the Planning Commission and City Council for aesthetic approvals.

Structure Cross-Section

The proposed roadway typical section is established based on the existing roadway and traffic conditions, the VDOT Roadway Design Manual, and the VDOT Structure and Bridge Division Manual, Part 2. The preferred typical section was discussed and decided on during the scoping process with the City.

The typical section will accommodate a 20-foot wide pedestrian path with an arched top. Timmons submitted a concept sketch to the City in April 2020 with rectangular and arch concepts. A 20-foot wide cross section was deemed desirable by the City and the arch concept as also preferred. The actual height of the arch was reduced from this initial sketch to minimize required grading at the termini.

This configuration aligns with VDOT requirements and guidelines. The VDOT Roadway Design Manual for a “shared-use path” calls for a desirable 10’ vertical clearance. In addition, the MUTCD provides requirements for vertical clearance of signs to be no less than 7’. This guidance can be utilized for the dimensions of the arch.

Structure Types Investigated

Previous discussions of options for this bridge included a superstructure replacement as well as a full bridge replacement.

Superstructure Replacement

This option was ruled out because the existing substructure that would remain is over 100 years old. There would need to be extensive work to the existing abutments to accept the new superstructure and there are inherent risks in not knowing the overall condition of the abutments or even the exact configuration of the abutments. The original design drawings allowed for options for the footings. As-built drawings are not available for the footings. In addition, there is some concern that the existing structure utilize frame-action for the support of the abutments. This issue further removes the option for a superstructure replacement.

Full Bridge Replacement

Replacing the structure with a new bridge was ruled out as the required span, given its current and future use as a pedestrian facility, is significantly less than the current span. The added complications and cost of building a bridge in the same location as existing and the impacts on maintenance of traffic further ruled out his option.

Structure Preliminary Recommendation

The preliminary recommendation, as shown on the Preliminary Drawings provided in the Attachments, consists of construction of a structure underneath the existing bridge to provide a sheltered walkway for pedestrians. Once the new fill is in place, the existing superstructure can be partially demolished. The majority of the existing substructure is anticipated to remain buried in place. A new roadway will be constructed on top of the proposed fill to reinstate the Broad Street traffic.

The structure will be comprised of a reinforced concrete arch which follows the skew of the current bridge opening. The substructure is anticipated to consist of shallow foundations.

The preliminary construction cost estimate for this project is provided in an attachment to this report. The preliminary cost estimate was developed based on information gathered from historical bid tab data, experience, and engineering judgement. The cost estimates include demolition of the existing structure, construction of the new structure, and approach roadway work.

Schedule for City Process

Assuming that the project is developed as a conventional city-managed project, the approximate milestone dates, project progress, and submittals are as follows:

- Geotechnical Investigation — July-August 2020
- Environmental Studies — July-August 2020
- 60% Plans and Estimate — September 2020
- 90% Plans, Specifications, and Estimate — October 2020
- Final Construction Documents — November 2020
- Advertisement — January 2021
- Start Construction — March 2021
- Construction Complete — March 2022

Incorporation into a VDOT Project

There have been discussions about combining this project with the projected Virginia Department of Transportation (VDOT) design build project for the rehabilitation of five bridges over I-95. One of these bridges is adjacent to the subject project and there are potential cost savings with bundling these projects together. With a projected Request for Qualifications (RFQ) date of Spring 2020 and Request for Proposals date of Fall 2020, the decision to incorporate this project into the VDOT design build project is timely.

On March 18, 2020, Jason Zhang of VDOT provided to the City their perceived risks as well as requirements to combine the projects. Following are portions of that information sent from VDOT, along with the status of each item.

VDOT Risks

Currently VDOT has identified several risks and concerns by inclusion of the sixth bridge. Those risks and concerns and are outlined below.

- The Lumpkin Bridge is outside the scope of the VDOT project, since it is not over I-95
  - Timmons assumes this is not a risk as it would end the discussion with VDOT
- Environmental/Cultural Resources (Historical & Archeological) unknowns
  - Timmons conducted work in 2014 in this area as part of the Gateway Project
  - Timmons anticipates a Categorical Exclusion is applicable for this work
- Does not appear that the City has studied this beyond a conceptual level
  - Stage 1 report is now developed
- The Lumpkin Bridge interferes with the sequencing of construction with the main bridges if trying to construct at the same time
  - This project actually aligns as there will need to be similar traffic shifts for both projects but coordination and timing is key
- The Lumpkin Bridge is not a VDOT asset
  - Timmons assumes this is not a risk as it would end the discussion with VDOT
- Unknown risks associated with City Council, Planning District Commission (PDC) and City staff preferences
  - The City has stated that they can take on these risks
- Urban Design Committee input/changes could result in increased costs and/or project development delays.
  - The City has stated that they can take on these risks

VDOT Requirements

In order for VDOT to consider including construction of this structure within the VDOT proposed design build (DB) project, they have recommended that the City develop an appropriate level of Preliminary Engineering consistent with their VDOT DB policy. Following is a summary of activities needed to be completed by the City and Timmons. VDOT has noted that the deliverables should be submitted to VDOT no later than early September 2020. The RFP for VDOT design build project is currently scheduled to be issued in November 2020.

- City will scope project (recommend using PM-100) with critical path schedule and major quantities engineer estimate with VDOT review
  - Timmons Group will provide this task
- City will take the bridge through public involvement and either posting of willingness or conduct public hearing.
  - City will conduct this work, assisted by Timmons Group

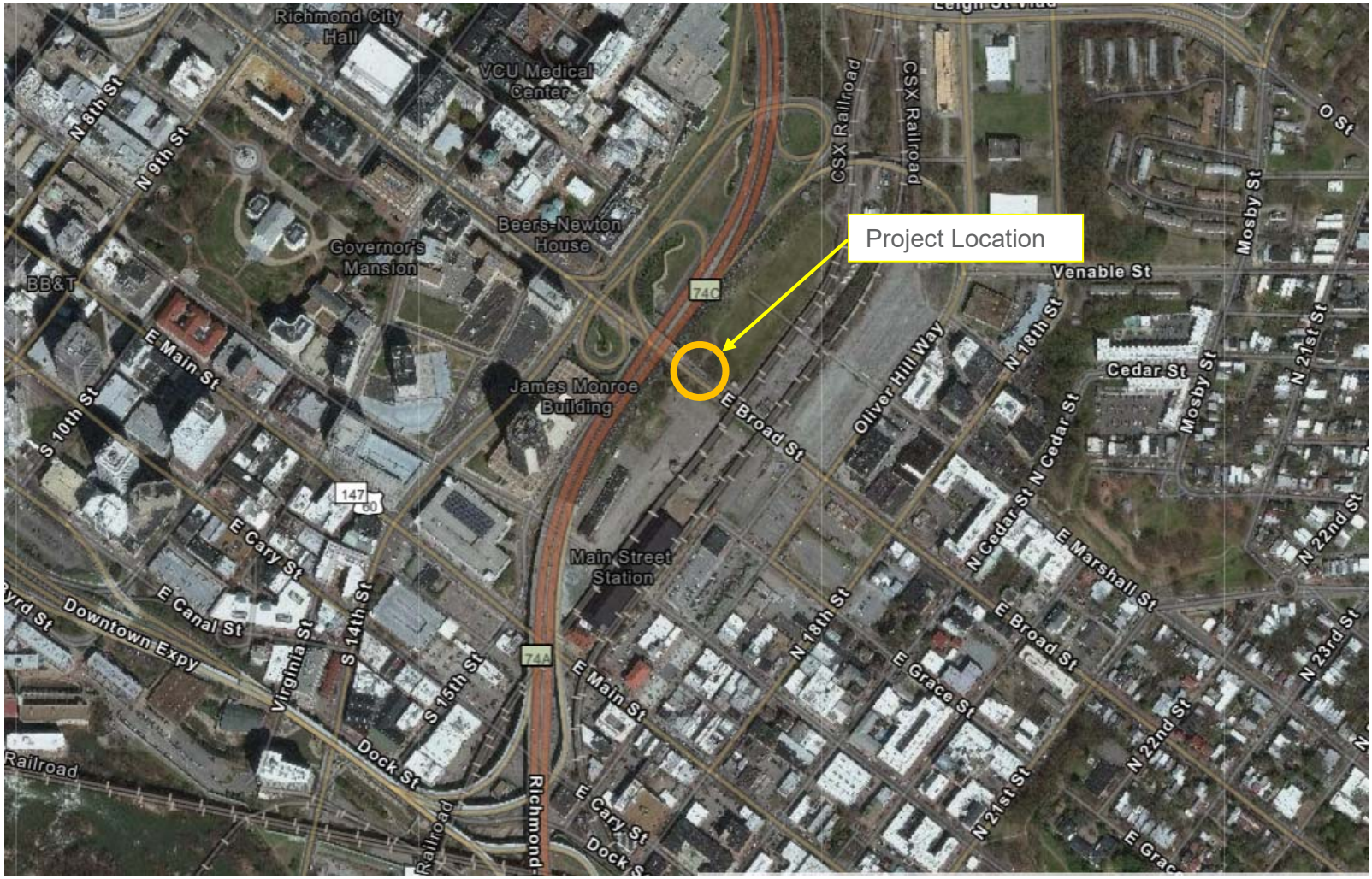
- City will complete all environmental studies and documentation to support the design build RFP, including but not limited to completing the NEPA document, performing an asbestos inspection of the bridge and any attached utilities, and providing environmental support documentation to support the RFP.
    - Timmons Group will provide this task
- City will develop engineering plans for bridge demolition and construction commensurate with public hearing plans.
    - Timmons Group is currently conducting this task
- City will close all public involvement requirements and obtain all required City Council and VDOT approvals.
    - City council requirement will be handled by the City, assisted by Timmons Group
    - VDOT to clarify what VDOT approvals do they will need
- City will obtain City Council resolution recommending project for design build
    - City will conduct this work, assisted by Timmons Group
- City will facilitate separate risk work session for their bridge
    - Timmons Group will provide this task
- City will develop final part 2 technical requirements for their bridge to be incorporated in the DB documents.
    - Timmons Group will provide this task
- City to obtain a Finding of Public Interest (FOPI) from Federal Highway for DB delivery
    - Timmons Group will provide this task
- City will obtain all City Council approvals to allow approval for award of DB construction
    - City will conduct this work, assisted by Timmons Group

Schedule for VDOT Design Build

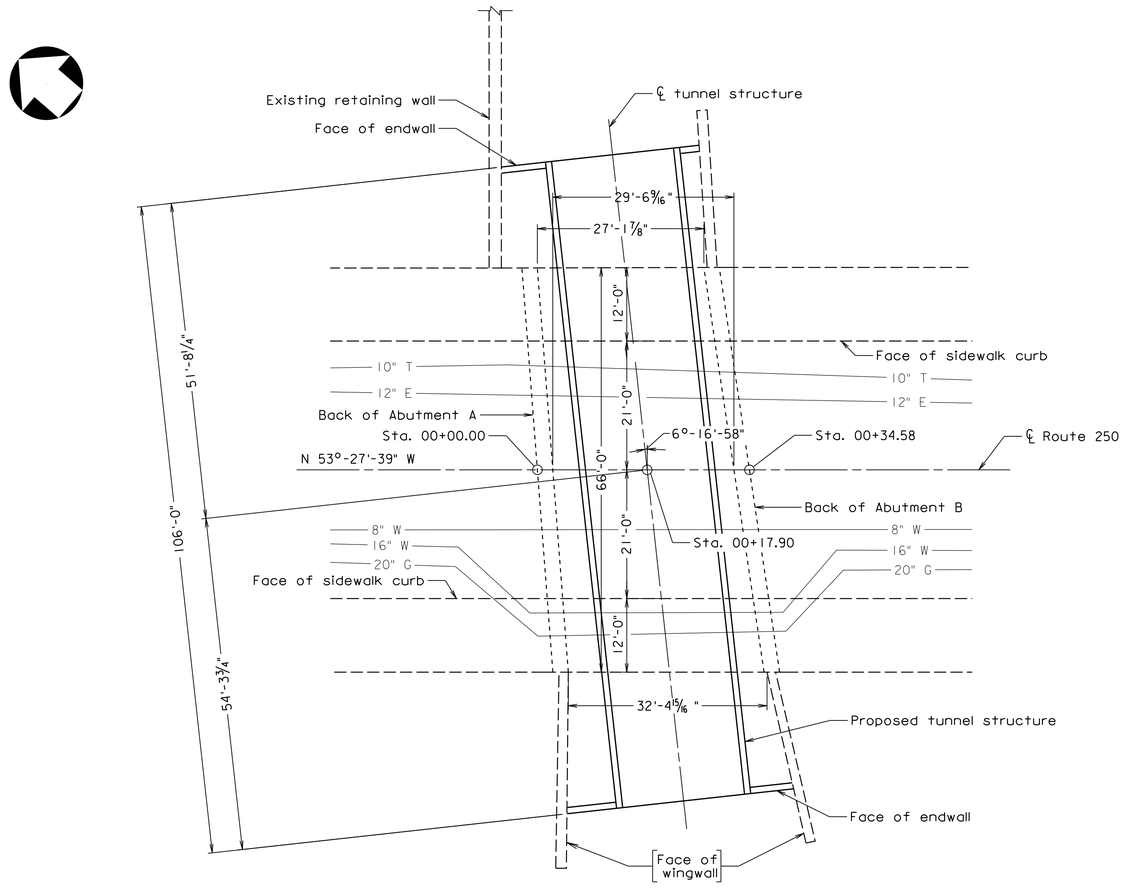
Following is a schedule for the incorporation of the bridge into the VDOT design build project. If VDOT deems that they will not incorporate it into the design build project, the subject project can proceed on as a City Project.

