VIRGINIA RAILWAY EXPRESS

AMENDMENT OF SOLICITATION

INVITATION FOR BID (IFB)

ADDENDUM No. 3

Issued: July 20, 2020

IFB No.: 020-019 **Title: Construction of Quantico Station Improvements**

Contact: Ramon Paez **Email:** rpaez@vre.org **Telephone:** (703) 838-5447

This addendum is hereby incorporated into the solicitation documents of the above referenced IFB. The following items are clarifications, corrections, additions, deletions and/or revisions to the IFB, which shall take precedence over the original documents. ***Bold and Italics*** indicates additions while deletions are indicated by ~~strikethrough~~. Bidders must acknowledge receipt of this addendum by returning a signed original with your Bid.

DESCRIPTION OF AMENDMENT

The above numbered solicitation is amended as follows:

1. **PART V – GENERAL PROVISIONS**

A. Note the following revisions to IFB Part V- General Provisions:

36. ANTI-DISCRIMINATION

A. By submitting a bid or proposal, the prospective contractor certifies to VRE that it will conform to the provisions of Title VI of the Federal Civil Rights Act of 1964, as amended; DOT regulations, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation" -- Effectuation of Title VI of the Civil Rights Act; the Virginia Fair Employment Act of 1975, as amended, where applicable; all requirements of Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 20003, and 49 U.S.C. §4332 and any implementing requirements FTA may issue; the provisions of 49 U.S.C, § 5332, "Nondiscrimination in Federal Transit Programs," which prohibits discrimination on the basis of race, color, creed, national origin, sex, ***sexual orientation, gender identity, disability, religion,*** or age, and prohibits discrimination in employment or business opportunity; and Section 2.2-4311 of the Virginia Public Procurement Act.

B. During the performance of the Contract, the prospective contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, creed, sex, ***sexual orientation, gender identity*** disability, age, religion, or national origin. The Contractor agrees to take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, creed, sex, disability, age, religion, or national origin. Such

action shall include, but not be limited to, the following: employment, upgrade, demotion or transfer, recruitment, or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. The Contractor also agrees to comply with any implementing requirements FTA may issue.

B. Note the following addition to IFB Part V- General Provisions:

53. <u>LIQUIDATED DAMAGES</u>

A. It is hereby understood and agreed by the Contractor that time is of the essence for the completion of this Contract. In the event of failure to comply with any of the time period(s) stipulated herein this solicitation, VRE is authorized to assess liquidated damages in the sum of Five Thousand Three Hundred Thirty-Nine Dollars ($5,339) for each and every calendar day of delay beyond the time specified. These damages are not intended as a penalty, but rather as a fair and reasonable measure of loss or delay to VRE. Upon receipt of a written request and justification for an extension from the Contractor, VRE may extend the time for performance of the Contract at VRE's sole discretion.

B. Payment of liquidated damages shall not release the Contractor from its obligations with respect to the fulfillment of the entire Contract, nor shall the payment of such liquidated damages constitute a waiver of VRE's right to collect any additional damages which may be sustained by failure of the Contractor to carry out the terms of the Contract, it being the intent of the parties that said liquidated damages be full and complete payment only for failure of the Contractor to complete the work on time.

2. **<u>PART VII – INSURANCE REQUIREMENTS</u>**

A. Note the following revisions to IFB Part VII- Insurance Requirements:

03. <u>COMMERCIAL GENERAL LIABILITY INSURANCE</u>

B. The Contractor shall obtain a second separate Commercial General Liability Insurance ***Certificate*** ~~("CGL Insurance") with limits of not less than $5,000,000 in combined single limits for bodily injury and/or property damage per occurrence~~. The ***certificate*** ~~policy~~ shall be signed and name "CSX Transportation, Inc." as ***additional*** insured. Signed endorsement page must be submitted with Certificate of Insurance.

3. **<u>ATTACHMENT F1- DAVIS-BACON WAGE DETERMINATION</u>**

A. Part IX, Attachments, insert Attachment F1- Davis Bacon Wage Determination- General Decision No. VA20200162, Modification No. 5- July 10, 2020, Building Construction, Prince William County, annotated "Revised- Addendum Three" included in this addendum.

4. ATTACHMENT I- BID FORM

A. Attachment I- Bid Form is deleted in its entirety and replaced with the attached revised Bid Form, annotated "Revised- Addendum Three" included in this addendum.

5. REVISIONS TO TECHNICAL SPECIFICATIONS

A. Note the following revision to Specification Section 01 11 00, Summary of Work, Section 1.03, Paragraph F, Sub-Section 4:

REVISE ITEM 1.03 F4:

4. Right-of-Entry (ROE) obtained from host railroad within VRE/CSX construction agreement, flagging provided by CSX and charged to Arkendale to Powells creek third track project per agreement between CSX and DRPT. Contractor to provide beneficial use within ~~730~~ ***790*** calendar days of NTP. The contractor shall coordinate and communicate schedules, critical paths and milestones with VRE and stakeholders.

B. Note the following revision to Specification Section 01 74 19, Construction Waste Management and Disposal, Section 1.2, Paragraph B:

DELETE ITEM B5 and REVISE ITEM B6:

~~5. Track Specification in the Appendix - "Standard Specification for Disposal of Creosote - Treated Wood Railroad Ties and Other Creosote Treated Wood Debris."~~

~~6~~***5***. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

ADD FORMS CWM -1 through CWM-8:

1. FORM CWM-1: CONSTRUCTION WASTE IDENTIFICATION
2. FORM CWM-2: DEMOLITION WASTE IDENTIFICATION
3. FORM CWM-3: CONSTRUCTION WASTE REDUCTION WORK PLAN
4. FORM CWM-4: DEMOLITION WASTE REDUCTION WORK PLAN
5. FORM CWM-5: COST/REVENUE ANALYSIS OF CONSTRUCTION WASTE REDUCTION WORK PLAN
6. FORM CWM-6: COST/REVENUE ANALYSIS OF DEMOLITION WASTE REDUCTION WORK PLAN
7. FORM CWM-7: CONSTRUCTION WASTE REDUCTION PROGRESS REPORT
8. FORM CWM-8: DEMOLITION WASTE REDUCTION PROGRESS REPORT

C. Note the following revision to Specification Section 31 50 00, Excavation Support and Protection, Section 1.06, Paragraphs D, E Sub-Section 1, F, G, H, I, J and K; Section 1.07, Paragraph C; Section 3.03, Paragraph C, Sub-Section 3:

REVISE ITEM 1.06 D:

D. Temporary sheeting and shoring for support of adjacent tracks during construction shall not be closer than ~~8~~ ***10*** feet ~~6~~ ***0*** inches from the nearest track centerline~~.~~ ***EXCEPT AS SHOWN ON Underdrain/Platform Detail, drawing DR-004.***

REVISE ITEM 1.06 E.1:

~~1. The Sheet Piling Zone shall be defined as the area between the following boundaries:~~

~~a. A vertical line offset 8 feet 6 inches from the nearest track centerline.~~

~~b. A 1:1 projection beginning at a point located 8 feet 6 inches from the nearest track centerline and 2 feet below top of rail of the nearest track. The 1:1 projection shall slope down and away from the nearest track.~~

~~Un-shored excavations within the Sheet Piling Zone shall not be allowed. Shoring within the Sheet Piling Zone shall be of a type where the shoring is installed in place prior to performance of any excavation, and where the excavation can be made with no possibility of disturbance or loss of soil material retained between shoring and track. Common shoring types fulfilling this requirement are interlocking-edge sheet piling, tongue and groove edge precast concrete sheet piling, etc., which are driven or vibrated into position prior to starting any excavation. Unless otherwise indicated in the specifications, on the Drawings, or as approved by the Engineer, shoring within the Sheet Piling Zone shall be abandoned in place, except for the top 2 feet, which shall be removed and backfilled in accordance with Section 31 20 00, Earth Moving. Shoring types using lagging elements which are placed as excavation proceeds are not permitted within the Sheet Piling Zone. Shoring within the Sheet Piling Zone shall be designed for AREMA Cooper E-80 loading.~~

1. Refer to CSX requirements in Appendix B and plan notes.

REVISE ITEM 1.06 F:

~~F. Excavation and Shoring Requirements Within the Shoring Zone:~~

~~1. The Shoring Zone shall be defined as the area between the following boundaries:~~

~~a. A 1:1 projection beginning at a point located 8 feet 6 inches from the nearest track centerline and 2 feet below top of rail of the nearest track. The 1:1 projection shall slope down and away from the nearest track.~~

~~b. A 1.5:1 projection beginning at a point located 11 feet from the nearest track centerline and 2 feet below top of rail of the nearest track. The 1.5:1 projection shall slope down and away from the nearest track.~~

~~2. Un-shored excavations within the Shoring Zone shall not be allowed. Shoring types using lagging elements which are placed as excavation proceeds are allowable within the Shoring Zone. Shoring within the Shoring Zone shall be designed for AREMA Cooper E-80 loading.~~

F. Provide handrails.

REVISE ITEM 1.06 G:

~~G. Excavation and Shoring Requirements Within the Excavation Zone:~~

~~1. The Excavation Zone shall be defined as the area that is located beyond (i.e., in a direction away from the nearest track) the following boundary:~~

~~a. A 1.5:1 projection beginning at a point located 11 feet from the nearest track centerline and 2 feet below top of rail of the nearest track. The 1.5:1 projection shall slope down and away from the nearest track.~~

~~2. Sloping cuts are allowed within the Excavation Zone. Excavations and shoring within the Excavation Zone are not required to be designed for railroad live loading.~~

G. Tiebacks or other excavation support mechanisms that are installed under the track structure shall be at least 24 inches clear below top of rail.

REVISE ITEM 1.06 H:

~~H. Provide handrails.~~

H. Design sheet pile and soldier pile and lagging excavation support systems to penetrate to a depth below the bottom of excavation adequate to prevent lateral and vertical earth movement, and to permit lowering of the indicated bottom of excavation at least 2 feet without any change in the support system as installed except for additional lagging and bracing for soldier pile and lagging systems.

1. Soldier piles and lagging will be permitted for supporting adjacent track or tracks only when required penetration of steel sheet piling cannot be obtained.

REVISE ITEM 1.06 I:

~~I. Tiebacks or other excavation support mechanisms that are installed under the track structure shall be at least 24 inches clear below top of rail.~~

I. Design the bracing system to furnish sufficient reaction against side banks to maintain stability in the banks. Obtain this reaction by timely stressing to predetermined loads until the necessary reaction is produced against the banks, or by other methods necessary to prevent displacement of ground and movement of structures, tracks, site utility structures, appurtenances, and utilities.

DELETE ITEM 1.06 J:

~~J. Design sheet pile and soldier pile and lagging excavation support systems to penetrate to a depth below the bottom of excavation adequate to prevent lateral and vertical earth movement, and to permit lowering of the indicated bottom of excavation at least 2 feet without any change in the support system as installed except for additional lagging and racing for soldier pile and lagging systems.~~

~~1. Soldier piles and lagging will be permitted for supporting adjacent track or tracks only when required penetration of steel sheet piling cannot be obtained.~~

DELETE ITEM 1.06 K:

~~K. Design the bracing system to furnish sufficient reaction against side banks to maintain stability in the banks. Obtain this reaction by timely stressing to predetermined loads until the necessary reaction is produced against the banks, or by other methods necessary to prevent displacement of ground and movement of structures, tracks, site utility structures, appurtenances, and utilities.~~

REVISE ITEM 1.07 C:

C. Refer to Attachment ~~P.5~~ ***H***, Contractor Safety-Rules to Live By, for additional requirements when operating near railroad tracks.

REVISE ITEM 3.03 C.3:

3. Where the Contractor elects to slope the sides of excavations, backfill of the over-excavated areas shall be made in the same manner specified for the adjacent excavated area. Additional excavation and backfill required shall be at no additional cost to ~~CSXT~~ ***VRE*** and shall be placed in accordance with Section 31 20 00, Earth Moving.

6. <u>REVISIONS TO PLANS/DRAWINGS</u>

A. STATION SIGNAGE PLAN

1. Replace Existing Sheet A-700, with new Sheet A-700 noted Addendum #3, dated 7/17/2020.

B. ENGINEERING GEOLOGY

1. Add Sheets B-001 through B-011, noted Addendum #3, dated 7/17/2020.

C. STATION GRADING AND DRAINAGE PLAN

1. Replace Existing Sheet C-301 with new Sheet C-301 noted Addendum #3, dated 7/17/2020.

D. STATION UTILITY PLAN

1. Replace Existing Sheet C-501 with new Sheet C-501 noted Addendum #3, dated 7/17/2020.

E. SITE DEVELOPMENT DETAILS

1. Replace Existing Sheet C-602 with new Sheet C-602 noted Addendum #3, dated 7/17/2020.

F. DRAINAGE DESCRIPTIONS & PIPE PROFILE

1. Replace Existing Sheet DR-002 with new Sheet DR-002 noted Addendum #3, dated 7/17/2020.

G. **LEGEND**

1. Replace Existing Sheet E-001 with new Sheet E-001 noted Addendum #3, dated 7/17/2020.

H. **ELECTRICAL COMMUNICATION & EQUIPMENT PLAN**

1. Replace Existing Sheet E-002 with new Sheet E-002 noted Addendum #3, dated 7/17/2020.

I. **EROSION & SEDIMENT CONTROL**

1. Replace Existing Sheets ESC-002 through ESC-003, with new Sheets ESC-002 through ESC-003 noted Addendum #3, dated 7/17/2020.

J. **SUGGESTED SEQUENCE OF CONSTRUCTION**

1. Replace Existing Sheet G-009 with new Sheet G-009 noted Addendum #3, dated 7/17/2020.

K. **PLAN & PROFILE PROP. TRACK #3**

1. Replace Existing Sheet PP-025 with new Sheet PP-025 noted Addendum #3, dated 7/17/2020.

7. **<u>LIST OF ADDENDUM #3 DOCUMENTS (IN PDF)</u>**

A. Add the following Drawings noted Addendum #3, dated 7/17/2020:

1. The following Drawings are issued with this Addendum:

B-001	B-007
B-002	B-008
B-003	B-009
B-004	B-010
B-005	B-011
B-006	

B. Revision to Drawings: Replace Existing sheets below with new Sheets noted Addendum #3, dated 7/17/2020:

1. The following Drawings are re-issued with this Addendum:

A-700	ESC-002
C-301	ESC-003
C-501	G-009
C-602	PP-025
DR-002	
E-001	
E-002	

C. The following Specifications are re-issued noted Addendum #3, dated 7/17/2020:

- SECTION 01 74 19 "Construction Waste Management and Disposal"
- SECTION 31 50 00 "Excavation Support and Protection"

8. Except as specifically amended herein, all other terms and conditions of this solicitation remain unchanged and in full force and effect.

Bidders <u>must</u> acknowledge receipt of this amendment by returning a signed original with the Bid package prior to the hour and date specified in the solicitation. Failure to acknowledge receipt of this document may be grounds to declare your Bid non-responsive

Company_____

Address _____

City _____State_____ Zip Code _____

Name of Person Authorized to Sign _____
Print

Signature_____Date_____

ATTACHMENT F1

REVISED- ADDENDUM THREE

DAVIS-BACON WAGE DETERMINATION

GENERAL DECISION No. VA20200162

MODIFICATION No. 5 – JULY 10, 2020

BUILDING

PRINCE WILLIAM COUNTY

"General Decision Number: VA20200162 07/10/2020

Superseded General Decision Number: VA20190162

State: Virginia

Construction Type: Building

County: Prince William County in Virginia.
Includes the independent cities of Manassas* and Manassas Park*

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR

5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	02/07/2020
2	04/17/2020
3	05/15/2020
4	05/29/2020
5	07/10/2020

ASBE0024-006 04/01/2020

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 38.01	17.37+a

a. PAID HOLIDAYS: New Year's Day, Martin Luther King Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the day after Thanksgiving and Christmas Day provided the employee works the regular workday before and after the paid holiday.

ASBE0024-009 04/01/2020

	Rates	Fringes
FIRESTOPPER	$ 29.41	8.18+a

Includes the application of materials or devices within or around penetrations and openings in all rated wall or floor assemblies, in order to prevent the passage of fire, smoke of other gases. The application includes all components involved in creating the rated barrier at perimeter slab edges and exterior cavities, the head of gypsum board or concrete walls, joints between rated wall or floor components, sealing of penetrating items and blank openings.

a. PAID HOLIDAYS: New Year's Day, Martin Luther King Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the day after Thanksgiving and Christmas Day provided the employee works the regular workday before and after the paid holiday.

BOIL0045-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 32.72	25.26

BRVA0001-008 05/03/2020

	Rates	Fringes
BRICKLAYER	$ 33.00	12.09

BRVA0001-009 05/03/2020

	Rates	Fringes
MASON - STONE	$ 39.76	18.88

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CARP0132-021 01/01/2016

                                  Rates          Fringes

CARPENTER (Includes
Acoustical Ceiling
Installation, Drywall Hanging
and Form Work)...................$ 27.56             9.18
-------------------------------------------------------------
 ELEC0026-003 11/04/2019

                                  Rates          Fringes

ELECTRICIAN (Includes Low
Voltage Wiring and
Installation of Alarms and
Sound and Communication
Systems).........................$ 46.85            19.45
-------------------------------------------------------------
 IRON0005-010 06/01/2017

                                  Rates          Fringes

IRONWORKER.......................$ 31.15            20.63
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 PAIN0051-033 06/01/2018

                                  Rates          Fringes

PAINTER: Spray Only..............$ 25.06             9.76
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* PAIN0051-034 06/01/2020

                                  Rates          Fringes
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GLAZIER.....$ 27.97 12.55

PAIN0051-036 06/01/2018

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 25.06	9.76

PLUM0005-014 08/01/2019

	Rates	Fringes
PLUMBER	$ 43.92	18.95+a

a. PAID HOLIDAYS: New Year's Day, Martin Luther King's Birthday, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and the day after Thanksgiving and Christmas Day.

PLUM0602-016 08/01/2019

	Rates	Fringes
PIPEFITTER (Includes HVAC Pipe, Unit and Temperature Controls Installations)	$ 43.14	21.87+a

a. PAID HOLIDAYS: New Year's Day, Martin Luther King's Birthday, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and the day after Thanksgiving and Christmas Day.

SFVA0669-006 04/01/2020

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 35.70	23.60

SHEE0100-004 07/01/2018

	Rates	Fringes
SHEET METAL WORKER (Includes HVAC Duct Installation)	$ 40.27	20.34+a

a. PAID HOLIDAYS: New Year's Day, Martin Luther King's Birthday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day

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SUVA2013-046 01/11/2016

	Rates	Fringes
BRICK POINTER/CAULKER/CLEANER	$ 19.68	0.00
CEMENT MASON/CONCRETE FINISHER	$ 21.94	3.36
FLOOR LAYER: SOFT FLOORS	$ 18.75	0.00
IRONWORKER, REINFORCING	$ 25.85	6.94
LABORER: Common or General, including brick mason tending and cement mason tending	$ 13.28	1.03

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LABORER:  Pipelayer.............$ 16.81            4.26

OPERATOR:
Backhoe/Excavator/Trackhoe.......$ 23.50            4.50

OPERATOR:  Bobcat/Skid
Steer/Skid Loader................$ 18.95            4.03

OPERATOR:  Bulldozer.............$ 21.99            4.98

OPERATOR:  Crane.................$ 31.68            2.64

OPERATOR:  Forklift.............$ 21.56            7.57

OPERATOR:  Loader................$ 22.26            3.57

OPERATOR:  Roller................$ 16.25            4.88

PAINTER (Brush and Roller).......$ 18.92            0.00

ROOFER...........................$ 15.83            3.06

TILE FINISHER....................$ 23.40            0.00

TILE SETTER......................$ 27.80           10.25

TRUCK DRIVER:  Dump Truck........$ 19.22            2.58

WATERPROOFER.....................$ 21.75            1.57
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WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion

date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative

Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

ATTACHMENT I

BID FORM

REVISED- ADDENDUM THREE

Company Name: _____

A. BID CERTIFICATION

By my signature, I certify that I am authorized to bind this company/individual to provide the goods/services specified herein, in compliance with the scope of work/technical specifications, and other terms and conditions in this Invitation for Bids at the price provided in the Bid Form.

Signature _____ **Print** _____

Title _____ **Date** _____

Company Name_____

Address_____

City, State _____ **Zip Code**_____

Phone Number _____ **Email**_____

B. BID FORM (REVISED- ADDENDUM THREE)

Item No.	Description	A Quantity	Unit	B Unit Price	C (A x B) Price
1.	Mobilization	1	LS	$	$
2.	General Conditions	26	MO	$	$
3.	Erosion & Sediment Control	4.18	ACRE	$	$
4.	Sitework [Site Civil/Drainage]	1	LS	$	$
5.	Excess Soil Material Testing & Offsite Disposal	2,500	CY	$	$
6.	Retaining Wall	8,016	SF	$	$
7.	Miscellaneous Trackwork Items	1	LS	$	$
8.	Canopy – Platform 1	1,130	SF	$	$
9.	Electrical & Lighting – Platform 1	1	LS	$	$
10.	Communications – Platform 1	1	LS	$	$
11.	Cast in Place Platform – Platform 1	7,100	SF	$	$
12	Stair/Elevator Towers – Towers 1 & 2	2	EA	$	$
13.	Elevators – Towers 1 & 2	2	EA	$	$
14.	Pedestrian Bridge – Between Towers 1 & 2	615	SF	$	$
15.	Canopy – Platform 2	2,305	SF	$	$
16.	Electrical & Lighting – Platform 2	1	LS	$	$
17.	Communications – Platform 2	1	LS	$	$
18.	Cast in Place Platform – Platform 2	13,600	SF	$	$
19.	Stair/Elevator Tower – Tower 3	1	EA	$	$
20.	Elevator – Tower 3	1	EA	$	$

21.	**Pedestrian Bridge – Between Towers 2 & 3**	**566**	**SF**	**$**	**$**
TOTAL PRICE (Items 1-21)					**$**

Company Name: _____

NOTES:

NOTE: The Bid and any modification thereof shall be binding upon the Bidder for **one hundred fifty (150) calendar days** following the Bid closing date.

BASIS OF AWARD: VRE will award a contract to the conforming, responsible Bidder submitting the lowest Bid for the total bid price listed above. Line item unit prices proposed above will be fixed for the duration of this contract and serve as the determination of award. In case of error in calculation of extended prices, the unit price governs. Incomplete Bids or failure to provide a unit price may cause the Bid to be deemed non-responsive.

NOTE:

(a) The price shall be quoted in U.S. Dollars.
(b) No erasures or other handwritten changes may appear on the Bid Form.
(c) The Bid must be signed in ink.
(d) Every item on the Bid Form must be completed or the Bid may be deemed non-responsive.
(e) The prices, without exception, shall be net, not subject to discount, and shall include all royalties and costs arising from patents, trademarks, and copyrights in any way involved in the work.

NOTE: Unless indicated otherwise, Bidder's **TOTAL PRICE** shall be *inclusive of all costs* and shall include full compensation for all taxes, fees, shipping/delivery charges, materials, labor, equipment, tools, transportation, insurance, bonds, permits, overhead and profit, etc. necessary to complete the work in conformance with the Contract and to the satisfaction of VRE. Extra charges will not be allowed.

COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK: The Contractor shall be required to:

(a) Commence work under this Contract within 10 calendar days after the date the Contractor receives Notice-To-Proceed (NTP);
(b) Prosecute the work diligently;
(c) All work shall be Substantially Complete within 790 consecutive calendar days from NTP.

CONTRACT MILESTONES AND LIQUIDATED DAMAGES: Liquidated Damages in the amount of $5,339 per calendar day shall be assessed for late achievement of completion of all work.

NOTICE: See Contract Provision, Pre-construction Requirements regarding Pre-construction Conference and NTP.

C. REFERENCES (PAST AND PRESENT EXPERIENCE)

(Bidders shall make additional copies of this form.)

1. Firm: _____

2. Address: _____

3. Point of Contact: _____

4. Title: _____

5. Telephone No.: _____

6. Fax No.: _____

7. Email Address: _____

8. Contract Title/Contract No.: _____

9. Original Contract Value: _____

10. Contract Value at Completion: _____

11. Contract Commencement Date: _____

12. Contract Completion Date: _____

13. Description of the Work: _____

_____

_____

_____

_____

_____

(Prime Contractor)

D. REFERENCES (PAST AND PRESENT EXPERIENCE) Continued

Terminated Contracts

List below any contracts within the past five (5) years, if any, on which ***failure to complete the work*** within the specified time frame resulted either in the assessment of liquidated damages, penalties or contract termination.

(Bidders shall make additional copies of this form.)

Check if not applicable ( )

1. Firm: _____
2. Address: _____
3. Point of Contact: _____
4. Title: _____
5. Telephone No.: _____
6. Fax No.: _____
7. Email Address: _____
8. Contract Title/Contract No.: _____
9. Original Contract Value: _____
10. Contract Value at Completion: _____
11. Contract Commencement Date: _____
12. Contract Completion Date: _____
13. Description of the Work: _____

_____

_____

_____

(Prime Contractor)

E. SUBCONTRACTORS FORM

(Bidders shall make additional copies of this form as necessary.)

