

*“Technical Specifications” for
East Andrews Drainage Improvements*

May 2023

OWNER:

Georgetown County
129 Screven St
Georgetown, SC 29442

PREPARED BY:

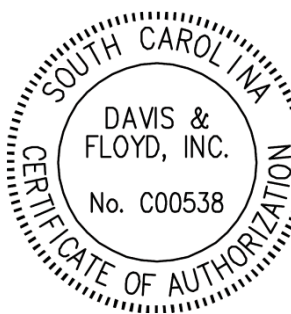
Davis & Floyd, Inc.
1940 Algonquin Rd, Suite 301
Charleston, SC 29405
(843) 554-8602



D|F Job No.: 31969.00

Bid No.: 21-038

EDA Investment ID: 04-79-07486



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PROPOSAL ID

PROJECT ID

COUNTY

31969.00

Bid #21-038

Georgetown

EDA INVESTMENT ID

04-79-07486

This project is to be constructed under the South Carolina Department of Transportation's Specifications For Highway Construction Edition of 2007, the South Carolina Department of Transportation's 2004 Construction Manual, the Supplemental Technical Specifications in effect at the time of the letting, and the following Special Provisions.

(1) REFERENCES:

For purposes of this Contract references to the Department shall refer to the Georgetown County Department of Public Services. References to the "Resident Construction Engineer", "Director of Traffic Engineering" or "Engineer's Representative" shall refer to Georgetown County.

(2) STANDARDS AND REFERENCES:

This project is to be constructed under the SCDOT 2007 Standard Specifications for Highway Construction, the 2009 SCDOT Standard Drawings, the SCDOT 2004 Construction Manual, the SCDOT Supplemental Technical Specifications in effect at the time of the letting, and the following Special Provisions:

The above noted publications are available on the internet as follows, or may be obtained from the SCDOT Engineering Publications office at (803) 737-4533 or via e-mail at enrpubsales@dot.state.sc.us

SCDOT 2007 Standard Specifications for Highway Construction	http://www.scdot.org/doing/doingPDFs/2007_full_specbook.pdf
2009 SCDOT Standard Drawings	Standard Drawings Disclaimer
SCDOT 2004 Construction Manual	SCDOT Construction Manual (2004)
SCDOT Supplemental Technical Specifications	Supplemental Technical Specifications
South Carolina Manual on Uniform Traffic Control Devices (SCMUTCD)	http://www.scdot.org/doing/technicalPDFs/mutcdSupp/supplement_mutcd.pdf
Approved Products List for Traffic Control Devices in Work Zones	Traffic Engineering Manuals

(3) ERRATA TO 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION:

See attached Supplemental Specification dated **January 1, 2018**.

(4) PROPOSAL ITEMS AND QUANTITIES:

A list of bid items and quantities is included in this project manual. The bidder shall submit his proposal on the form furnished. The bidder shall state the prices, in figures, for which he proposes

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to do each item of work. All figures shall be written in ink. If an entry is made in the proposal and subsequently changed by the bidder, the original figure or figures shall be completely obliterated to eliminate any doubt as to the bid prices. All changes in the bid process shall be initialed by the bidder. The bidder shall show the products of the respective unit prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amounts of the several items.

The bidder's proposal shall be signed correctly with ink. If the proposal is made by an individual, his name and post office address must be shown; if made by a firm or partnership, the name and post office address of each member of the firm or partnership must be shown; if made by a corporation, the person signing the proposal must show the name of the State under the laws of which the corporation is chartered, the names, titles and business addresses of the president, vice president, secretary and treasurer.

If two or more Contractors bid as a joint venture, the appropriate information on each Contractor must be shown as referred to in the foregoing paragraph for single Contractors.

(5) SUBMITTALS:

All submittals, regardless of origin, shall be stamped with the approval of the Contractor and identified with the name and number of this Contract, Contractor's name, and references to applicable specification paragraphs and Contract Drawings. Each submittal shall indicate the intended use of the item in the work. When catalog pages are submitted, applicable items shall be clearly identified and inapplicable data crossed out. The current revision, issue number, and date shall be indicated on all drawings and other descriptive data.

The Contractor shall be solely responsible for the completeness of each submittal. Contractor's stamp of approval is a representation to the Owner and Engineer that the Contractor accepts sole responsibility for determining and verifying all quantities, dimension, field construction criteria, materials, catalog numbers, and similar data, and that the Contractor shall reviewed and coordinated each submittal with the requirements of the work and the Contract Documents.

Engineer's review of submittals covers only general conformity to the Drawings and Specifications, external connections, and dimensions that affect layout; it does not indicate thorough review of all dimensions, quantities, and details of the material, equipment, device, or item covered. Engineer's review shall not relieve Contractor of sole responsibility for errors, omissions, or deviations in the drawings and data, nor of Contractor's sole responsibility for compliance with the Contract Documents.

Engineer's submittal review period shall be the consecutive number of calendar days as required (30) and shall commence on the first calendar day following receipt of the submittal in the Engineer's office. The time required to mail the submittal back to the Contractor shall not be considered a part of the submittal review period.

The Contractor may be required to submit submittals through an online program at no additional cost to the Contractor.

(6) MANUFACTURERS MATERIALS CERTIFICATIONS AND CERTIFIED TEST REPORTS:

The Contractor shall supply the Resident Engineer with all required materials certifications and manufacturers test reports for items to be permanently incorporated into the project. These material certifications shall be provided prior to the materials use in the project. The Authority will supply the Resident Engineer with a list of required certifications and manufacturers tests based on the pay items and special provisions included in the proposals. The County Project Manager must approve these certifications and reports before payment can be made to the Contractor for these items.

(7) AS-BUILT CONSTRUCTION PLANS:

See attached Supplemental Specification dated April 1, 2008.

The Contractor shall submit an electronic version of the as-builts in AutoCAD (.dwg) format.

(8) SECTION 101: SUBSTANTIAL COMPLETION OF WORK

Section 101.3.76 is hereby replaced with the following:

101.3.76 Substantial Completion of Work

Substantial Completion of Work is the point in the project when work has been constructed to the typical section in the Plans over the entire length of the project including tie-ins, all pay items have been installed in reasonable conformance with the plans and specifications over the entire length of the project and all lanes of traffic are open to the public in their final configuration with the final applications of thermoplastic and raised pavement markers with the only remaining work to be performed being punch list items.

(9) DIVISION 100: STANDARD DRAWINGS:

The Bidders are hereby advised that this project shall be constructed using the Current Standard Drawings with all updates effective at the time of the letting. The Standard Drawings are available for download at <https://www.scdot.org/business/standard-drawings.aspx>. All drawings that are updated are labeled with their effective letting date in red.

All references in the plans, standard specifications, supplemental specifications, supplemental technical specifications or special provisions to drawings under the previous numbering system (prior to 2007) are hereby updated to the new drawing numbers. Refer to sheets 000-205-01 through 000-205-07 to find new drawing numbers when looking for references to older drawing numbers. "Old sheet numbers" are also visible on the website when using the full set of drawings "current" search and are sortable by clicking the header "Old Sheet #" on the results page. Be aware that some older drawings now span over multiple pages due to detailing changes.

(10) DIVISION 100: IMMINENT STANDARD DRAWINGS:

On the Standard Drawings search page, enter status of Imminent with other fields blank to see a list of upcoming Standard Drawings and their corresponding effective let date. Imminent drawings may be used at any time they are available if approved by the Resident. Follow procedure shown in imminent drawings when noted in this section.

No imminent drawings are currently required on this project, but the Contractor is encouraged to review available imminent drawings for bidding upcoming projects.

(11) DIVISION 100: STANDARD DRAWING ERRATA:

The Bidders are hereby advised that the following note changes apply to the published Standard Drawings.

On sheet **000-205-05**, add the following information under the columns below:

OLD DRAWING NAME NEW DRAWING NAME

720-905-01 to 720-905-05 720-901-01 to 720-993-32

On sheet **605-005-05 (ver 1-1-2013)**, replace entire text of General Note #4 with the following text:

4. The square footage of sign panels attached to 2½" x 2½" 12 gauge sign support secured to a 3" x 3" 7 gauge breakaway anchor shall not exceed 20 square feet.

On sheet **610-005-00 (ver 5-1-18)** added the following definition to Note 1 of Flagging Operations section:

SIDE ROAD FLAGGER – This flagger is stationed on an intersecting side road and controls the side road traffic entering into the roadway where the work activity area is located.

On sheet **610-005-20 (ver 5-1-18)** added Note 5 :

SPECIAL PROVISIONS

5. When the work proceeds through a “STOP sign controlled” “SIDE ROAD” intersection continue the work operations through the intersection to a specific location point within the “DEPARTURE LANE” no less than 300 FT to 500 FT beyond the limits of the intersection to allow the work train and all portions of the lane closure to clear the intersection.

On sheet **610-005-20 (ver 5-1-18)**

Added dimension “300’-500” for the work activity area after the intersection.

On sheet **610-005-30 (ver 5-1-18)** added Note 5 :

5. When the work proceeds through a “STOP SIGN CONTROLLED” intersection continue the work operations through the intersection to a specific location point within the “DEPARTURE LANE” no less than 300 FT to 500 FT beyond the limits of the intersection to allow the work train and all portions of the lane closure to clear the intersection.

On sheet **610-005-40 (ver 5-1-18)** added Note 5 :

5. When the work proceeds through a “TRAFFIC SIGNAL CONTROLLED” intersection continue the work operations through the intersection to a specific location point within the “DEPARTURE LANE” no less than 300 FT to 500 FT beyond the limits of the intersection to allow the work train and all portions of the lane closure to clear the intersection.

On sheet **610-005-50 (ver 5-1-18)** added Note 5 :

5. When the work proceeds through a “TRAFFIC SIGNAL CONTROLLED” intersection continue the work operations through the intersection to a specific location point within the “DEPARTURE LANE” no less than 300 FT to 500 FT beyond the limits of the intersection to allow the work train and all portions of the lane closure to clear the intersection.

On sheet **610-005-60 (ver 5-1-18)** Title block changed :

Title block now reads “Flagging Operations – Work Zones Beginning @ Intersections with Two-Lane Two-Way Roadways – Departure Lane.”

On sheet **610-005-70 (ver 5-1-18)** Title block changed :

Title block now reads “Flagging Operations – Work Zones Terminating @ Intersections with Two-Lane Two-Way Roadways – Approach Lane.”