- City review of the Stage 1 report — June 2020
- Submit Stage 1 report to VDOT — June 2020
- VDOT approval of DB incorporation — July 2020
- Geotechnical Investigation — July-August 2020
- Environmental Studies — July-August 2020
- Full package to City for review — Late August 2020
- Full package to VDOT for incorporation — September 2020

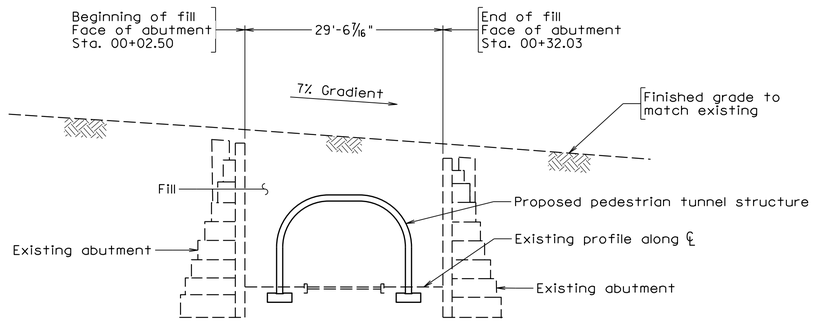
Attachment 1: Project Location Map



Attachment 2: Preliminary Plans



PLAN



ABUTMENT A ABUTMENT B

DEVELOPED SECTION ALONG ℄

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		250		1
NBIS Number:			UPC No.		
Federal Oversight Code: N/A			FHWA Construction and Scour Code:	N/A	

DESIGN EXCEPTIONS

None.

GENERAL NOTES:

Width: 12'-0" sidewalk, 42'-0" roadway, 12'-0" sidewalk; 66'-0" overall.

Span layout: 20'-0" concrete arch.

Capacity: HL-93 Loading

Specifications:

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

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; and VDOT Modifications.

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, June 2011 and latest revisions.

Virginia Structure No. of existing bridge is 21575.

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

Note to Offerors:

These plans depict the approximate location and a concept of the proposed structure. The bridge geometrics, span lengths, type and size of superstructure members and substructure elements and maintenance of traffic are to be developed by the Offeror.

B39962.088.001.GPE.dgn

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
VDOT PROJECT MANAGER
DISTRICT CONSTRUCTION MANAGER
TIMMONS GROUP RICHMOND, VA STRUCTURAL ENGINEER

PLANS BY:	Timmons Group
COORDINATED:	
SUPERVISED:	Gary S. Johnson
DESIGNED:	Gregory Kozina
DRAWN:	Gregory Kozina
CHECKED:	Jennifer A. Johnson

Scale: Not to scale

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS

For Table of Revisions, see Sheet 2.

CITY OF RICHMOND, VIRGINIA

PROPOSED BRIDGE REPLACEMENT
RTE. 250 OVER CSX R.O.W.
CITY OF RICHMOND

Recommended for Approval: _____ City Engineer Date

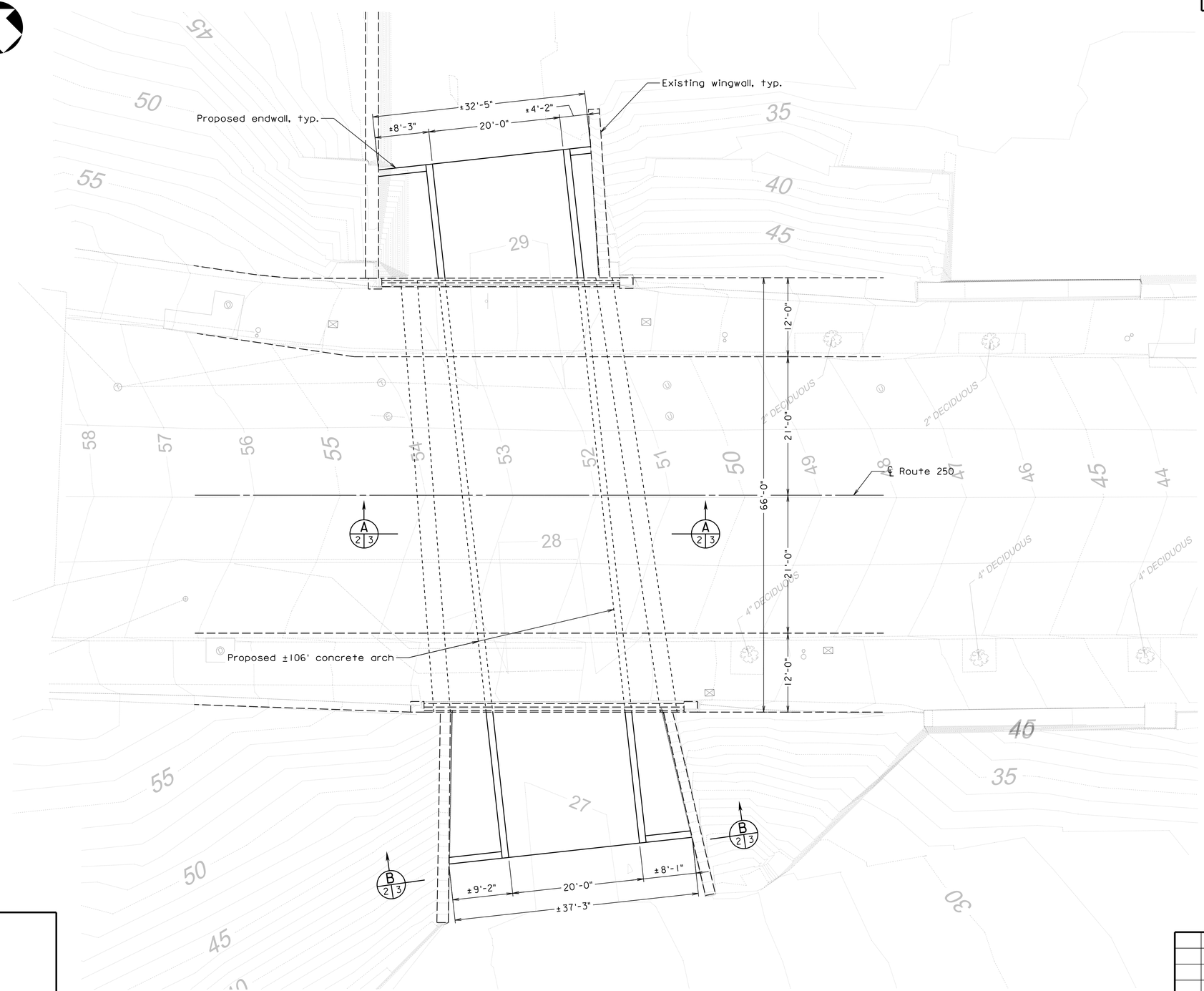
Approved: _____ Chief Engineer Date

Date: June. 23. 2020

XXX-XXX

Sheet 1 of 11

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		250		2



PEDESTRIAN TUNNEL LAYOUT

INDEX OF SHEETS

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

B39962.088.002_index.dgn

TIMMONS GROUP
RICHMOND, VA
STRUCTURAL ENGINEER

No.	Description	Date
Revisions		

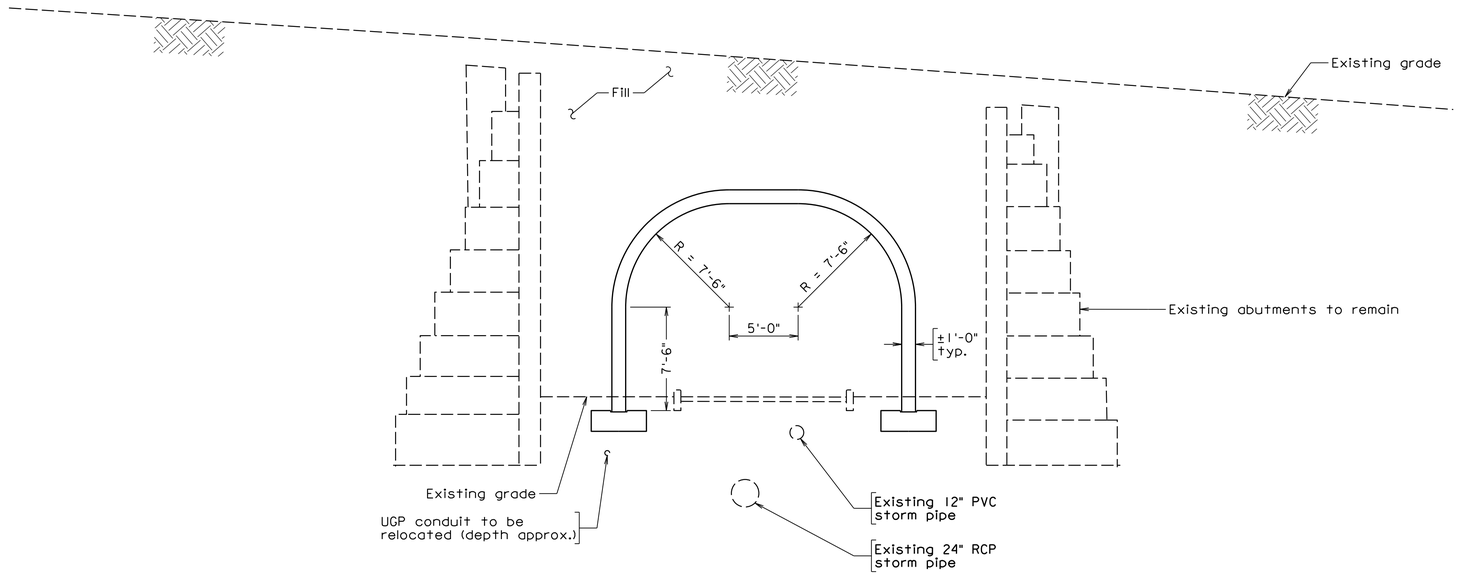
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

INDEX OF SHEETS AND PEDESTRIAN TUNNEL LAYOUT

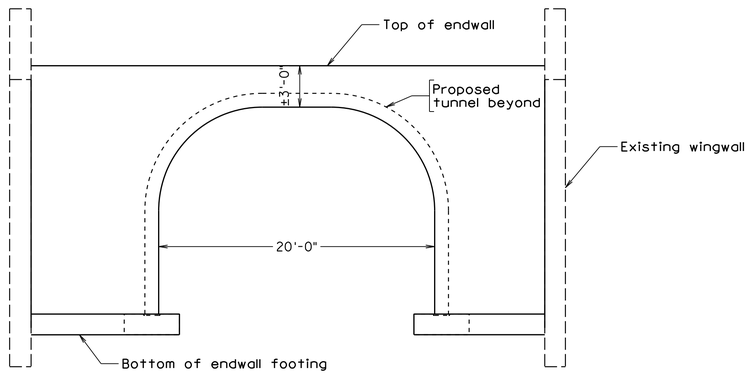
Designed: GJK	Date	Plan No.	Sheet No.
Drawn: GJK	June 2020	XXX-XXX	2 of 11
Checked: JAJ			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		250		3



SECTION A 2 3

PRECAST CONCRETE ARCH



SECTION B 2 3

CONCRETE ARCH ENDWALL

B33962.088.003.Transverse.dgn

TIMMONS GROUP
RICHMOND, VA
STRUCTURAL ENGINEER

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

TRANSVERSE SECTION

Designed: GJK	Date	Plan No.	Sheet No.
Drawn: GJK	June 2020	XXX-XXX	3 of 11
Checked: JAJ			

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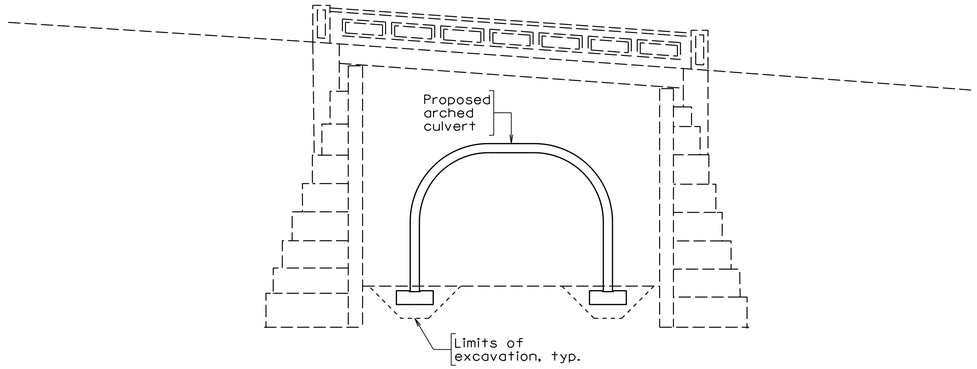
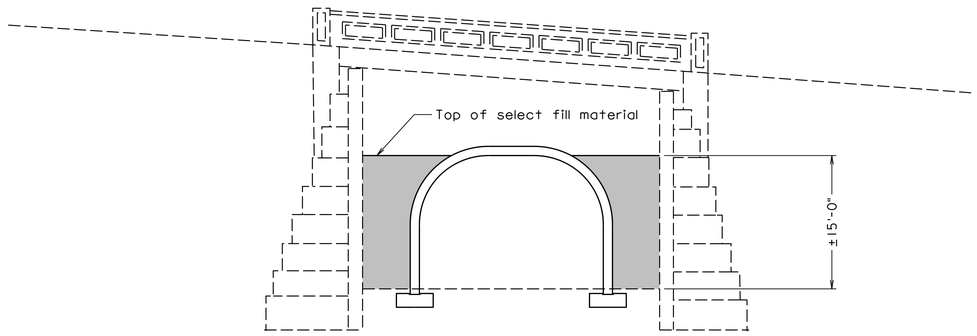
	ROUTE	PROJECT	ROUTE	PROJECT	NO.
VA.	—		250		4



PHASE IA



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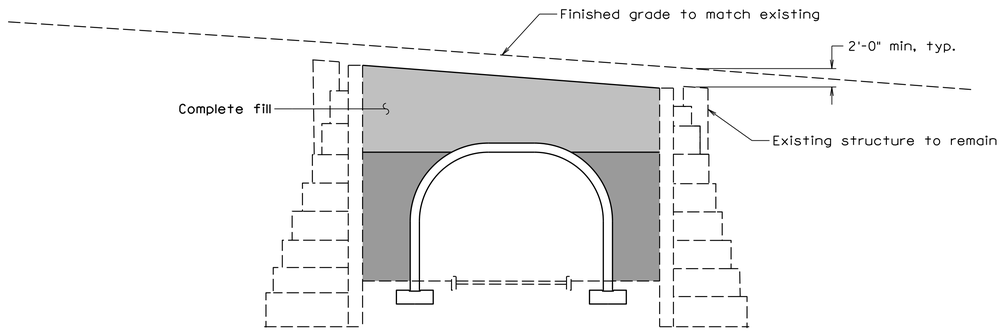

PHASE II-IV

SEQUENCE OF CONSTRUCTION NOTES:

The proposed construction shall be in accordance with the following construction procedure. However, the Contractor may submit an alternate method of performing this work for approval by the Engineer at no additional cost. Multiple mobilizations will be required to complete this work.