☐ **No Subcontractors will be utilized.**

1. Firm Name: _____

2. Address: _____

3. Contact:_____Title: _____

4. Phone No.:_____Fax No. or Email Address: _____

5. **Check (☑) all of the following which apply:**
   ☐ Small, Woman-owned and Minority-owned Business (SWaM)

   *Certified by:_____
   *(**The SWaM certification must be attached**)

   ☐ Disadvantaged Business Enterprise (DBE)

   *Certified by:_____
   *(**The DBE certification must be attached**)

6. **Annual Gross Receipts:**
   Indicate by checking (☐) the appropriate block that applies to the Subcontractor:

   ☐ Less than $7,500,000

   ☐ More than $7,500,000

7. Type of work to be performed by the Subcontractor: _____

   _____

8. Location of work:_____

9. Estimated dollar amount of the work: $ _____

***NOTE**: The following certifications included in **ATTACHMENT C** must be attached for each Subcontractor:*

1) *Certification of Primary Participating Debarment, Suspension, and Other Ineligibility and Voluntary Exclusion*
2) *Certification of Restrictions on Lobbying*
3) *Non-Collusion Affidavit*

_____

(Prime Contractor)

SECTION 01 11 00

Summary of Work

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes the following:

1. Work included in Contract Documents
2. Restrictions and Quality Control
3. Damages and Pre-Existing Conditions
4. Type of Contract
5. Sequence of Work
6. Work by Others
7. Use of Premises
8. Occupancy Requirements
9. Utility Location, Protection and Relocation
10. Utility Outages

1.02 RELATED SECTIONS

A. Drawings, General Provisions, General Conditions, Special Provisions and other Division 01 Specifications apply to this Section.

1.03 WORK INCLUDED IN CONTRACT DOCUMENTS

A. This section includes requirements for the construction of Quantico Station Improvements. The project consists of improvements to expand historic Quantico Station. The existing platform will be extended, and a new center platform will be provided. These platforms will be connected via a grade separated crossing in the form of a two pedestrian bridges between three stair/elevator towers. Track improvements in the immediate area will involve new alignments for tracks one through three and a new retaining wall. Other ancillary improvements will include new utilities and equipment along with landscaping.

1. Project Location:

   Quantico station is located at CSX transportation (CSXT) milepost CFP 78.8 on the central division and RF&P subdivision in Quantico, VA. A third track is proposed and included in this project consistent to the sow and division of work for the overarching Arkendale to Powells creek project between mileposts CFP 78.21 and CFP 79.05 on the CSXT RF&P subdivision Quantico, VA.

Quantico station is located at 550 Railroad Ave, Quantico, VA 22134

Nearest grade crossing is fra#860605j at MP CFP 78.83, Potomac Avenue, Prince William County, VA.

B. Engineer-of-Record (EOR): The Bid Documents, dated 10 June 2020, were prepared by STV Incorporated

C. Construction Manager: VRE will engage a Construction Manager to be named for this Project to serve as an advisor to VRE and to provide assistance in administering the Contract for Construction between VRE and the Contractor, according to a separate contract between the VRE and Construction Manager.

D. Project Manager: When a Construction Manager has not been engaged, VRE will designate a Project Manager (PM) to represent VRE and assist in monitoring the work under the Contract. In these instances, any reference to the Construction Manager, where it occurs in the Technical Specification documents, shall be understood to mean the Project Manager.

E. The delivered project shall:

1. Meet and/or exceed the requirements set forth elsewhere in the Contract Documents.

2. Be capable of safe and reliable operation meeting and/or exceeding industry standards and practices.

F. This Section outlines the main features of the Work to be performed under this Contract and is not a complete description. Work addressed in this Section but not addressed in other portions of the design shall still be considered part of the overall Work. The general details of the Work to be performed under this Contract are indicated more specifically in the other Specification sections, other documents of the design and other Contract Documents. The Work includes:

1. The construction of site, civil, and drainage elements to include retaining wall 13 from approximately Sta. 8243+76 to Sta. 8269+91 proposed track #3 (from previous package 5 within the Arkendale to Powells creek project). This site/civil drainage component will include sub-ballast and up to the bottom of the ballast pad for railroad tie installation. CSX to provide ballast, tie, and rail installation, along with signal work, main line tie-ins, and grade crossing installation at Potomac avenue, as well as flagging for overall project and as needed for project as part of scope and requirements and budget for remaining Arkendale to Powells creek work for DRPT/FRA (per Arkendale agreement between CSX and DRPT sow and IRPOC funding agreement).

2. Project scope shall also include the installation of a new island platform between proposed track 2 and proposed track 3, along with corresponding ped bridges both to the east and to the west, along with platform extension of existing side platform along the east of proposed track 1 per the dimensions, location, and geometry shown on the attached plan sheets, along with corresponding lighting and Americans with Disabilities Act (ADA) access (shown on plan sheets as well), at the Quantico station.

3. The Contractor shall furnish all qualified and certified labor, material, equipment, permit(s), licenses, and insurance to complete construction of the Project as indicated in the plans and specifications. The contractor shall install all work in compliance with all requirements of the host railroad, CSX Transportation (CSXT), along with any permit(s) or coordination requirements of the local jurisdictions and utilities to enable the facility to be put into service.
4. Right-of-Entry (ROE) obtained from host railroad within VRE/CSX construction agreement, flagging provided by CSX and charged to Arkendale to Powells creek third track project per agreement between CSX and DRPT. Contractor to provide beneficial use within ~~730~~ ***790*** calendar days of NTP. The contractor shall coordinate and communicate schedules, critical paths and milestones with VRE and stakeholders.
5. The contractor shall be responsible for, but not limited to, the following tasks:
6. Obtaining all necessary permit(s) that have not already been obtained by VRE as noted in IFB and contract documents.
7. Coordination of construction activities and flagging with CSXT, including the preparation of submittals, as noted in the plans and specifications, for approval by VRE, CSXT and all other stakeholders as applicable.
8. Technical submittals, shop drawings and construction layout.
9. Maintaining commuter access to the existing Quantico station platforms throughout construction.
10. Mobilization/demobilization and installation of any temporary devices as required by CSXT, MCBQ, dominion energy, or the local jurisdictions as needed.

G. Potential Impacts and Mitigations

1. VRE intends to coordinate closely with the adjacent stakeholders and property owners (CSX, marine corps base Quantico (MCBQ) Prince William County, utilities, MCBQ, and town of Quantico) for any required access or permit requirements not identified in the design and procurement process.
2. Access for Quantico station improvements to be utilized on MCBQ property through existing access agreements between CSX and MCBQ temporary construction permits as coordinated and agreed to previously. CSX to extend construction permits (temporary construction access) for duration of Quantico station improvements project. Contractor is required to coordinate all utility locates/dig tickets and notifications with Miss Utility, MCBQ, CSX, and town of Quantico.
3. Final property ownership transfer to be negotiated with MCBQ (NAVFAC) and CSXT upon final completion and final survey of as built conditions for 4’+ strip on west side of existing CSX/MCBQ row line as well as bump out for final location of west tower for ped bridge.

4. The contractor shall arrange operations and perform construction activities in a manner that always maintains temporary and permanent railroad clearances and train movements. Clearances and any need for track protection provided by a host railroad representative will be scheduled with the local roadmaster in a manner consistent with railroad protection manpower availability.
5. CSX will coordinate relocation of century link fiber optic line as needed for 3rd track installation.
6. Typical FAE costs, flagging, track work, signal protection, signal work, grade crossing work, etc. To be borne by Arkendale to Powells creek third track project (see attached sow).
7. All of the above have been designed and will be constructed in accordance with CSXT design and construction standards and have been submitted and have received CSXT review previously, with any comments resolved as park of stakeholder review process for Arkendale project.
8. Track cut-ins and track cutovers will be needed as part of CSX scope for Arkendale project once site, civil, drainage, retaining wall, and sub-ballast have been installed.
9. Potomac avenue grade crossing installation will need to be coordinated between VRE and contractor and CSX forces, along with corresponding utility location, utility protection, and signal work.
10. All the above have been designed and will be constructed in accordance with CSXT design standards. The proposed improvements will be constructed of durable, maintainable materials with methods of installation having a minimum impact on train operations. This includes the installation of concrete platforms, steel canopies, sheet metal roofing, lighting, ticket vending machines, variable message system, security cameras, electrical connections, and water connections as needed on the platform, and pedestrian access.

H. Ownership of materials:

1. Materials furnished by the Contractor under this contract shall become the property of VRE.
2. VRE-furnished materials shall remain the property of VRE.

1.04 RESTRICTIONS AND QUALITY CONTROL

A. The overall site plan and facilities configurations as depicted in the design are mandatory and shall not be altered except as approved by the Engineer.

B. All site features and the facility shall be in accordance with Virginia Railway Express' requirements as defined herein.

1.05 DAMAGES AND PRE-EXISTING CONDITIONS

A. Contractor shall be responsible for all damages caused by Contractor's construction activities. Provide all labor, materials, etc. to return any damaged areas, systems or equipment to their original condition at no additional cost to VRE.

B. Perform a survey of pre-existing conditions in the vicinity of Contractor's construction activities, utilizing photographs and other means as necessary to document existing damage or conditions. Submit two copies of this survey to the CM within 21 calendar days after Notice-to-Proceed. Survey shall be approved by VRE prior to submission of first invoice by the Contractor. This survey will assist in resolving any damage claims against the Contractor during and after construction.

C. Unless noted otherwise preserve all facilities and portions thereof including but not limited to roadways, pedestrian and directional signage. Deliver all removed facilities not required for reinstallation to VRE as directed by the CM.

D. Replace or repair lost or damaged facilities or portion thereof, to the satisfaction of VRE, at no cost to VRE.

1.06 TYPE OF CONTRACT

A. This project will be constructed under a general construction contract.

1.07 SEQUENCE OF WORK

A. Conduct the Work in one continuous operation. If phased construction is required, the Contractor shall arrange the sequence of construction, unless noted otherwise on the Contract Plans.

B. Work shall be performed in accordance with the Contractor's "CPM Construction Schedule" as specified in Division 01 Section "Construction Progress Documentation: and as approved by the Construction Manager.

1.08 WORK BY OTHERS

A. General: Cooperate fully with other entities (e.g. Host Railroad, Utility Owner) so their work may be performed without interfering or delaying work within this Contract. Coordinate the Work of this Contract with work performed by other entities with the CM.

VRE understands that work to be performed by others as part of this projects includes:

1. Relocation of underground fiber optic conduit/conductor by Century Link (or contractor).
2. Protection, or relocation if required, of fiber optic conduit/conductor by Verizon (or contractor)
3. Grade-crossing relocation and construction by CSXT (or contractor).
4. Track and Signal/Communications construction by CSXT (or contractor).
5. Power pole and line relocation by MCBQ (or contractor).

6. Installation of gas line by Columbia Gas (or contractor).

B. Preceding Work: VRE will award separate contract(s) for the following construction operations at the Project site. Those operations are scheduled to be substantially complete before work under this Contract begins.

1. No separate contracts are known for work preceding this Contract.

C. Concurrent Work: VRE will award separate contract(s) for the following construction operations at the Project site. Those operations will be conducted simultaneously with work under this Contract.

1. Installation of Ticket Vending Machine (TVM) equipment by VRE.
2. Installation of Variable Messaging System (VMS) equipment by VRE.
3. Installation of Security Cameras by VRE.

D. Future Work: VRE will award separate contract(s) for the following additional work to be performed at the Project site after Substantial Completion. Completion of that work will depend on successful completion of preparatory under this Contract.

1. No separate contracts are known for future work after this Contract.

E. For additional requirements for Cooperation Among Contractors, see Division 01, Section 01 73 00 "Execution of Work."

1.09 USE OF PREMISES

A. Use of Site: Confine use of premises to work in areas indicated. Do not disturb portions of site beyond limits of construction areas in which the Work is indicated.

1. Limits: Confine construction operations to areas where work and staging is shown on plans.
2. VRE Access: Allow VRE and their designees to have unencumbered access to areas designated for VRE. Access to areas, restricted due to construction, shall be coordinated by the Construction Manager, for VRE personnel involved in the performance of the construction contract. The remainder of the site, including newly constructed areas, shall be restricted to only VRE personnel involved in the performance of the construction contract, as designated by the Construction Manager, until VRE establishes occupancy of the project site.
3. Contractor shall have full use of premises for construction operations within the designated Limits of Construction as indicated on the Contract Plans, during the hours indicated and as directed by the Construction Manager.
4. Unless noted otherwise, the Contractor shall keep the site free from accumulation of waste materials. When the project is complete, the Contractor must remove from and about the project site, waste materials, tools, construction equipment, machinery and surplus materials. If a dispute arises regarding maintenance or clean-up of the premises, VRE may maintain and clean the site and assess actual damages to the Contractor.

5. The Contractor must remain aware that the areas of work are active rail lines. Extreme caution and safety must be exercised at all times.

B. Utilize areas designated for Contractor staging, storage and parking as indicated on the Contract Drawings. For additional requirements, see Division 01, Section 01 50 00.

C. Use of Existing Facilities: Maintain existing facilities in a weather tight condition throughout construction period. Repair damage caused by construction operations. Protect facilities and their occupants during construction period.

D. Use of Explosives: Explosives shall not be used on site, unless approved in writing by VRE.

1.10 OCCUPANCY REQUIREMENTS

A. Partial VRE Occupancy: VRE reserves the right to occupy, use and/or to place and install equipment in any completed or partially completed areas of the site/building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work. Partial VRE occupancy requirements are as follows:

1. Construction Manager will prepare a Certificate of Substantial Completion for each specified portion of the Work to be occupied before VRE occupancy.

2. Before partial VRE occupancy, mechanical and electrical systems shall be fully operational and required tests and inspections shall be successfully completed. On occupancy, VRE will operate and maintain mechanical and electrical systems serving occupied portions of the building/site.

3. On occupancy, VRE will assume responsibility for maintenance and custodial service for occupied portions of building.

1.11 UTILITY LOCATION, PROTECTION AND RELOCATION

A. Coordinate utility location services to identify and mark the location of all utility lines, that may be impacted by construction activities, including but not limited to the following:

1. Electric power lines

2. Natural gas lines

3. Sanitary sewers

4. Stormwater/drainage

5. Water supplying piping

6. Petroleum/Fuel lines

7. Telephone lines

8. Data and Communication/ Fiber Optic Lines

9. Underground Storage Tanks

10. Steam/water lines
11. Underground utilities and lines abandoned in place

B. The information in the Contract Documents concerning the type and location of utilities is neither guaranteed nor inclusive. The Contractor is responsible for determining the type and location of utilities, regardless of whether such utilities are indicated or not, so as to avoid damage thereto.

C. Check and verify the horizontal and vertical location (coordinates and elevation) of all utility lines that may exist within the limits of new work, regardless of whether such utilities are indicated or not, by use of a Subsurface Utility Engineering company. Reconfirm such locations and verification of utilities discovered, regardless of whether such utilities are indicated or not, and submit to the Project Manager a dimensional survey with such notations.

D. Test pits shall be accomplished by means of non-destructive testing in the vicinity of the discovered utilities, as indicated on the Contract Plans. Additional test pits may be performed by the Contractor, at their expense, in coordination with the CM and applicable utility.

E. Repair any damage to discovered utility lines due to construction operations at no expense to VRE. VRE will assist the Contractor by making available any known information.

F. If utilizing an independent subsurface utility engineering company, submit the name of firm and qualifications to the CM, for written approval.

G. Within 60 calendar days of Notice to Proceed, submit to the CM a survey of all utility location results.

H. For additional requirements for Cooperation with Utility Companies, see Division 01, Section 01 73 00 "Execution of Work."

1.12 UTILITY OUTAGES

A. Prior to any utility outage/interruption, prepare a schedule of such outage. Include in outage schedule duration, identification of the service affected, temporary utility service to be provided, identification of available service alternative, and the action to be taken in the event of any emergency. Apply for all outages of utility systems in writing. Fully coordinate outage requests with the Construction Manager. Schedule shall include date, time, and duration of outage. Obtain approval in writing by the Construction Manager.

PART 2 – PRODUCTS - NOT USED.

PART 3 – EXECUTION -NOT USED.

END OF SECTION

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:

1. Section 024119 “Selective Demolition”.
2. Section 042200 "Concrete Unit Masonry".
3. Section 042100 “Clay Unit Masonry – Thin Brick.
4. CSX Section 070220 “Demolish and Remove Existing Structure” in the Appendix for removal of railings that may have lead paint on them.
5. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.3 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner’s property.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within 30 days of date established for the Notice to Proceed.

1.6 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:

1. Material category.
2. Generation point of waste.
3. Total quantity of waste in tons (tonnes).
4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Qualification Data: For waste management coordinator.

1.7 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, or individual employed and assigned by General Contractor, with a record of successful waste management coordination of projects with similar requirements. Superintendent may serve as Waste Management Coordinator.

B. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.

C. Waste Management Conference(s): Conduct conference(s) at Project site to comply with requirements in Section 013100 "Project Meetings." Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of each contractor and waste management coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.8 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work in compliance with Section 024119 "Selective Demolition."
2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there were no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:

1. Total quantity of waste.
2. Estimated cost of disposal (cost per unit). Include transportation and tipping fees and cost of collection containers and handling for each type of waste.
3. Total cost of disposal (with no waste management).
4. Revenue from salvaged materials.
5. Revenue from recycled materials.
6. Savings in transportation and tipping fees by donating materials.
7. Savings in transportation and tipping fees that are avoided.
8. Handling and transportation costs. Include cost of collection containers for each type of waste.
9. Net additional cost or net savings from waste management plan.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Project rates for salvage/recycling of 75 percent by weight of total nonhazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:

1. Demolition Waste:

   a. Asphalt paving.
   b. Concrete.
   c. Concrete reinforcing steel.
   d. Electrical conduit.
   e. Lighting fixtures.
   f. Lamps.
   g. Ballasts.

2. Construction Waste:

   a. Masonry and CMU.
   b. Lumber.
   c. Wood sheet materials.
   d. Metals.

e. Roofing.
f. Insulation.
g. Gypsum board.
h. Piping.
i. Electrical conduit.
j. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:

1) Paper.
2) Cardboard.
3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
6) Wood crates.
7) Wood pallets.
8) Plastic pails.

k. Construction Office Waste: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following construction office waste materials:

1) Paper.
2) Aluminum cans.
3) Glass containers.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

1. Distribute waste management plan to everyone concerned within three days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Comply with requirements in Section 024119 "Selective Demolition" for salvaging demolition waste.

B. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

C. Salvaged Items for Sale and Donation: Not permitted on Project site.

D. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

F. Plumbing Fixtures: Separate by type and size.

G. Lighting Fixtures: Separate lamps by type and protect from breakage.

H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Owner.

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.4 RECYCLING DEMOLITION WASTE

A. Asphalt Paving: Grind asphalt to maximum 1-1/2-inch (38-mm) size.

1. Crush asphaltic concrete paving and screen to comply with requirements in Section 312000 "Earth Moving" for use as general fill.

B. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.

C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 1-1/2-inch (38-mm) size.
2. Crush concrete and screen to comply with requirements in Section 312000 "Earth Moving" for use as satisfactory soil for fill or subbase.

D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 1-inch (25-mm) size.

a. Crush masonry and screen to comply with requirements in Section 312000 "Earth Moving" for use as general fill.

2. Clean and stack undamaged, whole masonry units on wood pallets.

E. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

F. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

G. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

H. Piping: Reduce piping to straight lengths and store by material and size. Separate supports, hangers, valves, sprinklers, and other components by material and size.

I. Conduit: Reduce conduit to straight lengths and store by material and size.

J. Lamps: Separate lamps by type and store according to requirements in 40 CFR 273.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

D. Paint: Seal containers and store by type.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner's property.

C. Burning: Do not burn waste materials.

D. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

3.7 ATTACHMENTS

A. Form CWM-1 for construction waste identification.

B. Form CWM-2 for demolition waste identification.

C. Form CWM-3 for construction waste reduction work plan.

D. Form CWM-4 for demolition waste reduction work plan.

E. Form CWM-5 for cost/revenue analysis of construction waste reduction work plan.

F. Form CWM-6 for cost/revenue analysis of demolition waste reduction work plan.

G. Form CWM-7 for construction waste reduction progress report.

H. Form CWM-8 for demolition waste reduction progress report.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement of the work of this section will be in accordance with the "Method of Measurement and Payment" description as included in PAY ITEM DESCRIPTION & ESTIMATED QUANTITY SUMMARY on the plans.

4.2 PAYMENT

B. Payment of the work of this section will be in accordance with the "Method of Measurement and Payment" description as included in PAY ITEM DESCRIPTION & ESTIMATED QUANTITY SUMMARY on the plans.

END OF SECTION 017419

FORM CWM-1: CONSTRUCTION WASTE IDENTIFICATION							
MATERIAL CATEGORY	**GENERATION POINT**	**EST. QUANTITY OF MATERIALS RECEIVED* (A)**	**EST. WASTE - % (B)**	**TOTAL EST. QUANTITY OF WASTE* (C = A x B)**	**EST. VOLUME CY (CM)**	**EST. WEIGHT TONS (TONNES)**	**REMARKS AND ASSUMPTIONS**
Packaging: Cardboard							
Packaging: Boxes							
Packaging: Plastic Sheet or Film							
Packaging: Polystyrene							
Packaging: Pallets or Skids							
Packaging: Crates							
Packaging: Paint Cans							
Packaging: Plastic Pails							
Site-Clearing Waste							
Masonry or CMU							
Lumber: Cut-Offs							
Lumber: Warped Pieces							
Plywood or OSB (scraps)							
Wood Forms							
Wood Waste Chutes							
Wood Trim (cut-offs)							
Metals							
Insulation							
Roofing							
Joint Sealant Tubes							
Gypsum Board (scraps)							
Carpet and Pad (scraps)							
Piping							
Electrical Conduit							
Other:							

* Insert units of measure.

FORM CWM-2: DEMOLITION WASTE IDENTIFICATION				
MATERIAL DESCRIPTION	EST. QUANTITY	EST. VOLUME CY (CM)	EST. WEIGHT TONS (TONNES)	REMARKS AND ASSUMPTIONS
Asphaltic Concrete Paving				
Concrete				
Brick				
CMU				
Lumber				
Plywood and OSB				
Wood Paneling				
Wood Trim				
Miscellaneous Metals				
Structural Steel				
Rough Hardware				
Insulation				
Roofing				
Doors and Frames				
Door Hardware				
Windows				
Glazing				
Acoustical Tile				
Carpet				
Carpet Pad				
Demountable Partitions				
Equipment				
Cabinets				
Plumbing Fixtures				
Piping				
Piping Supports and Hangers				
Valves				
Sprinklers				
Mechanical Equipment				
Electrical Conduit				
Copper Wiring				
Light Fixtures				
Lamps				
Lighting Ballasts				
Electrical Devices				
Switchgear and Panelboards				
Transformers				
Other:				

FORM CWM-3: CONSTRUCTION WASTE REDUCTION WORK PLAN						
MATERIAL CATEGORY	GENERATION POINT	TOTAL EST. QUANTITY OF WASTE TONS (TONNES)	DISPOSAL METHOD AND QUANTITY			HANDLING AND TRANSPORTION PROCEDURES
			EST. AMOUNT SALVAGED TONS (TONNES)	EST. AMOUNT RECYCLED TONS (TONNES)	EST. AMOUNT DISPOSED TO LANDFILL TONS (TONNES)	
Packaging: Cardboard						
Packaging: Boxes						
Packaging: Plastic Sheet or Film						
Packaging: Polystyrene						
Packaging: Pallets or Skids						
Packaging: Crates						
Packaging: Paint Cans						
Packaging: Plastic Pails						
Site-Clearing Waste						
Masonry or CMU						
Lumber: Cut-Offs						
Lumber: Warped Pieces						
Plywood or OSB (scraps)						
Wood Forms						
Wood Waste Chutes						
Wood Trim (cut-offs)						
Metals						
Insulation						
Roofing						
Joint Sealant Tubes						
Gypsum Board (scraps)						
Carpet and Pad (scraps)						
Piping						
Electrical Conduit						
Other:						

FORM CWM-4: DEMOLITION WASTE REDUCTION WORK PLAN

MATERIAL CATEGORY	GENERATION POINT	TOTAL EST. QUANTITY OF WASTE TONS (TONNES)	DISPOSAL METHOD AND QUANTITY			HANDLING AND TRANSPORTION PROCEDURES
			EST. AMOUNT SALVAGED TONS (TONNES)	EST. AMOUNT RECYCLED TONS (TONNES)	EST. AMOUNT DISPOSED TO LANDFILL TONS (TONNES)	
Asphaltic Concrete Paving						
Concrete						
Brick						
CMU						
Lumber						
Plywood and OSB						
Wood Paneling						
Wood Trim						
Miscellaneous Metals						
Structural Steel						
Rough Hardware						
Insulation						
Roofing						
Doors and Frames						
Door Hardware						
Windows						
Glazing						
Acoustical Tile						
Carpet						
Carpet Pad						
Demountable Partitions						
Equipment						
Cabinets						
Plumbing Fixtures						
Piping						
Supports and Hangers						
Valves						
Sprinklers						
Mechanical Equipment						
Electrical Conduit						
Copper Wiring						
Light Fixtures						
Lamps						
Lighting Ballasts						
Electrical Devices						
Switchgear and Panelboards						
Transformers						
Other:						