On sheet **610-005-80 (ver 5-1-18)** Note 6 revised:

6. Dependent upon the location of the work zone in the “Departure Lane” or the “Approach Lane” of the two-lane two-way road, when the work zone progresses to a location that requires conversion from this flagging operation traffic control setup to a standard flagging operation traffic control setup or vice versa, comply with the requirements of Standard Drawing No. 610-005-60 or Standard Drawing No. 610-005-70 as necessary regarding these conversions.

On sheet **610-005-90 (ver 5-1-18)** Note 6 revised:

6. Dependent upon the location of the work zone in the “Departure Lane” or the “Approach Lane” of the two-lane two-way road, when the work zone progresses to a location that requires conversion from this flagging operation traffic control setup to a standard flagging operation traffic control setup or vice versa, comply with the requirements of Standard Drawing No. 610-005-60 or Standard Drawing No. 610-005-70 as necessary regarding these conversions.

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In Section 714-000 – Pipe Culverts (Permanent) (ver January 2011)

Delete and replace all references to P1 Biaxial Geogrid with B4 Geogrid on all Drawings within this Section of the Standard Drawings.

On sheet 720-305-00 (ver May 2008), delete the entire note directly above main detail:

On sheet 720-405-00 (ver May 2009) Detail 2 replace dimension 2'-6" maximum with:

2'-6" minimum

On sheet 720-901-01 (ver Feb 2015) replace note 5.04 with:

5.04 When a mid-block crossing is required, consider mid-block staggered crossing (720-955-41) to encourage eye contact between the pedestrian and the oncoming traffic. Always angle the stagger so that the pedestrian travels through the refuge facing the oncoming traffic.

On sheet 722-305-00 (ver May 2010) Detail 4 replace note "French Drain see note 21" with:

French Drain see note 4.5.

On sheet 722-305-00 (ver May 2010) table 722-305A, 4th column, change the following:

Delete (SF)

Replace text "up to 36" with "up to 3'X3' "

Replace text "larger than 36" with "larger than 3'X3' "

On sheet 722-305-00 (ver May 2010) change general note 3.3 2nd sentence & Detail 4:

Place Class 2 Type C Geotextile for Erosion Control under riprap as specified in SCDOT Standard Specification.

On sheet 804-105-00 (ver May 2008) Title Block replace text "Rirap (Bridge End)" with:

Riprap (Bridge End)

On sheet 804-105-00 (ver May 2008) Change Note 2: Geotextile Pay Item to:

8048210 Geotextile for Erosion Control under riprap (Class 2) Type C.... SY

On sheet 804-205-00 (ver May 2009) Change Note 2: Geotextile Pay Item to:

8048210 Geotextile for Erosion Control under riprap (Class 2) Type C.... SY

On sheet 804-305-01 (ver Jul 2017) Change Note 4: Geotextile Pay Item to:

8048210 Geotextile for Erosion Control under riprap (Class 2) Type C.... SY

On sheet 804-305-02 (ver Jul 2017) Change Section A: Geotextile Note to:

Geotextile for Erosion Control under riprap (Class 2) Type C

On sheet 804-310-00 (ver Jul 2017) Change Note 3: Geotextile Pay Item to:

8048210 Geotextile for Erosion Control under riprap (Class 2) Type C.... SY

On sheet 805-001-01 Jan 2019 version, replace note 25.06 with:

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25.06 FOR PROJECTS THAT SPECIFY PREMASH DEVICES (W-BEAM, TYPE T, TBBC, TYPE B, ETC.) INSTALL W-BEAM RAIL HEIGHT AT 29" +/- 1" (PREVIOUSLY NOTED AS 27.75" +3"/-0").

On sheet **805-220-00** (ver. Jul 2018) replace note 5:

FOR SITES WITH BRIDGES, BOLT GUARDRAIL TO BRIDGE PARAPET AS REQUIRED IN STIFFNESS TRANSITION, AND HOLD FACE OF GUARDRAIL POSITION (TYPICALLY 5'-3" FROM FACE OF CURB) THROUGH STIFFNESS TRANSITION. Make any necessary adjustments to face of guardrail within the LONGITUDINAL BARRIER. INSTALL END TREATMENT so that impact head is beyond the back of sidewalk.

On website, drawings between 805-500-00 and 805-779-99 are reserved as PREMASH standards. Do not value engineer or otherwise substitute PREMASH devices in any location where it has been determined that MASH devices fit and are specified. If MASH devices do not fit site condition, install PREMASH only upon approval by the Resident Engineer. Note that during MASH implementation, some PREMASH details may be published with old drawing numbering and a cover sheet that addresses drawing and pay item changes.

On sheets **805-860-xx (05, 10, 15, 20, 24, 30)** (ver. Jan 2016):

All references to toe drain details are revised to refer to drawing 805-875-10 (correct all notes pointing to drawings 805-895-00 or other incorrect drawing numbers.)

(12) SECTION 103.8: CONTRACTOR'S LIABILITY INSURANCE:

Section 103.8 is hereby deleted and replaced with the requirements of SECTION 00100, Item #29 of this Project Manual.

(13) SECTION 105: CONSTRUCTION STAKES, LINES, AND GRADES:

Section 105.8.2 applies to this project. Payment for this work shall be made according to the following schedule:

Percent Contract Complete	Percent of Stakes, Lines, and Grades bid amount to be paid
1-5	20
6-15	40
16-29	60
30-49	70
50-69	80
70-89	90
90-100	100

(14) SECTION 106: QUALIFIED PRODUCT LISTINGS

All references to "Approval Sheet" or "Approval Policy" are to be replaced with "Qualified Products Listings (QPL)" and "Qualified Products Policies (QPP)" respectively. This change includes all references in the SCDOT Standard Drawings, SCDOT Standard Specifications, SCDOT Supplemental Specifications, SCDOT Special Provisions, SCDOT Supplemental Technical Specifications, SCDOT Internet and Intranet websites, and all other documents produced by SCDOT.

(15) CONSTRUCTION SCHEDULE

See Attached Supplemental Specification CONSTRUCTION SCHEDULES Dated November 4, 2013.

This project will have a Level 1 Schedule.

(16) SECTION 106: SOUTH CAROLINA MINING ACT:

See Attached Supplemental Specification Dated **March 20, 2003**.

This Supplemental Specification is hereby modified as follows:

Paragraph 9 is hereby deleted and replaced with the following:

SPECIAL PROVISIONS

The deputy secretary for engineering, or his duly appointed representative, will make a final inspection of the reclaimed area and keep a permanent record of his approval thereof. A map or sketch providing the location and approximate acreage of each pit used on the project will be provided to the resident construction engineer for inclusion in the final plans.

The last paragraph is hereby deleted and replaced with the following:

The contractor shall comply with the provisions of the plan that are applicable to the project as determined by the engineer. Seeding or other work necessary to comply with the plan on pits furnished by the contractor shall be at the expense of the contractor. Seeding shall be in accordance with SC-M-810 (latest version) which can be found at <https://www.scdot.org/business/road-technical-specs.aspx>.

(17) SECTION 107: PROJECT BULLETIN BOARDS:

In accordance with the Required Contact Provisions Federal-Aid Construction Contracts Section II, Item 3, Part d, add the following:

Single Location Projects – On projects in which work is performed at a single location (such as bridge replacement projects, two-lane to five-lane widening projects, etc.), mount the project bulletin board in a permanent location within the project limits so that it is visible and accessible at all times.

Multiple Location Projects – On projects in which work is being performed or has the capability of being performed at multiple locations (such as resurfacing projects, pavement marking projects, etc.), display a portable bulletin board with at least one of the prime contractor's work crews. If the prime contractor is not performing work, display the portable bulletin board with at least one of the subcontractor's work crews. Display the portable bulletin board in a location and a manner that is acceptable to the RCE. Notify the RCE and all subcontractors as to the location of the portable bulletin board. On resurfacing projects, mount an additional project bulletin board in a permanent location at the asphalt plant supplying asphalt mix to the project so that it is visible and accessible at all times.

(18) SECTION 107: FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED:

Attention is directed to this Federal Legislation, which has been enacted into law. The Contractor will be responsible for carrying out all of the provisions of this legislation, which may affect this contract.

(19) SECTION 107: APPLICATION OF DAVIS-BACON AND RELATED ACTS TO INDEPENDENT TRUCK DRIVERS AND MISCELLANEOUS CONSTRUCTION ACTIVITIES:

See attached Supplemental Specification dated **June 13, 1990** on page Error! Bookmark not defined..

(20) SECTION 107: REQUIREMENTS FOR FEDERAL AID CONTRACTS WHICH AFFECT SUBCONTRACTORS, DBE HAULERS, MATERIAL SUPPLIERS AND VENDORS:

See attached Supplemental Specification dated **July 1, 2021**.

(21) SECTION 107: CARGO PREFERENCE ACT REQUIREMENTS:

(a) Use of United States-flag vessels – General Provisions:

"(1) Pursuant to Pub. L. 664 (43 U.S.C. 1241(b)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.

"(2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the

SPECIAL PROVISIONS

Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590."

(b) Use of United States-flag vessels - The Contractor agrees:

"(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

"(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

"(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."

(22) SECTION 107: IRAN DIVESTMENT ACT:

By submission of this bid/proposal, the bidder/proposer as the prime contractor/consultant/vendor does hereby certify his compliance to the following:

1. CERTIFICATION: (a) The Iran Divestment Act List is a list published pursuant to Section 11-57-310 that identifies persons engaged in investment activities in Iran. Section 11-57-310 requires the government to provide a person ninety days (90) written notice before he is included on the list. The following representation, which is required by Section 11-57-330(A), is a material inducement for the SCDOT to award a contract to you. (b) By signing your Offer, you certify that, as of the date you sign, you are not on the then-current version of the Iran Divestment Act List. (c) You must notify the SCDOT immediately if, at any time before posting of a final statement of award, you are added to the Iran Divestment Act List.

2. ONGOING OBLIGATIONS: (a) You must notify SCDOT immediately if, at any time during the contract term, you are added to the Iran Divestment Act List. (b) Consistent with Section 11-57-330(B), you shall not contract with any person to perform a part of the Work, if, at the time you enter into the subcontract, that person is on the then-current version of the Iran Divestment Act List.

3. OPTION TO RENEW RESTRICTION: Contractor acknowledges that, unless excused by Section 11-57-320, if the Contractor is on the then-current Iran Divestment Act List as of the date of any contract renewal, the renewal will be void ab initio.

(23) SECTION 107: LATE DISCOVERY OF ARCHAEOLOGICAL/HISTORICAL REMAINS ON FEDERAL AID PROJECTS AND APPROVAL OF DESIGNATED BORROW PITS:

See attached Supplemental Specification dated **August 7, 1991**.