No bridge removal work or portion thereof may commence unless the work can be completed and the area reopened to traffic within the allowable lane closure hours. The Contractor shall maintain traffic as shown on MOT plans.

Phase IA
1. Excavate to required depth. Contractor shall limit excavation as shown and care shall be taken to not undermine the existing abutment foundations.
2. Construct new culvert structure.

Phase IB
1. Place fill soils in center 40'-0" surrounding new structures to a minimum height of 15'-0".

Phase II
1. Remove existing superstructure, and portions of existing substructure in accordance with Section 413 of the Specifications.
2. Construct endwalls.
3. Complete backfill.
4. Construct roadway.

For additional sequencing information, see roadway plans.

B39962.088.004.SequenceofConstruction.dgn

TIMMONS GROUP
RICHMOND, VA
STRUCTURAL ENGINEER

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
Revisions		

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

SEQUENCE OF CONSTRUCTION

Designed: G.K.
Drawn: G.K.
Checked: J.A.

Date	Plan No.	Sheet No.
June 2020	XXX-XXX	4 of 11

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

SURVEYED BY: ..... TIMMONS GROUP
SUPERVISED BY: ..... CMK
DESIGNED BY: ..... K.JH

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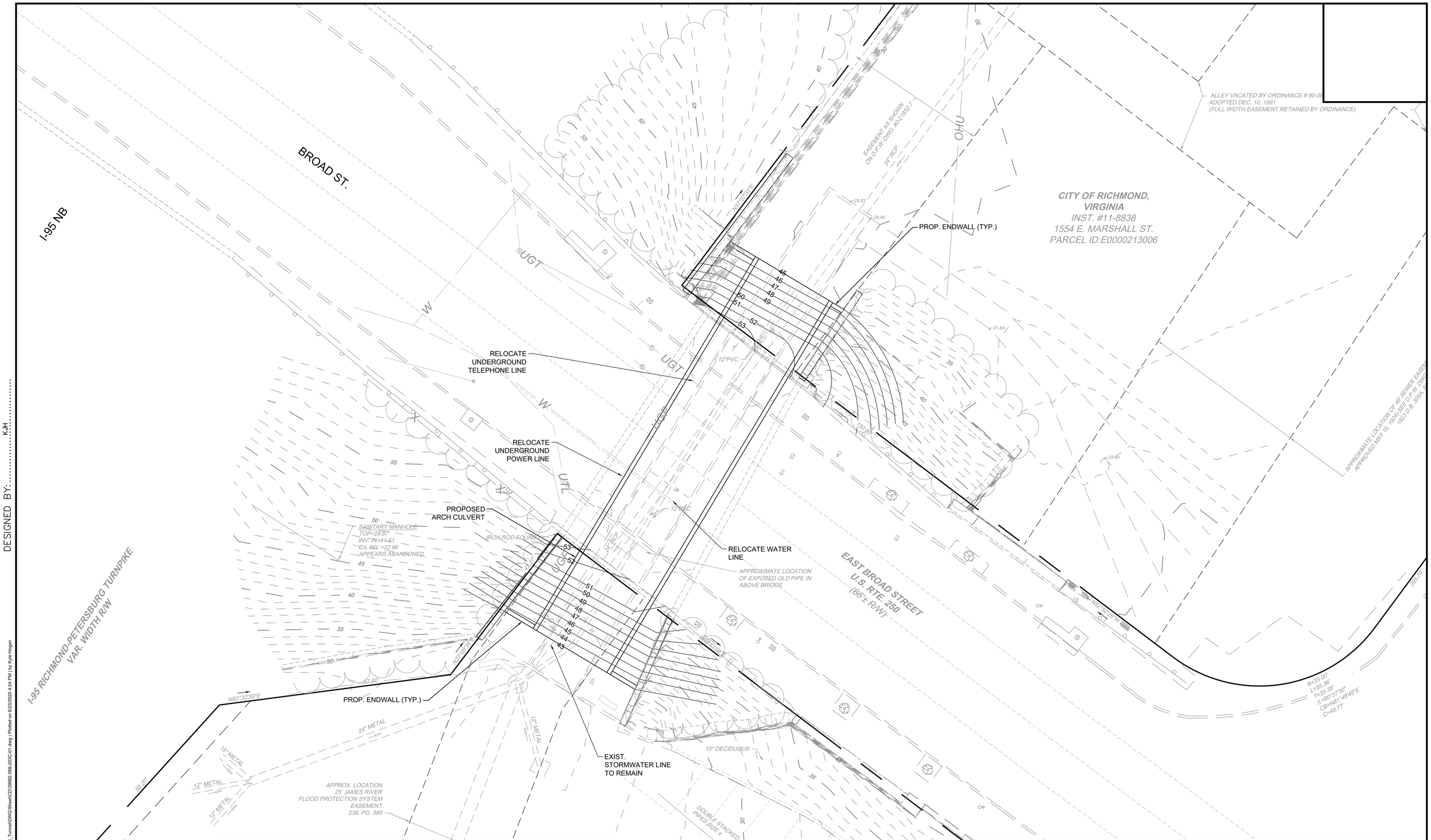


NOTES

1. Lot dimensions in parentheses are from deed.
2. Property owners correct as of December, 2018
3. Ordinance Number N/A
4. Adopted N/A
5. Accepted N/A

REFERENCES

REVISIONS

-LEGEND:-

Existing Curb
- Curb & Gutter
- Sidewalk
- Basin
- Storm Sewer
- Sewer Manhole
- Sanitary Sewer (county)
- Sanitary Sewer (New Main)
- Gas Line
- Electric Line
- Telephone/Telegraph
- TV Cable
- Water Line
- Tree / Exist. Tree To Be Removed
- Property Line

Existing Curb Cut Ramp
- Coping
- Alley Crossing/Driveway
- Edge of Pavement
- Fence
- Cornerstone
- Property Pin
- Utility Pole

Proposed Sewer
- Manhole
- Basin
- Curb & Gutter
- Asphalt

Proposed Conc. Sidewalk
- Brick Sidewalk

Castings: Water Valve
- Water Meter
- Gas Drip
- Gas Valve
- Telephone Manhole
- Electric Manhole

Proposed Curb Cut Ramp
- Decorative Light
- Conduit
- Conduit (Conc. Encased)
- Retaining Wall

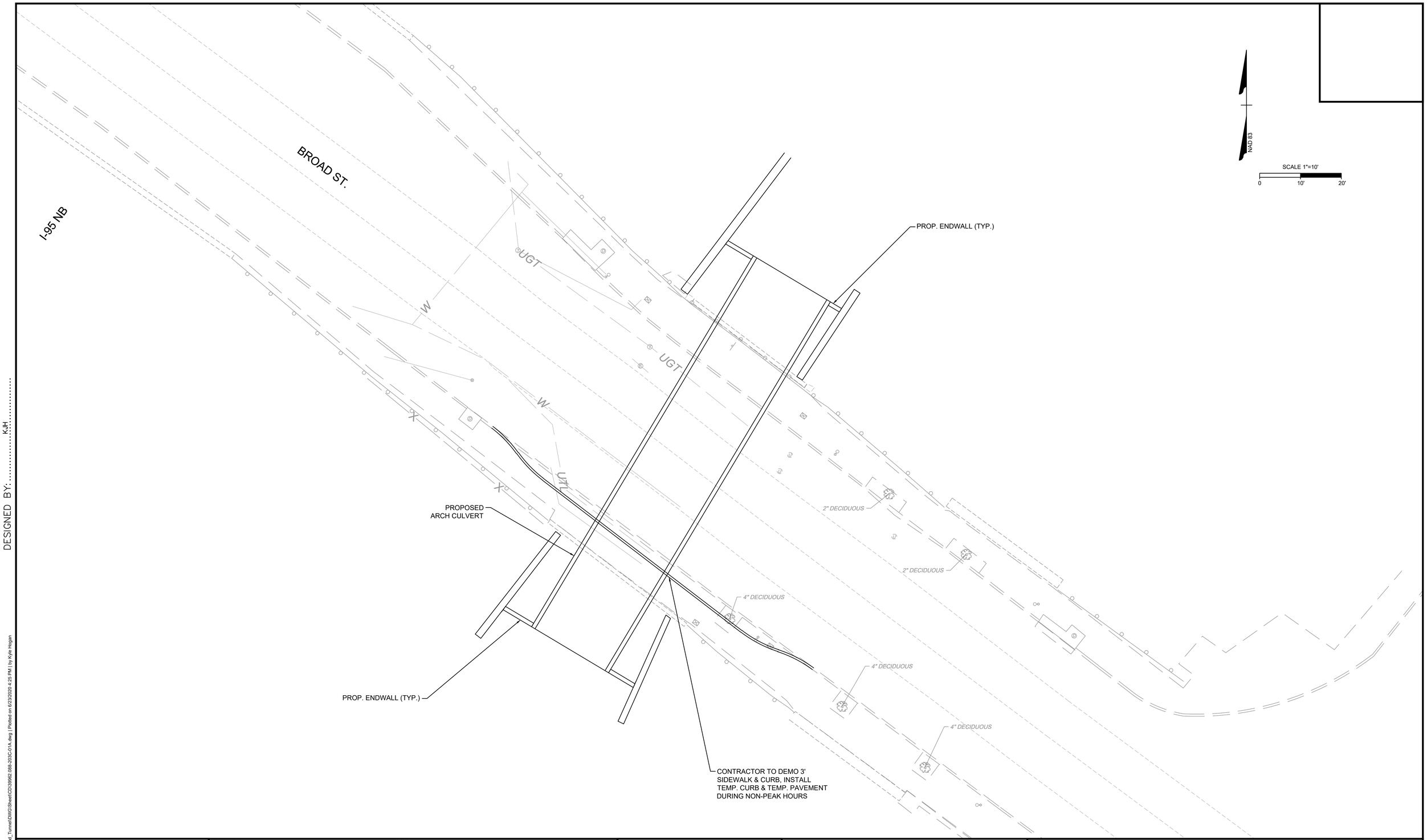
DEPARTMENT OF PUBLIC WORKS
RICHMOND, VIRGINIA

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

E. BROAD STREET TUNNEL

PROPOSED GRADING, UTILITY, AND DRAINAGE PLAN

DESIGN BY: KJH DRAWN BY: KJH CHECKED BY: CMK	REVIEWED BY	FIELD NOTES FB-XX, pp XX-XX	SCALE 1" = 10'	DATE 06/22/20	SHEET 05 OF 11	DRAWING NO.