FORM CWM-5: COST/REVENUE ANALYSIS OF CONSTRUCTION WASTE REDUCTION WORK PLAN								
MATERIALS	TOTAL QUANTITY OF MATERIALS (VOL. OR WEIGHT) (A)	EST. COST OF DISPOSAL (B)	TOTAL EST. COST OF DISPOSAL (C = A x B)	REVENUE FROM SALVAGED MATERIALS (D)	REVENUE FROM RECYCLED MATERIALS (E)	LANDFILL TIPPING FEES AVOIDED (F)	HANDLING AND TRANSPORTATION COSTS AVOIDED (G)	NET COST SAVINGS OF WORK PLAN (H = D+E+F+G)
Packaging: Cardboard								
Packaging: Boxes								
Packaging: Plastic Sheet or Film								
Packaging: Polystyrene								
Packaging: Pallets or Skids								
Packaging: Crates								
Packaging: Paint Cans								
Packaging: Plastic Pails								
Site-Clearing Waste								
Masonry or CMU								
Lumber: Cut-Offs								
Lumber: Warped Pieces								
Plywood or OSB (scraps)								
Wood Forms								
Wood Waste Chutes								
Wood Trim (cut-offs)								
Metals								
Insulation								
Roofing								
Joint Sealant Tubes								
Gypsum Board (scraps)								
Carpet and Pad (scraps)								
Piping								
Electrical Conduit								
Other:								

FORM CWM-6: COST/REVENUE ANALYSIS OF DEMOLITION WASTE REDUCTION WORK PLAN								
MATERIALS	TOTAL QUANTITY OF MATERIALS (VOL. OR WEIGHT) (A)	EST. COST OF DISPOSAL (B)	TOTAL EST. COST OF DISPOSAL (C = A x B)	REVENUE FROM SALVAGED MATERIALS (D)	REVENUE FROM RECYCLED MATERIALS (E)	LANDFILL TIPPING FEES AVOIDED (F)	HANDLING AND TRANSPORTATION COSTS AVOIDED (G)	NET COST SAVINGS OF WORK PLAN (H = D+E+F+G)
Asphaltic Concrete Paving								
Concrete								
Brick								
CMU								
Lumber								
Plywood and OSB								
Wood Paneling								
Wood Trim								
Miscellaneous Metals								
Structural Steel								
Rough Hardware								
Insulation								
Roofing								
Doors and Frames								
Door Hardware								
Windows								
Glazing								
Acoustical Tile								
Carpet								
Carpet Pad								
Demountable Partitions								
Equipment								
Cabinets								
Plumbing Fixtures								
Piping								
Supports and Hangers								
Valves								
Sprinklers								
Mech. Equipment								
Electrical Conduit								
Copper Wiring								
Light Fixtures								
Lamps								
Lighting Ballasts								
Electrical Devices								
Switchgear and Panelboards								
Transformers								
Other:								

FORM CWM-7: CONSTRUCTION WASTE REDUCTION PROGRESS REPORT								
MATERIAL CATEGORY	GENERATION POINT	TOTAL QUANTITY OF WASTE TONS (TONNES) (A)	QUANTITY OF WASTE SALVAGED		QUANTITY OF WASTE RECYCLED		TOTAL QUANTITY OF WASTE RECOVERED TONS (TONNES) (D = B + C)	TOTAL QUANTITY OF WASTE RECOVERED % (D / A x 100)
			ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (B)	ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (C)		
Packaging: Cardboard								
Packaging: Boxes								
Packaging: Plastic Sheet or Film								
Packaging: Polystyrene								
Packaging: Pallets or Skids								
Packaging: Crates								
Packaging: Paint Cans								
Packaging: Plastic Pails								
Site-Clearing Waste								
Masonry or CMU								
Lumber: Cut-Offs								
Lumber: Warped Pieces								
Plywood or OSB (scraps)								
Wood Forms								
Wood Waste Chutes								
Wood Trim (cut-offs)								
Metals								
Insulation								
Roofing								
Joint Sealant Tubes								
Gypsum Board (scraps)								
Carpet and Pad (scraps)								
Piping								
Electrical Conduit								
Other:								

FORM CWM-8: DEMOLITION WASTE REDUCTION PROGRESS REPORT

MATERIAL CATEGORY	GENERATION POINT	TOTAL QUANTITY OF WASTE TONS (TONNES) (A)	QUANTITY OF WASTE SALVAGED		QUANTITY OF WASTE RECYCLED		TOTAL QUANTITY OF WASTE RECOVERED TONS (TONNES) (D = B + C)	TOTAL QUANTITY OF WASTE RECOVERED % (D / A x 100)
			ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (B)	ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (C)		
Asphaltic Concrete Paving								
Concrete								
Brick								
CMU								
Lumber								
Plywood and OSB								
Wood Paneling								
Wood Trim								
Miscellaneous Metals								
Structural Steel								
Rough Hardware								
Insulation								
Roofing								
Doors and Frames								
Door Hardware								
Windows								
Glazing								
Acoustical Tile								
Carpet								
Carpet Pad								
Demountable Partitions								
Equipment								
Cabinets								
Plumbing Fixtures								
Piping								
Supports and Hangers								
Valves								
Sprinklers								
Mechanical Equipment								
Electrical Conduit								
Copper Wiring								
Light Fixtures								
Lamps								
Lighting Ballasts								
Electrical Devices								
Switchgear and Panelboards								
Transformers								
Other:								

* * * * *

SECTION 31 50 00

Excavation Support and Protection
(See also Section VI and Section VII – Appendix B)

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. This section specifies procedures, performance criteria, and requirements for Contractor to provide safe and stable excavations throughout the construction. Contractor shall provide temporary sheeting, shoring, and bracing systems as required by the work. Contractor shall meet codes, regulations, and requirements of agencies having jurisdiction over this work.
2. Work under this section includes but is not limited to:
   a. Design of the temporary support systems that are to be employed by the Contractor.
   b. Construction of temporary sheeting, shoring, and bracing systems.
   c. Employing acceptable side slope layback methods for excavations.
   d. Maintenance of bracing systems and removal.
   e. All associated design work.
   f. Obtaining required Federal OSHA, VOSHA, and local jurisdiction permits.

1.02 RELATED SECTIONS

A. Section 31 20 00, Earth Moving.

B. Section 03 20 00, Concrete Reinforcing.

C. Section 03 30 00, Cast-in-Place Concrete.

1.03 REFERENCE STANDARDS

A. DCSM: Prince William County Design and Construction Standards Manual.

B. VOSHA: State of Virginia Department of Labor and Industry, VOSHA Standards

C. AWS: American Welding Society.

D. OSHA: Occupational Safety and Health Administration.

E. AASHTO: American Association of State Highway and Transportation Officials.

F. AREMA: American Railway Engineering and Maintenance of Way Association – Manual for Railway Engineering

G. Code of Virginia – 56-265.24

1.04 SUBMITTALS

A. Make submittals under Section 01 33 00, Submittals.

B. General Excavation Support Procedure: Submit an outline of intended excavation support systems as required for the work. This submittal is for the Engineer's general information and in no way relieves the Contractor of complete responsibility for the successful performance of intended excavation methods.

C. Excavation Drawings: Submit drawings of all proposed excavations.

1. Include plan views indicating the extent of proposed excavations relative to the nearest track centerline.
2. Include cross-sections of proposed excavations.
3. Include cross-sections cut perpendicular to the track; indicate the track location and use equal horizontal and vertical scales.
4. Vertical dimensions shall be relative to top of rail and horizontal elevations shall be relative to the nearest track centerline.
5. Show impacted facilities (e.g., access roads, drainage ditches) and indicate how impacts shall be mitigated during construction.
6. Indicate construction access locations.

D. Sheeting and/or Shoring Drawings: Required for sheeting, shoring, and other excavation support systems.

1. Drawings shall be prepared, signed, and sealed by a professional engineer licensed to practice in the Commonwealth of Virginia.
2. Include plan views indicating the extent of proposed shoring relative to the nearest track centerline.
3. Include cross-sections of proposed shoring.
4. Include cross-sections cut perpendicular to the track; indicate the track location and use equal horizontal and vertical scales.
5. Vertical dimensions shall be relative to top of rail and horizontal elevations shall be relative to the nearest track centerline.
6. Drawings shall also indicate details of structural members, connection details, and embedment depths.
7. Indicate construction access locations.

E. Design Calculations: Required for sheeting, shoring and other excavation support systems; prepared, signed, and sealed by a professional engineer licensed to practice in the Commonwealth of Virginia.

F. Installation Procedure: Required for sheeting, shoring, and other excavation support systems; prepared, signed, and sealed by a professional engineer licensed to practice in the Commonwealth of Virginia.

1.05 QUALITY CONTROL

A. Protect all utilities, structures, and facilities designated to remain in place from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavation and backfill operations.

B. Submitted drawings, design calculations, and installation procedures for excavation support systems shall be prepared, sealed, and signed by a professional engineer licensed to practice in the Commonwealth of Virginia.

1.06 DESIGN CRITERIA

A. Design excavation support in accordance with AASHTO and AREMA requirements, to support loads including: earth pressures, AASHTO HS20 traffic loading, AREMA Cooper E-80 Railroad Loading, utility loads, loads from adjacent structures, ground water pressure, and equipment and construction loads. No increases in allowable stresses or reductions of safety factors shall be allowed.

B. The excavation support shall allow safe and expeditious construction of the permanent structure without movement or settlement of adjacent buildings, structures, utilities, or track work.

1. In non-track areas, design the sheeting and bracing support system to support indicated loads to allow the safe and expeditious construction of the permanent structures or demolition of existing appurtenances, utilities, structures, or site utility structures without movement or settlement of the ground, and to prevent damage to, or movement or settlement of, appurtenances, structures, piers, utilities, or site utility structures that are to remain in place.
2. In track areas, design the excavation and track support system to support indicated loads to allow the safe and expeditious installation of structures, appurtenances, utilities, and site utility structures; demolition of structures, site utility structures, appurtenances, and utilities to be removed; construction of the permanent structures; and other applicable work under this contract, with lateral movement or settlement of the ground of less than 0.25 inches, and to prevent damage to, or movement or settlement of, appurtenances, structures, site utility structures, utilities, or track at a distance of 10 feet or greater from the lateral support. All sheeting and bracing design shall comply with the requirements of CSXT and AREMA.

C. Excavation and shoring systems shall be such that AREMA Cooper E-80 loading can be accommodated at all times during shoring construction. Shoring construction shall be performed without affecting railroad operations unless otherwise approved in advance by the Engineer.

D. Temporary sheeting and shoring for support of adjacent tracks during construction shall not be closer than 10 feet 0 inches from the nearest track centerline EXCEPT AS SHOWN ON Underdrain/Platform Detail, drawing DR-004.

E. Excavation and Shoring Requirements Within the Sheet Piling Zone:

1. Refer to CSX requirements in Appendix B and plan notes.

F. Provide handrails.

G. Tiebacks or other excavation support mechanisms that are installed under the track structure shall be at least 24 inches clear below top of rail.

H. Design sheet pile and soldier pile and lagging excavation support systems to penetrate to a depth below the bottom of excavation adequate to prevent lateral and vertical earth movement, and to permit lowering of the indicated bottom of excavation at least 2 feet without any change in the support system as installed except for additional lagging and bracing for soldier pile and lagging systems.

1. Soldier piles and lagging will be permitted for supporting adjacent track or tracks only when required penetration of steel sheet piling cannot be obtained.

I. Design the bracing system to furnish sufficient reaction against side banks to maintain stability in the banks. Obtain this reaction by timely stressing to predetermined loads until the necessary reaction is produced against the banks, or by other methods necessary to prevent displacement of ground and movement of structures, tracks, site utility structures, appurtenances, and utilities.

L. Support end banks so that compressive stresses from end banks are transmitted through diagonal braces and corner members into sidewalks or subgrade, or both.

M. Where physical conditions of design impose insurmountable restrictions requiring the placing of sheeting closer than specified, submit the matter to Engineer for review.

1. Submit alternative methods for review by Engineer.

1.07 MAINTENANCE OF RAILROAD OPERATIONS

A. Existing tracks shall remain in operation during the work, unless otherwise permitted by CSXT.

B. CSXT has mainline tracks adjacent to the project site, which shall remain in operation. Contractor is to maintain 25 feet clearance from centerline of mainline track. Contractor is required to notify CSXT and comply with its requirements if work is less than 25 feet from mainline track.

C. Refer to Attachment H, Contractor Safety-Rules to Live By, for additional requirements when operating near railroad tracks.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials for excavation support systems shall conform to the submitted and approved plan and shall be new or in good used condition as approved by the Engineer. Steel structural members with existing full-penetration welds are not acceptable.

B. All materials, whether new or used, shall be sound and free of defects that might impair their suitability for the intended use.

C. Structural Steel: ASTM A36.

D. Concrete and Steel Reinforcement: Conform to requirements of Section 03 20 00, Concrete Reinforcing, and Section 03 30 00, Cast-in-Place Concrete.

1. Concrete Compressive Strength: 28 day minimum compressive strength of 4000 psi.
2. Maximum Aggregate Size: 3/4 inch.

E. Steel Sheet Piling: Continuous interlocking type, ASTM A328.

F. Timber Left in Place: Treated in accordance with AWPA standards.

G. Sand: Well graded sand as specified in Section 31 20 00, Earth Moving.

PART 3 - EXECUTION

3.01 CONTRACTOR'S RESPONSIBILITY

A. Assess the extent of excavation support which will be required in the work, including use of side slope layback methods, sheeting, and bracing.

B. Before commencing work, examine the drawings and specifications, inspect the site, consult all available record drawings of existing work and utilities, and note all conditions and limitations which may influence work required by this section.

C. Carry out the work of this section in conformance with applicable laws, codes, ordinances, and regulations of local authorities, including furnishing of any required excavation drawings to those authorities and obtaining of permits.

3.02 GENERAL

A. Install and remove excavation support systems in accordance with the accepted working drawings. Install, maintain, and remove excavation support in such a manner as to prevent movement, settlement, or loss of ground, removal of fines from the adjacent ground, or damage to or movement of adjacent structures, appurtenances, tracks, site utility structures, and utilities.

B. Advise Engineer of the time schedule for each operation and obtain Engineer's approval for work to be performed adjacent to tracks so that it may be properly supervised by CSXT's personnel.

C. Excavation adjacent to track shall be covered, ramped, and protected by handrails, barricades, and warning lights as directed by Engineer.

D. Where cavities adjacent to sheet piling are created by driving of sheet piling, fill with well graded sand; immediately restore and tamp disturbed ballast.

E. Prior to placing and driving steel sheeting, hand-dig exploratory trenches in areas where railroad and utility underground installations are known to exist. These trenches are for location purposes only; backfill immediately after exploratory work is finished. Perform this work in presence of Engineer.

1. Make exploratory trenches 3 feet deep and 15 inches wide in the form of an "H" with outside dimensions matching the outside sheeting installations.
2. Incorporate into the work the applicable recommendations of the geotechnical report.

F. Conduct final backfilling of excavation in accordance with Section 31 20 00, Earth Moving.

3.03 STABILITY OF EXCAVATIONS

A. Maintain safe and stable excavations at all times during execution of work. Employ side slope layback methods, bracing, and sheeting to maintain the integrity of excavations.

B. Provide sheeting and bracing where side slope layback methods are not possible due to space restrictions or the nature of material excavated.

C. Requirements:

1. Comply with rules, orders, and regulations of the State of Virginia Department of Labor and Industry regarding bracing requirements for excavations.
2. Maintain sides and slopes of excavations in safe condition until backfilling is completed.
3. Where the Contractor elects to slope the sides of excavations, backfill of the over-excavated areas shall be made in the same manner specified for the adjacent excavated area. Additional excavation and backfill required shall be at no additional cost to VRE and shall be placed in accordance with Section 31 20 00, Earth Moving.
4. If ground water is present, maintain ground water level at least five feet below the excavation side slopes, and protect slopes from erosion.

3.04 SHEETING AND BRACING

A. Provide sheeting, bracing, and other temporary protective work where necessary for safety, to prevent encroachment on adjoining property, or for the proper execution of the work.

B. Where required for safety, under governing laws, or as directed by the Engineer, temporary sheeting shall be left in place. If so, remove original braces and re-brace sheeting against the structure in a manner approved by the Engineer. Cut off sheeting at elevations directed by the Engineer.

3.05 REMOVAL

A. Except within the Sheet Piling Zone as noted above, do not leave in place components of the support system unless otherwise noted or directed.

B. Do not commence removal of temporary support system until temporary protective work is no longer necessary, as determined by Contractor's Virginia-licensed engineer.

C. Immediately fill voids created by removal of portions of the excavation support members with concrete or well graded sand.

D. During construction, cut off sheet piling at the elevation of top of adjacent tie. After construction and backfilling has been completed, remove piling except where it is to remain in place.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement of the work of this section will be in accordance with the "Method of Measurement and Payment" description as included in PAY ITEM DESCRIPTION & ESTIMATED QUANTITY SUMMARY on the plans.

4.2 PAYMENT

A. Payment of the work of this section will be in accordance with the "Method of Measurement and Payment" description as included in PAY ITEM DESCRIPTION & ESTIMATED QUANTITY SUMMARY on the plans.

END OF SECTION

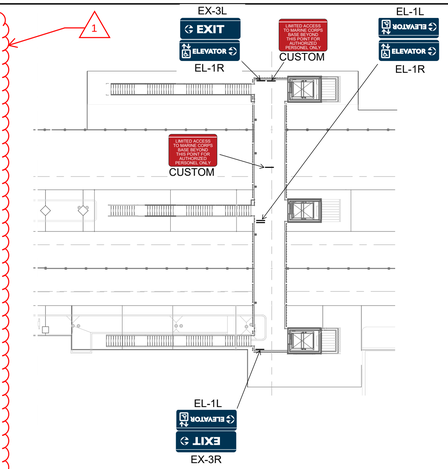
SIGN INVENTORY

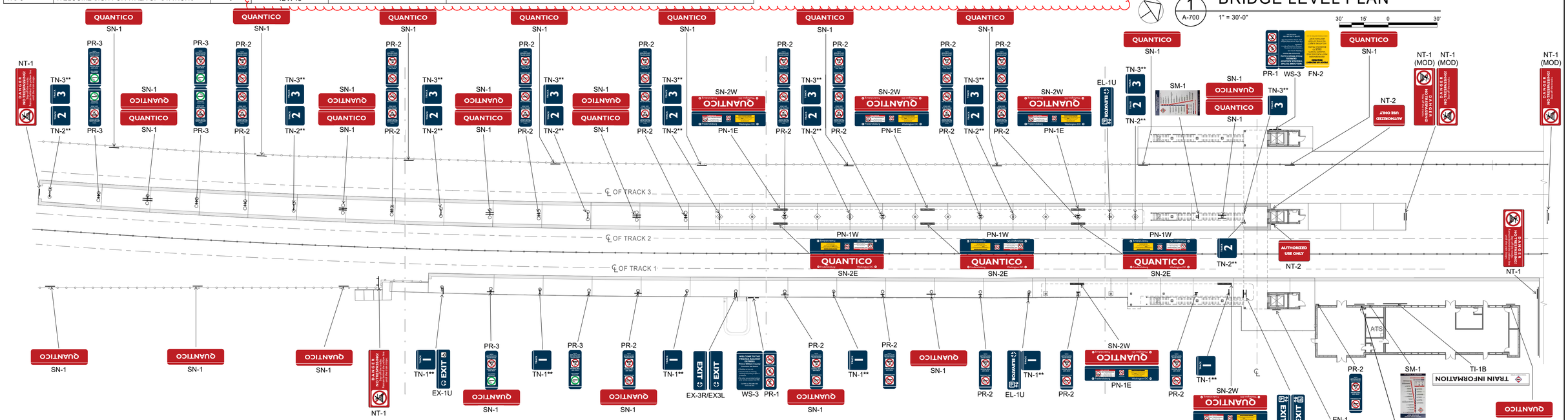
SIGN NO.	DESCRIPTION/LOCATION	QUANTITY	SIZE (W X H) (INCHES)	COMMENTS	MOUNTING METHOD
CUSTOM	LIMITED ACCESS TO MCBQ	2	18 X 12	FOR RESTRICTED AREAS	SUSPENDED OR ANCHORED TO WALL (VARIES BY LOCATION)
EL-1L/EL-1R	ELEVATOR DIRECTION - LEFT/RIGHT	2/2	30 X 10.5	DIRECTION TO ELEVATOR	SUSPENDED, POLE/COLUMN MOUNTED OR ANCHORED TO WALL (VARIES BY LOCATION)
EL-1U	ELEVATOR DIRECTION - UP	2	30 X 10.5	DIRECTION TO ELEVATOR	SUSPENDED, POLE/COLUMN MOUNTED OR ANCHORED TO WALL (VARIES BY LOCATION)
EX-1U	EXIT TO ADA RAMP - UP	1	30 X 10.5	AT ADA COMPLIANT EXIT	SUSPENDED, POLE/COLUMN MOUNTED OR ANCHORED TO WALL (VARIES BY LOCATION)
EX-2L/EX-2R	EXIT TO ELEVATOR - LEFT/RIGHT	1/1	30 X 10.5	AT ADA COMPLIANT EXIT	SUSPENDED, POLE/COLUMN MOUNTED OR ANCHORED TO WALL (VARIES BY LOCATION)
EX-3L/EX-3R	STANDARD EXIT - LEFT/RIGHT	3/3	30 X 10.5	DIRECTION TO EXIT	SUSPENDED, POLE/COLUMN MOUNTED OR ANCHORED TO WALL (VARIES BY LOCATION)
FN-2	FARE NOTICE: PROOF OF PAYMENT	2	12 X 18	-	ANCHORED TO WALL
NT-1	NO TRESPASSING	3	66 X 24	-	HANDRAIL/PICKETS FACING PLATFORM OR POST MOUNTED (VARIES BY LOCATION)
NT-1 (MOD)	NT-1 EXCLUDING "REMAIN BEHIND YELLOW LINE UNTIL THE TRAIN STOPS" TEXT	3	66 X 24	-	HANDRAIL/PICKETS FACING PLATFORM OR POST MOUNTED (VARIES BY LOCATION)
NT-2	AUTHORIZED USE ONLY	2	18 X 12	FOR RESTRICTED AREAS	ANCHORED TO WALL
PN-1E	PLATFORM NOTICE - EAST	5	90 X 18	BACK OF SN-2	SUSPENDED FROM CANOPY W/ 1" X 1" SQUARE TUBING, BACK TO BACK WITH SIGN SN-2
PN-1W	PLATFORM NOTICE - WEST	3	90 X 18	BACK OF SN-2	SUSPENDED FROM CANOPY W/ 1" X 1" SQUARE TUBING, BACK TO BACK WITH SIGN SN-2
PR-1	PROHIBITIONS	3	6 X 18	-	BANDED TO LIGHT POLE, RAILING, WALL OR CANOPY COLUMN (VARIES BY LOCATION)
PR-2	PROHIBITIONS	23	6 X 18	-	BANDED TO LIGHT POLE OR COLUMN (VARIES BY LOCATION)
PR-3	PROHIBITIONS	6	6 X 18	-	BANDED TO LIGHT POLE
SN-1	STATION NAME	26	36 X 10	STATION NAME ON COLUMN/POLE	BANDED TO LIGHT POLE, COLUMN OR ANCORED TO WALL (VARIES BY LOCATION)
SN-2W	STATION NAME - WEST	5	90 X 18	STATION NAME UNDER CANOPY	SPENDED FROM CANOPY W/ 1" X 1" SQUARE TUBING, BACK TO BACK WITH SIGN PN-1
SN-2E	STATION NAME - EAST	3	90 X 18	STATION NAME UNDER CANOPY	SPENDED FROM CANOPY W/ 1" X 1" SQUARE TUBING, BACK TO BACK WITH SIGN PN-1
SM-1	BRAILLE SYSTEM MAP	2	19 X 34	AT ADA COMPLIANT EXIT	COLUMN OR WALL MOUNTED NEAR DESIGNATED ADA ENTRANCE (VARIES BY LOCATION)
TI-1B	TRAIN INFORMATION - 3 POSTER WIDE	1	74.25 X 9	PLASTIC NOT ALUMINIUM	ATOP CORK BOARD SIGN FOR VRE POSTERS FOR FARE AND SCHEDULE
TN-1	TRACK NUMBER - #1	6	12 X 12	-	BANDED TO CANOPY COLUMN OR LIGHT POLE PERPENDICULAR TO TRACK
TN-2	TRACK NUMBER - #2	9	12 X 12	-	BANDED TO CANOPY COLUMN OR LAMP POST PERPENDICULAR TO TRACK
TN-3	TRACK NUMBER - #3	9	12 X 12	-	BANDED TO CANOPY COLUMN OR LAMP POST PERPENDICULAR TO TRACK
WS-3	WELCOME SIGN FOR WALK UP STATIONS	3	12 X 18	-	HANDRAIL/PICKETS OR ANCHORED TO WALL (VARIES BY LOCATION)

GENERAL NOTES:

ALL SIGNS SHALL MEET THE FOLLOWING GENERAL REQUIREMENTS UNLESS NOTED OTHERWISE.