If archaeological materials are encountered during construction, the procedures codified at 36 CFR 800.13(b) will apply and the SC Department of Archives and History and the EDA shall be contacted immediately. Archaeological materials consist of any Items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials.

(24) SECTION 107: CRANE SAFETY:

SPECIAL PROVISIONS

See attached Supplemental Specification dated August 1, 2013.

- (25) **SECTION 107: REQUIRED MEDIA NOTIFICATION FOR CONSTRUCTION PROJECTS:**
Contractors are encouraged to co-operate with the news media since all projects are constructed with public funds. Because the scope of this project will cause disruption of normal traffic flow, the Contractor is required to notify the public, in a timely manner, of disruptive activities such as lane closures.
- The Contractor is required to utilize area media to accomplish public notification of traffic disruptions.
- The Contractor is required to deal directly with the news media and all reasonable efforts should be made to co-operate with the media. However, the safety, security and construction schedule on site should not be disrupted in order to accomplish this.
- (26) **SECTION 107: CONTRACT PROVISION TO REQUIRE CERTIFICATION AND COMPLIANCE CONCERNING ILLEGAL ALIENS**
By submission of this bid, the bidder as the prime Contractor does hereby agree:
- a. to certify its compliance with the requirements of Chapter 14 of Title 8 of the S.C. Code of Laws regarding Unauthorized Aliens and Public Employment;
 - b. to provide SCDOT with any documents required to establish such compliance upon request; and
 - c. to register and participate and require agreement from subcontractors and sub-subcontractors to register and participate in the federal work authorization program to verify the employment authorization of all new employees, or to employ only workers who supply the documents required pursuant to S.C. Code 8-14-20(B)(2).
- (27) **SECTION 208: FINE GRADING:**
See attached Supplemental Specification Dated **January 4, 2012**.
- (28) **SECTION 305: MAINTENANCE STONE:**
Maintenance Stone used on this project shall conform to the gradation requirements of Section 305, or to the gradation specified for Aggregate No. CR-14 in the Standard Specifications.
- (29) **DIVISION 600: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES:**
The Contractor is advised that all work involving design or installation of traffic control devices, including but not limited to signs, pavement markings, elements of work zone traffic control, signals, etc., shall be in compliance with the FHWA's Manual on Uniform Traffic Control Devices (MUTCD), latest edition. The latest edition is defined as the edition that the Traffic Engineering Division of SCDOT recognizes as having been officially adopted (Engineering Directive, Memorandum 19) at the time the project is let, unless stated otherwise in the Special Provisions.
- (30) **DIVISION 600: TRAFFIC CONTROL:**
See attached Supplemental Specification dated **July 1, 2019**.
- (31) **SECTION 602: GENERAL REQUIREMENTS FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL DEVICES IN THE WORK ZONE:**
Delete **Section 602.1.11**.
- (32) **SECTION 602: PERMANENT CONSTRUCTION SIGNS:**
Utility locations must be performed prior to the placement of Permanent Construction Signs. State Law requires that the location of each sign be marked with a white line in the roadway or a stake in the shoulder. The locator company will mark 25 feet on either side of the location. The responsibility for marking the sign locations prior to the Contractor calling PUPS for utility locate lies with the party responsible for lines and grades on the project. If Construction Lines and Grades is a pay item, then the Prime Contractor is responsible for marking the sign location. If this is not included, it is the Department's responsibility to mark the locations.

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Prior to marking the sign location, care must be taken when marking the signs to ensure that there are no obstructions or other mitigating factors that will cause the sign to be moved outside of the 50 foot utility window. Any costs associated with staking out the sign locations are considered incidental to the cost of Permanent Construction Signs.

Requests for utility locates must be specific and isolated to the sign locations if no ground disturbing activities are occurring outside of the sign placement.

(33) SECTION 610: WORK ZONE TRAFFIC CONTROL PROCEDURES:

The first sentence of Section 610.3 of the 2007 Standard Specifications is hereby revised to:

“Ensure that background color of personal protective apparel is either fluorescent Yellow-Green or fluorescent Orange-Red, and meets ANSI Standard 107-2004 National Standard for High Visibility Apparel Class 2 (or Class 3 as necessary) Performance Criteria, or latest edition.”

Note #12 of Standard Drawing 610-005-00 is hereby revised to:

“During nighttime flagging operations, flaggers shall wear a Safety Vest and Safety Pants meeting ANSI Standard 107-2004 National Standard for High Visibility Apparel Class 3 Performance Criteria, or Latest Edition, and a Hardhat. The color of the apparel background material shall be either fluorescent Yellow-Green or fluorescent Orange-Red.”

(34) SECTION 815: EROSION CONTROL MEASURES:

See attached Supplemental Specification dated **January 1, 2020**.

(35) EXCAVATED MATERIALS

No excavated material shall be placed within areas of mapped 100-year or 500-year floodplain.

(36) PROMPT PAYMENT CLAUSE:

See attached Supplemental Specification Dated **June 14 2000**.

Paragraph 2 of the Supplemental Specification shall be updated as below.

“The Contractor may withhold as retainage up to **ten (10%)** percent of a subcontractor’s payment until satisfactory completion of all work items of the subcontract. “Satisfactorily completion of all work items of the subcontract” shall mean when the SCDOT pays the Contractor for the last work item of the subcontract. The Contractor must release to the subcontractor any retainage withheld within seven (7) calendar days from the date the Contractor receives payment from SCDOT for the last work item of the subcontract”

(37) EDA REQUIRED SPECIFICATION DOCUMENTS

See attached Appendix A. There shall be no additional compensation for these requirements.

(38) CSX DESIGN & CONSTRUCTION STANDARD SPECIFICATIONS FOR PIPELINE OCCUPANCIES

See attached Appendix B. There shall be no additional compensation for these requirements.

A. Construction shall be in accordance to the CSX Design & Construction Standard Specifications for Pipeline Occupancies, last revised June 5, 2018 or latest revision, under the Construction Requirements section.

B. All work on or near CSX property shall be conducted in accordance with CSX safety rules and regulations. Specifically all Agency’s employees and Contractors, while on CSX property, shall be required to wear a hard hat, safety glasses with side shields, 6” lace up boots with a distinct heel, shirts with sleeves, and long pants; additional personal protective equipment may be required based on certain operations. The Contractor and its employees shall comply with the CSX safety rules at

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all times while occupying CSX's property. Operations will be subject to CSX inspection at any and all times. All personnel operating equipment must be qualified on such equipment to perform task at hand.

C. For the installation of temporary or permanent shoring systems, including but not limited to soldier piles and lagging, and interlocked steel sheeting on or adjacent to CSX's right-of-way, the Contractor may be required to submit a detailed track monitoring program for CSX's approval prior to performing any work near CSX's right-of-way. Please refer to CSX Transportation, Construction Submission Criteria for additional information.

D. When water is known or expected to be encountered all plans and specifications must be submitted to the Engineer for approval before the process begins. Pumps of sufficient capacity to handle the flow shall be maintained at the site, provided the Contractor has received approval from CSX to operate them. Pumps in operation shall be constantly attended on a 24-hour basis until, in the sole judgment of CSX, the operation can be safely halted. When dewatering, a process for monitoring for any settlement of track or structures must be in place.

E. If any track movement has occurred as determined by the Engineer, CSX will be immediately notified. CSX, at its sole discretion, shall have the right to immediately require all Contractor operations to be ceased, have the excavated area immediately backfilled and/or determine what corrective action is required. Any corrective action required by CSX or performed by CSX including the monitoring of corrective action of the Contractor will be at project expense.

F. Installation by the open cut method is not approved under CSX's mainline tracks, tracks carrying heavy tonnage or tracks carrying passenger trains. Also, open cut shall not be used within the limits of a highway/railroad grade crossing or its approaches, 25 feet (25'-0") either side of traveled way, where possible.

(39) SCDOT ENCROACHMENT PERMIT

See attached Appendix C. All work shall be completed in accordance with permit requirements at no additional compensation.

(40) SCDHEC NPDES AND CZC DETERMINATION

See attached Appendix D. All work shall be completed in accordance with permit requirements at no additional compensation.

(41) USACE NATIONWIDE PERMIT

See attached Appendix E. All work shall be completed in accordance with permit requirements at no additional compensation.

(42) GEORGETOWN COUNTY LAND DISTURBANCE PERMIT

See attached Appendix F. All work shall be completed in accordance with permit requirements at no additional compensation.

(43) GEOTECHNICAL EXPLORATION REPORTS

See attached Appendix G. Geotechnical Exploration Reports are provided for information.

(44) PROJECT EASEMENT EXHIBITS

See attached Appendix H.

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(45) MEASUREMENT AND PAYMENT OF SPECIAL PAY ITEM NUMBERS S000001 – S000021

A. SCOPE

- a. This provision establishes the basis for measurement and payment for the special pay items listed above.
- b. All other standard SCDOT pay items shall be measured and paid for in accordance with SCDOT Standard Specifications.

B. GENERAL

- a. The Bid Price shall constitute full compensation for performing each item of work including providing the products, all activities and incidentals required for the installation and completion of each item in accordance with the Contract Drawings, Specifications, and requirements.
- b. In addition to those items indicated and identified as a separate Bid Item to be measured and paid for as an individual and independent item of work, the Bid Price for each item shall be full compensation for the following activities: Project Management and Coordination, Meetings, Documentation, Record Keeping and Reporting, Furnishing and installing all materials and equipment, including excavation, hauling, spoiling of native soils onsite, disposal of surplus excavation or material, backfill, compaction, proof-rolling, material testing, landfill tipping fees, dust control, all necessary shoring, bracing, supports and protective devices, bracing of existing or new utilities and storm pipes in trench excavations, dewatering and associated measurement, soils and media management, handling water flows, protection of or removing and replacing base and pavement, property corners, signs, fences, landscaping, lawns, trees, shrubs, protection of above and below ground utility lines and appurtenances, temporary utility services (water, electrical, sewer, etc.) needed for construction, provisions needed for any hold points and witnessing of work by the Owner or Engineer, coordination with utility agencies for utility relocations and other project requirements, governmental agencies including, the Owner and the Owner's consultants, maintenance of drives and streets, site clean-up, and addressing and completing punch list items, and completion of final close-out processes incidental to the work specified in the Contract Documents.

C. REJECTED, EXCESS, AND WASTED MATERIAL

- a. The following quantities will not be included for payment:
 - i. Quantities of material wasted or disposed of in a manner not called for under the Contract Documents or as a consequence of the construction method used to perform the Work.
 - ii. Rejected loads of material, including material rejected after it has been placed by reasons of the failure of the Contractor to comply with the provisions of the Contract.
 - iii. Material not unloaded from the transporting vehicle.
 - iv. Material not incorporated into the final Work.
 - v. Material remaining on hand after completion of the Work.