SURVEYED BY: TIMMONS GROUP
SUPERVISED BY: CMK
DESIGNED BY: KJH

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NOTES

1. Lot dimensions in parentheses are from deed.
2. Property owners correct as of December, 2018
3. Ordinance Number N/A
4. Adopted N/A
5. Accepted N/A

REFERENCES	REVISIONS

Existing Curb
- Curb & Gutter
- Sidewalk
- Basin
- Storm Sewer
- Sewer Manhole
- Sanitary Sewer (Gravity)
- Sanitary Sewer (Force Main)
- Gas Line
- Electric Line
- Telephone/Telegraph
- TV Cable
- Water Line
- Tree / Exist. Tree To Be Removed
- Property Line

-LEGEND:-

Existing Curb Cut Ramp
- Coping
- Alley Crossing/Driveway
- Fire Hydrant
- Edge of Pavement
- Fence
- Cornerstone
- Property Pin
- Utility Pole

Proposed Sewer
- Manhole
- Basin
- Curb & Gutter
- Asphalt

Proposed Conc. Sidewalk
- Brick Sidewalk

Castings: Water Valve
- Water Meter
- Gas Drip
- Gas Valve
- Telephone Manhole
- Electric Manhole

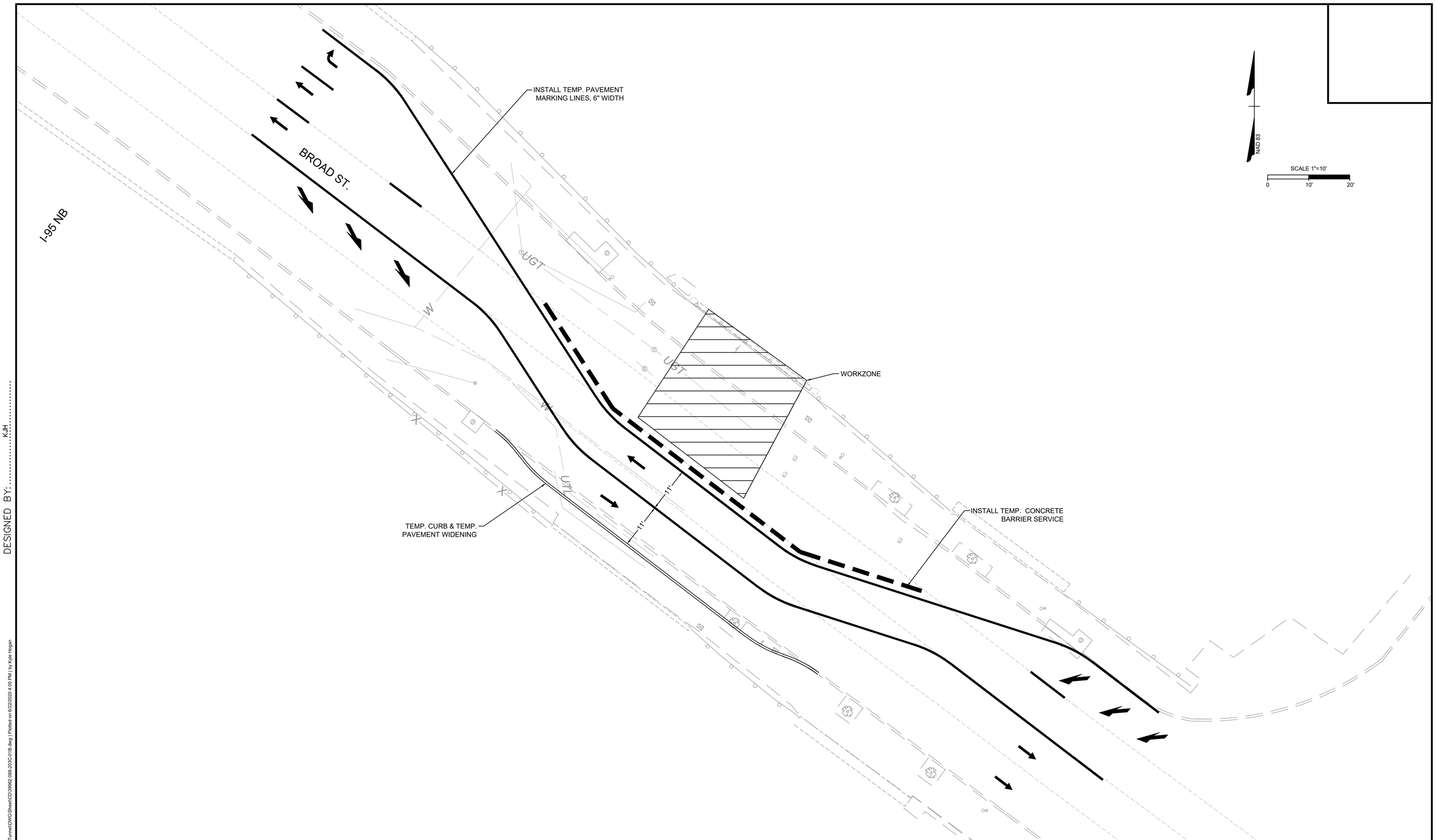
Proposed Curb Cut Ramp
- Decorative Light
- Conduit
- Conduit (Conc. Encased)
- Retaining Wall

RICHMOND VIRGINIA
DEPARTMENT OF PUBLIC WORKS
RICHMOND, VIRGINIA

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

E. BROAD STREET TUNNEL
MAINTENANCE OF TRAFFIC PHASE I

DESIGN BY: KJH DRAWN BY: KJH CHECKED BY: CMK	REVIEWED BY	FIELD NOTES FB-XX, pp XX-XX	SCALE 1" = 10'	DATE 06/22/20	SHEET 06 OF 11	DRAWING NO.



SURVEYED BY: TIMMONS GROUP
SUPERVISED BY: CMK
DESIGNED BY: KJH

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NOTES

1. Lot dimensions in parentheses are from deed.
2. Property owners correct as of December , 2018
3. Ordinance Number N/A
4. Adopted N/A
5. Accepted N/A

REFERENCES	REVISIONS

Existing Curb
- Curb & Gutter
- Sidewalk
- Basin
- Storm Sewer
- Sewer Manhole
- Sanitary Sewer (County)
- Sanitary Sewer (Force Main)
- Gas Line
- Electric Line
- Telephone/Telegraph
- TV Cable
- Water Line
- Tree / Exist. Tree To Be Removed
- Property Line

--LEGEND:--

Existing Curb Cut Ramp
- Coping
- Alley Crossing/Driveway
- Fire Hydrant
- Edge of Pavement
- Fence
- Cornerstone
- Property Pin
- Utility Pole

Proposed Sewer
- Manhole
- Basin
- Curb & Gutter
- Asphalt

Proposed Conc. Sidewalk
- Brick Sidewalk

Castings: Water Valve
- Water Meter
- Gas Drip
- Gas Valve
- Telephone Manhole
- Electric Manhole

Proposed Curb Cut Ramp
- Decorative Light
- Conduit
- Conduit (Conc. Encased)
- Retaining Wall

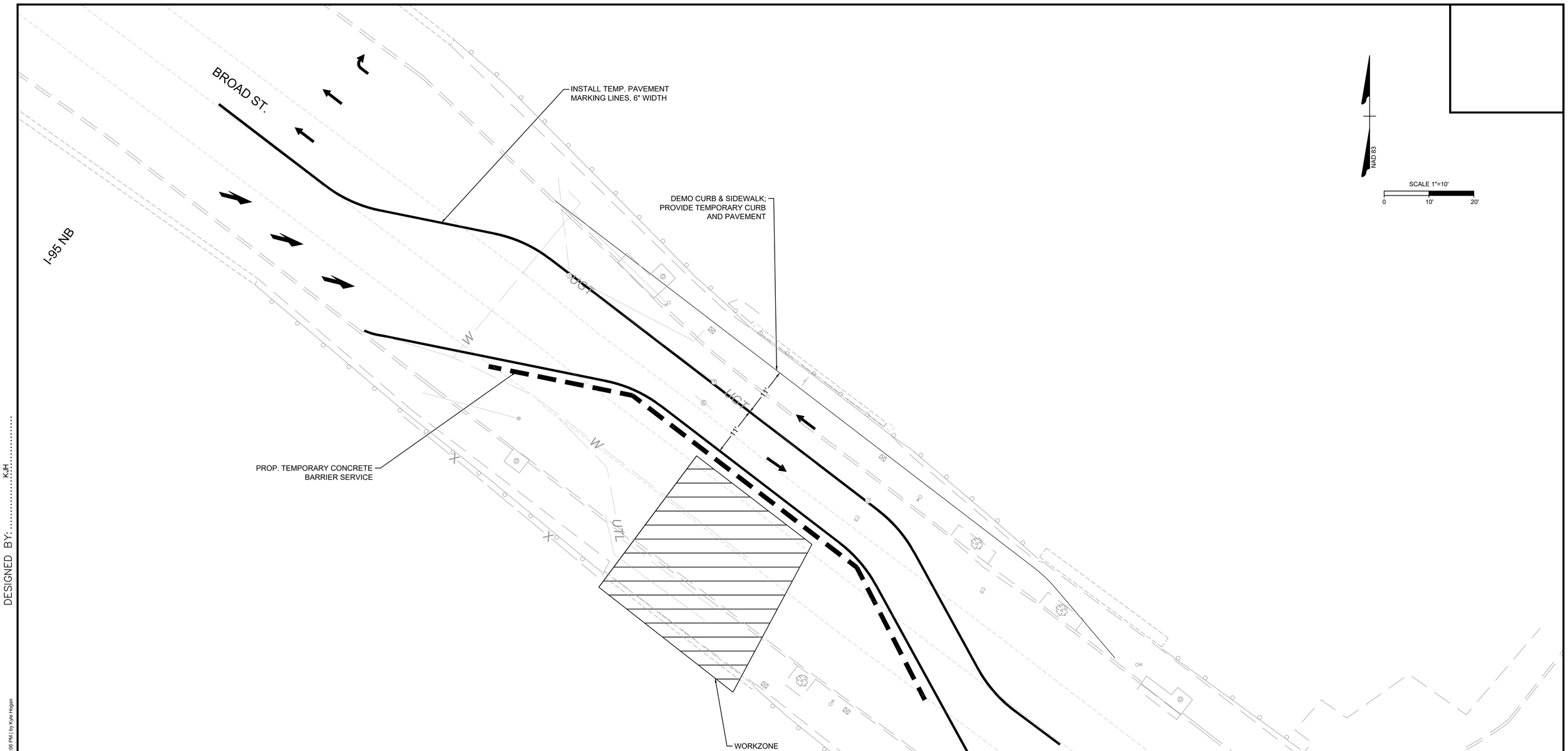
RICHMOND VIRGINIA
DEPARTMENT OF PUBLIC WORKS
RICHMOND, VIRGINIA

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

E. BROAD STREET TUNNEL

MAINTENANCE OF TRAFFIC PHASE II

DESIGN BY: KJH DRAWN BY: KJH CHECKED BY: CMK	REVIEWED BY	FIELD NOTES FB-XX, pp XX-XX	SCALE 1" = 10'	DATE 06/22/20	SHEET 07 OF 11	DRAWING NO.



SURVEYED BY: TIMMONS GROUP
SUPERVISED BY: CMK
DESIGNED BY: K.JH

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NOTES

1. Lot dimensions in parentheses are from deed.
2. Property owners correct as of December , 2018
3. Ordinance Number N/A
4. Adopted N/A
5. Accepted N/A

REFERENCES	REVISIONS

Existing Curb
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- Sewer Manhole
- Sanitary Sewer (County)
- Sanitary Sewer (Force Main)
- Gas Line
- Electric Line
- Telephone/Telegraph
- TV Cable
- Water Line
- Tree / Exist. Tree To Be Removed
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--LEGEND:--

Existing Curb Cut Ramp
- Coping
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- Fire Hydrant
- Edge of Pavement
- Fence
- Cornerstone
- Property Pin
- Utility Pole

Proposed Sewer
- Manhole
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- Curb & Gutter
- Asphalt

Proposed Conc. Sidewalk
- Brick Sidewalk

Castings: Water Valve
- Water Meter
- Gas Drip
- Gas Valve
- Telephone Manhole
- Electric Manhole

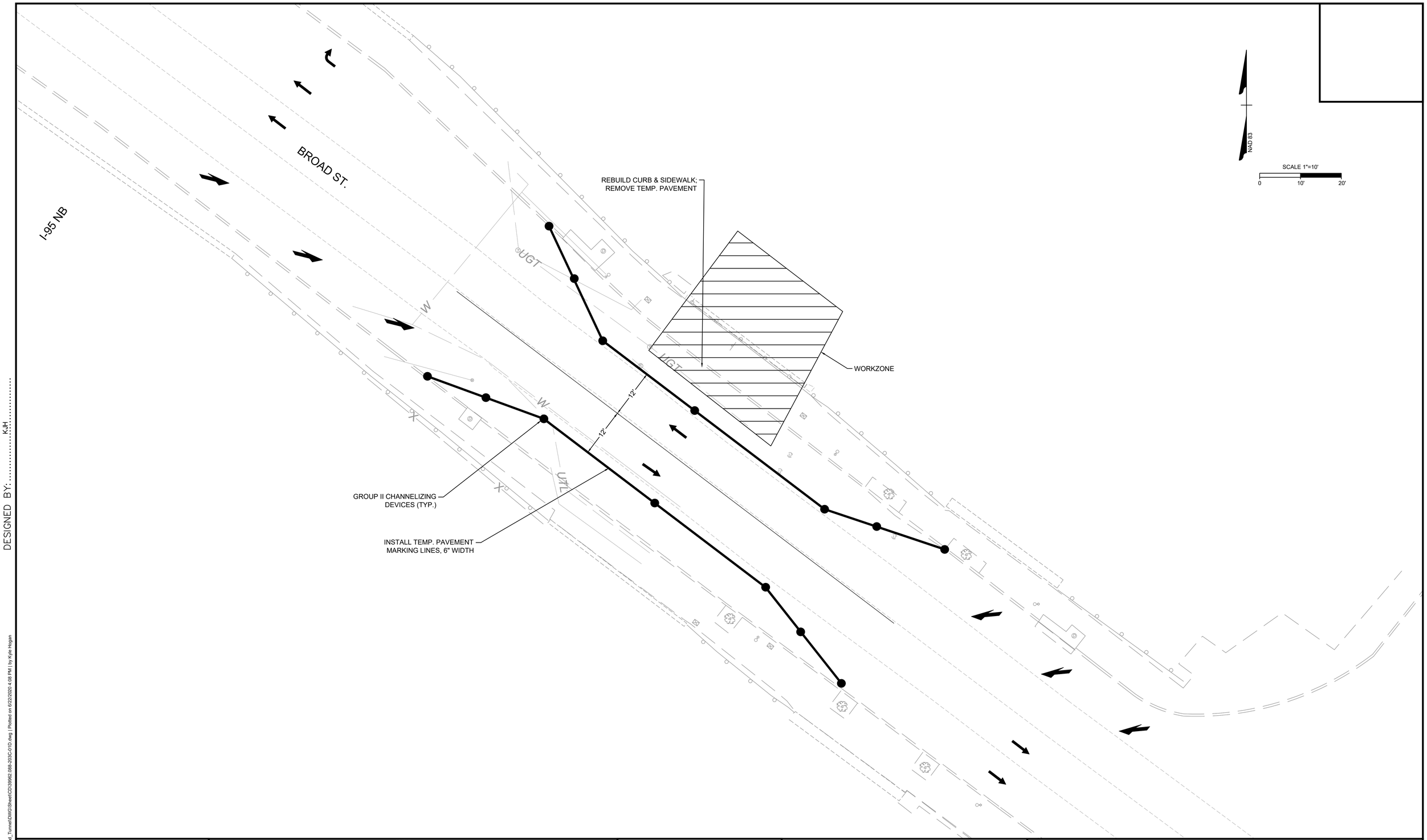
Proposed Curb Cut Ramp
- Decorative Light
- Conduit
- Conduit (Conc. Encased)
- Retaining Wall