1. THE CONTRACTOR SHALL PROVIDE ARTWORK FOR ALL VRE (STATIONS AND FACILITIES) SIGNS FOR REVIEW AND APPROVAL BY VRE PRIOR TO FABRICATION AND INSTALLATION.
2. VRE WILL PROVIDE AGENCY LOGO UPON REQUEST.
3. SIGN PANEL MATERIAL (MINIMUM THICKNESS):
   - 0.08 (ABOUT 0.10" THICK) ALUMINUM 5052 TENSILE STRENGTH (FOR SIGN PANELS UP TO 24" WIDE IN ANY DIMENSION.
   - 0.10 (ABOUT 0.125" THICK) ALUMINUM 5052 TENSILE STRENGTH (FOR SIGN PANELS LARGER THAN 24" IN ANY DIMENSION UP TO 6'-0".
4. FONT:GIL SANS MT (BOLD) UPPER CASE UNLESS NOTED OTHERWISE.
5. OVERLAY:3M 1160 PREMIUM PROTECTIVE OVERLAY.
6. FILM/SHEETING:3M ENGINEERED REFLECTIVE GRADE SERIES 3290 OF HIGHER - WHITE.
7. METHOD:ALL SIGNS SHALL BE SCREEN PRINTED, NOT VINYL LETTERS, EXCEPT WHEN THEY ARE CUT OUT FOROTHER APPLICATIONS SUCH AS STATION SHELTERS.
8. MATCH COLORS LISTED BELOW OR SUBMIT EQUAL FOR REVIEW AND APPROVAL:
   - TUNDRA: MBCI SIGNATURE 300: STANDARD MANU. COLOR
   - NAVY BLUE:TNEMEC FLOURONAR F073-63BL NAVY BLUE
   - COMMONWEALTH RED:PMS 187C
9. GRAFFITI RESISTANCE: CLEAR, SEMI-GLOSS TOPCOAT TO ALL SIGN PANEL.
10. FOR STENCIL MARKINGS AND STRIPING:
    - MARKINGS SHALL BE FULL FOR TEXT AND LETTERS.
    - PRIMER: APPLY PRIMER TO FILL SURFACE POROSITY OF CONCRETE.
    - MINIMUM TWO (2) COATS.
11. ALL HOLES FOR MOUNTING SHALL BE DRILLED IN THE SHOP.
12. MOUNTING HARDWARE: TAMPER PROOF, SS 316.
13. THESE ARE TYPICAL VRE SIGNS. DESIGNERS SHOULD DEVELOP FOR VRE APPROVAL ADDITIONAL SIGNS AS REQUIRED.
14. SIGN NUMBER ABBREVIATIONS ARE AS FOLLOWS:
    L = LEFT / R = RIGHT
    U = UP / D = DOWN
    B = BACK
    E = SIGN FACING RAILROAD EAST / W = SIGN FACING RAILROAD WEST

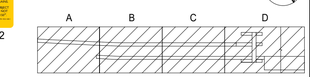




LEGEND

- GROUND MOUNTED SIGN
- COLUMN MOUNTED SIGN
- LIGHT POLE MOUNTED SIGN
- WALL MOUNTED SIGN
- CANOPY MOUNTED SIGN
- FENCE/RAILING MOUNTED SIGN

KEY PLAN



DRAFT IFB PACKAGE

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: CDK
DRAWN BY CDK
CHECKED BY: AK
DATE: 06/10/2020

COMMONWEALTH OF VIRGINIA
CHRISTOPHER DALE KOCHER
Lic. No. 047992
7/10/2020
PROFESSIONAL ENGINEER

VRE

STV 100 Years
STV Incorporated
2701 Prosperity Ave, Suite 305
Fairfax, VA 22031

QUANTICO STATION

STATION SIGNAGE PLAN

IFB NO:
DRAWING NO: A-700
SCALE: 1" = 30'
SHEET NO: 5 OF 202

GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., #170
Ashburn, Virginia

703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: F. Madrona	BORING NUMBER: B-1
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 1 OF 2
OWNER/CLIENT: STV, Inc	DRILLER: J. Martinez	DATES DRILLED: 10/26/15 - 10/26/15
PROJECT NUMBER: 15184	GROUND SURFACE ELEVATION (ft): 30.0 ±	DRILLING METHOD: Automatic hammer 3.25"
OFFSET NOTES:		

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
30.0					Asphalt = 0.33ft.			
29.7					Crushed stone = 0.37ft.			
29.3			A		*Fill*, green, f-c, clayey SAND with gravel, medium dense, moist, **SC**	10+11+13+15	18	
27.3					*Terrace deposit*, light gray, f-c, clayey SAND, contains gravel, medium dense, moist, **SC**	6+7+6+7	20	
	5					4+5+5+6	24	
23.3					Light gray and orange, loose	6+5+4+7	24	
	10					4+4+3+4	14	
16.5					Medium dense	5+6+8	11	
	15		B2					
11.5					Brown, f-m, loose	2+1+3	14	
	20							
6.5					Loose, wet	2+1+3	6	
	25							
1.5					Gray, medium dense	11+13+9	11	

SOIL — STANDARD PENETRATION TEST RESISTANCE (BPF): 20 40 60 80

GROUND WATER LEVELS:
- ENCOUNTERED: 24.3 ft ELEV. 5.7
- UPON COMPLETION: 20.3 ft ELEV. 9.7 CAVED: 19.2 ft ELEV. 10.8

SAMPLE TYPES: Split Spoon; Shelby Tube

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/29/16

GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., #170
Ashburn, Virginia

703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: F. Madrona	BORING NUMBER: B-1
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
					Terrace deposit, light gray, f-c, clayey SAND, contains gravel, medium dense, moist, **SC** *(continued)*			
-3.5					*Terrace deposit*, brown and gray, f-m, silty SAND, medium dense, moist, **SM**	7+10+13	18	27.3
	35						15	
			B2			50/2	0	>>
-8.5					Gray, f-m, very dense	31+50/5	8	>>
	40							
-13.5					*Potomac group*, gray, f-c, POORLY GRADED SAND with clay, very dense, moist, **SP-SC**	26+43+50/5	16	>>
-14.9	45				Bottom of Boring at 44.9 ft			
	50							
	55							
	60							

SOIL — STANDARD PENETRATION TEST RESISTANCE (BPF): 20 40 60 80

GROUND WATER LEVELS:
- ENCOUNTERED: 24.3 ft ELEV. 5.7
- UPON COMPLETION: 20.3 ft ELEV. 9.7 CAVED: 19.2 ft ELEV. 10.8

SAMPLE TYPES: Split Spoon; Shelby Tube

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/29/16

GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., #170
Ashburn, Virginia

703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: M. Showalter	BORING NUMBER: B-2
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 1 OF 1
OWNER/CLIENT: STV, Inc	DRILLER: J. Martinez	DATES DRILLED: 10/23/15 - 10/23/15
PROJECT NUMBER: 15184	GROUND SURFACE ELEVATION (ft): 32.0 ±	DRILLING METHOD: Automatic hammer 3.25"
OFFSET NOTES:		

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
32.0					Asphalt = 0.1ft.			
31.9					Crushed stone = 0.7ft.			
31.2			A		*Fill*, black and gray, f-m, LEAN CLAY with sand, firm, moist, **CL** Pocket Penetrometer = 1.75 tsf	6+4+3+4	11	21.5
29.3					*Terrace deposit*, gray, FAT CLAY, very stiff, moist, **CH** Pocket Penetrometer = 0.75 tsf	6+8+11+4	16	29.4
27.3					Gray and orange, with gravel, soft Pocket Penetrometer = 0.25 tsf	2+2+2+3	5	
	5							
25.3					*Terrace deposit*, gray and orange, LEAN CLAY, stiff, moist, **CL** Pocket Penetrometer = 0.75 tsf	6+5+4+9	18	
23.3					*Terrace deposit*, gray and orange, f-m, sandy FAT CLAY, very stiff, moist, **CH** Pocket Penetrometer = 4.5 tsf	8+12+11+14	16	
	10		B1					
18.5					*Terrace deposit*, gray and orange, f, sandy LEAN CLAY, firm, moist, **CL** Pocket Penetrometer = 1.75 tsf	5+4+3	18	
	15							
12.0					Bottom of Boring at 20.0 ft	3+4+3	18	
	20							
	25							

SOIL — STANDARD PENETRATION TEST RESISTANCE (BPF): 20 40 60 80

GROUND WATER LEVELS:
NOT ENCOUNTERED DURING DRILLING
- UPON COMPLETION: 13.4 ft ELEV. 18.6 CAVED: 19.4 ft ELEV. 12.6

SAMPLE TYPES: Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/29/16

The subsurface information shown on the boring logs in these plans was obtained with reasonable care and recorded in good faith solely for use by VRE/DRPT in establishing design controls for the project. VRE/DRPT has no reason to suspect that such information is not reasonably accurate as an approximate indication of the subsurface conditions at the sites where the borings were taken. VRE/DRPT does not in any way warrant or guarantee that such data can be projected as indicative of conditions beyond the limits of the borings shown; and any such projections by bidders are purely interpretive and altogether speculative. Further, VRE/DRPT does not in any way guarantee, either expressly or by implication, the sufficiency of the information for bid purposes.

The boring logs are made available to bidders in order that they may have access to subsurface data identical to that which is possessed by VRE/DRPT, and are not intended as a substitute for personal investigation, interpretation and judgment by the bidders.

INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

STV 100 Years
STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-001
SCALE: AS SHOWN
SHEET NO: OF

$$FILES$
$$DATES$
$$TIMES$

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia
703-726-8030
703-726-8030 fax

PROJECT:	LOGGED BY:	BORING NUMBER:
Arkendale-Powells Creek Third Track Project	F. Madrona	B-3
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 1 OF 2
OWNER/CLIENT: STV, Inc	DRILLER: J. Martinez	DATES DRILLED: 10/26/15 - 10/26/15
PROJECT NUMBER: 15184 / GROUND SURFACE ELEVATION (ft): 32.0 ±	DRILLING METHOD: Automatic hammer 3.25"	OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80	MC (%)
32.0					Asphalt = 0.2ft.				
31.8					Crushed stone = 0.4ft.				
31.4					*Fill*, gray and green, f-c, clayey SAND with gravel, very dense, moist, **SC**	17+35+11+9	8		
29.4			A		Loose	9+5+4+6	24		
27.4									
27.4	5		B1		*Terrace deposit*, gray, f, LEAN CLAY with sand, very stiff, moist, **CL** Pocket Penetrometer = 2.25 tsf	8+10+11+13	24		24.1
23.4									
	10				*Terrace deposit*, gray and orange, f-c, clayey SAND, medium dense, moist, **SC**	13+10+16+18	24		
18.5									
	15				Very dense	11+26+35	16		
13.5									
	20		B2		*Terrace deposit*, gray, f-c, POORLY GRADED SAND with clay, very dense, wet, **SP-SC**	17+31+32	18		
8.5									
	25				Orange	12+26+37	10		
3.5									
					Light gray	19+36+50/6	16	>>	

GROUND WATER LEVELS:
ENCOUNTERED: 16.2 ft ELEV. 15.8
UPON COMPLETION: 11.5 ft ELEV. 20.5 CAVED: 23.5 ft ELEV. 8.5

SAMPLE TYPES: Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/29/16

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia
703-726-8030
703-726-8030 fax

PROJECT:	LOGGED BY:	BORING NUMBER:
Arkendale-Powells Creek Third Track Project	F. Madrona	B-3
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80	MC (%)
					Terrace deposit, gray, f-c, POORLY GRADED SAND with clay, very dense, wet, **SP-SC** *(continued)*				
	35					23+50/5	10	>>	
-6.5					Orange and light gray	10+25+45	16		
	40								
-11.5					Light gray, with gravel	18+32+39	18		
	45		B2						
	50					19+25+49	10		
	55					13+40+50/3	10	>>	
						32+45+37	10		
-28.0	60				Bottom of Boring at 60.0 ft				

GROUND WATER LEVELS:
ENCOUNTERED: 16.2 ft ELEV. 15.8
UPON COMPLETION: 11.5 ft ELEV. 20.5 CAVED: 23.5 ft ELEV. 8.5

SAMPLE TYPES: Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/29/16

The subsurface information shown on the boring logs in these plans was obtained with reasonable care and recorded in good faith solely for use by VRE/DRPT in establishing design controls for the project. VRE/DRPT has no reason to suspect that such information is not reasonably accurate as an approximate indication of the subsurface conditions at the sites where the borings were taken. VRE/DRPT does not in any way warrant or guarantee that such data can be projected as indicative of conditions beyond the limits of the borings shown; and any such projections by bidders are purely interpretive and altogether speculative. Further, VRE/DRPT does not in any way guarantee, either expressly or by implication, the sufficiency of the information for bid purposes.

The boring logs are made available to bidders in order that they may have access to subsurface data identical to that which is possessed by VRE/DRPT, and are not intended as a substitute for personal investigation, interpretation and judgment by the bidders.

INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

STV 100 Years
STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-002
SCALE: AS SHOWN
SHEET NO: OF

$$FILES$
$$DATES$
$$TIMES$

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia
703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: M. Showalter	BORING NUMBER: B-4
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 1 OF 2
OWNER/CLIENT: STV, Inc	DRILLER: J. Martinez	DATES DRILLED: 10/23/15 - 10/23/15
PROJECT NUMBER: 15184 / GROUND SURFACE ELEVATION (ft): 32.0 ±	DRILLING METHOD: Automatic hammer 3.25"	OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
32.0					Asphalt = 0.3ft.			
31.7					Crushed stone = 0.3ft.			
31.4					*Fill*, orange and gray, LEAN CLAY, contains organics, very stiff, moist, **CL**	5+11+7+6	15	
29.4			A		Pocket Penetrometer = 3.0 tsf	4+3+4+6	16	
27.4					With silt, firm			
27.4	5				Pocket Penetrometer = 2.9 tsf			
			B1		*Terrace deposit*, orange and gray, f, LEAN CLAY with sand, firm, moist, **CL**	7+3+7+7	16	
25.4					Pocket Penetrometer = 3.0 tsf			
			B2		*Terrace deposit*, gray, f, clayey SAND, medium dense, moist, **SC**	10+9+9+11	24	16.2
23.4					*Terrace deposit*, light gray and orange, LEAN CLAY with sand, contains quartz fragments, very stiff, moist, **CL**	8+7+15+16	24	
	10		B1		Pocket Penetrometer = >5.0 tsf			
18.5					*Terrace deposit*, tan and gray, m, clayey SAND, contains quartz, very dense, moist, **SC**	13+26+40	18	
	15							
13.5					C, dense	12+19+16	18	
	20		B2					
8.5					Orange and tan, m, very dense	17+25+47	16	
	25							
						16+27+36	15	

GROUND WATER LEVELS:
ENCOUNTERED: 15.4 ft ELEV. 16.6
UPON COMPLETION: 8.4 ft ELEV. 23.6 CAVED: 19.3 ft ELEV. 12.7

SAMPLE TYPES: Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/29/16

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia
703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: M. Showalter	BORING NUMBER: B-4
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
					Terrace deposit, tan and gray, m, clayey SAND, contains quartz, very dense, moist, **SC** *(continued)*			
-1.5					White and orange	15+29+50/2	14	>>
	35							
-6.5					Tan and orange, c	15+27+51	18	
	40							
	45		B2			19+31+50/5	17	>>
-16.5					White and orange, dense	18+23+25	18	
	50							
-21.5					White and gray, very dense	27+50/5	3	>>
	55							
-26.5					Gray	50/5	4	>>
-26.7					Bottom of Boring at 58.7 ft			
	60							

GROUND WATER LEVELS:
ENCOUNTERED: 15.4 ft ELEV. 16.6
UPON COMPLETION: 8.4 ft ELEV. 23.6 CAVED: 19.3 ft ELEV. 12.7

SAMPLE TYPES: Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/29/16

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INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

STV 100 Years
STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-003
SCALE: AS SHOWN
SHEET NO: OF

$$FILES$
$$DATES$
$$TIMES$

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia
703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: F. Madrona	BORING NUMBER: B-5
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 1 OF 2
OWNER/CLIENT: STV, Inc	DRILLER: J. Martinez	DATES DRILLED: 10/27/15 - 10/27/15
PROJECT NUMBER: 15184	GROUND SURFACE ELEVATION (ft): 33.0 ±	DRILLING METHOD: Automatic hammer 3.25"
OFFSET NOTES:		

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80	MC (%)
33.0					Asphalt = 0.2ft.				
32.8					Crushed stone = 0.2ft.				
32.6			B1		*Terrace deposit*, brown, f, LEAN CLAY with sand, firm, moist, **CL**	2+3+2+4	24		
							15		
28.0	5				*Terrace deposit*, brown, f-c, clayey SAND, medium dense, moist, **SC**	9+10+13+10	24		
26.0			B2		Gray, loose	6+5+3+4	24		
24.0					*Terrace deposit*, gray, f, sandy LEAN CLAY, stiff, moist, **CL**				
	10				Pocket Penetrometer = 0.75 tsf	5+8+7+4	24		
20.0					Pocket Penetrometer = 1.25 tsf				
19.5			B1		Very stiff	8+13+15	16		18.9
	15								
14.5					*Terrace deposit*, light gray and orange, f-c, POORLY GRADED SAND with clay, dense, wet, **SP-SC**	11+13+21	18		
	20								
9.5			B2		Very dense	14+26+34	18		
	25								
						18+50/6	12	>>	

GROUND WATER LEVELS:
ENCOUNTERED: 13.7 ft ELEV. 19.3
UPON COMPLETION: 23.3 ft ELEV. 9.7 CAVED: 25.2 ft ELEV. 7.8

SAMPLE TYPES: Split Spoon; Shelby Tube

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/29/16

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia
703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: F. Madrona	BORING NUMBER: B-5
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80	MC (%)
					Terrace deposit, light gray and orange, f-c, POORLY GRADED SAND with clay, dense, wet, **SP-SC** *(continued)*				
-0.5									
	35				*Terrace deposit*, light gray and orange, f-m, clayey SAND, very dense, moist, **SC**	31+40+50/4	18	>>	
-5.5					Light gray, f-c, with gravel	39+50/4	10	>>	
	40								
	45		B2			17+21+40	18		
	50					28+32+49	18		
	55					27+38+50/5	17	>>	
-25.8					Bottom of Boring at 58.8 ft	50/4	4	>>	
	60								

GROUND WATER LEVELS:
ENCOUNTERED: 13.7 ft ELEV. 19.3
UPON COMPLETION: 23.3 ft ELEV. 9.7 CAVED: 25.2 ft ELEV. 7.8

SAMPLE TYPES: Split Spoon; Shelby Tube

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/29/16

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia
703-726-8030
703-726-8030 fax

PROJECT: VRE Cherry Hill Station/Third Track Project	LOGGED BY: S. Upadhyaya	BORING NUMBER: B-27
LOCATION: Prince William and Stafford Counties, Virginia	DRILLING CONTRACTOR: Fishburne Drilling Inc.	SHEET 1 OF 1
OWNER/CLIENT: STV/Ralph Whitehead Associates	DRILLER: Sequist	DATE STARTED: 3/26/10
PROJECT NUMBER: 28093	GROUND SURFACE ELEVATION (ft): 30.0	DRILLING METHOD: 3.75" HSA I.D.
		DATE COMPLETED: 3/26/10

ELEV. (ft)	DEPTH (ft)	STRATUM	MATERIAL DESCRIPTION	PP (tsf)	MC (%)	SAMPLE TYPE	SPT BLOW COUNTS	RECOVERY (in)	STANDARD PENETRATION TEST RESISTANCE (BLOWS/FOOT) 20 40 60 80
29.7			Topsoil = 3 inches						
		A	silty sand FILL, with organics, moist, black with gravel below 1.5 ft.				3+4+4+3	16	
26.0							3+2+8	6	
			silty SAND (SM), moist, tan and gray				4+5+8	18	
							4+7+8	18	
22.0			clayey SAND (SC), moist, gray						
	10	B2					3+6+5	10	
							2+3+6	16	
10.0	20						5+4+3	18	
			Bottom of Boring at 20.0 ft						
	30								
	40								

GROUND WATER LEVELS:
ENCOUNTERED: None

SAMPLE TYPES: Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT 28093, VRE CHERRY HILL.GPJ 3/24/16

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NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

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QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-004
SCALE: AS SHOWN
SHEET NO: OF

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$$DATES$
$$TIMES$

TEST BORING LOG

Boring No. T-035
Page 1 of 1

PROJECT: Arkendale-Powell's Creek (Cherry Hill) Third Track
SITE: Stafford and Prince William Counties , Virginia
DRILLING CO.: F&R **RIG/HAMMER:** CME55 Track / Auto

COMMISSION NO.: 14-008-500
NORTH: 6874976
EAST: 11827903
ELEVATION: 30.5 - ft
START DATE: 9/2/2014
END DATE: 9/2/2014
DRILLER: C. Sequist
LOGGED BY: MRS

GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE
Date	Time	Water	Casing	Cave-In	TYPE	HSA	S	
9/2/2014	2:00:00 PM	18		6.5	SIZE, ID (in)	3.25	1.375	
					HAMMER WT. (lb)		140	-
					HAMMER FALL (in)		30	-

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% RQD)	LABORATORY TEST RESULTS: NMC/ Frac. Freq	LIQUID LIMIT	PLASTICITY INDEX	DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
								EL 29.8		8-in Topsoil	
S-1		5	5 3 5	10.5%	29	12		0.7		FILL, Sampled As: Moist, Loose, Black to Tan, Coarse to Fine Subrounded GRAVEL, Some Clay, Little Medium to Fine Sand	Bulk Sample Taken From Auger Cuttings From 1 to 8-ft
								EL 27.5			
S-2		18	4 5 7	11.1%			5	3.0		Moist, Medium Dense, Tan, Coarse to Fine SAND, Some Silt (sm) {a-2-4}	
S-3		15	7 7 8							Sample S-3: Orange-Brown, Medium to Fine, Trace Clay	
								EL 22.5			
S-4		18	2 2 3				10	8.0		Moist, Medium Stiff, Gray to Orange-Brown, High Plasticity CLAY, And Medium to Fine Sand (CL) {A-7-6}	
S-5		12	1 1 2	27.4%	48	34				Sample S-5: Soft, Gray, Little Silt, Little Medium to Fine Sand	
S-6		16	WOH 2 4				15			Sample S-6: Little Silt, Trace Medium to Fine Sand	
								EL 15.0			
S-7		18	WOH 2 3					15.5		Moist, Loose, Gray to Orange-Brown, Coarse to Fine SAND, Some Clay (sc) {a-2-6}	
								EL 12.5			
S-8		11	2 3 5				20	18.0		Moist, Loose, Gray, Coarse to Fine SAND, Trace Silt (sp) {a-1-b}	Water On Rods At 18-ft
S-9		18	4 8 8							Sample S-9: Medium Dense, Orange-Brown to White, Trace Medium to Fine Subrounded Gravel	
							25	EL 5.5 25.0		Bottom of Boring @ 25.0 ft	Boring Backfilled Upon Completion

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
- D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	AND	36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF		
				OVER 30	HARD		

Boring No. T-035

RKK NORTHEAST (DEFAULT) CSX ARKENDALE.GPJ RKK CURRENT.GDT 12/15/14

TEST BORING LOG

Boring No. T-036
Page 1 of 1

PROJECT: Arkendale-Powell's Creek (Cherry Hill) Third Track
SITE: Stafford and Prince William Counties , Virginia
DRILLING CO.: F&R **RIG/HAMMER:** CME55 Track / Auto

COMMISSION NO.: 14-008-500
NORTH: 6875388
EAST: 11828163
ELEVATION: 33 - ft
START DATE: 9/3/2014
END DATE: 9/3/2014
DRILLER: C. Sequist
LOGGED BY: MRS

GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE
Date	Time	Water	Casing	Cave-In	TYPE	HSA	S	
9/3/2014	11:15:00 AM	6.7		6.7	SIZE, ID (in)	3.25	1.375	
					HAMMER WT. (lb)		140	-
					HAMMER FALL (in)		30	-

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% RQD)	LABORATORY TEST RESULTS: NMC/ Frac. Freq	LIQUID LIMIT	PLASTICITY INDEX	DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
								EL 32.5		6-in Bituminous Asphalt Concrete	
								0.5		8-in Portland Cement Concrete	
S-1		12	5 6 3	27.5%				EL 31.8 1.2		5-in Graded Aggregate Base	Bulk Sample Taken From Auger Cuttings From 2 to 8-ft
								EL 31.4 1.6		FILL, Sampled As: Moist, Loose, Gray to Brown, Coarse to Fine SAND, And Clay	
S-2		18	2 4 7				5	EL 30.0 3.0		Moist, Stiff, Gray, SILT, Little Clay, Little Fine Sand (ml) {a-4}	
								EL 27.5			
S-3		18	8 10 12					5.5		Moist, Medium Dense, Gray to White, Coarse to Fine SAND, Little Silt (sm) {a-2-4}	
								EL 25.0			
S-4		18	5 15 23				10	8.0		Moist, Dense, Gray to White, Coarse to Fine SAND, Some Clay, Trace Silt (sc) {a-2-6}	
S-5		11	22 50/5"							Sample S-5: Very Dense, Orange-Brown	
S-6		18	19 28 35				15			Sample S-6: Very Dense	
S-7		18	19 23 32							Sample S-7: Very Dense, Gray to White to Orange-Brown, Little Silt, Trace Fine Subangular Gravel	
S-8		18	19 23 31				20			Sample S-8: Very Dense, Gray to White to Orange-Brown, Little Silt, Trace Fine Subangular Gravel	
S-9		17	19 23 50/5"					EL 8.0		Sample S-9: Very Dense, Gray to White to Orange-Brown, Medium to Fine, Little Silt, Trace Fine Subangular Gravel	
							25	25.0		Bottom of Boring @ 25.0 ft	Boring Backfilled Upon Completion, Patched With Asphalt 9/4/14

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
- D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	AND	36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF		
				OVER 30	HARD		

Boring No. T-036

RKK NORTHEAST (DEFAULT) CSX ARKENDALE.GPJ RKK CURRENT.GDT 11/24/14

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APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

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Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-005
SCALE: AS SHOWN
SHEET NO: OF

$$FILE$$
$$DATE$$
$$TIME$$

GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., #170
Ashburn, Virginia

703-726-8030
703-726-8030 fax

PROJECT:	LOGGED BY:	BORING NUMBER:
Arkendale-Powells Creek Third Track Project	M. Showalter	BH-01
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 1 OF 2
OWNER/CLIENT: STV, Inc	DRILLER: J. Martinez	DATES DRILLED: 1/7/16 - 1/7/16
PROJECT NUMBER: 15184 / GROUND SURFACE ELEVATION (ft): 42.0 ±	DRILLING METHOD: Automatic hammer 3.25"	OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	STRATUM	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
42.0			Topsoil = 0.17ft.			
41.8		B2	*Alluvial*, brown and orange, medium, clayey SAND with gravel, loose, moist, **SC**	2+3+2+2	6	
40.0			Brown	2+3+3+2	10	
38.0		B1	*Alluvial*, orange and brown, fine, LEAN CLAY with sand, soft, moist, **CL**	2+2+2+4	18	
36.0	5		Pocket Penetrometer = 2.25 tsf at 4.0 ft.	4+3+4+4	18	10.9
			Terrace deposit, orange and brown, fine to coarse, clayey SAND, contains gravel, loose, moist, **SC**	2+3+2+2	18	
	10					
28.5			*Terrace deposit*, white and orange, fine to medium, silty SAND, very dense, moist, **SM**	11+27+26	18	
	15					
23.5			*Terrace deposit*, white and orange, coarse, POORLY GRADED SAND, very dense, wet, **SP**	32+50/5	10	>>
	20	B2				
	25			26+35+50/4	11	>>
13.5			*Terrace deposit*, white and orange, medium, clayey SAND, very dense, moist, **SC**	37+50/5	10	>>
	30					
8.5			*Terrace deposit*, white and orange, coarse, POORLY GRADED SAND with silt, very dense, wet, **SP-SM**	23+27+31	18	
	35					
3.6						
3.5			*Potomac formation*, gray , brown and blue, FAT CLAY, hard, moist, **CH**	9+16+22	18	24.2
3.5	40	C1	Pocket Penetrometer = 4.5 tsf at 38.5 ft.			