D. PAYMENT

- a. Unit Price Basis
 - i. The summary of estimated quantities for special pay items identifies and indicates units of measurement for unit price items of Work. Payment for such

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items shall be made by multiplying unit quantities of each item of Work by the unit price bid for the item of work satisfactorily completed, accepted by the Owner and not otherwise included with work covered under a separate pay item.

b. Lump Sum Basis

- i. The summary of estimated quantities for special pay items identifies and indicates those items of work which are measured on a lump sum (LS) basis. Unless otherwise indicated, requests for payment for lump sum items shall be prepared by the Contractor and accepted by the Owner upon demonstration of such request being in accordance with an approved and accepted schedule of values providing a well-balanced and detailed apportionment of the lump sum price for the item of work satisfactorily completed, accepted by the Owner, and not otherwise included with work covered under a separate bid item.

E. QUANTITIES

a. Estimated Quantities

- i. All estimated quantities for special pay items stipulated in the Summary of Estimated Quantities are approximate and are to be used only (A) as a basis for estimating the probable cost of the Work and (B) for the purpose of comparing the Bids submitted for the Work. The actual amounts of Work done, and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials associated with the special pay items will be the actual amount of work done and materials furnished as approved by the Owner. Contractor agrees that it will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts thereof.

b. Excavation and Trenching

- i. Except where otherwise specified, the unit or lump sum price bid for each special pay item which involves excavation or trenching shall include all costs for such Work. No separate payment shall be made for excavation or trenching. All trenching shall be unclassified as to materials which may be encountered, and trenches shall be unclassified as to depth. All excavation work required for structures shall be unclassified as to materials which may be encountered; such excavation work shall be considered to be subsidiary obligation of the Contractor and the cost of such excavation shall be included in the prices bid for the structures.

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F. Measurement and payment descriptions for Special Pay Items

a. Item No. S000001 Clearing Ditches

- i. The Unit Price bid for item no. S000001 Clearing Ditches shall include, but not be limited to, furnishing all labor, equipment, materials, and incidentals necessary to clear the ditches identified on the plans of vegetative material, woody debris, or other organic material. The Contractor shall also include the costs associated with removal and offsite disposal of such materials in accordance with laws and regulations. No grubbing or removal of surface material below 4-inches above the ground shall be permitted.
- ii. The method of measurement shall be linear footage of ditch cleared and accepted.
- iii. Payment will be for each linear foot of ditch cleared and accepted.

b. Item No. S000002 6" Steel Natural Gas Vertical Offset (N. ROW of Gapway Rd.)

- i. The Lump Sum bid for item no. S000002 6" Steel Natural Gas Vertical Offset (N. ROW of Gapway Rd.) shall, include the costs of all labor, materials and equipment as necessary to install a vertical offset of the 6" steel natural gas main located on the northern right-of-way of Gapway Rd, as specified by Dominion Energy and directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal, and disposal of existing gas piping incidental to the construction of the vertical offset, required bedding, welding, safety procedures, and all other work incidental to the installation of the vertical offset.
- ii. For the purposes of bid preparation, the Contractor should assume that the relocation will encompass approximately thirty (30) linear feet of 6" steel natural gas pipe, four (4) 6" 45-degree bends, and that all piping and fittings will need to be welded, and that installation will need to be performed by a Dominion Energy Approved Contractor in accordance with Dominion Energy specifications/requirements.
- iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.

c. Item No. S000003 2" Steel (Assumed) Natural Gas Vertical Offset (N. ROW of US521)

- i. The Lump Sum bid for item no. S000003 2" Steel (Assumed) Natural Gas Vertical Offset (N. ROW of Gapway Rd.) shall include the costs of all labor, materials (piping, fittings, consumables) and equipment as necessary to install a vertical offset of the 2" steel natural gas main located on the northern right-of-way of US521, as specified by Dominion Energy and directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal and disposal of existing gas piping incidental to the construction of the vertical offset, required pipe bedding, backfill, compaction, welding, safety procedures, and all other work incidental to the installation of the vertical offset.
- ii. For the purposes of bid preparation, the Contractor should assume that the relocation will encompass approximately thirty (30) linear feet of 2" steel natural gas pipe, four (4) 2" 45-degree bends, and that all piping and fittings will need to

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welded and that installation will need to be performed by a Dominion Energy Approved Contractor in accordance with Dominion Energy specifications/requirements.

- iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.

- d. Item No. S000004 16" DIP Sewer Force Main Vertical Offset (N. ROW of Gapway Rd.)
 - i. The Lump Sum bid for item no. S000004 16" DIP Sewer Force Main Vertical Offset (N ROW of Gapway Rd.) shall include the costs of all labor, materials (16" restrained joint DIP piping, polywrap, 16" restrained joint fittings, 16" restrained joint sleeves, and installation of joint restraint on existing piping as required, etc.) and equipment as necessary to install a vertical offset of the 16" DIP sewer force main located on the northern right-of-way of Gapway Rd, as directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of bypass pumping, saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal and disposal of exiting force main piping incidental to the construction of the vertical offset, required pipe bedding, backfill, compaction, and all other work incidental to the installation of the vertical offset.

 - ii. For the purposes of bid preparation, the Contractor should assume thirty (30) linear feet of polywrap encased 16" DIP, four (4) 16" restrained joint 45-degree bends, two 16" restrained joint solid sleeves, and the addition of joint restraint to the existing force main a minimum of 40 feet or two joints on either side of the last 45 degree bend in the vertical offset, and twenty-one days of bypass pumping.

 - iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.

- e. Item No. S000005 12" PVC Gravity Sewer Main Replacement with C900 PVC (N. ROW of Gapway Rd.)
 - i. The Lump Sum bid for item no. S000005 12" PVC Gravity Sewer Main Replacement with C900 PVC (N ROW of Gapway Rd.) shall include the costs of all labor, materials (12" C900 PVC sewer pipe, sleeves and adaptor fittings, etc.) and equipment as necessary to install A joint of 12" C900 PVC centered on the proposed culvert crossing, in the existing sewer gravity main located on the northern right-of-way of Gapway Rd, as directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of bypass pumping, saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal and disposal of exiting gravity main piping incidental to the installation of the 12" C900 PVC, required pipe bedding, backfill, compaction, and all other work incidental to the installation of the proposed 12" C900 PVC piping.

 - ii. For the purposes of bid preparation, the Contractor should assume that a single joint of 12" C900 PVC pipe (~20 LF) will need to be cut into the existing 12" piping, two adaptors (sleeves for PVC or DIP and/or transition couplings for clay pipe) will be required to connect the new piping to the existing gravity main, and that seven days of bypass pumping will be required to complete the installation.

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- iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.

- f. Item No. S000006 12" PVC Gravity Sewer Horizontal Offset (S. ROW of Gapway Rd.)
 - i. The Lump Sum bid for item no. S000006 12" PVC Gravity Sewer Horizontal Offset (S. ROW of Gapway Rd.) shall include the costs of all labor, materials, (12" PVC, cut-in manholes, manholes, sleeves and adaptor fittings, etc.) and equipment as necessary to install a horizontal offset of the existing 12" Gravity sewer main located on the southern right-of-way of Gapway Rd, as directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of bypass pumping, saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal and disposal of existing gravity main piping in conflict with the proposed stormwater culverts, required pipe bedding, backfill, compaction, and all other work incidental to the installation of the proposed 12" PVC Gravity Sewer Horizontal Offset.
 - ii. For the purposes of bid preparation, the Contractor should assume the installation of 100 linear feet of 12" C900 PVC gravity sewer piping, two cut-in manholes and associated sleeves or adaptor fittings, two standard manholes, and that seven days of bypass pumping will be required to complete the horizontal offset of the 12" sewer gravity main.
 - iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.

- g. Item No. S000007 8" PVC (Assumed) Gravity Sewer Horizontal Offset (N. ROW of Old Cemetery Rd.)
 - i. The Lump Sum bid for item no. S000007 8" PVC (Assumed) Gravity Sewer Horizontal Offset (N. ROW of Old Cemetery Rd.) shall include the costs of all labor, materials, (8" PVC, cut-in manholes, manholes, sleeves and adaptor fittings, etc.) and equipment as necessary to install a horizontal offset of the existing 8" (Assumed) Gravity sewer main located on the northern right-of-way of Old Cemetery Rd, as directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of bypass pumping, saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal and disposal of existing gravity main piping in conflict with the proposed stormwater culverts, required pipe bedding, backfill, compaction, and all other work incidental to the installation of the proposed 8" PVC (Assumed) Gravity Sewer Horizontal Offset.
 - ii. For the purposes of bid preparation, the Contractor should assume the installation of 75 linear feet of 8" C900 PVC gravity sewer piping, two cut-in manholes and associated sleeves or adaptor fittings, two standard manholes, and that seven days of bypass pumping will be required to complete the horizontal offset of the 8" sewer gravity main.
 - iii. Payment, at the Lump Sum Bid, shall be for full compensation for Work satisfactorily installed and completed.

- h. Item No. S000008 8" PVC (Assumed) Gravity Sewer Horizontal Offset (S. ROW of Old Cemetery Rd.)
 - i. The Lump Sum bid for item no. S000008 8" PVC (Assumed) Gravity Sewer Horizontal Offset (N. ROW of Old Cemetery Rd.) shall include the costs of all

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- labor, materials, (8" PVC, cut-in manholes, manholes, sleeves and adaptor fittings, etc.) and equipment as necessary to install a horizontal offset of the existing 8" (Assumed) Gravity sewer main located on the southern right-of-way of Old Cemetery Rd, as directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of bypass pumping, saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal and disposal of existing gravity main piping in conflict with the proposed stormwater culverts, required pipe bedding, backfill, compaction, and all other work incidental to the installation of the proposed 8" PVC (Assumed) Gravity Sewer Horizontal Offset.
- ii. For the purposes of bid preparation, the Contractor should assume the installation of 90 linear feet of 8" C900 PVC gravity sewer piping, two cut-in manholes and associated sleeves or adaptor fittings, two standard manholes, and that seven days of bypass pumping will be required to complete the horizontal offset of the 8" sewer gravity main.
 - iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.
- i. Item No. S000009 8" PVC (Assumed) Gravity Sewer Horizontal Offset (S. ROW of US521)
- i. The Lump Sum bid for item no. S000009 8" PVC (Assumed) Gravity Sewer Horizontal Offset (S. ROW of US521.) shall include the costs of all labor, materials, (8" PVC, cut-in manholes, manholes, sleeves and adaptor fittings, etc.) and equipment as necessary to install a horizontal offset of the existing 8" (Assumed) Gravity sewer main located on the southern right-of-way of US521, as directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of bypass pumping, saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal and disposal of existing gravity main piping in conflict with the proposed stormwater culverts, required pipe bedding, backfill, compaction, and all other work incidental to the installation of the proposed 8" PVC (Assumed) Gravity Sewer Horizontal Offset.
 - ii. For the purposes of bid preparation, the Contractor should assume the installation of 90 linear feet of 8" C900 PVC gravity sewer piping, two cut-in manholes and associated sleeves or adaptor fittings, two standard manholes, and that seven days of bypass pumping will be required to complete the horizontal offset of the 8" sewer gravity main.
 - iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.
- j. Item No. S000010 UGT (Underground Telecommunications) Relocation Coordination (S. ROW of Old Cemetery Rd.)
- i. The Lump Sum bid for item no. S000010 UGT Relocation Coordination (S. ROW of Old Cemetery Rd.) shall include the costs of Contractor coordination with the utility owner to facilitate the relocation of the underground telecommunications line as directed by the Owner or Engineer following the utility coordination identified in item no. S000013.
 - ii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.