RICHMOND VIRGINIA
DEPARTMENT OF PUBLIC WORKS
RICHMOND, VIRGINIA

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

E. BROAD STREET TUNNEL
MAINTENANCE OF TRAFFIC PHASE III

DESIGN BY: KJH DRAWN BY: KJH CHECKED BY: CMK	REVIEWED BY	FIELD NOTES FB-XX, pp XX-XX	SCALE 1" = 10'	DATE 06/22/20	SHEET 08 OF 11	DRAWING NO.



SURVEYED BY: TIMMONS GROUP
SUPERVISED BY: CMK
DESIGNED BY: K.JH

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NOTES

1. Lot dimensions in parentheses are from deed.
2. Property owners correct as of December, 2018
3. Ordinance Number N/A
4. Adopted N/A
5. Accepted N/A

REFERENCES	REVISIONS

Existing Curb
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- Sewer Manhole
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- Sanitary Sewer (Force Main)
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- Telephone/Telegraph
- TV Cable
- Water Line
- Tree / Exist. Tree To Be Removed
- Property Line

-LEGEND:-

Existing Curb Cut Ramp
- Coping
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- Utility Pole

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- Gas Valve
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- Electric Manhole

Proposed Curb Cut Ramp
- Decorative Light
- Conduit
- Conduit (Conc. Encased)
- Retaining Wall

RICHMOND VIRGINIA
DEPARTMENT OF PUBLIC WORKS
RICHMOND, VIRGINIA

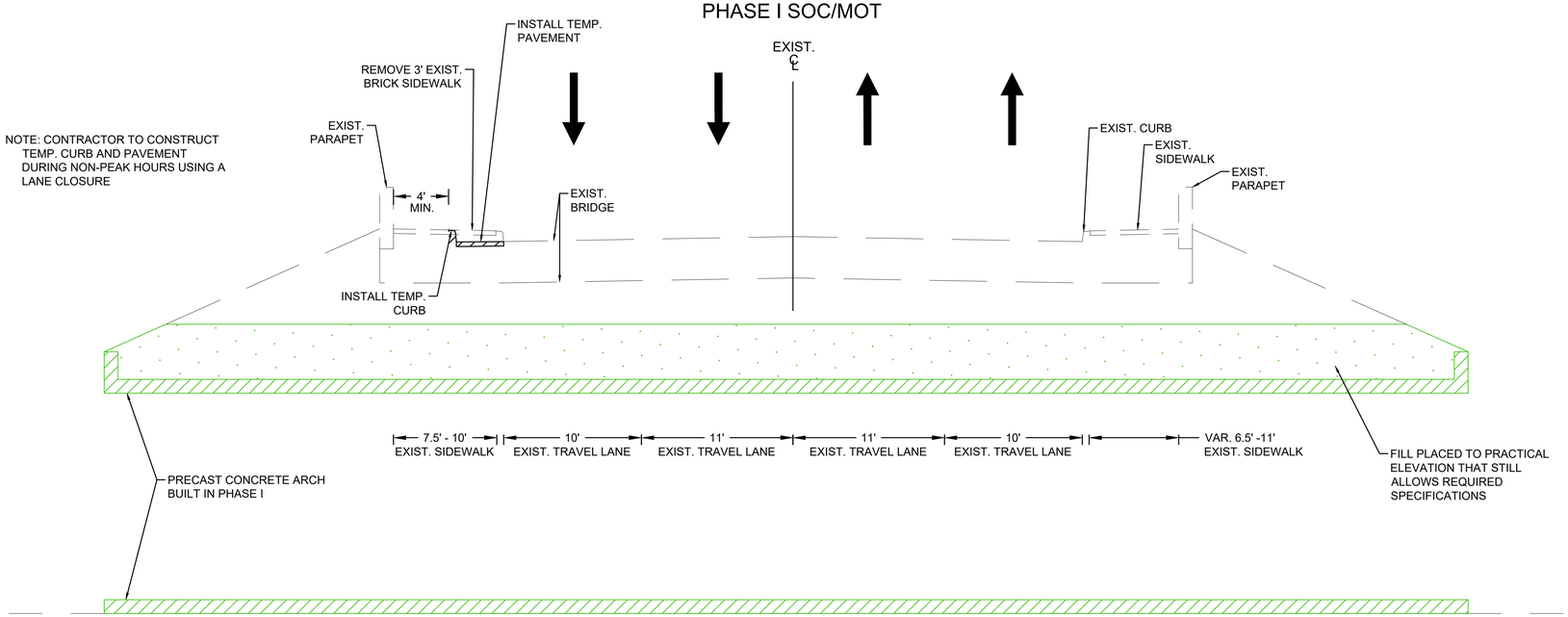
TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

E. BROAD STREET TUNNEL

MAINTENANCE OF TRAFFIC PHASE IV

DESIGN BY: KJH DRAWN BY: KJH CHECKED BY: CMK	REVIEWED BY	FIELD NOTES FB-XX, pp XX-XX	SCALE 1" = 10'	DATE 06/22/20	SHEET 09 OF 11	DRAWING NO.

E. BROAD STREET TUNNEL
PHASE I SOC/MOT



PHASE I: SEQUENCE OF CONSTRUCTION

1. CONSTRUCT DRAINAGE IMPROVEMENTS;
2. CONSTRUCT TEMPORARY CURB AND PAVEMENT;
3. PLACE CULVERT (PHASE 1A); AND
4. PLACE AS MUCH FILL AS POSSIBLE WHILE MAINTAINING EXISTING TRAFFIC FLOW OF EXISTING BROAD STREET (PHASE 1B)

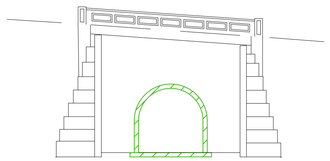
DENOTES DEMO THIS PHASE

DENOTES CONSTRUCTION THIS PHASE

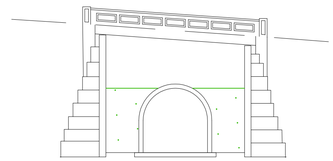
DENOTES FILL THIS PHASE

GENERAL NOTES:

A. RTE. 250 MAINLINE THROUGH LANES MUST BE 10' MIN. / 11' DESIRABLE
B. CONTRACTOR TO COORDINATE WITH CONTRACTS IN VICINITY ON MOT PHASING

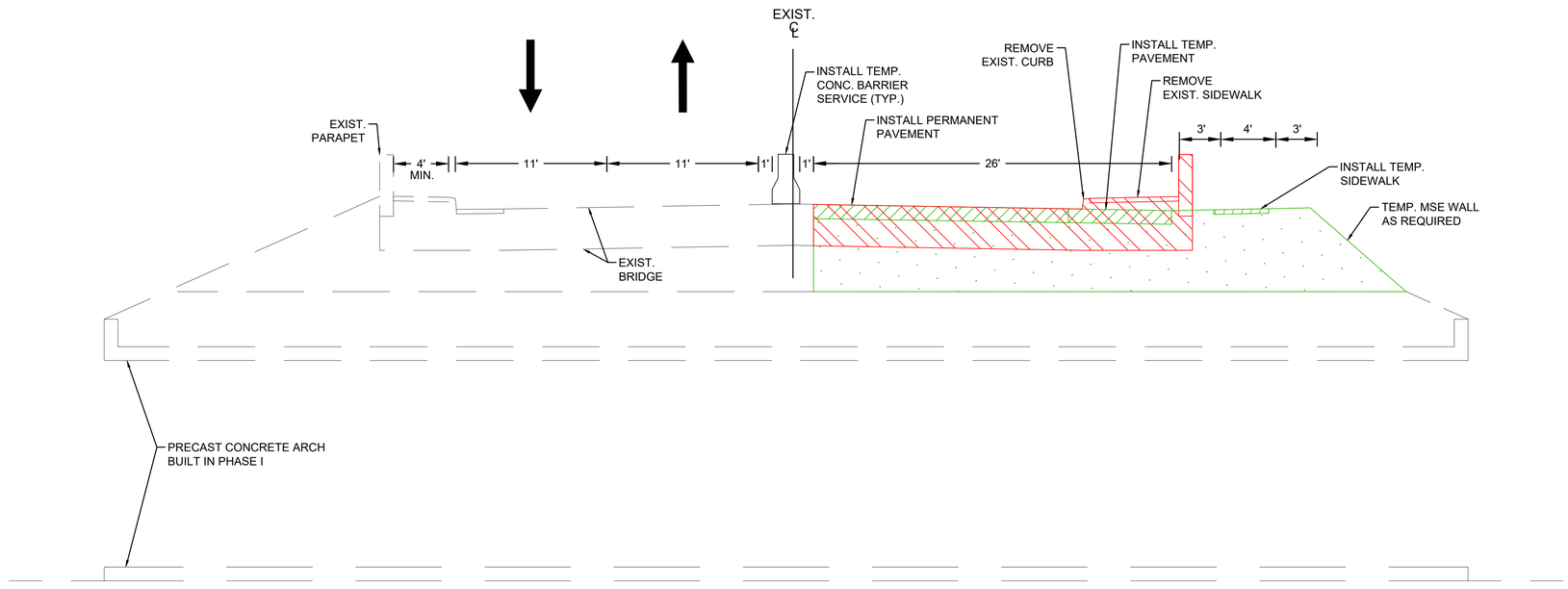


PHASE 1A - BRIDGE CROSS-SECTION
NOT TO SCALE



PHASE 1B - BRIDGE CROSS-SECTION
NOT TO SCALE

E. BROAD STREET TUNNEL
PHASE II SOC/MOT



PHASE II: SEQUENCE OF CONSTRUCTION

1. REDUCE BROAD STREET TRAFFIC TO ONE LANE IN EACH DIRECTION USING SOUTHERN SIDE OF ROADWAY;
2. DEMOLISH NORTHERN SECTION OF EXISTING BRIDGE;
3. PLACE FILL AND CONSTRUCT TEMPORARY ROADWAY AND TEMPORARY SIDEWALK;
4. SWITCH TRAFFIC TO NORTHERN SIDE OF ROAD (ONE LANE IN EACH DIRECTION)

DENOTES DEMO THIS PHASE

DENOTES CONSTRUCTION THIS PHASE

DENOTES FILL THIS PHASE

SCALE 1"=5'
0 5' 10'

SURVEYED BY: TIMMONS GROUP
SUPERVISED BY: CMK
DESIGNED BY: KJH

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NOTES
1. Lot dimensions in parentheses are from deed.
2. Property owners correct as of December, 2018
3. Ordinance Number N/A
4. Adopted N/A
5. Accepted N/A

REFERENCES | REVISIONS

Existing Curb
- Curb & Gutter
- Sidewalk
- Basin
- Storm Sewer
- Sewer Manhole
- Sanitary Sewer (County)
- Sanitary Sewer (Force Main)
- Gas Line
- Electric Line
- Telephone/Telegraph
- TV Cable
- Water Line
- Tree / Exist. Tree To Be Removed
- Property Line

--LEGEND:--

Existing Curb Cut Ramp
- Coping
- Alley Crossing/Driveway
- Fire Hydrant
- Edge of Pavement
- Fence
- Cornerstone
- Property Pin
- Utility Pole

Proposed Sewer
- Manhole
- Basin
- Curb & Gutter
- Asphalt

Proposed Conc. Sidewalk
- Brick Sidewalk

Castings: Water Valve
- Water Meter
- Gas Drip
- Gas Valve
- Telephone Manhole
- Electric Manhole

Proposed Curb Cut Ramp
- Decorative Light
- Conduit
- Conduit (Conc. Encased)
- Retaining Wall