GROUND WATER LEVELS:
- ENCOUNTERED: 24.8 ft ELEV. 17.2
- UPON COMPLETION: 14.6 ft ELEV. 27.4 — CAVED: 80.0 ft ELEV. -38.0
- 1/10/2016 18.5 ft ELEV. 23.5

SAMPLE TYPES: Split Spoon

REMARKS: Temporary standpipe installed to record long term groundwter level.

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/8/16

GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., #170
Ashburn, Virginia

703-726-8030
703-726-8030 fax

PROJECT:	LOGGED BY:	BORING NUMBER:
Arkendale-Powells Creek Third Track Project	M. Showalter	BH-01
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	STRATUM	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)
-1.5			*Potomac formation*, gray , brown and blue, FAT CLAY, hard, moist, **CH** *(continued)*		
	45		Very hard, Pocket Penetrometer = 4.5 tsf at 43.5 ft.	26+39+48	18
-6.5					
	50	C1	Pocket Penetrometer = 4.5 tsf at 48.5 ft.	27+30+35	18
-11.5					
-11.5	55		Hard, Pocket Penetrometer = 4.5 tsf at 53.5 ft.	14+24+24	18
-16.5					
	60	C2	*Potomac formation*, gray , brown and blue, fine, clayey SAND, very dense, moist, **SC**	19+34+39	18
-21.5					
-21.5	65		*Potomac formation*, gray , brown and blue, fine, FAT CLAY with sand, very hard, moist, **CH** Pocket Penetrometer = 3.75 tsf at 63.5 ft.	19+34+39	18
-26.5					
	70		Pocket Penetrometer = 4.5 tsf at 68.5 ft.	37+37+45	18
-31.5		C1			
	75		Hard, Pocket Penetrometer = 4.5 tsf at 73.5 ft.	17+23+29	18
-36.5					
-36.5	80		Very hard, Pocket Penetrometer = 4.5 tsf at 78.5 ft.	27+36+40	18
-38.0			Bottom of Boring at 80.0 ft		
	85				

GROUND WATER LEVELS:
- ENCOUNTERED: 24.8 ft ELEV. 17.2
- UPON COMPLETION: 14.6 ft ELEV. 27.4 — CAVED: 80.0 ft ELEV. -38.0
- 1/10/2016 18.5 ft ELEV. 23.5

SAMPLE TYPES: Split Spoon

REMARKS: Temporary standpipe installed to record long term groundwter level.

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/8/16

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	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

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STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-006
SCALE: AS SHOWN
SHEET NO: OF

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$$DATES$
$$TIMES$

GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., #170
Ashburn, Virginia

703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: M. Showalter	BORING NUMBER: BH-02
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 1 OF 2
OWNER/CLIENT: STV, Inc	DRILLER: J. Martinez	DATES DRILLED: 1/7/16 - 1/7/16
PROJECT NUMBER: 15184	GROUND SURFACE ELEVATION (ft): 48.0 ±	DRILLING METHOD: Automatic hammer 3.25"
		OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80	MC (%)
48.0					Topsoil = 0.25ft.				
47.8			A		*Fill*, black and brown, medium, clayey SAND, contains gravel, loose, moist, **SC**	2+2+2+2	6		
46.0					*Fill*, green and orange, LEAN CLAY with sand, contains gravel, firm, moist, **CL**	3+2+5+5	18		
44.0	5				*Terrace deposit*, orange and tan, fine, clayey SAND, medium dense, moist, **SC**	3+4+6+7	18		24.0
						6+6+8+9	18		
39.0	10				*Terrace deposit*, orange and tan, fine to coarse, POORLY GRADED SAND with silt, medium dense, moist, **SP-SM**	6+10+12+25	18		
32.0	15				White orange and tan	8+9+12	11		4.7
	20		B2			12+12+14	10		9.5
	25					10+14+19	16		
19.5	30				*Terrace deposit*, white tan and orange, medium, POORLY GRADED SAND with silt, very dense, wet, **SP-SM**	26+50/5	10	>>	
	35					22+44+50/3	15	>>	
9.5	40				Coarse	28+34+50/5	17	>>	

GROUND WATER LEVELS:
ENCOUNTERED: 33.7 ft ELEV. 14.3
NOT ENCOUNTERED UPON COMPLETION CAVED: 15.3 ft ELEV. 32.7

SAMPLE TYPES:
Split Spoon
Shelby Tube

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/8/16

GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., #170
Ashburn, Virginia

703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: M. Showalter	BORING NUMBER: BH-02
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80	MC (%)
	45		B2		*Terrace deposit*, white tan and orange, medium, POORLY GRADED SAND with silt, very dense, wet, **SP-SM** *(continued)*	26+39+48	18		
-0.5	50		C2		*Potomac formation*, green and orange, medium to coarse, clayey SAND, dense, moist, **SC**	18+20+21	11		24.2
	55					26+31+29	18		
-10.5	60		C1		*Potomac formation*, brown and green, fine, LEAN CLAY with sand, hard, moist, **CL** Pocket Penetrometer = 4.5 tsf at 58.5 ft.	12+15+21	10		
-15.5	65		C2		*Potomac formation*, blue green and brown, fine, clayey SAND, very dense, moist, **SC**	25+29+31	18		
	70					26+30+33	18		
	75					31+42+47	16		
-32.0	80				Bottom of Boring at 80.0 ft	26+25+24	18		
	85								

GROUND WATER LEVELS:
ENCOUNTERED: 33.7 ft ELEV. 14.3
NOT ENCOUNTERED UPON COMPLETION CAVED: 15.3 ft ELEV. 32.7

SAMPLE TYPES:
Split Spoon
Shelby Tube

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/8/16

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INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

STV 100 Years
STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-007
SCALE: AS SHOWN
SHEET NO: OF

$$FILE$$
$$DATE$$
$$TIME$$

GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., #170
Ashburn, Virginia

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703-726-8030 fax

PROJECT:	LOGGED BY:	BORING NUMBER:
Arkendale-Powells Creek Third Track Project	M. Showalter	BH-03
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 1 OF 2
OWNER/CLIENT: STV, Inc	DRILLER: J. Martinez	DATES DRILLED: 1/7/16 - 1/7/16
PROJECT NUMBER: 15184 / GROUND SURFACE ELEVATION (ft): 57.0 ±	DRILLING METHOD: Automatic hammer 3.25"	OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
57.0				Topsoil = 0.17ft.			
56.8			B2	*Alluvial*, orange and brown, fine, clayey SAND, loose, moist, **SC**	2+2+3+2	6	
55.0				*Alluvial*, orange and brown, SILT with sand, very stiff, moist, **ML** Pocket Penetrometer = 4.5 tsf at 2.0 ft and at 4.0 ft.	7+10+13+16	15	
51.0	5		B1	With gravel, Pocket Penetrometer = 4.5 tsf at 6.0 ft.	8+12+16+19	21	
51.0					9+10+17+22	16	
49.0				*Terrace deposit*, tan, fine, silty SAND, medium dense, moist, **SM**	9+11+13+17	24	
	10		B2				
43.5				*Terrace deposit*, tan and light purple, LEAN CLAY, very stiff, moist, **CL** Pocket Penetrometer = 4.5 tsf at 13.5 ft.	4+7+8	18	17.1
	15						
38.5			B1	White , tan and light purple, fine to medium, with sand	8+8+10	18	18.0
	20						
33.5				*Terrace deposit*, white and tan, medium, POORLY GRADED SAND with silt, dense, moist, **SP-SM**	22+42+50/6	16	>>
	25						
28.5				White , tan and orange, coarse, dense, moist	12+18+22	18	
	30		B2				
23.5 ▽				White and tan, coarse, wet	12+16+23	18	
	35						
18.5							
18.5			C1	*Potomac formation*, orange tan and green, FAT CLAY, very stiff, moist, **CH** Pocket Penetrometer = 4.0 tsf at 38.5 ft.	11+12+13	18	
	40						

GROUND WATER LEVELS:
▽ ENCOUNTERED: 32.9 ft ELEV. 24.1
NOT ENCOUNTERED UPON COMPLETION CAVED: 80.0 ft ELEV. -23.0

SAMPLE TYPES: ☒ Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/8/16

GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., #170
Ashburn, Virginia

703-726-8030
703-726-8030 fax

PROJECT:	LOGGED BY:	BORING NUMBER:
Arkendale-Powells Creek Third Track Project	M. Showalter	BH-03
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
14.0							
14.0				*Potomac formation*, green, fine, LEAN CLAY with sand, hard, moist, **CL** Pocket Penetrometer = 4.5 tsf at 43.1 ft.	13+17+24	15	
8.5	45			Pocket Penetrometer = 4.5 tsf at 48.5ft.	14+17+19	8	27.5
3.5	50			Pocket Penetrometer = 4.5 tsf at 53.5 ft.	11+17+25	18	
-1.5	55						
-1.5				*Potomac formation*, green blue and tan, FAT CLAY, hard, moist, **CH** Pocket Penetrometer = 4.5 tsf at 58.5 ft.	11+20+25	18	
-6.5	60		C1	Green blue and dark red, Pocket Penetrometer = 4.5 tsf at 63.5 ft.	14+17+28	14	
-11.5	65			Pocket Penetrometer = 4.5 tsf at 68.5 ft.	12+19+25	15	
-16.5	70			Very hard, Pocket Penetrometer = 4.5 tsf at 73.5 ft.	23+50/5	11	>>
-21.5	75						
-21.5				Hard, Pocket Penetrometer = 4.5 tsf at 78.5 ft.	12+19+37	16	
-23.0	80			Bottom of Boring at 80.0 ft			
	85						

GROUND WATER LEVELS:
▽ ENCOUNTERED: 32.9 ft ELEV. 24.1
NOT ENCOUNTERED UPON COMPLETION CAVED: 80.0 ft ELEV. -23.0

SAMPLE TYPES: ☒ Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/8/16

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INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

STV 100 Years
STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-008
SCALE: AS SHOWN
SHEET NO: OF

$$FILE$$
$$DATE$$
$$TIME$$

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia
703-726-8030
703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: M. Showalter	BORING NUMBER: BH-04
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 1 OF 2
OWNER/CLIENT: STV, Inc	DRILLER: J. Martinez	DATES DRILLED: 1/7/16 - 1/7/16
PROJECT NUMBER: 15184	GROUND SURFACE ELEVATION (ft): 43.0 ±	DRILLING METHOD: Automatic hammer 3.25"
		OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	STRATUM	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
43.0		B2	Topsoil = 0.5ft. Pocket Penetrometer = 2.75 tsf at 0.0 ft.	2+2+3+2	15	
42.5		B1	*Alluvial*, brown, fine to medium, silty SAND, contains gravel, loose, moist, **SM**	3+5+10+11	24	
41.0	5		*Alluvial*, orange and brown, fine, LEAN CLAY with sand, contains gravel, stiff, moist, **CL** Pocket Penetrometer = 4.5 tsf at 2.0 ft.	6+16+24+32	16	
39.0			*Terrace deposit*, white tan and orange, fine to medium, POORLY GRADED SAND with silt, dense, moist, **SP-SM**	9+24+37+18	24	
36.0			Tan and orange, very dense	6+9+12+15	14	
35.0	10		*Terrace deposit*, white and tan, fine to coarse, WELL GRADED SAND with silt, medium dense, moist, **SW-SM**			
29.5	15	B2	*Terrace deposit*, white and black, fine, POORLY GRADED SAND with silt, medium dense, moist, **SP**	9+14+13	10	
24.5	20		Dense	8+16+22	15	
19.5			*Potomac formation*, tan and orange, FAT CLAY, very stiff, moist, **CH** Pocket Penetrometer = 4.5 tsf at 23.5 ft.	10+11+15	10	28.1
14.5	25		Gray , green and orange Pocket Penetrometer = 4.5 tsf at 28.5 ft.	9+13+18	18	24.3
9.5	30	C1	*Potomac formation*, gray, fine to medium, LEAN CLAY with sand, very hard, moist, **CL** Pocket Penetrometer = 3.25 tsf at 33.5 ft.	33+35+38	11	30.6
4.5	35		Hard, Pocket Penetrometer = 2.5 tsf at 38.5 ft.	14+23+37	16	
	40					

GROUND WATER LEVELS:
ENCOUNTERED: 24.2 ft ELEV. 18.8
UPON COMPLETION: 68.0 ft ELEV. -25.0 CAVED: 72.0 ft ELEV. -29.0

SAMPLE TYPES: Split Spoon

REMARKS: Shelby tube collected at offset boring from 28.0 to 30.0 ft.

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/8/16

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia
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703-726-8030 fax

PROJECT: Arkendale-Powells Creek Third Track Project	LOGGED BY: M. Showalter	BORING NUMBER: BH-04
LOCATION: Prince William County, Virginia	DRILLING CONTRACTOR: Connelly & Associates Inc.	SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	STRATUM	MATERIAL DESCRIPTION	SPT BLOW COUNTS	REC (in)	MC (%)
-0.5	45		*Potomac formation*, gray, fine to medium, LEAN CLAY with sand, very hard, moist, **CL** *(continued)* Pocket Penetrometer = 4.5 tsf at 43.5 ft.	21+22+25	11	
-5.5	50		With sand, Pocket Penetrometer = 4.5 tsf at 48.5 ft.	21+25+27	18	
-10.5	55	C1	*Potomac formation*, brown , gray and green, fine to medium, SILT with sand, hard, moist, **ML** Pocket Penetrometer = 4.5 tsf at 53.5 ft.	19+23+34	18	23.1
-15.5	60		Pocket Penetrometer = 4.5 tsf at 58.5 ft.	14+17+19	18	
-20.5	65		Pocket Penetrometer = 4.5 tsf at 63.5 ft.	17+19+22	16	
-25.5	70		*Potomac formation*, tan , gray and blue green, FAT CLAY, hard, moist, **CH** Pocket Penetrometer = 4.5 tsf at 68.5 ft.	9+12+39	18	
-30.5	75	C2	*Potomac formation*, tan , green and blue, fine, clayey SAND, very dense, moist, **SC**	11+16+35	18	
-37.0	80		Bottom of Boring at 80.0 ft	21+29+33	18	
	85					

GROUND WATER LEVELS:
ENCOUNTERED: 24.2 ft ELEV. 18.8
UPON COMPLETION: 68.0 ft ELEV. -25.0 CAVED: 72.0 ft ELEV. -29.0

SAMPLE TYPES: Split Spoon

REMARKS: Shelby tube collected at offset boring from 28.0 to 30.0 ft.

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT ARKENDALE TO POWELLS LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 3/8/16

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., #170
Ashburn, Virginia 20147
(703) 726-8030
(703) 726-8032 fax

PROJECT: VRE Cherry Hill Station/Third Track Project	LOGGED BY: S. Upadhyaya	BORING NUMBER: B-28
LOCATION: Prince William and Stafford Counties, Virginia	DRILLING CONTRACTOR: Fishburne Drilling Inc.	SHEET 1 OF 1
OWNER/CLIENT: STV/Ralph Whitehead Associates	DRILLER: Sequist	DATE STARTED: 3/29/10
PROJECT NUMBER: 28093	GROUND SURFACE ELEVATION (ft): 33.0	DRILLING METHOD: 3.75" HSA I.D.
		DATE COMPLETED: 3/29/10

ELEV. (ft)	DEPTH (ft)	STRATUM	MATERIAL DESCRIPTION	MC (%)	SPT BLOW COUNTS	RECOVERY (in)
31.0		A	silty sand FILL, with gravel, moist, black		2+3+4+3	18
		B2	silty SAND (SM), moist, gray		2+3+3	17
					1+4+10	18
					2+6+16	18
	10				10+21+35	18
					7+16+22	18
15.0						
13.0	20		clayey SAND (SC), moist, gray		6+18+19	18
			Bottom of Boring at 20.0 ft			
	30					
	40					

GROUND WATER LEVELS:
ENCOUNTERED: 13.0 ft ELEV. 20.0

SAMPLE TYPES: Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT 28093, VRE CHERRY HILL.GPJ GEOCONCEPTS.GDT 3/3/16

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INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

STV 100 Years
STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-009
SCALE: AS SHOWN
SHEET NO: OF

$$FILE$$
$$DATE$$
$$TIME$$

TEST BORING LOG

Boring No. RW-13-01
Page 1 of 1

PROJECT: Arkendale-Powell's Creek (Cherry Hill) Third Track
SITE: Stafford and Prince William Counties , Virginia
DRILLING CO.: F&R **RIG/HAMMER:** CME55 Track / Auto

COMMISSION NO.:	14-008-500
NORTH:	6875844
EAST:	11828435
ELEVATION:	36.017 - ft
START DATE:	9/2/2014
END DATE:	9/2/2014
DRILLER:	C. Sequist
LOGGED BY:	MRS

GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE
Date	Time	Water	Casing	Cave-In	TYPE	HSA	S	
9/2/2014	10:45:00 AM	17		23.9	SIZE, ID (in)	3.25	1.375	
9/3/2014	9:00:00 AM	16.5		18.5	HAMMER WT. (lb)		140	-
					HAMMER FALL (in)		30	-

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% RQD)	LABORATORY TEST RESULTS: NMC/ Frac. Freq	LIQUID LIMIT	PLASTICITY INDEX	DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
								EL 35.4		7-In Topsoil	
S-1	X	15	7 7 6					0.6		Moist, Medium Dense, Brown, Coarse to Fine SAND, Little Silt, Trace Clay (SC-SM) {A-2-4}	
S-2	X	16	9 12 9				5			Sample S-2: Gray to Orange-Brown	
S-3	X	10	11 8 5	6.8%	19	6				Sample S-3: Gray-Brown	
S-4	X	18	3 4 11				10			Sample S-4: Tan, Trace Fine Subrounded Gravel	
								EL 25.5			
S-5	X	15	13 16 22	20%				10.5		Moist, Hard, Gray, SILT, Some Fine Sand, Little Clay (ml) {a-6}	
								EL 23.0			
S-6	X	12	22 42 50/3"					13.0		Moist, Very Dense, Gray to Orange-Brown, Coarse to Fine SAND, And Clay, Trace Silt (sc) {a-6}	
S-7	X	14	22 36 42				15			Moist, Very Dense, Gray to Orange-Brown, Coarse to Fine SAND, Some Clay, Trace Silt (sc) {a-2-6}	
								EL 18.0			
S-8	X	18	7 15 14	24.5%	66	46	20	18.0		Moist, Very Stiff, Gray to Orange-Brown, High Plasticity CLAY, Some Coarse to Fine Sand, Little Silt (CH) {A-7-6}	Water On Rods At 18-ft
S-9	X	13	24 28 31				25			Sample S-9: Hard	
								EL 9.0			
								27.0		Moist, Very Dense, Gray to Orange-Brown, Coarse to Fine SAND, Some Clay, Trace Silt (sc) {a-6}	
S-10	X	10	32 50/4"				30	EL 6.7 29.3		Bottom of Boring @ 29.3 ft	Boring Left Open For 24-hr Groundwater Reading, Then Backfilled

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
- D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	AND	36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF		
				OVER 30	HARD		

Boring No. RW-13-01

RKK NORTHEAST (DEFAULT) CSX ARKENDALE.GPJ RKK CURRENT.GDT 11/24/14

TEST BORING LOG

Boring No. RW-13-02
Page 1 of 1

PROJECT: Arkendale-Powell's Creek (Cherry Hill) Third Track
SITE: Stafford and Prince William Counties , Virginia
DRILLING CO.: F&R **RIG/HAMMER:** CME55 Track / Auto

COMMISSION NO.:	14-008-500
NORTH:	6875969
EAST:	11828527
ELEVATION:	27.501 - ft
START DATE:	8/28/2014
END DATE:	8/28/2014
DRILLER:	C. Sequist
LOGGED BY:	MRS

GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE
Date	Time	Water	Casing	Cave-In	TYPE	HSA	S	
8/28/2014	1:00:00 PM	Dry		3.5	SIZE, ID (in)	3.25	1.375	
					HAMMER WT. (lb)		140	-
					HAMMER FALL (in)		30	-

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% RQD)	LABORATORY TEST RESULTS: NMC/ Frac. Freq	LIQUID LIMIT	PLASTICITY INDEX	DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
S-1	X	3	3 2 2	23.9%						FILL, Sampled As: Moist, Very Loose, Brown, Coarse to Fine SAND, Some Silt, Trace Fine Gravel	
								EL 24.5 3.0		Moist, Dense, Gray to Orange-Brown, Coarse to Fine SAND, Little Silt (sm) {a-2-4}	
S-2	X	18	10 13 18					EL 22.5 5.0		Bottom of Boring @ 5.0 ft	Difficulties Maintaining Position of Lead Auger, Concerns With Proximity to Qwest and MCI Fiber Lines. Boring Abandoned at 5-ft. Unable to Offset Due to Proximity to Tracks and Adjacent Slope. Boring Backfilled Upon Removal of Auger.

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
- D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	AND	36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF		
				OVER 30	HARD		

Boring No. RW-13-02

RKK NORTHEAST (DEFAULT) CSX ARKENDALE.GPJ RKK CURRENT.GDT 11/24/14

The subsurface information shown on the boring logs in these plans was obtained with reasonable care and recorded in good faith solely for use by VRE/DRPT in establishing design controls for the project. VRE/DRPT has no reason to suspect that such information is not reasonably accurate as an approximate indication of the subsurface conditions at the sites where the borings were taken. VRE/DRPT does not in any way warrant or guarantee that such data can be projected as indicative of conditions beyond the limits of the borings shown; and any such projections by bidders are purely interpretive and altogether speculative. Further, VRE/DRPT does not in any way guarantee, either expressly or by implication, the sufficiency of the information for bid purposes.