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- k. Item No. S000011 10" DIP (Assumed) Domestic Water Vertical Offset (N. ROW of Gapway Rd.)
 - i. The Lump Sum bid for item no. S000011 10" DIP (Assumed) Domestic Water Vertical Offset (N. ROW of Gapway Rd) shall include the costs of all labor, materials (10" restrained joint DIP piping, polywrap, 10" restrained joint fittings, 10" restrained joint sleeves, and installation of joint restraint on existing piping as required, etc.) and equipment as necessary to install a vertical offset of the 10" DIP domestic water main located on the northern right-of-way of Gapway Rd, as directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal and disposal of water main piping incidental to the construction of the vertical offset, required pipe bedding, backfill, compaction, and all other work incidental to the installation of the vertical offset.
 - ii. For the purposes of bid preparation, the Contractor should assume one-hundred and ten (110) linear feet of 10" DIP, four (4) 10" restrained joint 45-degree bends, two 10" restrained joint solid sleeves, and the addition of joint restraint to the existing force main a minimum of 25 feet or two joints on either side of the last 45-degree bend in the vertical offset.
 - iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.
- l. Item No. S000012 10" DIP (Assumed) Domestic Water Vertical Offset (N. ROW of US521)
 - i. The Lump Sum bid for item no. S000012 10" DIP (Assumed) Domestic Water Vertical Offset (N. ROW of US521) shall include the costs of all labor, materials (10" restrained joint DIP piping, polywrap, 10" restrained joint fittings, 10" restrained joint sleeves, and installation of joint restraint on existing piping as required, etc.) and equipment as necessary to install a vertical offset of the 10" DIP domestic water main located on the northern right-of-way of US521 as directed by the Owner or Engineer following the utility coordination identified in item no. S000013. The Contractor shall also include the costs of saw-cutting and removal of existing asphalt or other hardscape, trench excavation, disposal of excess excavated material offsite, sheeting, shoring and bracing, bracing for shallower utilities, dewatering, removal and disposal of water main piping incidental to the construction of the vertical offset, required pipe bedding, backfill, compaction, and all other work incidental to the installation of the vertical offset.
 - ii. For the purposes of bid preparation, the Contractor should assume fifty (50) linear feet of 10" DIP, four (4) 10" restrained joint 45-degree bends, two 10" restrained joint solid sleeves, and the addition of joint restraint to the existing force main a minimum of 25 feet or two joints on either side of the last 45-degree bend in the vertical offset.
 - iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.
- m. Item No. S000013 Utility Coordination
 - i. The Lump Sum bid for item no. S000013 Utility Coordination shall include the cost of all labor materials and equipment necessary to coordinate the relocation of utilities in conflict with the proposed work. Such coordination shall include all required correspondence and submittals with the utility owner(s), quality level A subsurface utility engineering (QL-A SUE), and any work incidental to the QL-A SUE, to accurately locate (both horizontally and vertically) such utilities to confirm

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- any conflict with the proposed work, and any coordination with the Owner or Engineer to determine the Owner's preferred method of alleviating identified conflicts.
- ii. For the purposes of bid preparation, the Contractor should assume that a minimum of twelve (12) utilities will need to be located by QL-A SUE methods.
 - iii. Payment at the Lump Sum Price bid, shall be for full compensation for Work satisfactorily installed and completed.
- n. Item No. S000014 5'x4' Precast Double Box Culvert
- i. The Unit Price bid for item no. S000014 5'x4' Precast Double Box Culvert shall include all items identified in Section 722 of SCDOT Standard Specifications.
 - ii. Measurement shall be in accordance with Section 722.5 of SCDOT Standard Specifications.
 - iii. Payment shall be in accordance with Section 722.6 of SCDOT Standard Specifications.
- o. Item No. S000015 7'x6' Precast Box Culvert
- i. The Unit Price bid for item no. S000015 7'x6' Precast Box Culvert shall include all items identified in Section 722 of SCDOT Standard Specifications.
 - ii. Measurement shall be in accordance with Section 722.5 of SCDOT Standard Specifications.
 - iii. Payment shall be in accordance with Section 722.6 of SCDOT Standard Specifications.
- p. Item No. S000016 6'x3' Precast Double Culvert
- i. The Unit Price bid for item no. S000016 6'x3' Precast Double Culvert shall include all items identified in Section 722 of SCDOT Standard Specifications.
 - ii. Measurement shall be in accordance with Section 722.5 of SCDOT Standard Specifications.
 - iii. Payment shall be in accordance with Section 722.6 of SCDOT Standard Specifications.
- q. Item No. S000017 6'x3' Precast Double Headwalls/Wingwalls
- i. The Unit Price bid for item no. S000017 6'x3' Precast Double Headwalls/Wingwalls, shall include all items identified in Sections 719.2.9, 719.3, and 719.4 of SCDOT Standard Specifications.
 - ii. Measurement shall be in accordance with Section 719.5 of SCDOT Standard Specifications.
 - iii. Payment shall be in accordance with Section 719.5 of SCDOT Standard Specifications.
- r. Item No. S000018 7'x3' Precast Culvert
- i. The Unit Price bid for item no. S000018 7'x3' Precast Culvert shall include all items identified in Section 722 of SCDOT Standard Specifications.

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- ii. Measurement shall be in accordance with Section 722.5 of SCDOT Standard Specifications.
- iii. Payment shall be in accordance with Section 722.6 of SCDOT Standard Specifications.
- s. Item No. S000019 7'x3' Precast Culvert Headwalls/Wingwalls
 - i. The Unit Price bid for item no. S000019 7'x3' Precast Double Headwalls/Wingwalls, shall include all items identified in Sections 719.2.9, 719.3, and 719.4 of SCDOT Standard Specifications.
 - ii. Measurement shall be in accordance with Section 719.5 of SCDOT Standard Specifications.
 - iii. Payment shall be in accordance with Section 719.5 of SCDOT Standard Specifications.
- t. Item No. S000020 5' Clearing Adjacent to Ditch Bank
 - i. The Unit Price bid for item no. S000020 5' Clearing Adjacent to Ditch Banks shall include, but not be limited to, furnishing all labor, equipment, materials, and incidentals necessary to clear areas adjacent to ditch banks as identified on the plans. All vegetative material, woody debris, or other organic material above 4-inches from the ground and within a minimum distance of ditch banks shall be removed. The methods for removal shall be determined by the Contractor (hand clearing, mowing, mulching, etc.). The Contractor shall also include the costs associated with removal and offsite disposal of such materials in accordance with laws and regulations. No grubbing or removal of surface vegetation shorter than 4-inches above the ground shall be permitted.
 - ii. The method of measurement shall be linear footage, as measured along the top of bank, of ditch bank cleared and accepted.
 - iii. Payment will be for each linear foot of ditch bank cleared and accepted.
- u. Item No. S000021 Removal & Disposal of Deleterious Items
 - i. The Unit Price bid for item no. S000021 Removal and Disposal of Deleterious Items shall include, but not be limited to, furnishing all labor, equipment, materials, and incidentals necessary to clear the ditches identified on the plans of inorganic, man-made debris. A partial list of such debris includes, but is not limited to, construction materials, furniture, plastics, shopping carts, tires, etc. The Contractor shall also include the costs associated with removal and offsite disposal of such debris in accordance with laws and regulations.
 - ii. The method of measurement shall be Tons debris removed and accepted as evidenced by lift tickets from a permitted disposal site.
 - iii. Payment will be for each Ton of debris removed and accepted.

(46) UTILITY RELOCATION REQUIREMENTS

All utility relocations required as a part of this project shall be performed in accordance with the design standards of the utility owner. This shall include material specifications and types for piping, manholes, or other utility components and appurtenant parts, and any design submittals and approvals that may be required by the utility owner as a part of the relocation. Utility contact information is included on the Drawings for reference by the Contractor.

January 1, 2018

ERRATA TO 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

Make the changes listed below to correct errata in the SCDOT *2007 Standard Specifications for Highway Construction*:

DIVISION 100 GENERAL PROVISIONS

SECTION 101 DEFINITIONS AND TERMS

Subsection 101.2 Abbreviations and Acronyms

Amend the table of **SCDOT OFFICIALS AND OFFICES** as follows:

DELETIONS		REPLACEMENTS	
BDE*	Bridge Design Engineer	PSE*	Preconstruction Support Engineer
BDGE*	Bridge Design Geotechnical Engineer	GDSE*	Geotechnical Design Support Engineer
SHE*	State Highway Engineer	DSE*	Deputy Secretary for Engineering

*Wherever it appears in the text, replace the deleted abbreviation with the new abbreviation.

SECTION 102 BIDDING REQUIREMENTS AND CONDITIONS

Subsection 102.8 Irregular Bids

Paragraph 2, item E, first sentence; delete the word "the" after the word "When".

SECTION 105 CONTROL OF WORK

Subsection 105.6 Cooperation with Utilities

Paragraph 1, last sentence; change the word "THE" to "the".

DIVISION 200 EARTHWORK

SECTION 202 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Subsection 202.5 Measurement

Paragraph 5, second bullet; change the words "Brick sidewalk" to "Concrete, brick or stone sidewalks".

SECTION 204 STRUCTURE EXCAVATION

Subsection 204.2.1.2 Structure Excavation for Culverts

Paragraph 1, at the end of the first sentence; change "**Subsection 204.4**" to "**Subsection 204.5**".