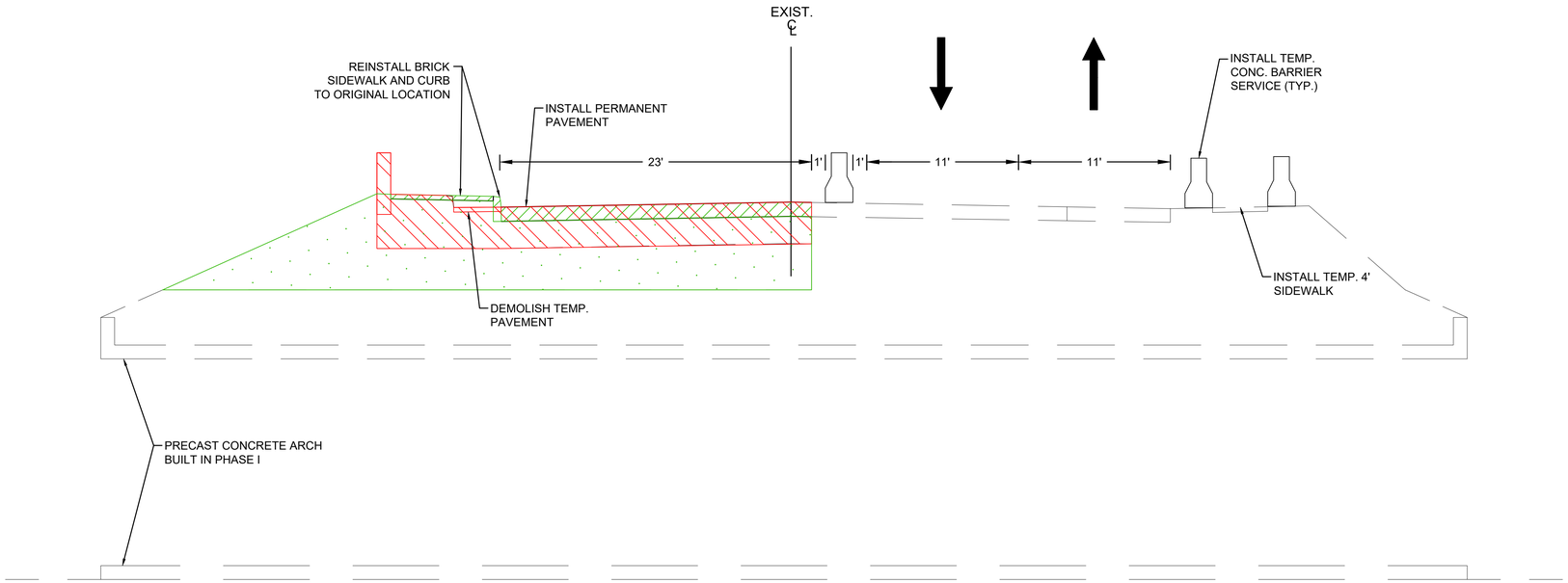
RICHMOND VIRGINIA
DEPARTMENT OF PUBLIC WORKS
RICHMOND, VIRGINIA

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

E. BROAD STREET TUNNEL
SEQUENCE OF CONSTRUCTION PHASE I & PHASE II

DESIGN BY: KJH	REVIEWED BY	FIELD NOTES	SCALE	DATE	SHEET	DRAWING NO.
DRAWN BY: KJH		FB-XX, pp XX-XX	1" = 5'	06/22/20	10 OF 11	
CHECKED BY: CMK						

E. BROAD STREET TUNNEL
PHASE III SOC/MOT



PHASE III: SEQUENCE OF CONSTRUCTION

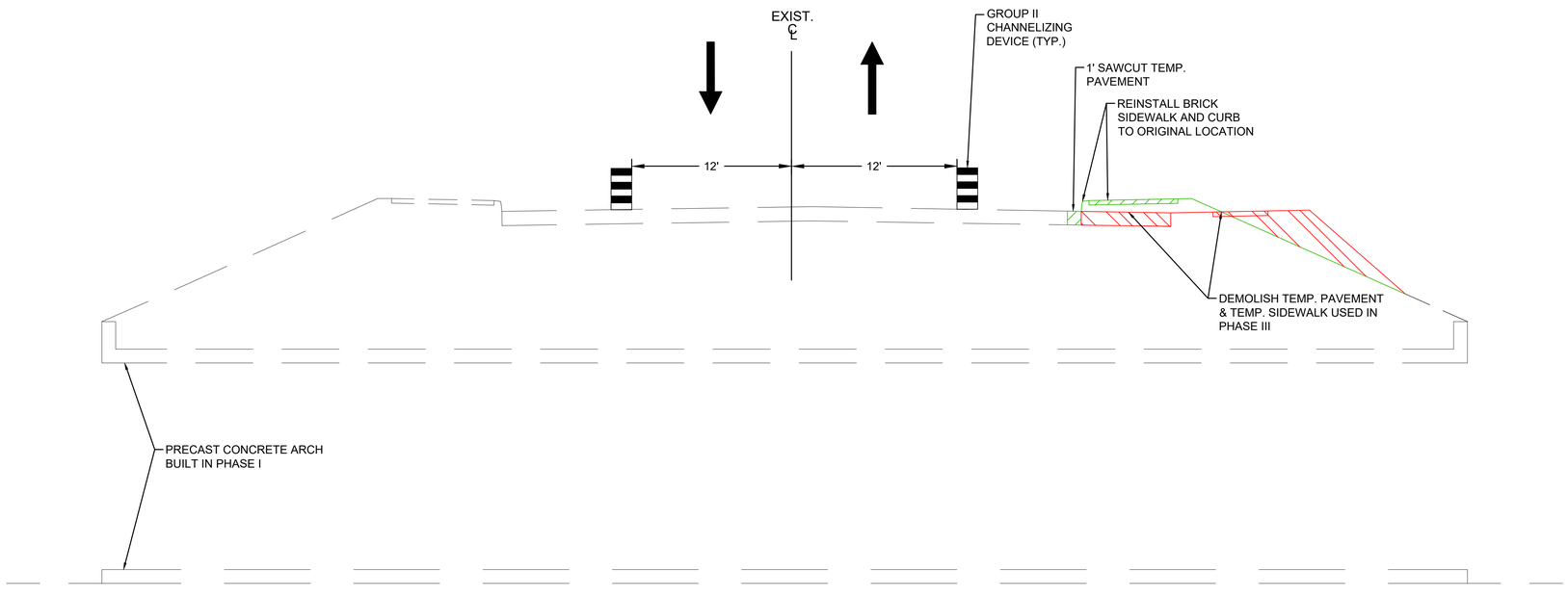
1. SWITCH TRAFFIC TO NORTHERN OF ROAD (ONE LANE IN EACH DIRECTION)
2. DEMOLISH SOUTHERN SECTION OF EXISTING BRIDGE;
3. PLACE FILL AND CONSTRUCT PERMANENT ROADWAY AND SIDEWALK;

DENOTES DEMO THIS PHASE

DENOTES CONSTRUCTION THIS PHASE

DENOTES FILL THIS PHASE

E. BROAD STREET TUNNEL
PHASE IV SOC/MOT



PHASE IV: SEQUENCE OF CONSTRUCTION

1. SWITCH TRAFFIC TO CENTER OF ROAD;
2. CONSTRUCT NORTHSIDE CURB AND SIDEWALK IN PERMANENT POSITION.
3. STRIPE BROAD STREET FOR PRE-CONSTRUCTION OPERATIONS

DENOTES DEMO THIS PHASE

DENOTES CONSTRUCTION THIS PHASE

DENOTES FILL THIS PHASE

SCALE 1"=5'

0 5' 10'

SURVEYED BY: TIMMONS GROUP
SUPERVISED BY: CMK
DESIGNED BY: KJH

L:\2013\39962-Richmond\088-203-E_Broad_Tunnel\DWG\Sheet\CD\39962.088-203C-02A.dwg | Plotted on 6/22/2020 4:10 PM | by Kyle Hogan

NOTES

1. Lot dimensions in parentheses are from deed.
2. Property owners correct as of December, 2018
3. Ordinance Number N/A
4. Adopted N/A
5. Accepted N/A

REFERENCES | REVISIONS

Existing Curb
- Curb & Gutter
- Sidewalk
- Basin
- Storm Sewer
- Sewer Manhole
- Sanitary Sewer (County)
- Sanitary Sewer (Force Main)
- Gas Line
- Electric Line
- Telephone/Telegraph
- TV Cable
- Water Line
- Tree / Exist. Tree To Be Removed
- Property Line

--LEGEND:--

Existing Curb Cut Ramp
- Coping
- Alley Crossing/Driveway
- Fire Hydrant
- Edge of Pavement
- Fence
- Cornerstone
- Property Pin
- Utility Pole

Proposed Sewer
- Manhole
- Basin
- Curb & Gutter
- Asphalt

Proposed Conc. Sidewalk
- Brick Sidewalk

Castings: Water Valve
- Water Meter
- Gas Drip
- Gas Valve
- Telephone Manhole
- Electric Manhole

Proposed Curb Cut Ramp
- Decorative Light
- Conduit
- Conduit (Conc. Encased)
- Retaining Wall

RICHMOND VIRGINIA

DEPARTMENT OF PUBLIC WORKS
RICHMOND, VIRGINIA

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

E. BROAD STREET TUNNEL

SEQUENCE OF CONSTRUCTION PHASE III & PHASE IV

DESIGN BY: KJH DRAWN BY: KJH CHECKED BY: CMK	REVIEWED BY	FIELD NOTES FB-XX, pp XX-XX	SCALE 1" = 5'	DATE 06/22/20	SHEET 11 OF 11	DRAWING NO.

Attachment 3: Utility Plans

Notice
As the recipient of this information it is your responsibility to protect it and your obligation to destroy it when it is no longer needed.

CITY OF RICHMOND
DEPARTMENT OF PUBLIC UTILITIES

To Report Mapping Errors
Please Call 804-646-8533

Legend

Pipe
- Abandoned

High Pressure
- Active
- Proposed / Under Construction
- Energized

Intermediate Pressure
- Active
- Proposed or Under Construction
- Energized

Low Pressure
- Active
- Proposed or Under Construction
- Energized

Valve
- Open
- Closed

Fitting
- Cap / Plug
- Reducer
- Fitting
- PurgePoint / Drip
- LocatingStation/CP Test Station
- Gas Street Light

WARNING: Pipe lines depicted in the color RED are NOT as-built and may be PROPOSED only!

The City of Richmond, DPU, Technical Services is in the process of mapping all gas service lines. They are not all available at this time and will require field location.

RICHMOND-VIRGINIA GIS public utilities

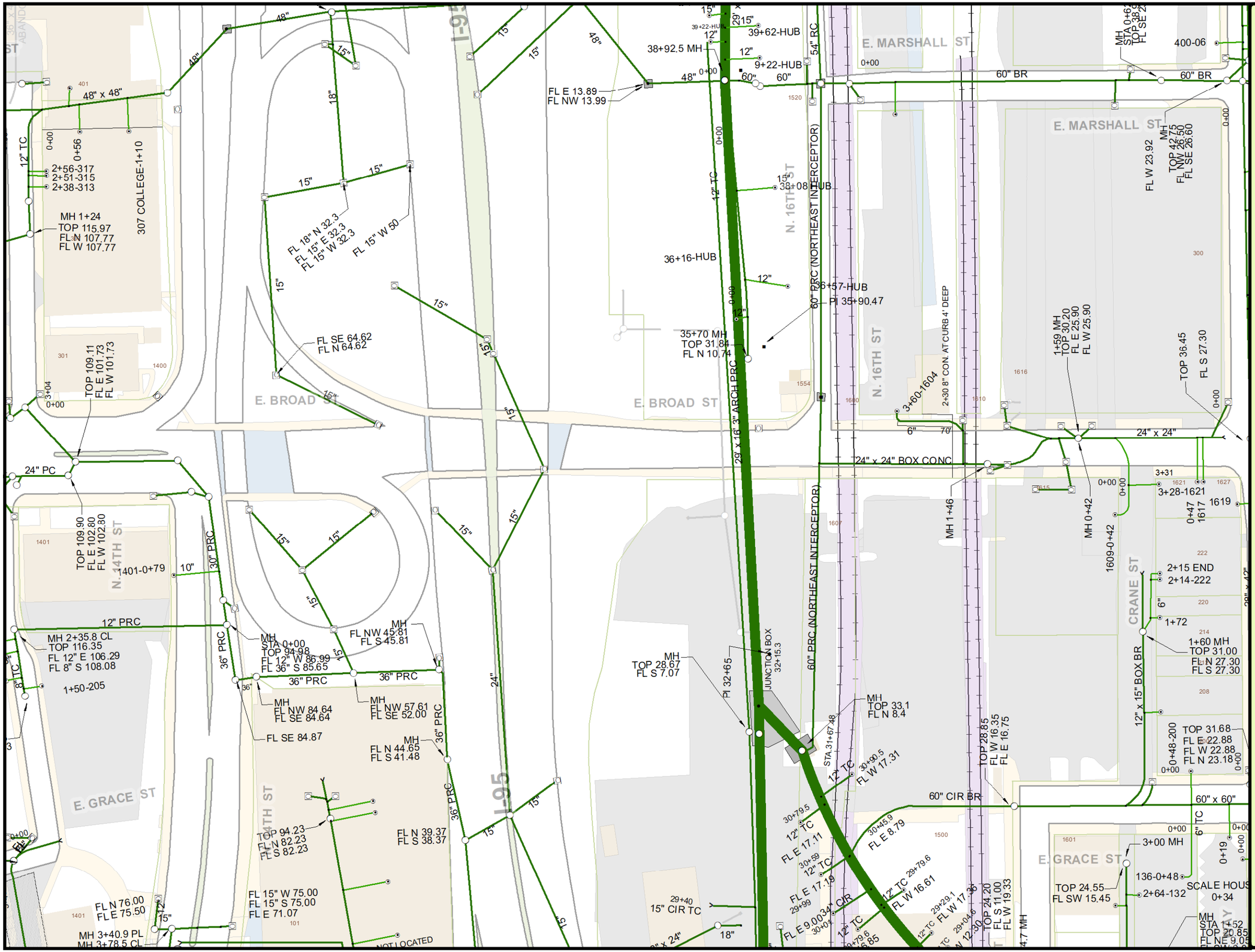
To Report:
Emergency
Conditions
CALL TOLL FREE
1-888-263-2896

Map Information: Gas Utility Map

-Disclaimer-
No guarantee of accuracyis expressed or implied for the content of this map. The user shall hold harmless the City of Richmond for any consequences resulting from the use of this map.