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1

INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

STV 100 Years
STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-010
SCALE: AS SHOWN
SHEET NO: OF

$$FILE$$
$$DATE$$
$$TIME$$

TEST BORING LOG

Boring No. RW-13-05
Page 1 of 1

PROJECT: Arkendale-Powell's Creek (Cherry Hill) Third Track
SITE: Stafford and Prince William Counties , Virginia
DRILLING CO.: F&R **RIG/HAMMER:** CME55 Track / Auto

COMMISSION NO.:	14-008-500
NORTH:	6876104
EAST:	11828609
ELEVATION:	25.479 - ft
START DATE:	8/28/2014
END DATE:	8/28/2014
DRILLER:	C. Sequist
LOGGED BY:	MRS

GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE
Date	Time	Water	Casing	Cave-In	TYPE	HSA	S	
8/28/2014	10:30:00 AM	4.5		5.6	SIZE, ID (in)	3.25	1.375	
9/2/2014	9:00:00 AM	Dry		3	HAMMER WT. (lb)		140	-
					HAMMER FALL (in)		30	-

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% RQD)	LABORATORY TEST RESULTS: NMC/ Frac. Freq	LIQUID LIMIT	PLASTICITY INDEX	DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
S-1		5	WOH 1 3	27.9%	27	10				FILL, Sampled As: Moist, Very Loose, Dark Brown, Coarse to Fine SAND, And Clay, Trace Fine Gravel, Trace Organics	
								EL 22.5 3.0		Wet, Loose, Tan, Coarse to Fine SAND, Little Silt (sm) {a-2-4}	
S-2		15	2 3 3				5	EL 20.0 5.5		Moist, Medium Dense, Tan to Orange-Brown, Medium to Fine SAND, Some Medium Plasticity Clay (SC) {A-2-6}	Water Measured At 4.5-ft After Augers Removed
S-3		14	6 13 16								Water On Spoon At 7-ft
S-4		18	5 6 5	27.6%	33	15	10			Sample S-4: Gray to White, Little Clay, Trace Silt	
S-5		18	4 5 8							Sample S-5: Wet, Trace Silt	
S-6		16	9 13 16				15	EL 10.0 15.5		Sample S-6: Orange-Brown, And Clay, Little Silt {a-6}	
S-7		14	10 13 16	27%						Moist, Very Stiff, Green-Gray to Brown, CLAY, And Medium to Fine Sand, Little Silt (cl) {a-6}	
S-8		18	6 10 16				20	EL 5.5 20.0		Sample S-8: Green-Gray, Little Fine Sand	
										Bottom of Boring @ 20.0 ft	Boring Left Open For 24-hr Groundwater Reading, Then Backfilled
							25				

RKK NORTHEAST (DEFAULT) CSX ARKENDALE.GPJ RKK_CURRENT.GDT 11/24/14

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
- D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	AND	36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF		
				OVER 30	HARD		

Boring No. RW-13-05

TEST BORING LOG

Boring No. RW-13-06
Page 1 of 1

PROJECT: Arkendale-Powell's Creek (Cherry Hill) Third Track
SITE: Stafford and Prince William Counties , Virginia
DRILLING CO.: F&R **RIG/HAMMER:** CME55 Track / Auto

COMMISSION NO.:	14-008-500
NORTH:	6876247
EAST:	11828689
ELEVATION:	22.337 - ft
START DATE:	8/27/2014
END DATE:	8/27/2014
DRILLER:	C. Sequist
LOGGED BY:	MRS

GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE
Date	Time	Water	Casing	Cave-In	TYPE	HSA	S	
8/27/2014	5:00:00 PM	Dry		10.6	SIZE, ID (in)	3.25	1.375	
8/28/2014	9:00:00 AM	Dry		8.5	HAMMER WT. (lb)		140	-
					HAMMER FALL (in)		30	-

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% RQD)	LABORATORY TEST RESULTS: NMC/ Frac. Freq	LIQUID LIMIT	PLASTICITY INDEX	DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
S-1		12	WOH 1 1	23.6%						FILL, Sampled As: Moist, Very Soft, Dark Gray to Brown, CLAY, Some Medium to Fine Sand, Little Silt	Boring Completed In Existing Drainage Ditch
S-2		0	50/3"				5	EL 16.8 5.5		Sample S-2: Very Dense, No Recovery	Unable To Conventionally Extract Spoon After Taking Sample S-2, Rig Settling When Applying Additional Down Pressure. Attach Rods To Drive And Rotate Spoon To Remove.
S-3		12	16 20 23							Moist, Dense, White to Brown, Medium to Fine SAND, Little Silt, Trace Coarse Subangular Gravel (sm) {a-2-4}	
S-4		5	24 27 18				10	EL 11.8 10.5		Sample S-4: Trace Clay	
S-5		16	15 20 18	19%						Moist, Dense, White to Gray to Brown, Coarse to Fine SAND, Some Clay, Trace Silt (sc) {a-2-6}	
S-6		16	11 13 10				15	EL 7.3 15.0		Sample S-6: Medium Dense, Orange-Brown	
										Bottom of Boring @ 15.0 ft	Boring Left Open For 24-hr Groundwater Reading, Then Backfilled
							20				
							25				

RKK NORTHEAST (DEFAULT) CSX ARKENDALE.GPJ RKK_CURRENT.GDT 11/24/14

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
- D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	AND	36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF		
				OVER 30	HARD		

Boring No. RW-13-06

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INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 06/10/2020

STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

ENGINEERING GEOLOGY

IFB NO: IFB-020-019
DRAWING NO: B-011
SCALE: AS SHOWN
SHEET NO: OF

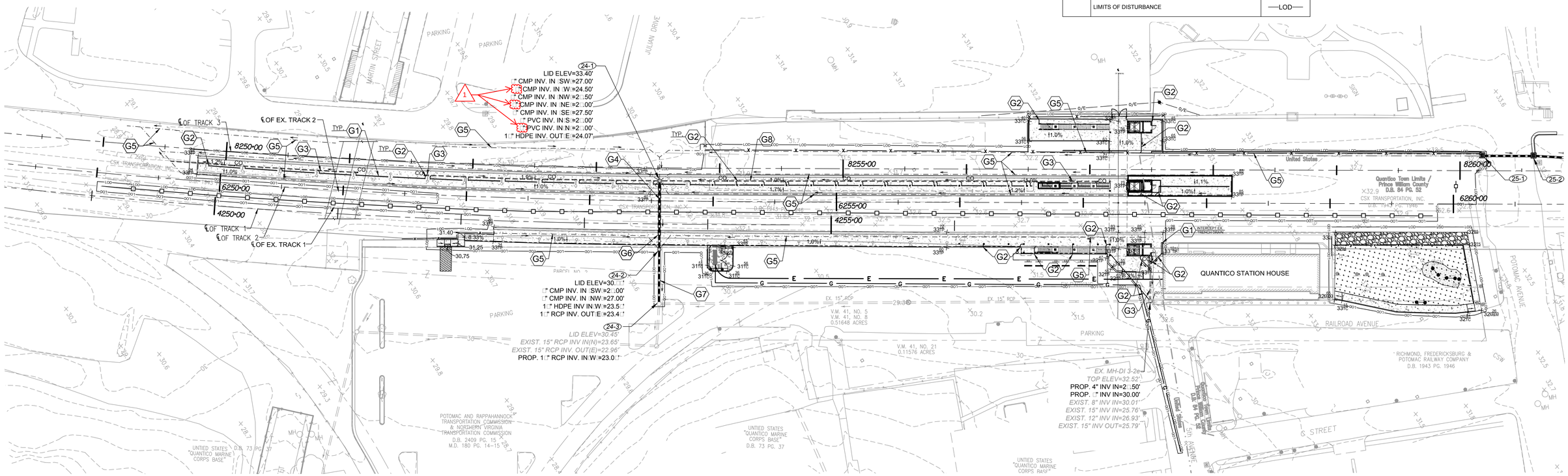
$$FILE$$
$$DATE$$
$$TIME$$

KEYED NOTES & GRADING LEGEND

KEY #	KEYNOTE	SYMBOL
G1	TRENCH DRAIN. SEE ARCHITECTURAL PLANS FOR DETAILS	
G2	PROVIDE 4" PVC STORM DRAIN PIPE	
G3	PROVIDE □" PVC STORM DRAIN PIPE	
G4	PROVIDE 1□" HDPE STORM DRAIN PIPE.	
G5	TRACK UNDER DRAIN. SEE STRUCTURAL AND TRACK PLANS FOR MORE DETAILS	
G□	PROVIDE 24" STEEL CASING PIPE	
G7	PROVIDE 1□" CLASS V REINFORCED CONCRETE PIPE	
G□	PROVIDE □" PVC STORM DRAIN PIPE	
	PROP. CHAIN LINK FENCE	
	PROP. INTER TRACK FENCE	
	PROP. CLEANOUT	•CO
	PROP. STORM DRAIN MANHOLE	⊘MH
	PROP. GRASS AREA	
	EX. CONTOUR	10
	EXISTING SPOT SHOT	33.12 X
	PROPOSED SPOT ELEVATION	33.□5 X
	LIMITS OF DISTURBANCE	LOD

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF SHEETING / SHORING WHERE REQUIRED FOR SUPPORT OF EXCAVATION.
2. TRACK UNDERDRAINS ALONG PLATFORM NOT SHOWN FOR CLARITY. SEE DRAWING PP-024 FOR DETAILS.
3. PROPOSED PLATFORM CROSS-SLOPES SHALL BE CONSTRUCTED BETWEEN THE MINIMUM OF 1.0□ AND MAXIMUM OF 2.0□.



STATION GRADING AND DRAINAGE PLAN

40' 0 40' □0'

INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	□/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: CK
DRAWN BY: ND
CHECKED BY: CK
DATE: □/10/2020

COMMONWEALTH OF VIRGINIA
CHRISTOPHER DALE KOCHER
Lic. No. 047992
7/10/2020
PROFESSIONAL ENGINEER

VRE

STV 100 Years
STV Incorporated
2701 Prosperity Ave, Suite 305
Fairfax, VA 22031

QUANTICO STATION

STATION GRADING AND DRAINAGE PLAN

IFB NO: IFB-020-019
DRAWING NO: C-301
SCALE: 1" = 40'
SHEET NO: 1□ OF 202

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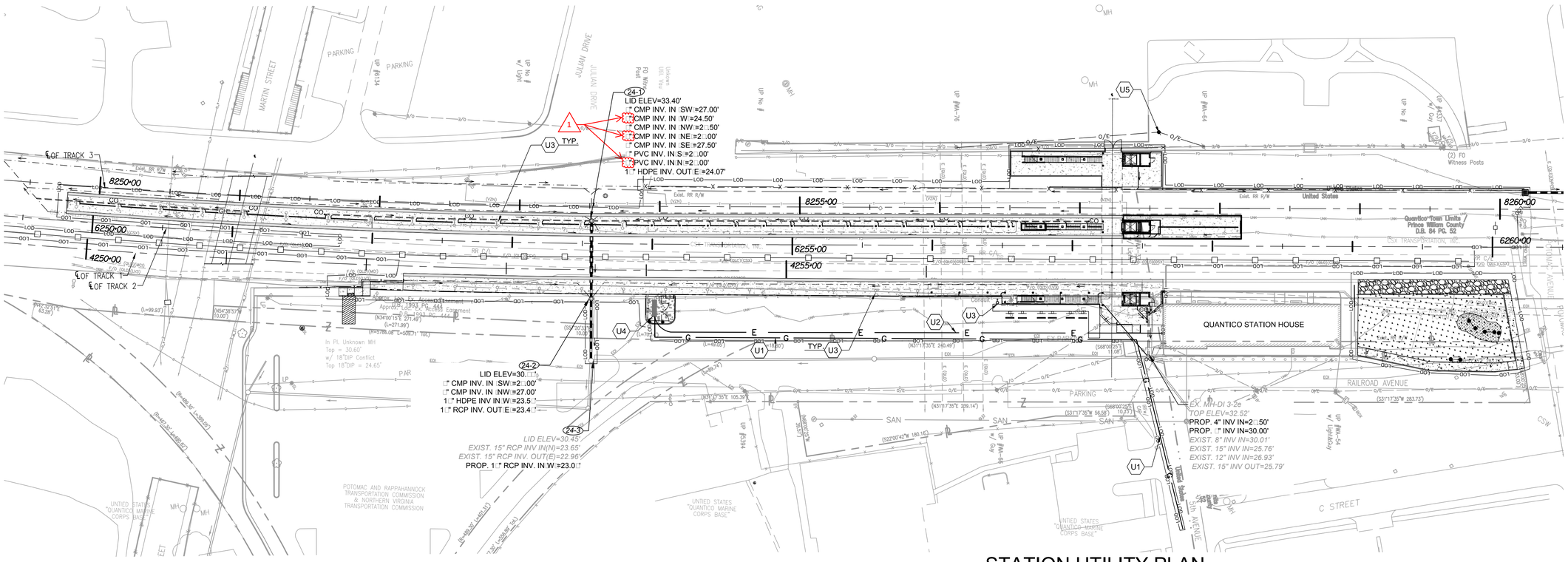
KEYED NOTES & UTILITY LEGEND

KEY #	KEYNOTE	SYMBOL
U1	PROVIDE 1.5" GAS LINE TO PROP. EMERGENCY GENERATOR CONNECTING TO COLUMBIA GAS SOURCE AT C ST. □ 5TH AVE.	—G—
U2	PROVIDE ELECTRICAL CONDUIT PER ELECTRICAL PLANS	—E—
U3	PROVIDE ELECTRICAL LIGHT POLES. SEE ELECTRICAL PLANS FOR DETAILS.	
U4	PROVIDE EMERGENCY STANDBY GENERATOR. SEE ELECTRICAL PLANS.	
U5	NEW OR RELOCATED UTILITY POLE □BY OTHERS□ BETWEEN #WA-□4 AND #WA-7□ TO ALLOW FOR MORE OVERHEAD ELECTRIC SEPARATION FROM TOWER.	
	PROVIDE TRENCH DRAIN. SEE ARCHITECTURAL PLANS FOR DETAILS.	
	PROVIDE 4" PVC STORM DRAIN PIPE	
	PROVIDE □" PVC STORM DRAIN PIPE	
	PROVIDE 1□" HDPE STORM DRAIN	
	PROVIDE TRACK UNDER DRAIN	
	PROP. CHAIN LINK FENCE	
	PROP. INTER TRACK FENCE	
	PROP. CLEANOUT	
	PROP. STORM DRAIN MANHOLE	
	LIMITS OF DISTURBANCE	—LOD—



STATION UTILITY PLAN

SCALE: 1"=40'

40' 0 40' □0'

I□VIT□TI□□ □□□ □I□
□□T □□□ □□□ST□□□TI□□

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	□/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: CK
DRAWN BY: ND
CHECKED BY: CK
DATE: □/10/2020

COMMONWEALTH OF VIRGINIA
CHRISTOPHER DALE KOCHER
Lic. No. 047992
7/10/2020
PROFESSIONAL ENGINEER

VRE

STV 100 Years
STV Incorporated
2701 Prosperity Ave, Suite 305
Fairfax, VA 22031

QUANTICO STATION

STATION UTILITY PLAN

IFB NO: IFB-020-01□
DRAWING NO: C-501
SCALE: 1" = 40'
SHEET NO: 17 OF 202

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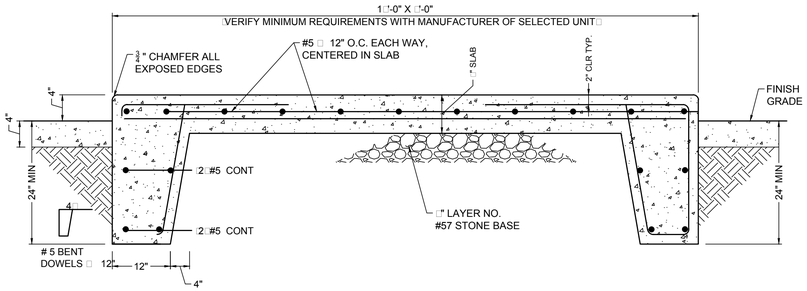
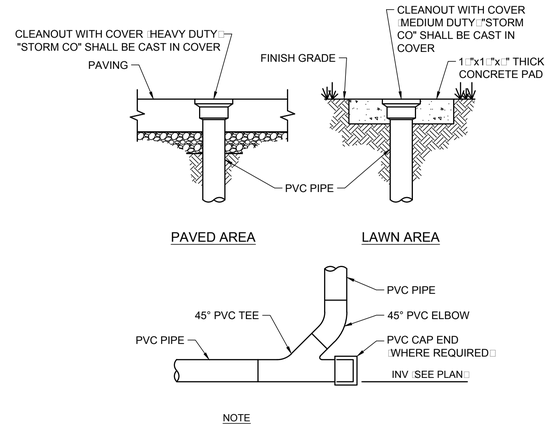


1 C-□02 CONCRETE PAD FOR GAS GENERATOR

NOT TO SCALE



NOTE

1. FOR PIPE SI□ES SEE SHEET C-501.

2 C-□02 CLEAN OUT DETAIL

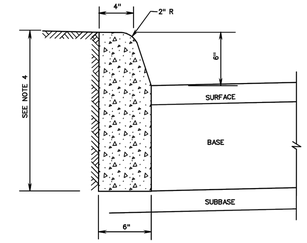
NOT TO SCALE

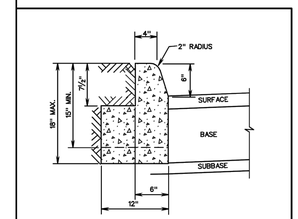
2016 ROAD & BRIDGE STANDARDS

CG-2

NOTES:

1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. CURB HAVING A RADIUS OF 300 FEET OR LESS (ALONG FACE OF CURB) WILL BE PAID FOR AS RADIAL CURB.
4. THE DEPTH OF CURB MAY BE REDUCED AS MUCH AS 3" (15" DEPTH) OR INCREASED AS MUCH AS 3" (21" DEPTH) IN ORDER THAT THE BOTTOM OF CURB WILL COINCIDE WITH THE TOP OF A COURSE OF THE PAVEMENT SUBSTRUCTURE. OTHERWISE, THE DEPTH IS TO BE 15" AS SHOWN. NO ADJUSTMENT IN THE PRICE BID IS TO BE MADE FOR A DECREASE OR AN INCREASE IN DEPTH.
5. CG-2 IS TO BE USED ON ROADWAYS MEETING THE REQUIREMENTS FOR CG-6 AS SHOWN IN APPENDIX A OF THE VDOT ROAD DESIGN MANUAL, IN THE SECTION ON GS URBAN STANDARDS.





ACCEPTABLE ALTERNATIVE IF CURB IS EXTRUDED

SPECIFICATION REFERENCE	STANDARD 6" CURB	VDOT ROAD AND BRIDGE STANDARDS
105 502	VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE: SHEET 1 OF 1 201.01

2016 ROAD & BRIDGE STANDARDS

3 C-□02 STANDARD □" CURB

NOT TO SCALE

2016 ROAD & BRIDGE STANDARDS

MH-1

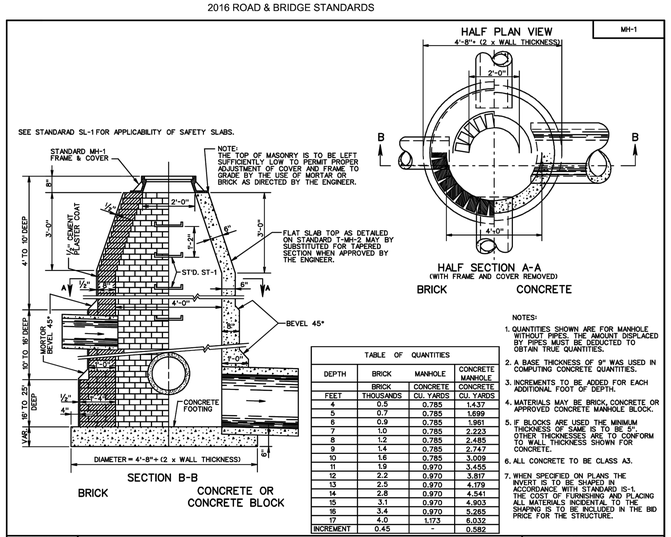


TABLE OF QUANTITIES			
DEPTH	BRICK	MANHOLE	CONCRETE MANHOLE
	BRICK	CONCRETE	CONCRETE
FEET	THOUSANDS	CU. YARDS	CU. YARDS
4	0.5	0.785	1.437
5	0.7	0.785	1.699
6	0.9	0.785	1.961
7	1.0	0.785	2.223
8	1.2	0.785	2.485
9	1.4	0.785	2.747
10	1.6	0.785	3.009
11	1.9	0.970	3.455
12	2.2	0.970	3.817
13	2.5	0.970	4.179
14	2.8	0.970	4.541
15	3.1	0.970	4.903
16	3.4	0.970	5.265
17	4.0	1.173	6.032
INCREMENT	0.45	-	0.362

NOTES:

1. QUANTITIES SHOWN ARE FOR MANHOLE WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES.
2. A BASE THICKNESS OF 9" WAS USED IN COMPUTING CONCRETE QUANTITIES.
3. INCREMENTS TO BE ADDED FOR EACH ADDITIONAL FOOT OF DEPTH.
4. MATERIALS MAY BE BRICK, CONCRETE OR APPROVED CONCRETE MANHOLE BLOCK.
5. IF BLOCKS ARE USED THE MINIMUM THICKNESS OF SAME IS TO BE 5". OTHER THICKNESSES ARE TO CONFORM TO WALL THICKNESS SHOWN FOR CONCRETE.
6. ALL CONCRETE TO BE CLASS A3.
7. WHEN SPECIFIED ON PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1, THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.

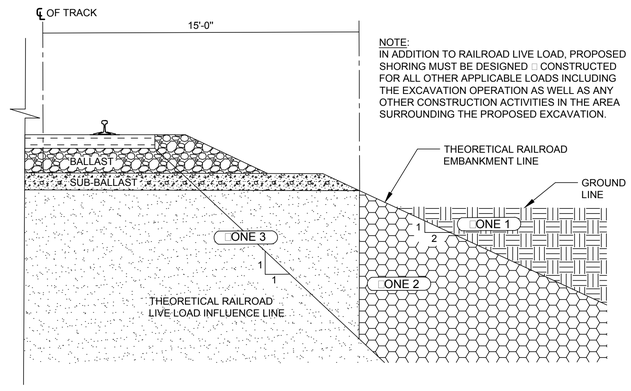
SPECIFICATION REFERENCE	MANHOLE FOR 12" - 48" PIPE CULVERTS	VDOT ROAD AND BRIDGE STANDARDS
302	VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE: SHEET 1 OF 5 106.01

2016 ROAD & BRIDGE STANDARDS

4 C-□02 VDOT STANDARD MANHOLE

NOT TO SCALE

FIGURE 1: T□e□reti□al Live L□ad Influen□e □□ne



NOTE:
IN ADDITION TO RAILROAD LIVE LOAD, PROPOSED SHORING MUST BE DESIGNED □ CONSTRUCTED FOR ALL OTHER APPLICABLE LOADS INCLUDING THE EXCAVATION OPERATION AS WELL AS ANY OTHER CONSTRUCTION ACTIVITIES IN THE AREA SURROUNDING THE PROPOSED EXCAVATION.

NORMAL REQUIREMENTS FOR SHORING AD□ACENT TO TRACK

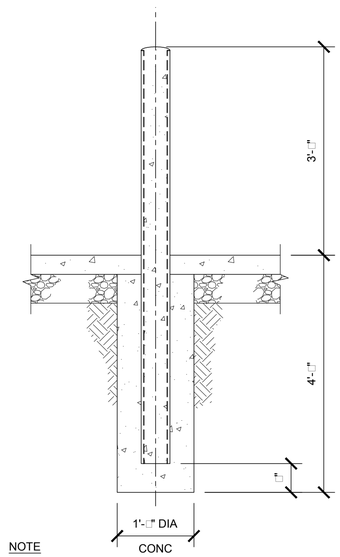
□ONE 1 - EXCAVATIONS ABOVE AND OUTSIDE OF THE THEORETICAL RAILROAD EMBANKMENT LINE - DO NOT NORMALLY REQUIRE SHORING TO PROTECT RAILROAD ROADBED, SHORING MAY BE REQUIRED FOR OTHER REASONS.

□ONE 2 - EXCAVATIONS WHOSE BOTTOMS EXTEND INTO □ONE 2 REQUIRE SHORING, BUT THE SHORING MAY NORMALLY BE PULLED AFTER THE EXCAVATION HAS BEEN BACKFILLED,

□ONE 3 - EXCAVATIONS WHOSE BOTTOMS EXTEND INTO □ONE 3 WILL NORMALLY REQUIRE THE SHORING TO BE LEFT IN PLACE AND CUT-OFF 3' BELOW BASE OF RAIL. SHORING MUST BE DESIGNED FOR COOPER E□0 LIVE LOAD.

□ C-□02 RAILROAD EMBANKMENT LINE

NOT TO SCALE

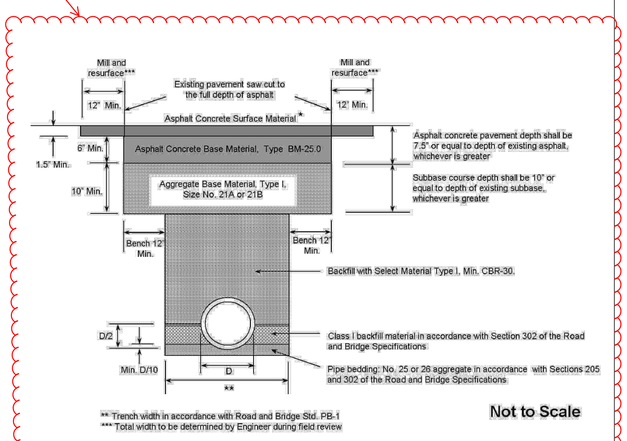


NOTE

1. PIPE BOLLARD SHALL BE PAINTED SAFETY YELLOW.

7 C-□02 BOLLARD DETAIL

NOT TO SCALE



□ C-□02 TRENCH PAVEMENT RESTORATION

NOT TO SCALE

□VI□T□□□□□□□□□□□
□□T □□□ □□□ST□□□TI□□

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	□/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: CK
DRAWN BY: ND
CHECKED BY: CK
DATE: □/10/2020

COMMONWEALTH OF VIRGINIA
CHRISTOPHER DALE KOCHER
Lic. No. 047992
7/10/2020
PROFESSIONAL ENGINEER

VRE

STV 100 Years
STV Incorporated
2701 Prosperity Ave, Suite 305
Fairfax, VA 22031

QUANTICO STATION

SITE DEVELOPMENT DETAILS

IFB NO: IFB-020-01□
DRAWING NO: C-□02
SCALE: NOT TO SCALE
SHEET NO: 24 OF 202

DRAINAGE DESCRIPTIONS

* (23-1) 12′ - 24" Class 56 Ductile Iron Pipe Req'd.(3.3′ Cover)
Connect to Existing 24" Ductile Iron Pipe/Headwall (See Detail C)
Inv.(In) = 22.13 Inv.(Out) = 21.93

** (23-2) 4′ - 24" HDPE DR 32.5 Carrier Pipe Req'd.(extend exist.pipe)
Inv.(In) = 22.40 Inv.(Out) = 22.21 (tie to exist.pipe)
1 Concrete Toe Wall Req'd.