DIVISION 400 ASPHALT PAVEMENTS

SECTION 401 HOT MIXED ASPHALT (HMA) PAVEMENT

Subsection 401.2.1.2 Liquid Anti-Stripping Agent

Paragraph 1, first sentence; delete the period at the end of the sentence and add "and SC-M-406."

Subsection 401.2.5 Material for Full Depth Patching

Paragraph 1, delete and replace with the following:

"Use an approved SCDOT Intermediate Type C mix for all Full Depth Patching."

SUPPLEMENTAL SPECIFICATIONS

Subsection 401.5 Measurement

After paragraph 10, add the following paragraph:

- 11 The measurement of Prime Coat is the number of gallons of asphalt material applied to the completed and accepted base course.

Subsection 401.6 Payment

After paragraph 12, add the following paragraph:

- 13 "The payment for Prime Coat is at the contract unit price for Prime Coat and includes compensation for all labor, equipment, tools, maintenance, and incidentals necessary to complete that work."

Subsection 401.6 Payment

Paragraph 13, **Table of Pay Items**

Change paragraph reference number "13" to "14" and add the following Pay Item:

Item No.	Pay Item	Unit
4010005	Prime Coat	GAL

SECTION 403 HMA SURFACE COURSE

Subsection 403.5 Measurement

Paragraph 1, first sentence; change "HMA Intermediate Course" to "HMA Surface Course".

Subsection 403.6 Payment

Paragraph 1, first sentence; change "HMA Intermediate Course" to "HMA Surface Course".

SECTION 407 ASPHALT SURFACE TREATMENT – DOUBLE TREATMENT

Subsection 407.5 Measurement

Paragraph 1, first sentence; add the word "is" after "(Double Treatment Type (1, 2, 3, 4, or 5))".

SECTION 408 ASPHALT SURFACE TREATMENT – TRIPLE TREATMENT

Subsection 408.5 Measurement

Paragraph 1, first sentence; add the word "is" after "(Triple Treatment Type (1 or 2))".

DIVISION 600 MAINTENANCE AND TRAFFIC CONTROL

**SECTION 625 PERMANENT PAVEMENT MARKINGS
FAST DRY WATERBOURNE PAINT**

Subsection 625.2.2.4.11 Lead Content

Paragraph 1, first sentence; change 6% to 0.06%.

SECTION 627 THERMOPLASTIC PAVEMENT MARKINGS

Subsection 627.4.10 Inspection and Acceptance of Work

Paragraph 2, first sentence; change "period of 90 days" to "period of 180 days".

Subsection 627.4.10 Inspection and Acceptance of Work

Paragraph 2, second sentence; change "90-day observation period" to "180-day observation period".

Subsection 627.4.10 Inspection and Acceptance of Work

Paragraph 3, first sentence; change "90-day period" to "180-day period".

DIVISION 700 STRUCTURES**SECTION 709 STRUCTURAL STEEL****Subsection 709.4.3.5.2 Submittals and Notification**

Paragraph 1, delete the last two sentences and replace them with, "The Department's review and acceptance are required before any field welding will be permitted."

Subsection 709.6.3 Pay Items (page 650)

Subsection heading number; change subsection heading number from "709.6.3" to "709.6.4".

SECTION 712 DRILLED SHAFTS AND DRILLED PILE FOUNDATIONS**Subsection 712.4.4 Dry Construction Method**

Paragraph 2, last sentence in A; change "*Drilled Shaft Report*" to "*Drilled Shaft Log*".

Subsection 712.4.10.4 Excavation Cleanliness

Paragraph 1, last sentence; change "*Drilled Shaft Report*" to "*Drilled Shaft Log*".

Subsection 712.4.10.6 Shaft Load Test

Change first paragraph reference number from "2" to "1".

Subsection 712.6.10 Drilled Pile Set-Up

Insert paragraph reference number "1" to the left of the first paragraph.

SECTION 723 DECK JOINT STRIP SEAL**Subsection 723.1 Description**

Insert paragraph reference number "3" to the left of the third paragraph.

SECTION 726 BRIDGE DECK REHABILITATION**Subsection 726.4.1 General**

Insert paragraph reference number "1" to the left of the first paragraph.

Subsection 723.4.6 Full Depth Patching (page 790)

Subsection heading number; change subsection heading number from "723.4.6" to "726.4.6"

Subsection 726.6.8 Concrete Overlay (Latex) or (Portland Cement) (page 802)

Paragraph 2, the equation is changed to $AP=CP \times (ACS/RCS) ^ 2$

SECTION 727 CROSSHOLE SONIC LOGGING OF DRILLED SHAFT FOUNDATIONS**Subsection 726.6 Payment (page 807)**

Subsection heading number; change subsection heading number from "726.6" to "727.6"

DIVISION 800 INCIDENTAL CONSTRUCTION**SECTION 805 GUARDRAIL****Subsection 805.5 Measurement**

Paragraph 4; amend as follows:

"The quantity for the pay item 8053000 Additional Length Guardrail Post is the length of required post installed in excess of the standard length post based on the system being installed, measured by the linear foot (LF), complete, and accepted."

SECTION 815 EROSION CONTROL

Subsection 815.1 Description

Paragraph 1, first sentence; change "temporary flexible pipe" to "temporary pipe".

Subsection 815.5 Measurement

Paragraph 13; delete the first sentence and replace it with the following sentence:
"The quantity for Temporary Pipe Slope Drains is measured and paid for in accordance with **Subsections 803.5** and **803.6** respectively."

Subsection 815.5 Measurement

Delete paragraph 19.

Subsection 815.6 Payment

After paragraph 15, add the following paragraph:

- 16 Payment for Removal of Silt Retained by Silt Fence is full compensation for removing and disposing of sediment deposits accumulated by silt fences as specified or directed and includes all materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

Subsection 815.6 Payment

Change original paragraph number "16" to "17".

Subsection 815.6 Payment

Pay Item table; change the Unit for Item No. 8156214 to "EA".

INDEX:

Amend as follows:

Page I-3, after "Bridge Deck Rehabilitation, measurement and payment:"

Delete page 807.

Page I-12, after "Letting:"

Replace page 19 with page 9.

Page I-13, after "Overhead Sign Structure:"

Replace page 488 with page 495.

Page I-15, after "Proof Rolling:"

Delete page 98.

Page I-18, after "Structural Steel, turned and ribbed bolts:"

Replace page 624 with page 625.

Page I-19, after "Waterproofing, bridge deck:"

Delete page 907.

Page I-20, after "Working Drawings:"

Replace page 543 with page 779.

March 20, 2003

THE SOUTH CAROLINA MINING ACT

The South Carolina Mining Act enacted by the General Assembly in 1973 requires that the Department adopt reclamation standards to govern activities of the Department and any person acting under contract with the Department, on highway rights-of-way or material pits maintained solely in connection with the construction, repair and maintenance of the public road systems in South Carolina.

**STANDARD PLAN FOR THE RECLAMATION OF EXCAVATED AREAS ADOPTED BY
THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION**

Reclamation plans as stated herein shall include all areas disturbed in excavations of borrow and material pits, except planned inundated areas.

The final side slopes of areas excavated for borrow and material pits shall be left at such an angle so as to minimize erosion and the possibility of slides. The minimum slope in every case shall be not less than 3:1.

Small pools of water that are, or are likely to become noxious, odious, or foul should not be allowed to collect or remain on the borrow pit. Suitable drainage ditches, conduits, or surface gradient shall be constructed to avoid collection of noxious, odious, or foul pools of water unless the borrow pit is to be reclaimed into a lake or pond.

Borrow pits reclaimed to a lake or pond must have an adequate supply of water to maintain a water sufficient level to maintain a minimum water depth of four (4) feet on at least fifty (50) percent of the surface area of the lake or pond.

Excavated areas will be drained where feasible unless otherwise requested by the property owner where, in such instances, the property owner may wish to develop the excavated area for recreational purposes or for the raising of fish, or for other uses, in compliance with the South Carolina Mining Act.

Where material is stripped from the ground surface in relatively thin layers, the area, after excavation has been completed, will be thoroughly scarified and terraced and planted to establish satisfactory vegetation necessary to control erosion. Vegetative cover should be established on a continuing basis to ensure soil stability appropriate to the area. Conservation practices essential for controlling both on-site and off-site erosion and siltation must be established. A minimum of seventy-five (75) percent vegetative ground cover, with no substantial bare spots, must be established and maintained into the second growing season.

Excavated areas that are drained will be seeded to obtain a satisfactory vegetative cover. The side slopes of excavated area will be planted to vegetation.

The State Highway Engineer, or his duly appointed representative, will make a final inspection of the reclaimed area and keep a permanent record of his approval thereof. A map or sketch providing the location and approximate acreage of each pit used on the project will be made available to the Final Plans Engineer.

All applicable regulations of agencies and statutes relating to the prevention and abatement of pollution shall be complied with by the contractor in the performance of the contract.

The Contractor shall comply with the provisions of the Plan which are applicable to the project as determined by the Engineer. Seeding or other work necessary to comply with the plan on pits furnished by the contractor shall be at the expense of the contractor. Bermuda shall not be planted on ground surface pit areas. The quantity of fescue seed specified in Subsection 810.04 of the Standard Specifications shall be increased by fifteen (15) pounds in lieu of the deleted bermuda seed.

November 4, 2009

AS-BUILT CONSTRUCTION PLANS

GENERAL

The Contractor shall produce and deliver to the Department the final As-Built plans for this contract. This set of As-Built plans is not intended to document final quantities, but is intended to show approved revisions to the contract design including but not limited to: revised roadway profiles and cross sections, revised typical sections, revised drainage installations, any changes to the demolition and removal items and any other changes to the original design.

If any design changes occur during construction, the plan sheets (or any other "job site record document" with a seal) revised after award of contract shall include a complete accounting and detail of the revisions and design changes. The P.E. responsible for the revisions shall seal each altered plan sheet (or any other "job site record document" with a seal). This documented information is to be part of the As-Built Plan requirements.

The As-Built plans shall be neat, legible and of the correct size. Bridge projects and any road projects which include Plan, Profile and Cross-Section Sheets shall be full size. In general, if the job was let with full size plans (22" X 36"), the As-Built shall be full size. All revisions to the original plans shall be delineated in red, located properly on the drawing, they shall be legible and true to scale. Every As-Built Plan, Profile and Cross-section Sheet shall be designated as such by note or stamp "As-Built" in black. The As-Built plans shall be bound in the same manner as they were let, not combined. In other words, if a project includes road and bridge work and each is bound separately, keep them separate for As-Built, each with its own AB201 cover sheet.