Feet
0 50 100 200

1 inch = 100 feet



Notice

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CITY OF RICHMOND
DEPARTMENT OF PUBLIC UTILITIES

To Report Mapping Errors
Please Call 804-646-8533

Legend

- Manhole
- Locked
- Gravity Pipe
- Active
- Proposed
- Under Construction
- Sewer System Chamber
- Sewer System Clean Out
- Sewer System Drop Inlet
- Fitting
- Sewer System Outfall
- Sewer System Pump
- Sewer System Pump Station
- Sewer System Monument
- Sewer System Force Main
- Sewer System Lateral
- Sewer System Casing
- Abandoned Structure
- Abandoned Pipe
- Sewer System Miscellaneous Point
- Miscellaneous Line
- Sewer System Easement

WARNING: Pipe lines depicted in the color RED are NOT as-built and may be PROPOSED only!

RICHMOND-VIRGINIA GIS public utilities

To Report:
Emergency Conditions
CALL
804-646-7000

Map Information: Sewer Utility Map

-Disclaimer-

No guarantee of accuracyis expressed or implied for the content of this map. The user shall hold harmless the City of Richmond for any consequences resulting from the use of this map.

Feet
0 50 100 200

1 inch = 100 feet

--Notice--
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CITY OF RICHMOND
DEPARTMENT OF PUBLIC UTILITIES

To report mapping errors, call 804-646-8533

Legend

- Easement
- Not Encased Conduit
- Encased Conduit
- Attached Luminaire
- Ornamental Pole with Luminaire, Active
- Ornamental Pole with Luminaire, Proposed
- Manhole
- Handhole
- Distribution Transformer

Primary Electric Line

- Overhead (OH), Active
- Overhead (OH), Proposed
- Underground (UG), Active
- Underground (UG), Proposed

Secondary Electric Line

- OH, Single wire-with Neutral, Active
- OH, Single wire-with Neutral, Proposed
- OH, Duplex, Active
- OH, Duplex, Proposed
- OH, Triplex, Active
- OH, Triplex, Propsed
- UG, Single wire-with Neutral, Active
- UG, Single wire-with Neutral, Proposed
- UG, Duplex, Active
- UG, Duplex, Propsed
- UG, Triplex, Active
- UG, Triplex, Proposed
- UG, Unknown, Active
- Abandoned Line

Standard Pole

- City of Richmond DPU, Active
- City of Richmond DPU, Proposed
- Dominion Power
- Verizon
- Traffic (City of Richmond DPW)
- VDOT
- Comcast

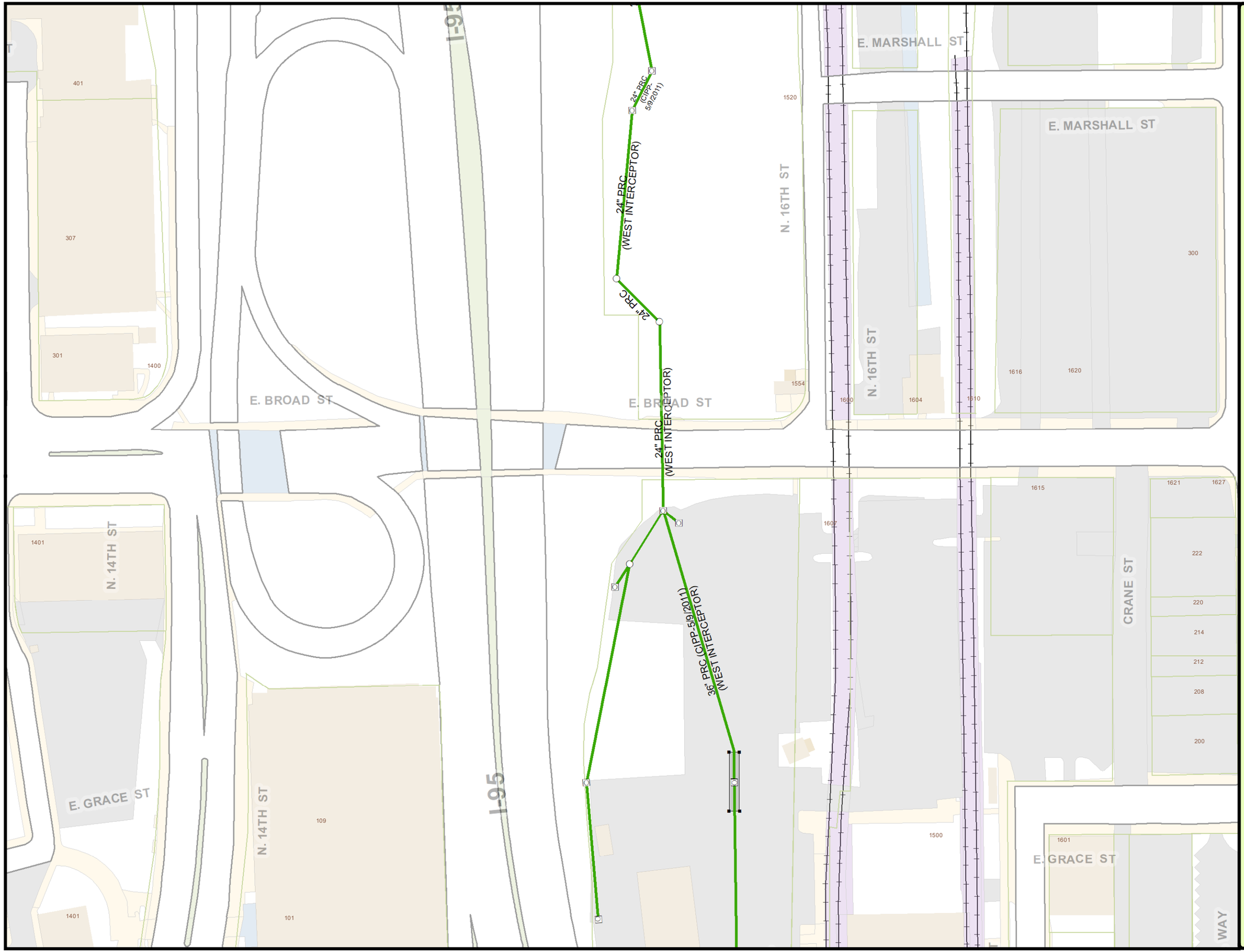
WARNING: Electric lines in the color BROWN are NOT as-built and may be proposed only

RICHMOND-VIRGINIA GIS public utilities

TO REPORT EMERGENCY CONDITIONS: CALL TOLL FREE 1-888-263-2896

Map Information: Streetlight Utility Map

1 in = 106 feet
Feet
0 25 50 100



Notice
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City of Richmond
Department of Public Utilities

To Report Mapping Errors Please Call 804-646-8533

Legend

- Abandoned Pipe
- Abandoned Structure
- Dam
- Flood Wall
- BMP
- CleanOut
- Culvert
- Drop Inlet
- Casing
- Canal
- Easement
- Fittings
- Junction Box
- Manhole
- Locked
- Misc Line
- Misc Point
- Misc Polygon
- Open Channel
- Outfall
- Main, Pipe
- Lateral, Pipe
- Drain, Pipe
- Septic Tank
- Tunnel

To Report: Emergency Conditions CALL 804-646-7000

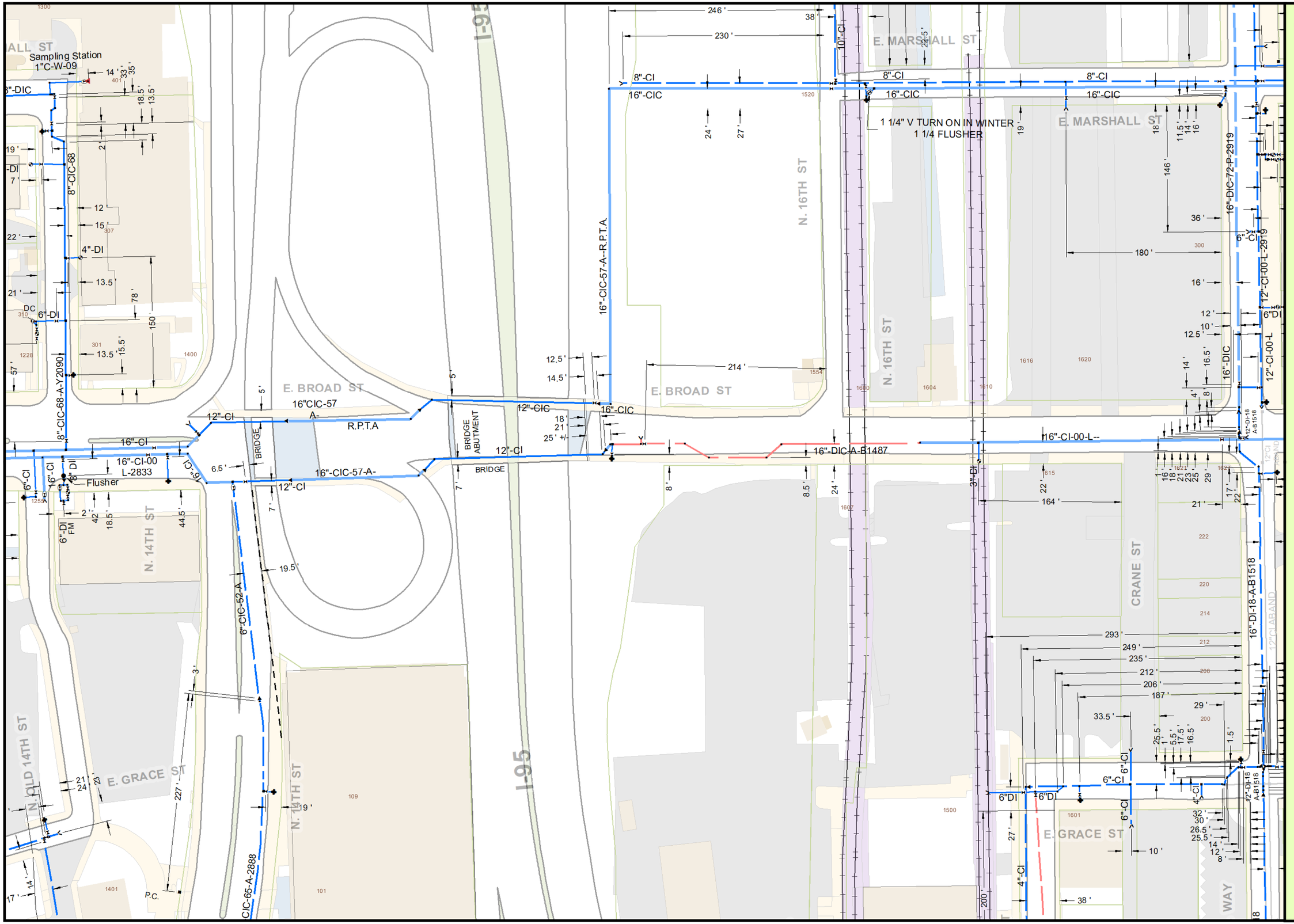
RICHMOND-VIRGINIA GIS public utilities

WARNING: Pipe lines depicted in the color RED are NOT as-built and may be PROPOSED only!

Map Information: Stormwater Utility Map

0 50 100 200

1 inch = 100 feet



--Notice--
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CITY OF RICHMOND
DEPARTMENT OF PUBLIC UTILITIES

To Report Mapping Errors, Please Call 804-646-8533

Legend

- Easements
- Casing

Fittings

- Bend
- Cap
- Coupling
- Cross
- Offset
- Plug
- Reducer
- Tee
- Blowoff
- Flusher
- Hydrant
- Meter Location
- Wholesale Meter
- Open
- Closed

Pipe

- Transmission - Pressure
- Transmission - Gravity
- Distribution - Pressure
- Distribution - Gravity
- Proposed
- Abandoned

WARNING: Pipe lines depicted in the color RED are NOT as-built and may be PROPOSED only!