* (23-3) 1 Junction Box Req'd.
See Detail Drawing DR024
1 VDOT St'd.MH-1 Frame & Cover Req'd.
H=8.0′
Inv.17.00

* (23-3)—(23-4) 90′ - 24" Class V Reinforced Concrete Pipe Req'd.(5.3′ Cover)
Inv.(In) = 17.00, Station: 4236+92, Offset from New Track CL: 12.78′
Inv.(Out) = 12.46, Station: 4236+04, Offset from New Track CL: 23.67′

* (23-4) 1 Junction Box Req'd.
See Detail Drawing DR025
Connect to Existing Drop Inlet
1 VDOT St'd.MH-1 Frame & Cover Req'd.
H=6.5′

* (23-5) 8′ - 24" Class V Reinforced Concrete Pipe Req'd.(2.0′ Cover)
Inv.(In) = 23.16 Station: 4237+00, Offset from New Track CL: 17.00′
Inv.(Out) = 22.00 Station: 4236+94, Offset from New Track CL: 12.88′
1 Concrete Toe Wall Req'd.

*** (24-1) 1-St'd.MH-1 Manhole (Lid el.= 33.41)
St'd.MH-1 Frame and Cover (Top Flush with Top of Platform)
D = 8.7′ Inv.= 24.07

** (24-1)—(24-2) 51′ - 24" Jacked Steel Casing Pipe Req'd.(5.6′ Cover)
51′ - 18" HDPE DR 32.5 Carrier Pipe Req'd.
Inv.(In) = 24.07 Inv.(Out) = 23.56

*** (24-2) 1-St'd.MH-1 Manhole (Lid el.= 30.99)
St'd.MH-1 Frame and Cover
D = 6.9′ Inv.= 23.46

(24-2)—(24-3) 40′ - 18" Class V Reinforced Concrete Pipe Req'd.(5.5′ Cover)
Inv.(In) = 23.46 Inv.(Out) = 23.06
Connect to Existing Manhole 24-3

(24-3) Existing Manhole/Pipes
Top = 30.45
Inv.(In) = 23.65 Exist.15" (N)
Inv.(Out) = 22.96 Exist.15" (E)

*** (25-1) 1-Std.VDOT DI-2A Drop Inlet Req'd.
H = 4.7′ Inv.= 28.39
Connect New Underdrain to Inlet

** (25-1)—(25-2) 40′ - 24" Class V Reinforced Concrete Pipe Req'd.(2.5′ Cover)
Inv.(In) = 28.39 Inv.(Out) = 28.19

*** (25-2) 1-Std.VDOT DI-2A Drop Inlet Req'd.
H = 5.0′ Inv.= 28.09

** (25-2)—(25-3) 64′ - 24" Class V Reinforced Concrete Pipe Req'd.(2.5′ Cover)
Inv.(In) = 28.09 Inv.(Out) = 27.77

*** (25-3) 1-St'd.VDOT MH-1 Manhole (Lid el.= 33.00)
St'd.MH-1 Frame and Cover
D = 4.7′ Inv.= 27.67

Note: Contractor to Locate Drain from MCBQ Building at DI to be Removed (Approx.Sta.6261+80) and Reconnect to Prop.MH.

** (25-3)—(25-4) 60′ - 24" Class V Reinforced Concrete Pipe Req'd.(2.6′ Cover)
Inv.(In) = 27.67 Inv.(Out) = 27.37

*** (25-4) 1-St'd.VDOT MH-1 Manhole (Lid el.= 33.00)
St'd.MH-1 Frame and Cover
D = 4.9′ Inv.= 27.27
13′ - 24" Class V Reinforced Concrete Pipe Req'd.(3.5′ Cover)
Inv.(In) = 27.27 Inv.(Out) = 27.20
(Outfall to PG-5 Ditch)
1 Concrete Headwall Req'd.(VDOT EW-1 Modified)
St'd.PG-5 Req'd.(see DR-003 for detail)

** (25-5)—(25-3) 32′ - 6" Polymer Coated Corrugated Steel Spiral Rib Pipe Underdrain (3.1′ Cover)
Inv.(In) = 27.80 Inv.(Out) = 27.70

*** (25-5) 1-St'd.VDOT MH-1 Manhole (Lid el.= 3.50)
St'd.MH-1 Frame and Cover
D = 3.0′ Inv.= 27.80

(25-6) 1-Std.VDOT DI-1 Drop Inlet Req'd.
Type III Grate Req'd.
H = 4.6′ Inv.= 28.20
6′ - 12" HDPE DR 32.5 Pipe
(Outfall thru RW-13 into Toe Ditch)
Inv.(In) = 28.20 Inv.(Out) = 28.00

(25-7) 1-Std.VDOT DI-1 Drop Inlet Req'd.
Type III Grate Req'd.
H = 9.0′ Inv.= 27.00
3′ - 12" HDPE DR 32.5 Pipe
(Outfall thru RW-13 into Toe Ditch)
Inv.(In) = 27.00 Inv.(Out) = 26.80

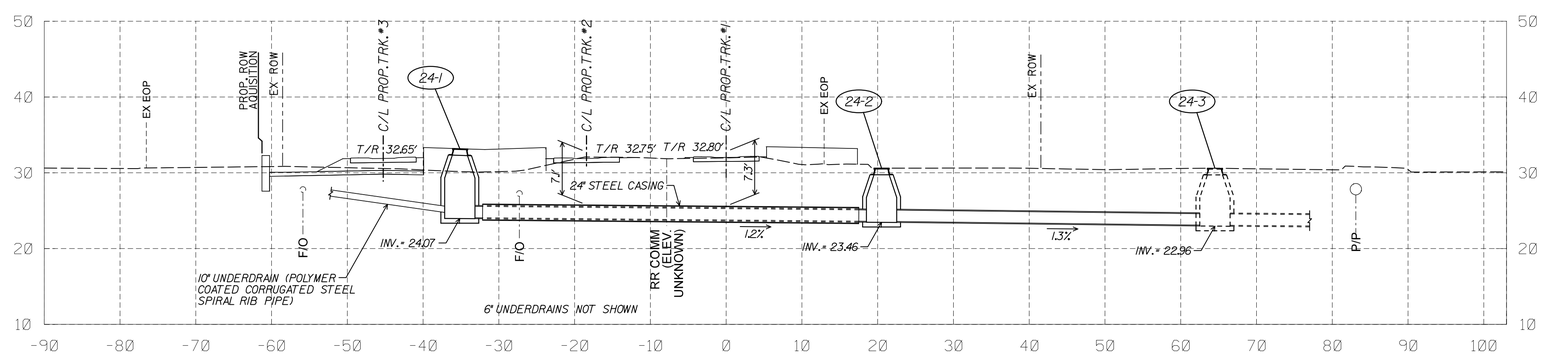
* No Change from Design/Build Plans. Responsibility of Drainage Structure remains with the Design/Build Team. (Work Completed by Others)

** Pipe shall be Designed to Support Cooper E-80 Loading.

*** Drop Inlets and Manholes shall be Designed to Support Cooper E-80 Surcharge Loading.

NOTE:
1 For Location of Drainage Structures, see sheets ESC-001, ESC-002 and ESC-003

For Notes, see sheet DR-003.



4253+60 *
(PIPE 24-1 to 24-2 to 24-3)

INVITATION FOR BID
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: KRJ
DRAWN BY: KRJ
CHECKED BY: RCB
DATE: 06/10/2020

COMMONWEALTH OF VIRGINIA
RONALD C. BRIGGS
Lic. No. 011415
06-10-2020
PROFESSIONAL ENGINEER

VRE

STV 100 Years
STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

DRAINAGE DESCRIPTIONS & PIPE PROFILE

IFB NO: IFB-020-019
DRAWING NO: DR-002
SCALE: AS SHOWN
SHEET NO: 47 OF 202

$$FILE$$
$$DATE$$
$$TIME$$

SYMBOLS

SYMBOLS:	DESCRIPTION
LC-* H-* LP-*	HOMERUN FROM DEVICE BACK TO SOURCE INDICATED. PROVIDE CONDUIT AND WIRING AND CONNECT. SOLID LINE INDICATES CONDUIT AND WIRING EXPOSED. BROKEN LINE INDICATES CONDUIT AND WIRING BELOW GRADE OR IN SLAB. BRANCH CIRCUIT DESIGNATION TO CONTACTOR OR PANELBOARD WITH 3/4" CONDUIT AND 2#12, 1#12 U.O.N.
$	LIGHTING SWITCH 1
P1 1	POLE MOUNTED FIXTURE INDICATES FIXTURE TYPE - SEE E-602 FOR FIXTURE SCHEDULE INDICATES LIGHTING CONTACTOR CIRCUIT
P2 1	POLE MOUNTED TWIN FIXTURES INDICATES FIXTURE TYPE - SEE E-602 FOR FIXTURE SCHEDULE INDICATES LIGHTING CONTACTOR CIRCUIT
	CANOPY LIGHT
	WALL MOUNTED FIXTURE
F L-12	LIGHTING FIXTURE - MOUNTING PER FIXTURE SCHEDULE, UNLESS OTHERWISE NOTED. INDICATES FIXTURE TYPE - SEE E-602 FOR FIXTURE SCHEDULE INDICATES BRANCH CIRCUIT NUMBER - SEE E-601 FOR PANEL SCHEDULES LED LIGHTING FIXTURE
	20 AMP DUPLEX CONVENIENCE RECEPTACLE - FLUSH MOUNTED GFI INDICATES GROUND FAULT CIRCUIT INTERRUPTER WP INDICATES WEATHERPROOF (PROVIDE LOCKING COVER)
	20 AMP DUPLEX CONVENIENCE RECEPTACLE - SURFACE MOUNTED
	20 AMP SINGLE PURPOSE RECEPTACLE - SURFACE MOUNTED NEMA 5-20R
M	ELECTRIC MOTOR - HP, VOLTAGE AND PHASE AS INDICATED
	CIRCUIT BREAKER DISCONNECT - POLES AND RATING AS INDICATED
	FUSED DISCONNECT SWITCH - POLES AND RATING AS INDICATED
HS	MANUAL MOTOR STARTING SWITCH
J	JUNCTION BOX - UNLESS INDICATED OR SPECIFIED USE TYPE AS REQUIRED BY THE NEC FOR THE APPLICATION
T	LINE VOLTAGE THERMOSTAT WITH THERMOMETER AND MANUAL RANGE ADJUSTMENT (FURNISHED BY OTHERS)
S	SPEAKER - BOGEN MODEL #SPT30A, WEATHERPROOF, WITH MOUNTING BRACKET. PROVIDE WITH 2"x4" JUNCTION BOX. MOUNT AS INDICATED ON PLANS. PROVIDE SHIELDED TWISTED PAIR 2#16, IN 3/4" CONDUIT AND TERMINATE AT BOTH ENDS FOR A FULLY FUNCTIONAL AND TESTED SYSTEM. COORDINATE TERMINATION LOCATIONS IN THE SERVER ROOM WITH VRE'S CONSTRUCTION MANAGER.
	INCOMING UTILITY SERVICE
	SECURITY CAMERA - PROVIDED AND INSTALLED BY VRE. ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT, WIRE AND BOXES AND TEST INSTALLATION FOR PLUG AND PLAY CONNECTION BY VRE. PROVIDE WITH 4"x4" JUNCTION BOX. MOUNT AS INDICATED ON PLANS. PROVIDE 1" CND FROM CAMERA TO SERVER ROOM WITH CAT 6 WIRE. CABLES CAN BE COMBINED IN 1" CND AND SHALL NOT EXCEED 40% FILL. PROVIDE TERMINATIONS AT BOTH ENDS. COORDINATE TERMINATION LOCATIONS IN THE SERVER ROOM WITH VRE'S CONSTRUCTION MANAGER.
TVM	TICKET VENDING MACHINE - BY OTHERS. PROVIDE WIRING AND CONDUIT AS SHOWN ON PLAN. TERMINATE CABLES ON BOTH ENDS. COORDINATE TERMINATION LOCATIONS IN SERVER ROOM WITH VRE'S CONSTRUCTION MANAGER.
VMS	VIDEO MESSAGING SYSTEM MONITOR (BY OTHERS) WITH MOUNTING BRACKET AND COOLER - SEE ARCHITECTURAL DRAWINGS. PROVIDE WIRING AND CONDUIT AS SHOWN ON PLAN. TERMINATE CABLES ON BOTH ENDS. COORDINATE TERMINATION LOCATIONS IN SERVER ROOM WITH VRE'S CONSTRUCTION MANAGER.
M	ELECTRIC METER
	TELEPHONE OUTLET BOX WITH 1" CND AND 1 CAT 6 CABLE BACK TO SERVER ROOM. PROVIDE TERMINATIONS AT BOTH ENDS. COORDINATE TERMINATION LOCATIONS IN THE SERVER ROOM WITH VRE'S CONSTRUCTION MANAGER.
6 E-300	DETAIL NUMBER DETAIL OR LARGE SCALE PLAN CALLOUT SHEET WHERE DETAIL IS LOCATED
H	FIRE ALARM HEAT DETECTOR, CEILING MOUNTED
H RA	FIRE ALARM RATE - ANTICIPATION DETECTOR
T OR	TRANSFORMER
	ELECTRIC METER
	ELECTRIC PANEL
	FIRE ALARM HORN/STROBE, MOUNTED AT 6'-8" AFF

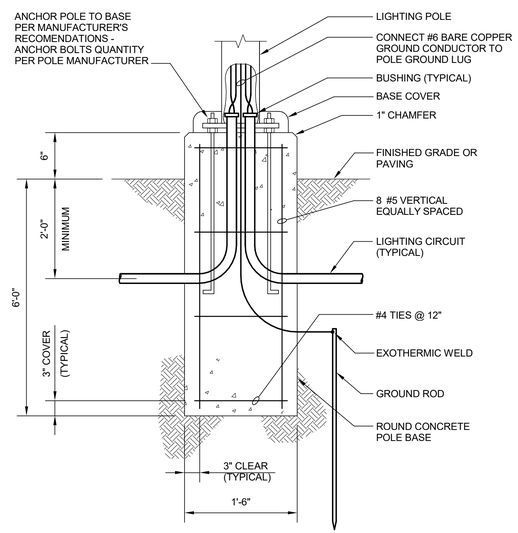
SYMBOLS (CONTINUED)

SYMBOLS:	DESCRIPTION
MM	MONITOR MODULE
CM	CONTROL MODULE
E	GENERATOR EMERGENCY STOP SWITCH
ATS	AUTOMATIC TRANSFER SWITCH
G	GENERATOR
P	PHOTOCELL

DRAWING INDEX

ELECTRICAL

E-001 LEGEND
E-002 ELECTRICAL COMMUNICATION AND EQUIPMENT PLAN
E-101 SITE PLAN - ELECTRICAL
E-102 DEMOLITION PLAN ELECTRICAL
E-201 ELECTRICAL LANDING AREA A
E-202 ELECTRICAL LANDING AREA B
E-203 ELECTRICAL LANDING AREA C
E-204 ELECTRICAL LANDING AREA D
E-205 BRIDGE LEVEL & ROOF LEVEL PLAN - ELECTRICAL
E-601 ONE LINE DIAGRAM AND RISER DIAGRAMS
E-602 SCHEDULES & DIAGRAMS



LIGHTING POLE BASE DETAIL

NOT TO SCALE

ABBREVIATIONS

A, AMP	AMPERES
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONER
AF	AMPERE FUSE: AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
APPROX	APPROXIMATE
ARCH	ARCHITECT
AS	AMPERE SWITCH
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	CIRCUIT BREAKER
BOT.	BOTTOM
C	CONDUIT
CKT(CIR)	CIRCUIT
CL	CENTERLINE
CO	COMPANY
COL.	COLUMN
COM	COMMUNICATIONS
CU	COPPER
CT	CURRENT TRANSFORMER
DIA	DIAMETER
DN	DOWN
DVP	DOMINION VIRGINIA POWER
DWG	DRAWING
E	EXISTING, EMPTY
EA	EACH
ELEC	ELECTRICAL (EQUIPMENT OR WIRING)
EC	EMPTY CONDUIT
EF	EXHAUST FAN
ELEV	ELEVATOR
EM, EMERG	EMERGENCY
EMBED	EMBEDMENT DEPTH
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
EXP	EXPANSION
EXT	EXTERIOR
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
G, GND, GRD	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
HDSS	HEAVY DUTY SAFETY SWITCH
HP	HORSEPOWER
J, JB	JUNCTION BOX
KAIC	1000 AIC
KVA	THOUSAND VOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATTS
KWH	KILOWATT-HOURS
LED	LIGHT EMITTING DIODE
LC	LIGHTING RELAY CONTROLLER
LTG	LIGHTING
LTS	LIGHTS
LVL	LEVEL
MCB	MAIN CIRCUIT BREAKER
MD	DAMPER MOTOR
MECH	MECHANICAL
MIN	MINIMUM
MTD	MOUNTED
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OCP	OVER CURRENT PROTECTION
OD	OUTSIDE DIAMETER
OH, OHE	OVERHEAD ELECTRICAL
P	POLE OR PHASE
PA	PUBLIC ADDRESS
PB	PULL BOX
PF	POWER FACTOR
PH	PHASE
PL	PLATE
PNL, PANEL	CIRCUIT BREAKER PANELBOARD
PP	POWER PANEL
PRI	PRIMARY VOLTAGE (ABOVE 600 VOLTS)
PWR	POWER
RECEPT	RECEPTACLE
RQ'D	REQUIRED
RQM'TS	REQUIREMENTS
SEC	SECONDARY VOLTAGE (600 VOLTS OR LESS)
SEL	SELECTED
SP	SPACE
SS	STAINLESS STEEL
SVC	SERVICE
SURF	SURFACE
SW	SWITCH
TRANSF	TRANSFORMER
TYP	TYPICAL
TVM	TICKET VENDING MACHINE
UON	UNLESS OTHERWISE NOTED
UOS	UNLESS OTHERWISE SPECIFIED
V	VOLTS
VA	VOLT AMPERES
VFD	VARIABLE FREQUENCY DRIVE
VMS	VARIABLE MESSAGE SIGN
VRE	VIRGINIA RAILWAY EXPRESS
W	WATTS, WIRE
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
WW	WIREWAY

GENERAL ELECTRICAL CONSTRUCTION NOTES:

1. THE DRAWINGS INDICATE THE EXTENT AND GENERAL ARRANGEMENT OF THE ELECTRICAL SYSTEMS.
2. LOCATIONS OF LINES AND EQUIPMENT SHALL BE DETERMINED FROM ACTUAL FIELD CONDITIONS. THE OUTLINES OF THE CONSTRUCTION SHOWN ON THE ELECTRICAL DRAWINGS ARE INTENDED ONLY AS A GUIDE TO INDICATE RELATIVE LOCATIONS OF THE WORK. REFER TO THE EQUIPMENT SUPPLIER'S INSTALLATION INSTRUCTIONS FOR EXACT LOCATIONS AND ARRANGEMENTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND PROPER RELATION OF HIS WORK TO THE FACILITY STRUCTURES AND TO THE WORK OF OTHER TRADES. NO ADDITIONAL COMPENSATION NOR EXTENSION OF COMPLETION TIME WILL BE GRANTED FOR EXTRA WORK CAUSED BY THE LACK OF COORDINATION.
4. DUE TO MINOR DIFFERENCES IN VARIOUS MANUFACTURER'S EQUIPMENT CONNECTIONS THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS INSTALLATION WITH THAT EQUIPMENT ACTUALLY FURNISHED AND SHALL VERIFY THE CORRECT SIZES AND DETAILS OF INSTALLATION BEFORE ROUGHING IN.
5. THE ELECTRICAL CONTRACTOR SHALL CONSULT WITH THE GENERAL CONSTRUCTION SUPERINTENDENT REGARDING THE LOCATION OF EQUIPMENT, DOOR SWINGS, BLOCK COURSING, ALIGNMENT OF THIS AND OTHER SIMILAR FEATURES BEFORE ROUGHING IN FOR SWITCHES, RECEPTACLES, THERMOSTATS, AND SIMILAR WIRING DEVICES.
6. ALL POWER DISTRIBUTION SYSTEM CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2011 NATIONAL ELECTRICAL CODE AND ALL APPLICABLE STATE AND LOCAL ORDNANCES. ALL FIRE ALARM WIRE SHALL BE IN CONDUIT.
7. CONTRACTOR SHALL PROVIDE BRANCH CIRCUIT WIRING TO ALL ITEMS WHICH REQUIRE ELECTRICAL CONNECTIONS. WHERE BRANCH CIRCUIT WIRING IS NOT SHOWN, CONTRACTOR SHALL CONNECT ITEMS TO THE CIRCUITS INDICATED. EXACT ROUTING OF CONDUITS AND WIRING SHALL BE DETERMINED BY THE CONTRACTOR IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
8. CONTRACTOR SHALL USE ONLY THOSE WIRING METHODS ALLOWED IN THE SPECIFICATIONS.
9. A MAXIMUM OF 3 CIRCUITS SHALL BE RUN IN ONE CONDUIT. CIRCUITS MUST BE ON SEPARATE PHASES. ALL CIRCUITS SHALL HAVE SEPARATE NEUTRALS; SHARING OF NEUTRALS IS PROHIBITED.
10. MINIMUM WIRE SIZE SHALL BE #12AWG, MINIMUM CONDUIT SIZE SHALL BE 3/4".

GENERAL ELECTRICAL DEMOLITION NOTES:

1. EQUIPMENT SHOWN IN HEAVY DASHED LINE WEIGHT ON DEMOLITION PLANS SHALL BE REMOVED. EQUIPMENT SHOWN IN LIGHT LINE WEIGHT ON DEMOLITION PLANS SHALL REMAIN.
2. WHERE REMOVAL OF ELECTRICAL WORK SHOWN, OR OF ASSOCIATED WIRING, INTERRUPTS SERVICE TO EXISTING ELECTRICAL EQUIPMENT TO REMAIN, THE CONTRACTOR SHALL EXTEND SERVICE TO REMAINING EQUIPMENT. ROUTING OF THIS EXTENDED SERVICE SHALL BE SUCH THAT IT DOES NOT INTERFERE WITH NEW WORK.
3. CONTRACTOR SHALL PROVIDE BLANK COVER PLATES ON ALL JUNCTION BOXES AND DEVICE BOXES WHICH ARE UNCOVERED AS A RESULT OF REMOVAL OF EQUIPMENT.
4. ALL ITEMS TO BE REMOVED SHALL BECOME PROPERTY OF CONTRACTOR AND SHALL BE REMOVED FROM SITE, UNLESS OWNER WISHES TO RETAIN OWNERSHIP OR IF ITEM IS SPECIFICALLY NOTED TO BE RELOCATED OR SALVAGED. CONTRACTOR SHALL COORDINATE DEMOLITION WORK WITH OWNER TO ASSURE THEIR RIGHT OF FIRST REFUSAL FOR ALL ITEMS BEING REMOVED FROM THE PROJECT.
5. ALL EXISTING SURFACES DAMAGED OR EXPOSED BY DEMOLITION OR REMOVAL OF EQUIPMENT SHALL BE PATCHED AND REPAIRED WITH MATERIALS AND FINISHES TO MATCH EXISTING ADJACENT SURFACES.
6. CONTRACTOR SHALL SCHEDULE AND COORDINATE ALL HIS WORK WITH OWNER TO MINIMIZE DISRUPTIONS TO ONGOING OPERATIONS AND DOWN-TIME TO EXISTING SYSTEMS.
7. REMOVAL OF DEVICE SHALL INCLUDE REMOVAL OF ALL ASSOCIATED WIRING AND CONDUIT BACK TO SOURCE UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR SHALL COORDINATE DEMOLITION WORK WITH ALL TRADES.
9. ALL FLUORESCENT LIGHTING FIXTURES CONTAINING PCB CONTAMINATED BALLASTS SHALL BE DISPOSED OF IN ACCORDANCE WITH EPA REGULATIONS.

SCOPE OF ELECTRICAL WORK

1) ELECTRICAL SERVICE UPGRADE TO SUPPORT LIGHTING AND ELEVATORS.
2) SECURITY CAMERA UPGRADE TO MONITOR STATION.
3) VMS AND TVM ON PLATFORMS AND BRIDGE POWER AND COMMS. VRE SHALL FURNISH AND INSTALL ALL VMS AND TVM'S. ELECTRICAL CONTRACTOR SHALL SUPPLY ALL CONDUIT AND WIRING AND TERMINATE ON BOTH ENDS. COORDINATE INSTALLATION WITH VRE CONSTRUCTION MANAGER.
4) PA SYSTEM SPEAKERS. ELECTRICAL CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM WITH CONDUIT AND WIRES AND TERMINATE WIRES AT BOTH ENDS. COORDINATE INSTALLATION WITH VRE CONSTRUCTION MANAGER.
5) FIRE ALARM SYSTEM TO PROVIDE ELEVATOR RECALL.

CODES

ALL WORK SHALL COMPLY WITH THE CURRENT STATE OF VIRGINIA ADOPTED CODES AS LISTED BELOW:

1) VIRGINIA UNIFORM STATE WIDE BUILDING CODE 2018 (IBC).
2) NFPA 70 - NEC 2014.
3) NFPA 72 - NATIONAL FIRE ALARM CODE 2013.
4) 2015 INTERNATIONAL ENERGY CONSERVATION CODE.