In submitting As-Built plans, the Contractor, or person responsible for the work, shall be required to complete FORM AB205 or AB206 whichever is applicable, and submit the form with the required deliverables to the RCE. The items and notes on these forms that apply to this project establish the minimum requirements for As-Built Plans. The forms can be found on the SCDOT website at <http://www.scdot.org/doing/default.html>.

Changes to the state highway system by any outside agency also need to have their plans placed in the Plans Library for future reference. This includes but is not limited to: encroachment permit projects, enhancements, procurements, inter-governmental agreements (IGA), local public agency (LPA) projects and any other agency, private or public, making changes to the existing state highway system. When AsLet plans are provided, the person or agency responsible for the work shall supply the SCDOT As-Built Plans Office in headquarters a set of As-Built plans which meet the requirements of this specification. Regardless of whether or not as-let plans are provided, when any changes are made to or within existing ROW, the as-built plans office is to be notified so the changes can be documented in the plans library. Once notified, the as-built engineer and the person responsible for the work can determine what will best represent the work performed in the field. The as-built engineer will review and forward to the Plans Storage Office for archiving.

The final As-Built plans shall be submitted within forty-five (45) days following the substantial work complete date of the project.

CRANE SAFETY

The contractor's attention is directed to the following Crane Safety criteria. All applicable items under the submittal list section shall be submitted to the Resident Construction Engineer (RCE) before any crane operations may begin. If any personnel or equipment is changed or added, all applicable items shall be updated and submitted to the RCE before continuing with crane(s) operations.

All contractors shall comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors and sub-contractors shall comply with the latest Occupational Safety and Health Administration (OSHA) regulations, adopted American National Standards Institute (ANSI) and American Society of Mechanical Engineers (ASME) crane standards, and other applicable standards including, but not limited to the following:

- OSHA 29 CFR 1926 Subpart CC "Cranes and Derricks in Construction"
- OSHA 29 CFR 1926.251 "Rigging Equipment for Material Handling"
- ASME B30.5-2007 "Mobile and Locomotive Cranes"
- ASME B30.8-2010 "Floating Cranes and Floating Derricks"
- ASME B30.22-2005 "Articulating Boom Cranes"
- ASME B30.26-2010 "Rigging Hardware"

Submittal List

1. **Crane Operators:** All crane operators shall be certified by the National Commission for the Certification of Crane Operators (NCCCO), National Center for Construction Education and Research (NCCER), or Crane Institute of America Certification (CIC).
 - a. Contractor shall submit a copy of the NCCCO, NCCER, or CIC certification for each crane operator prior to performing any crane operations on the job site. The original certification card shall be available for review upon request and must remain current within a 5 year expiration date for the duration of the job. (Contractors with a crane operator-in- training on the jobsite shall comply with all the OSHA Subpart CC requirements).
 - b. Contractor shall submit a copy of the current Crane Operators Medical Evaluation card (3 year expiration) in the form of NCCCO, NCCER or CIC Physical Examination form or equivalent meeting the ASME B30.5 requirement or a current USDOT Medical Examiner's Certificate card (2 year expiration). The original medical card or equivalent for all crane operators shall be available for review upon request.
2. **Competent Person:** The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.
 - a. Contractor shall submit the name and qualifications of the "Competent Person" as defined by OSHA Subpart CC responsible for all crane safety and lifting operations.

June 13, 1990

APPLICATION OF DAVIS-BACON AND RELATED ACTS TO INDEPENDENT TRUCK DRIVERS AND MISCELLANEOUS CONSTRUCTION ACTIVITIES

The Davis-Bacon and Related Acts apply when:

- 1) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul materials from a plant, pit, or quarry, which has been established specifically to serve (or nearly so) a particular project or projects covered by Davis-Bacon and Related Acts.
- 2) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul material from a non-commercial stockpile or non-commercial storage site outside the limits of the project to the project site.
- 3) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul excavated materials away from a Davis-Bacon covered project.
- 4) A contractor or Subcontractor rents or leases equipment with an operator to perform work as called for under a Davis-Bacon construction contract.
- 5) A common carrier is used for the transportation of materials from an exclusive material supply facility to fulfill the specific need of a construction contract.

The fleet owner is not considered a Subcontractor with regard to the 70% subcontracting limitations and would not have to be approved as a Subcontractor. However, payrolls must be submitted by truck fleet owner covering the truck drivers, and all requirements such as predetermined wages, overtime, etc., are applicable. Legitimate owner-operators (truck owner driving his own truck) must appear on the payroll by name and notation "truck Owner Operator" with no hours, etc. shown.

The Davis-Bacon and Related Acts do not apply when:

- 1) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul materials from a commercial plant, pit, or quarry which had previously been established for commercial use and regularly sell materials to the general public.
- 2) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul materials from an established commercial plant, pit, or quarry to a stockpile outside the limits of the project.
- 3) Bona fide owner-operators of trucks, who are independent contractors, use their own equipment to haul materials to or from or on a Davis-Bacon covered project. (One man-One truck)

The fleet owner is not considered a Subcontractor with regard to the 70% subcontracting limitation and would not have to be approved as a Subcontractor.

July 1, 2021

REQUIREMENTS FOR FEDERAL AID CONTRACTS WHICH AFFECT SUBCONTRACTORS, DBE HAULERS, MATERIAL SUPPLIERS AND VENDORS

- A. The Contractor's attention is directed to Form FHWA 1273 that is included in your contract documents as the Supplemental Specification "Required Contract Provisions Federal-Aid Construction Contracts". **This Specification requires that Form FHWA 1273 must be physically incorporated in all Federal Aid Construction Contracts and lower tier subcontracts.** Form FHWA 1273 must be either physically incorporated or incorporated by reference in all purchase orders.
- B. The contractor's attention is directed to the requirements of the Supplemental Specification "Standard Federal Equal Employment Opportunity Construction Contract Specifications" that is included in your contract documents. This specification must be physically included in each subcontract with a value of \$10,000 or greater.
- C. The Contractor's attention is directed to the requirements of the Equal Employment Opportunity Performance certifications in the Proposal Form Certifications and Signatures section of the contract. Subcontractors must answer the three questions in the "Certification (1)" section and the completed form must be physically included in the subcontract agreement.
- D. Prior to the issuance of approval of DBE subcontractors the Contractor must submit a signed copy of the subcontract agreement between the Prime Contractor and the DBE Subcontractor.
- E. Prior to the issuance of approval of DBE haulers the Contractor must submit a signed copy of the hauling agreement.

August 7, 1991

LATE DISCOVERY OF ARCHAEOLOGICAL/HISTORICAL REMAINS ON FEDERAL AID PROJECTS AND APPROVAL OF DESIGNATED BORROW PITS

A. Late Discovery of Archaeological/Historical Remains on Federal Aid Projects.

1. Responsibilities:

The Contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such cultural remains are encountered, the Resident Construction Engineer shall be immediately notified and all work in the vicinity of the discovered materials or site shall cease until the Department's Staff Archaeologist or the State Highway Engineer directs otherwise.

2. Applicability:

This provision covers all areas of ground disturbance resulting from this federal - aid contract, including but not limited to road construction, Department designated borrow pits, Contractor furnished borrow pits, and/or staging areas.

3. Cost Reimbursement and Time Delays:

Any extra work required by A(1) above within the project right of way or on Department designated borrow pits (see below) will be paid for in accordance with Subsection 104.05 of the Standard Specifications. Extra contract time may be provided under Subsection 108.06 of the Standard Specifications for archaeological work within the project right of way or on designated borrow pits.

NOTE: On Contractor furnished borrow pits the contractor is not entitled to any additional time or money for delay on impact resulting from A(1) above or for extra work required by A(1) above. Therefore, contractors may wish to retain professional archaeological services to better ensure that borrow pit areas are cleared of archaeological/historical remains prior to use on Federal aid projects.

B. Approval of Designated Borrow Pits on Federal Aid Projects (Plant Sites which qualify as commercial are not included).

In instances where the Department specifically designates the location of borrow pits on project plans or in contract specifications for use on a Federal aid project, an archaeological survey will be performed by Department archaeologists prior to award of contract.

This provision also applies to designated disposal sites, staging areas, haul roads, and job site field offices.

November 4, 2013

CONSTRUCTION SCHEDULES

General

This supplemental specification addresses schedule requirements for SCDOT contracts. There are three levels of schedules. The level required is included in the Special Provision. The level of schedule is selected based on the design field review completed in the preconstruction phase or during estimate development.

Level 1 – Minimal Schedule Requirement

Level 2 Schedule – Standard Critical Path Method Schedule

Level 3 Schedule – Critical Path Method Schedule with Monthly Cumulative Payment Clause.

Level 1 Requirement:

Provide to the Resident Construction Engineer (RCE) a four-week look-ahead schedule identifying planned weekly work activities. Update the schedule every two weeks. The look-ahead schedule allows the RCE to schedule construction engineering and inspection personnel. The Department will not be responsible for delays which may be caused by the contractor's failure to abide by his schedule. Failure to submit the look-ahead schedule as specified may result in the withholding of partial payment estimates.

Provide the look-ahead schedule in Word or Excel format or as directed by the RCE.

The Contractor may provide a CPM schedule as indicated in **Level 2 Schedule Requirements** in lieu of the four-week look-ahead schedule as follows:

- Notify, in writing, the RCE that a CPM schedule will be provided in lieu of a four-week look-ahead schedule. Provide timely notification so that the baseline schedule is submitted in accordance with **Level 2 Schedule Requirements - Submission, Review, and Acceptance Process – Baseline Schedule**.
- No payment will be made if the Contractor elects to provide a CPM as a Level I Requirement. **Measurement and Basis of Payment** will be according to the Level I Schedule.
- Election to provide a CPM schedule in lieu of a four-week look-ahead schedule will be for the duration of the project.

Level 2 Schedule Requirements:

For projects requiring a CPM schedule, the Contractor will provide and update a construction schedule to the SCDOT, which will be used as a quantitative basis for:

- Monitoring and evaluating the Contractor's progress in completing contracted work;
- Evaluating requests for additional contract time;
- Budgeting for construction partial payment estimates; and
- Managing SCDOT engineering and inspection personnel.

The Contractor's construction schedule shall encompass the entire contract period, and be developed consistent with the contract milestones and the contract maintenance of traffic plan. Critical path activities shall be identified for the duration of the project. The schedule shall also include sufficient information as *outlined in this supplemental specification* to provide for monetary and quantitative tracking of the work by the SCDOT.