RICHMOND-VIRGINIA GIS public utilities

TO REPORT EMERGENCY CONDITIONS: CALL TOLL FREE 1-888-263-2896

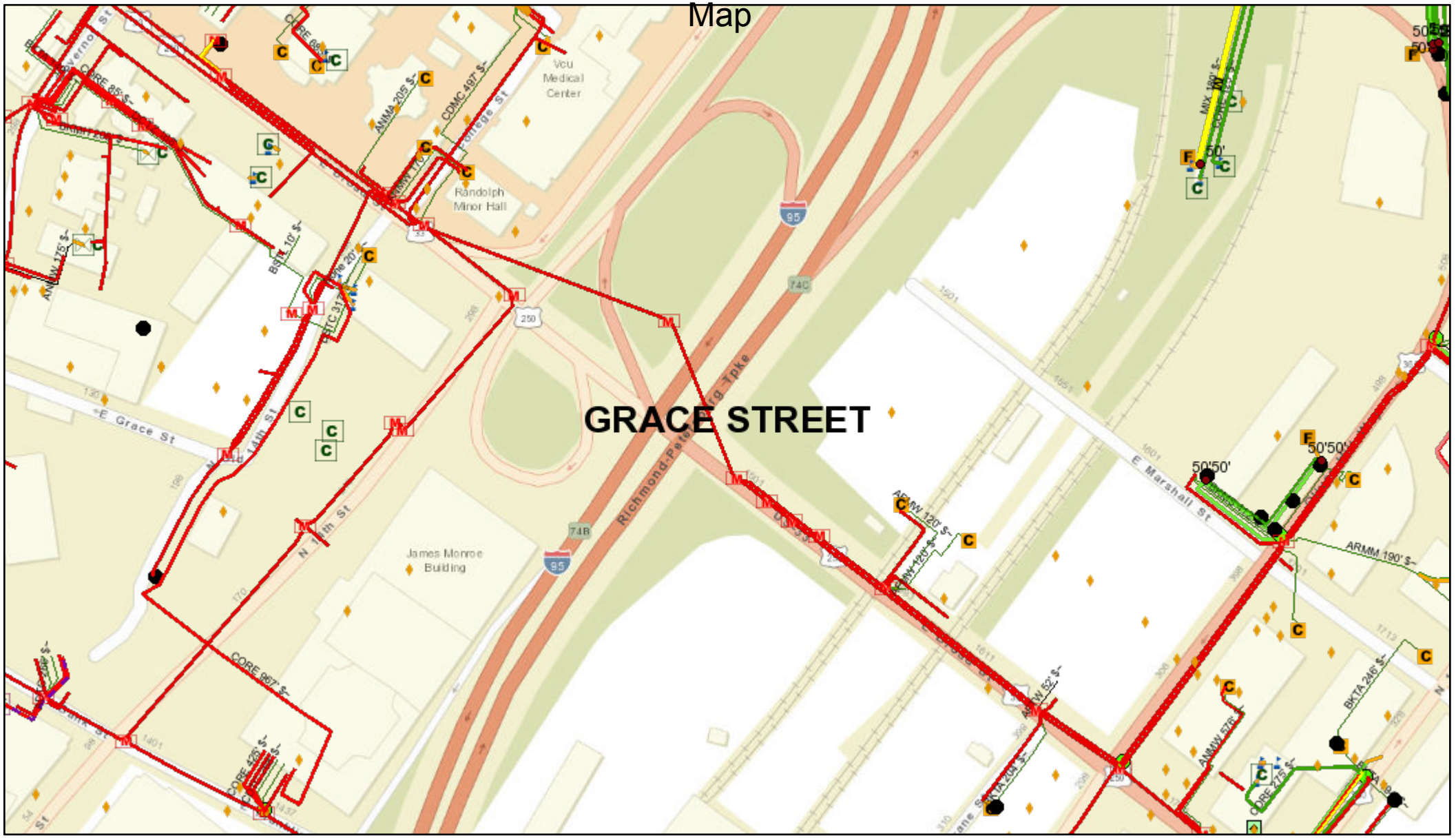
Map Information: Water Utility Map

-Disclaimer-
No guarantee of accuracy is expressed or implied for the content of this map.The user shall hold harmless the City of Richmond for any consequences resulting from the use of this map.

1 inch = 100 feet

0 25 50 100
Feet

FIM Map



May 13, 2020

1:3,059

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

County of Henrico, VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

Coil

Address

Wirecenter Boundary

Terminal Tail

Terminal

X <all other values>

C CORE

C CORE Pre Post

M MIX

M MIX Pre Post

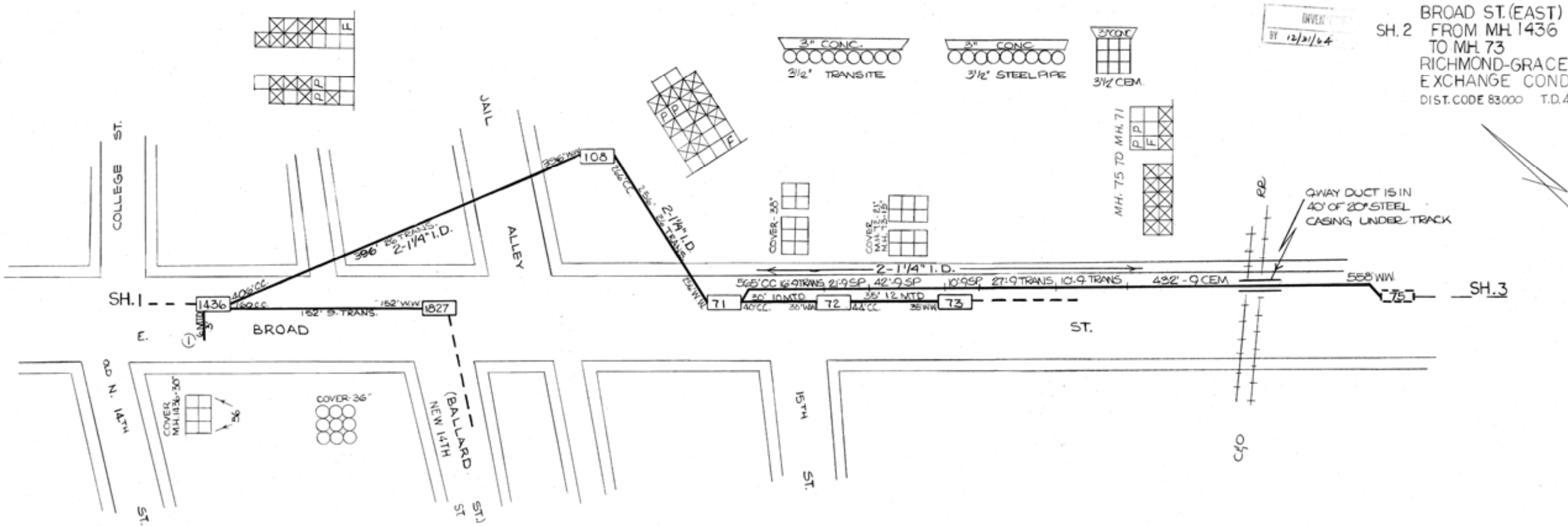
Pole

<all other values>

Ownership < 100%

Ownership = 100%

BROAD ST. (EAST)
SH. 2 FROM M.H. 1436
TO M.H. 73
RICHMOND-GRACE
EXCHANGE CONDUIT
DIST. CODE 83000 T.D. 4401



MANHOLES

NO.	INSIDE DIMENS L-W-HD. R.M.	SHAPE	GROUP C&P	GROUP AT&T	TYPE	FRAMES & COVERS SIZE	FRAMES & COVERS TYPE	JOINTLY OWNED WITH	TOLL OR EXCH.	DATE	REFERENCE
1436	720 CU. FT. 9'6" X 8' X 9'	RECT.	6		B	2-30"	B		EXCH.	1956	E-2245-66 (2) 4059-56
108	640 CU. FT. 8' X 9'6" X 7'6"	RECT.	6		A	2-27"	B		EXCH.	1957	E-2089-57
71	440 CU. FT. 10'9" X 3' X 4' X 8' X 4'9"		6		V	27"	B		EXCH.	1957	
72	324 CU. FT. 8' 1½" X 5'6½" X 5'5"	RECT.	4			38"			EXCH.		
73	288 CU. FT. 7'7" X 5'6" X 5'10"	RECT.	4			15"			EXCH.		
1827	8'6" X 4'6" X 6' 270 CU. FT.	RECT.	4		A	27"			EXCH.	1966	4745-65

MAIN CONDUIT

FROM M. H.	TO M. H.	JOINTLY OWNED WITH	TOLL OR EXCH.	REFERENCE
1436	108		EXCH.	E-2089-57
108	71		EXCH.	E-2089-57
71	72		EXCH.	
72	73		EXCH.	
1436	1827		EXCH.	4745-65
71	75		EXCH.	E 2245-66 (4', 5')

LATERALS

NO.	JOINTLY OWNED WITH	TOLL OR EXCH.	REFERENCE

NO.	JOINTLY OWNED WITH	TOLL OR EXCH.	REFERENCE

IN EFFECT 2-21-24
REDRAWN 11-26-57
CORRECTIONS
9756-52 4-53
5698-1-53 7-53
4059-56 7-56
E-2089-57 11-57
4745-65 2-67
(2,4,5) E-2245-66 2-68
REPRODUCED
INVENTORY

M R W

INVENTORIED 8-31-82

Attachment 4: Engineer's Cost Estimate

PROJECT BUDGET ESTIMATE
30% DESIGN
BROAD ST. OVER ABANDONED CSX LINE
JUNE 1, 2020
CITY OF RICHMOND

Preliminary Engineering (PE)		
Consultant Engineering Services	*$*	*100,000.00*
VDOT Oversight	*$*	*50,000.00*
Total PE Budget	***$***	***150,000.00***
Right of Way (RW)		
Right of Way	*$*	*-*
Out-of-Plan Utilities	*$*	*-*
VDOT Oversight	*$*	*-*
Total RW Budget	***$***	***-***
Construction (CN)		
Contract Cost	*$*	*1,080,000.00*
Incentives/Disincnetives	*$*	*54,000.00*
Construction Engineering & Inspection	*$*	*54,000.00*
VDOT Oversight	*$*	*50,000.00*
Total CN Budget	***$***	***1,238,000.00***
Total Project Cost Esimate	**$**	**1,388,000.00**

Notes:
1. Utilities are not included for this project as it is assumed there are franchise agreements in place with the City.

PROJECT BUDGET - DETAILED BREAKDOWN
BROAD STREET TUNNEL - 30% DESIGN - COST ESTIMATE
6/24/2020
CITY OF RICHMOND

ENGINEER'S OPINION OF PROBABLE COSTS					
Item		Quantity	Units	Unit Price	Total
Superstructure					
68476	Environmental and Worker Protection (1852)	1	LS	$ 12,500.00	$ 12,500
68492	Material Disposal (Str. No. 1852)	1	LS	$ 50,000.00	$ 50,000
68900	Remove Portion of Existing Str. (1852)	1	LS	$ 62,500.00	$ 62,500
		Sub-Total for Superstructure:			$ 125,000
Arched Culvert					
64032	Geocomposite Wall Drain	553	SY	$ 45.00	$ 24,885
64036	Pipe Underdrain 6"	212	LF	$ 8.25	$ 1,749
64030	Porous Backfill	1972	CY	$ 100.00	$ 197,200
64011	Structure Excavation	178.6	CY	$ 30.00	$ 5,358
65013	Concrete Class A3	262.7	CY	$ 700.00	$ 183,890
65200	Reinforcing Steel[1]	19700	LBS	$ 1.35	$ 26,595
		Sub-Total for Arched Culvert:			$ 439,677
Maintenance of Traffic					
	Maintenance of Traffic	1	LS	$ 100,000.00	$ 100,000
		Sub-Total for Maintenance of Traffic:			$ 100,000
00111	Clearing and Grubbing and Site Preparation	0.1	AC	$ 10,000.00	$ 1,000
24430	Demolition of Temp. Pavement (Flexible)	65	SY	$ 100.00	$ 6,500
24420	Demolition of Pavement (Rigid) - Brick Sidewalk	85	SY	$ 100.00	$ 8,500
N/A	City St'd. Curb	400	LF	$ 35.00	$ 14,000
N/A	Brick Sidewalk	85	SY	$ 125.00	$ 10,625
N/A	Temp. Conc. Sidewalk	25	SY	$ 125.00	$ 3,125
54428	Temp. Pavement Marking, Ty. A, 4"	3750	LF	$ 2.00	$ 7,500
54032	Type B Class I Pavement Line Marking 4"	200	LF	$ 2.00	$ 400
10607	Asphalt Concrete Type SM-12.5A	40	TON	$ 110.00	$ 4,400
10607	Asphalt Concrete Type IM-19.0A	30	TON	$ 105.00	$ 3,150
10607	Asphalt Concrete Type BM-25.0A	75	TON	$ 95.00	$ 7,125
10607	Aggregate Base Material Type 1, No. 21B	340	TON	$ 35.00	$ 11,900
01242	24" Reinforced Concrete Pipe	150	LF	$ 100.00	$ 15,000
09057	Manhole Frame and Cover MH-1	1	EA	$ 800.00	$ 800
09056	Manhole MH-1 or 2	10	LF	$ 750.00	$ 7,500
06740	Drop Inlet DI-1	3	EA	$ 3,000.00	$ 9,000
		Sub-Total for Roadway/Drainage			$ 93,225
Incidental Items					
00100	Mobilization	1	LS	$ 62,000.00	$ 62,000
00101	Construction Surveying	1	LS	$ 14,000.00	$ 14,000
		Sub-Total for Incidental Items:			$ 76,000

SUB-TOTAL:	$ 833,902
CONTINGENCY (30%):	$ 250,171
TOTAL ESTIMATED CONSTRUCTION COST (ROUNDED):	$ 1,080,000

NOTES:
1. Assumes a reinforcement ratio of 75 lbs/CY of concrete.

Broad St over Abandoned RR Spur – Existing Condition

Broad St over Abandoned RR Spur – Proposed Condition