DRAFT IFB PACKAGE
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: J. HOPKINS
DRAWN BY C. HENDRICKS
CHECKED BY: R. HALLMAN
DATE: 06/10/2020

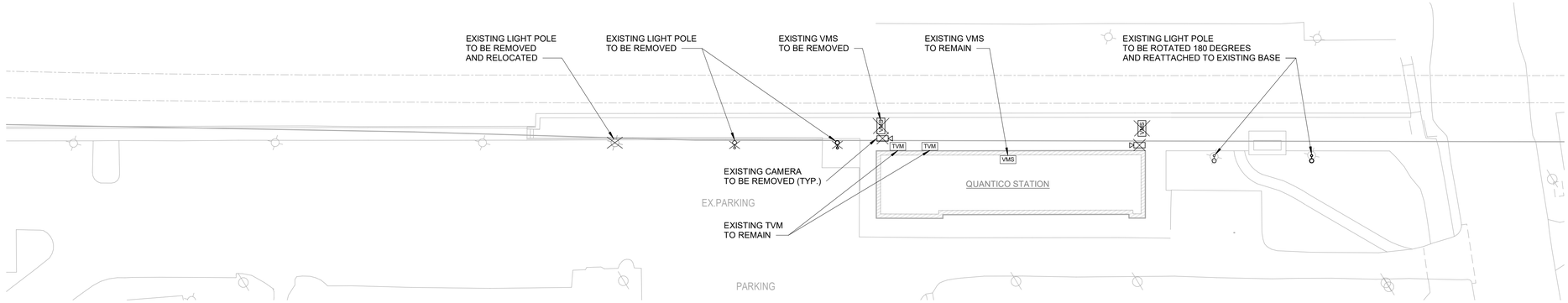
COMMONWEALTH OF VIRGINIA
RANDALL J. HALLMAN
Lic. No. 44751
PROFESSIONAL ENGINEER
6-10-2020

STV 100 Years
STV Incorporated
2701 Prosperity Ave, Suite 305
Fairfax, VA 22031

QUANTICO STATION

LEGEND

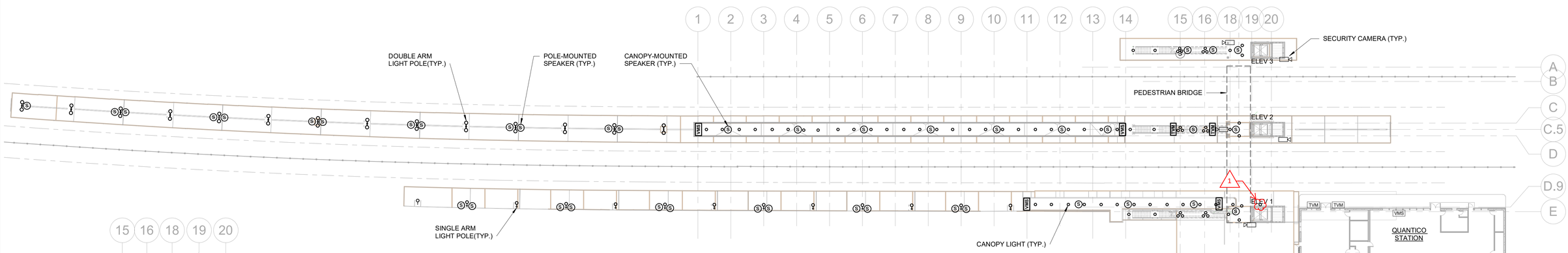
IFB NO: IFB-020-019
DRAWING NO: E-001
SCALE: 1" = 1'-0"
SHEET NO: 139 OF 202



EXISTING PLATFORM LEVEL PLAN

1" = 30'-0"

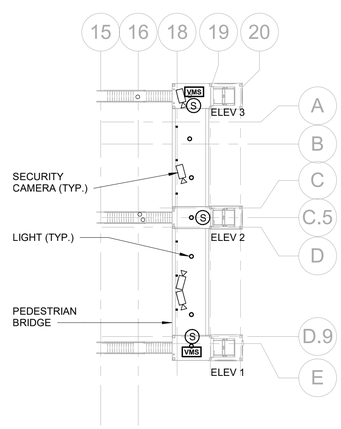
30' 0 30'



PROPOSED PLATFORM LEVEL PLAN

1" = 30'-0"

30' 0 30'



PROPOSED BRIDGE LEVEL PLAN

1" = 30'-0"

30' 0 30'

LEGEND		
SYMBOLS		QUANTITY
	EXISTING LIGHT POLE TO BE REMOVED	2
VMS	EXISTING VIDEO MESSAGING SYSTEM MONITOR TO BE REMOVED	2
	EXISTING CAMERA TO BE REMOVED	2
VMS	EXISTING VIDEO MESSAGING SYSTEM MONITOR TO REMAIN	1
TVM	EXISTING TICKET VENDING MACHINE TO REMAIN	2
	PROPOSED SINGLE ARM LIGHT POLE	13
	PROPOSED DOUBLE ARM LIGHT POLE	14
	PROPOSED CANOPY LIGHT	0
S	PROPOSED SPEAKER	42
	PROPOSED CAMERA LOCATION	9
VMS	PROPOSED VIDEO MESSAGING SYSTEM MONITOR LOCATION	6
TVM	PROPOSED TICKET VENDING MACHINE LOCATION	2

1

DRAFT IFB PACKAGE
NOT FOR CONSTRUCTION

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: J. HOPKINS
DRAWN BY C. HENDRICKS
CHECKED BY: R. HALLMAN
DATE: 06/10/2020

COMMONWEALTH OF VIRGINIA
RANDALL J. HALLMAN
Lic. No. 44751
PROFESSIONAL ENGINEER
Randall J. Hallman 6-10-2020

VRE

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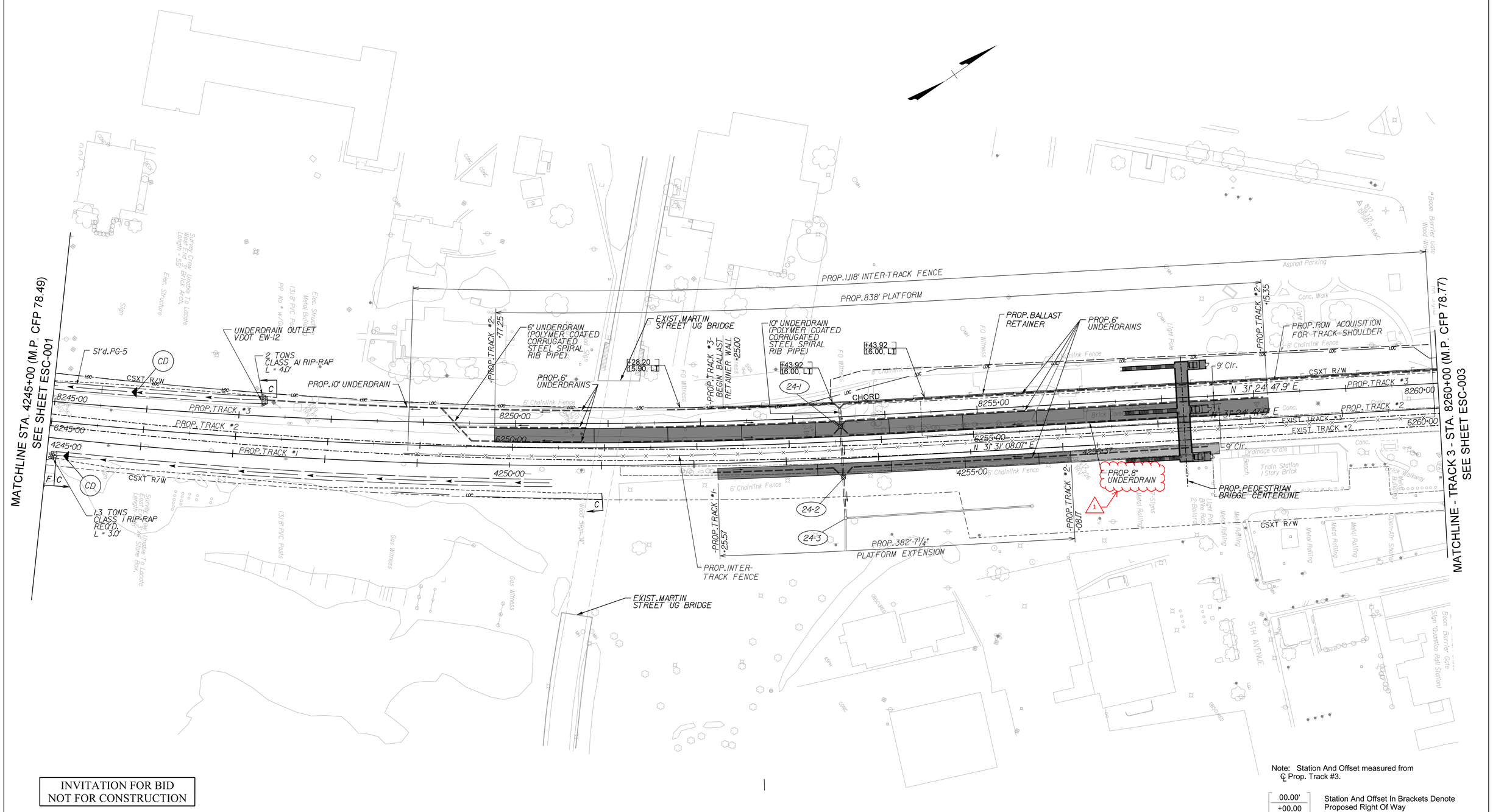
STV Incorporated
2701 Prosperity Ave, Suite 305
Fairfax, VA 22031

QUANTICO STATION

ELECTRICAL COMMUNICATION & EQUIPMENT PLAN

IFB NO: IFB-020-019
DRAWING NO: E-002
SCALE: AS INDICATED
SHEET NO: 140 OF 202



INVITATION FOR BID
NOT FOR CONSTRUCTION

NOTE:
1. ALL UTILITY LOCATIONS AND ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY UTILITY BEFORE CONSTRUCTION.

2. STATION PLATFORM STORM DRAINS NOT SHOWN FOR CLARITY. SEE DRAWING C-301 FOR DETAILS.

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: KRJ
DRAWN BY: KRJ
CHECKED BY: RCB
DATE: 06/10/2020

COMMONWEALTH OF VIRGINIA
RONALD C. BRIGGS
Lic. No. 011415
06-10-2020
PROFESSIONAL ENGINEER

VRE

STV 100 Years
STV Incorporated
2701 Prosperity Avenue, Suite 305
Fairfax, Virginia 22031

QUANTICO STATION

EROSION & SEDIMENT CONTROL
STA. 4245+00 TO STA. 8260+00

IFB NO: IFB-020-019
DRAWING NO: ESC-002
SCALE: AS SHOWN
SHEET NO: 5 OF 202

$$FILE$$
$$DATE$$
$$TIME$$

MATCHLINE - TRACK 3 - STA. 8260+00 (M.P. CFP 78.77)
SEE SHEET ESC-002

BARNETT AVENUE
LITTLE ROAD
POTOMAC AVENUE
C STREET
4TH AVENUE
3RD AVENUE

REMOVE EXISTING DROP INLETS & STORM DRAIN
CG-2
25-1
25-2
25-3
25-4
25-5
25-6
25-7
F77.77
16.00, LT
ST'D.CG-6
CSXT R/W
ST'D.PG-5
ST'D.PG-5
N 31°24'47.92"E
8260+00
6" UNDERDRAIN
REMOVE EXISTING DROP INLET (PLUG PIPES)
PROP.RETAINING WALL RW-13
PROP.15' X 500' PERM.EASEMENT FOR RETAINING WALL TIE BACKS
TEMP.EASEMENT
END AK2PC PACKAGE 5
BEGIN AK2PC PACKAGE 4
3 TONS CLASS AI RIP-RAP L = 6.0'
PROP."V" DITCH BEHIND RW-13
TIE TO EXIST. RIP-RAP DITCH
EXIST. RETAINING WALL RW-14
CD
PROP.TRACK #3
N 32° 55' 10.9" E
8265+00
PROP.TRACK #2
N 31° 49' 55.2" E
6265+00
8270+00
N 31° 16' 43.1" E
6270+00
PROP.TRACK #3
EXIST. TRACK #3
EXIST. TRACK #2
8275+00
3 TONS CLASS AI RIP-RAP L = 6.0'
EXCESS MATERIAL PLACEMENT AREA (EMPA)
TEMPORARY STONE CONSTRUCTION ENTRANCE
CSXT R/W
APPROXIMATE LOCATION OF EAGLE NEST
APPROXIMATE LOCATION OF 660 FOOT EAGLE PROTECTION ZONE
APPROXIMATE LOCATION OF 330 FOOT EAGLE PROTECTION ZONE

INVITATION FOR BID
NOT FOR CONSTRUCTION

For Underdrain details at Potomac Avenue Crossing, see sheet GC-001.

NOTE:
1. ALL UTILITY LOCATIONS AND ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY UTILITY BEFORE CONSTRUCTION.

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: KRJ
DRAWN BY: KRJ
CHECKED BY: RCB
DATE: 06/10/2020

COMMONWEALTH OF VIRGINIA
RONALD C. BRIGGS
Lic. No. 011415
06-10-2020
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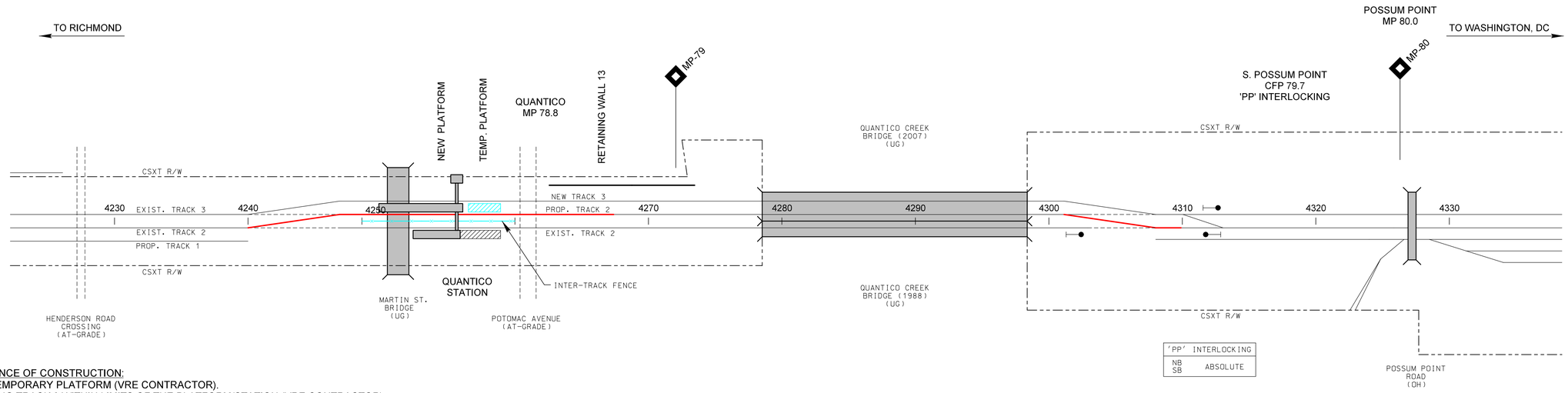
QUANTICO STATION

EROSION & SEDIMENT CONTROL
STA. 8260+00 TO STA. 8275+00

IFB NO: IFB-020-019
DRAWING NO: ESC-003
SCALE: AS SHOWN
SHEET NO: 60 OF 202

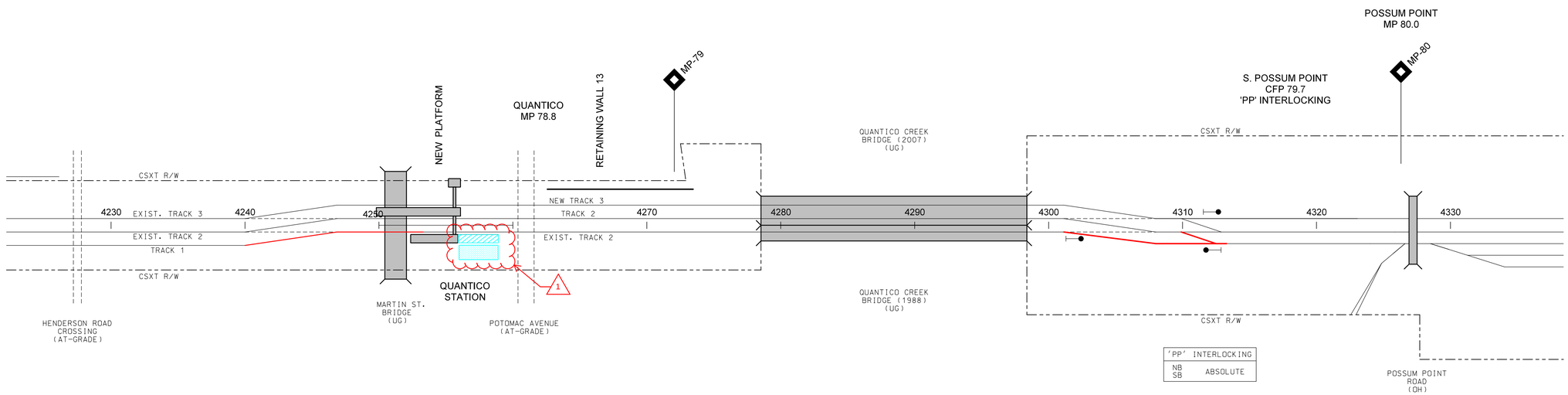
$$FILE$$
$$DATE$$
$$TIME$$



SUGGESTED SEQUENCE OF CONSTRUCTION:

1. REMOVE THE TEMPORARY PLATFORM (VRE CONTRACTOR).
2. REMOVE EXISTING TRACK 3 WITHIN LIMITS OF THE PLATFORM/STATION (VRE CONTRACTOR).
3. CONSTRUCT PROPOSED TRACK 2 THRU THE STATION ON CONCRETE TIES (CSXT).
4. INSTALL NEW AT-GRADE CROSSING FOR PROPOSED TRACK 2 ACROSS POTOMAC AVE. (CSXT).
5. TIE PROPOSED TRACK 2 TO EXISTING TRACK 3 NORTH OF POTOMAC AVE (CSXT).
6. INSTALL INTER-TRACK FENCE (VRE CONTRACTOR)
7. CUT AND THROW EXISTING TRACK 2 TO NEW TRACK 2 (SOUTH AND NORTH). NEW TRACK 2 AND NEW TRACK 3 WILL THEN BE IN SERVICE AND WILL SERVE PASSENGERS FROM THE CENTER PLATFORM. (CSXT).

PHASE II



SUGGESTED SEQUENCE OF CONSTRUCTION:

1. REMOVE A PORTION OF EXISTING EASTSIDE PLATFORM FROM STATION BUILDING NORTH TO POTOMAC AVE. (VRE CONTRACTOR).
2. COMPLETE GRADING OF PARK AREA SOUTH EAST QUADRANT OF POTOMAC AVE. CROSSING (VRE CONTRACTOR).
3. CUT AND THROW EXISTING TRACK 2 TO NEW TRACK 1 (SOUTH AND NORTH). THIS WILL ALLOW PASSENGER SERVICE FROM ALL THREE TRACKS VIA EASTSIDE PLATFORM OR CENTER PLATFORM (CSXT).

PHASE III

INVITATION FOR BID
NOT FOR CONSTRUCTION

LEGEND

- EXISTING TRACKS
- PROPOSED CONST. (BY CSXT)
- PROPOSED CONST. (BY CONTRACTOR)
- EXISTING TRACKS TO BE REMOVED
- CSXT R/W

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	05/13/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: KRJ
DRAWN BY: KRJ
CHECKED BY: RCB
DATE: 5/13/2020

COMMONWEALTH OF VIRGINIA
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07/10/2020
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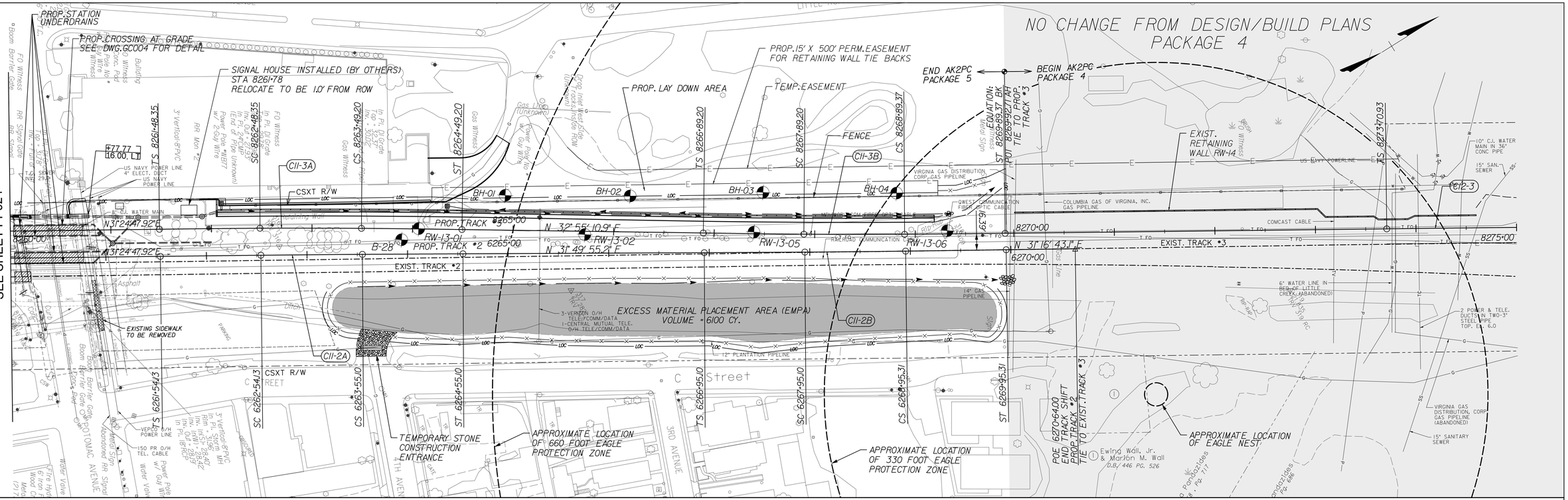
QUANTICO STATION

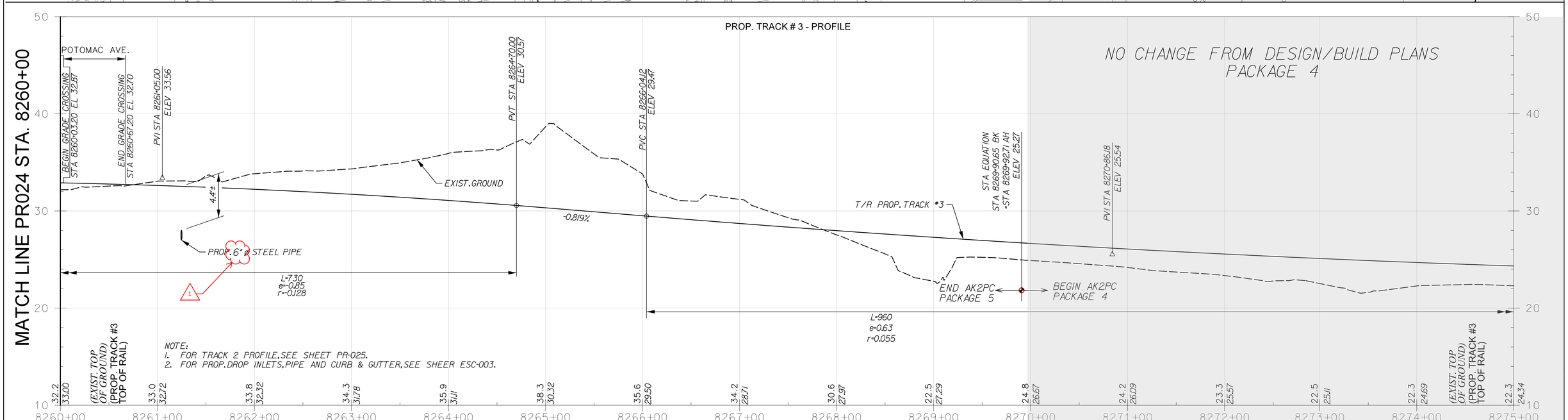
SUGGESTED
SEQUENCE OF CONSTRUCTION
SHEET 2 OF 2

IFB NO: IFB-020-019
DRAWING NO: G-009
SCALE: AS SHOWN
SHEET NO: 10 OF 202

$$FILE$$
$$DATE$$
$$TIME$$

MATCHLINE - TRACK 3 - STA. 8260+00 (M.P. CFP 78.77)
SEE SHEET PP024





INVITATION FOR BID
NOT FOR CONSTRUCTION

HORIZ: 0 50 100 200
VERT: 0 5 10 20
SCALE IN FEET

APPROVED BY VRE	REV.NO.	DATE	BY	APP BY	DESCRIPTION
	0	06/10/20			INVITATION FOR BID
	1	07/17/20			VRE IFB ADDENDUM 3
APPROVED BY COUNTY					

DESIGNED BY: KRJ
DRAWN BY: KRJ
CHECKED BY: RCB
DATE: 06/10/2020

COMMONWEALTH OF VIRGINIA
RONALD C. BRIGGS
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06-10-2020
PROFESSIONAL ENGINEER

VRE

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QUANTICO STATION

PLAN & PROFILE
PROP. TRACK #3
STA. 8260+00 TO STA. 8275+00

IFB NO: IFB-020-019
DRAWING NO: PP-025
SCALE: AS SHOWN
SHEET NO: 41 OF 202

$$FILE$$
$$DATE$$
$$TIME$$