Include and reference in the schedule at the time of occurrence, all documentation and explanations supporting a time adjustment request.

Utilities

SUPPLEMENTAL SPECIFICATIONS

The schedule shall reflect the utility relocations noted in the contract documents and discovered during field review and include activities of appropriate duration, location, and logic, as provided by the Utility, for the utility work. Where utility durations are unknown, the Contractor shall provide a reasonable estimate of duration. Utility durations will be reviewed in the baseline approval process as outlined in the section "Submission, Review, and Acceptance Process." Utility durations will be presented at the Preconstruction Conference for concurrence by the utility provider. In the event that the utility representative cannot provide concurrence at the Preconstruction Conference, the Contractor, the Resident Construction Engineer, and the utility provider shall work diligently to reach acceptable durations. If there is no concurrence or input from the utility provider concerning the Contractor's utility durations within 15 calendar days following the Preconstruction Conference, the submission with the Contractor's estimate of utility duration will be reviewed for baseline acceptance. Further utility duration changes beyond this point in time will be assessed in monthly schedule updates. Failure to include activities for any element of work or any known utility work will not relieve the Contractor from completing the work within the allotted contract time.

Schedule Submissions

Contractors shall maintain CPM schedules for all applicable projects using at a minimum Primavera Project Management 5.0 or Primavera Contractor 5.0. The Contractor shall coordinate with the Department's District Scheduler to provide an exported schedule importable into the Primavera version used by the Department.

Templates for the CPM schedules are available to download at [the](#) the SCDOT construction Extranet site located:

<https://www.scdot.org/business/constructionletting-extranet.aspx>

When submitting schedules to the SCDOT, the Contractor shall assign file names to each schedule file (baseline and updates) according to the following conventions (dates are YYMMDD):

Type of Schedule Submitted:	Baseline	Update	As-Built
File Name Convention:	[Contract ID]b[Data Date]	[Contract ID]u[Data Date]	[Contract ID]ab[Data Date]
File Name Example:	32.82571b060201	32.82571u060201	32.82571ab060201

Note on Data Dates - The initial Baseline Construction Schedule shall have a data date equal to the Award Date and not include any work to date. Monthly schedule updates shall have a data date set 1 day beyond the most recent estimate period end date.

Extranet file names upon uploading shall include the contract ID.

All submissions shall be made within the time frames defined under "Submission, Review and Acceptance Process."

Electronic Files: Upload each baseline construction schedule and monthly update submission to the SCDOT Construction Extranet site in .xer format.

The Extranet site location is:

<https://www.scdot.org/business/constructionletting-extranet.aspx>

Provide an Adobe file of each baseline construction schedule, monthly update submission, and schedule narrative to the District Scheduler and the Resident Construction Engineer. The schedule Adobe file shall include the following columns in 11 inch x 17 inch format: Activity ID, Activity Name, Start, Finish, Schedule % Complete, Physical % Complete, Budgeted Total Cost, Actual Total Cost, Remaining Total Cost, At Completion Total Cost, Original Duration, Remaining Duration, At Completion Duration, Earned Value, Planned Value, Schedule Variance Index, and Total Float. Sort on "Start" prior to printing to Adobe.

Schedule Narrative: Submit a Schedule Narrative Report with the baseline and each monthly update schedule describing current project schedule status and identifying potential delays. This report will include a description of the progress made since the previous schedule submission and objectives for the upcoming 30 calendar days.

- 1) Address all previous schedule review comments;
- 2) The report shall indicate if the project is *on schedule*, *ahead of schedule* or *behind schedule* as compared to the accepted baseline. Include the Schedule Variance Index, planned value cost and

SUPPLEMENTAL SPECIFICATIONS

earned value cost. If the project is ahead of schedule or behind schedule, the report shall include the specific number of calendar days. If the project is behind schedule, the report shall include a detailed recovery plan that will put the project back on schedule. The narrative shall compare the Substantial Completion milestone for the baseline with the update;

- 3) Describe the *current critical path* of the project including the lowest total float value and indicate if this has changed in the last 30 calendar days. Discuss current successes or problems that have affected either the critical path's length or have caused a shift in the critical path within the last 30 calendar days. Identify specific activities, progress, or events that may reasonably be anticipated to impact the critical path within the next 30 calendar days, either to affect its length or to shift it to an alternate path;
- 4) List all schedule logic or duration changes that have been made to the schedule since the previous submission. Provide an explanation for any *constraint* used. For each change, describe the basis for the change and specifically identify the affected activities by identification number;
- 5) Scheduling assumptions (considerations for known and foreseeable constraints or restrictions such as weather, traffic, environmental, utility, safety, etc);
- 6) Identify activities, either in progress or scheduled to occur within the following 30 calendar days that require Department participation, review, approval, etc;
- 7) Identify any calendars used that are not DOT specific, and explain the details of those calendars;
- 8) Identify schedule settings used;
- 9) Identify activity expense item changes;
- 10) Minimized the use of lag. Where possible, use an activity to represent lag time. In no instance shall negative lag be used;
- 11) Description of how the schedule is organized (e.g. broken down by road or activity);
- 12) Explain any actual duration exceeding the original duration;
- 13) Explain out of sequence activities individually and the overall effect on the schedule;
- 14) Explain, individually, activities that failed to start in the previous 30 days;
- 15) Include the current contract completion date;
- 16) Include the current contract amount and sum of actual cost;
- 17) Include approved change orders. Explain the costs and schedule change associated with them;

SUPPLEMENTAL SPECIFICATIONS

- 18) Submit the narrative with a naming convention of [Contract ID]n[Data Date].doc (e.g 32.82571n060201.doc). Contractor will upload the electronic copy [in .doc format] to the South Carolina Department of Transportation Construction Extranet site;
- 19) Explain the schedule impacts of all utility work, known or anticipated;

Schedule Details

SCDOT reserves the user_text1 and user_text2 fields.

Data Date - The Baseline Construction Schedule shall have a data date equal to award date and not include any completed work to date. Monthly schedule updates shall have a data date set to one day beyond the most recent estimate period end date.

Milestones - Schedule shall identify the following milestones as a minimum:

- **Award Date:** The date the Contractor is notified by the Director of Construction that he is awarded the project.
- **Contract Execution Date:** The date the contract is signed by the Department.
- **Baseline CPM Acceptance:** *Anticipated date the baseline schedule is accepted. No work will start prior to this milestone date.*
- **Notice to Proceed Date (NTP):** the NTP date is determined in coordination between the Engineer and the Contractor.
- **Work Begin Date:** Actual date that on-site work commences. In the baseline CPM schedule, this is the anticipated work begin date by either the prime contractor or any subcontractor. Once work begins, status the schedule with the actual date recorded in SiteManager.
- **Interim Completion Dates or Interim Milestones:** When interim completion dates or interim milestones (associated with project stages) are included in the contract specifications.
- **Mobilization:** Preparations for and moving of equipment, etc., to the project site.
- **Start of Paving:** Date paving production and placement is to start. This includes any paving requiring a SCDOT certified inspector representing the Department.
- **Substantial Work Complete Date:** The point in the project when all pay items have been installed in reasonable conformance with the plans and specifications over the entire length of the project including tie-ins and all lanes of traffic are open to the public in their final configuration with the final applications of thermoplastic and raised pavement markers. The only remaining work to be performed is punch list items. Place a Finish On or Before constraint on this milestone equal to the completion date in the contract. If a change order is completed for time, update the constraint to the adjusted completion date.
- **As-Built CPM Schedule Submission:** The point in time in which the final schedule submission is made.
- **Project Liability Insurance Expiration Date MM/DD/YY:** This date references the expiration of the insurance as defined in Section 103.8 of the Standard Specification for Highway Construction. Include the date that the project liability insurance expires in the milestone activity name. If the expiration renewal date is prior to the Contract Completion Date, place a "Finish On" constraint on the finish milestone. If the expiration renewal date is beyond the Contract Completion Date, place an "As Late As Possible" constraint on the finish milestone. There are no logic ties for this milestone. Inclusion of this date in the CPM schedule does not relieve the contractor of his responsibility to retain liability insurance as defined by the Standard Specifications for Highway Construction.

Activities –

- Each Activity shall be part of the logic driven network, be cost loaded using Expense Categories, and include a predecessor (except the first activity) and a successor (except the last activity).
- Each Activity Name shall include a verb and a noun and represent the work function.
- Activity Names shall include the location of the work when there are multiple activities of the same work in different locations of the project.
- Limit activity original duration to 30 calendar days.

SUPPLEMENTAL SPECIFICATIONS

As a minimum, and when applicable, the schedule shall include the following activities when related work is part of the contract.

- **Mobilization:** Provide the same number of mobilization activities as for payment in the proposal i.e.
 - **Mobilization Payment I**
 - **Mobilization Payment II**
- **Clearing & Grubbing:** Self-explanatory.
- **Utility Relocations:** The schedule must reflect the utility relocations noted in the contract documents and include activities of appropriate duration for the utility adjustments. Where utility durations are unknown, the Contractor shall provide a reasonable estimate of duration. Relate utility activities to the contract work activities that they effect or are affected by.
- **Cure Period:** The period of time between two activities needed for material curing. Examples include concrete and thermoplastic pavement markings. For this activity, use a seven day work week calendar.
 - **Earthwork:** Unclassified & borrow excavation, compaction, fine grading, etc.
- **Drainage:** Pipe, catch basins, manholes, etc.
- **Base Course:** Graded aggregate base courses, cement modified bases, etc.
- **Paving:** Hot mix asphalt base, intermediate, and surface courses; Portland cement concrete pavements, etc.
- **Structures:** Bridges, box culverts, retaining walls, etc.

Where sufficient detail has not been provided in included activities to determine progress of work and forecast of inspection and cost, the Department will request additional activities be added. The Department requires retain logic be used in scheduling projects. Relationship ties of all out-of-sequence activities should be corrected to reflect the actual occurrence. The use of progress override is not permitted. The monthly schedule update narrative shall justify any logic change(s).

Suspend Dates - The use of suspended dates is prohibited. If the activity is disrupted, break out into additional activities and explain in narrative.

Activity Expected Finish Dates – Activity Expected Finish dates are prohibited.

Resources – The Department will not require any input to the resource component of the schedule by the Contractor.

Expenses – Contractor shall assign the SCDOT contract items as expenses to each activity. The information provided under Expenses is used to evaluate daily production rates. SCDOT contract items will be included as Expense Categories and will be made part of the SCDOT schedule template available to download from the construction Extranet site. These shall be the only expense categories associated with activities. Under expenses, populate the fields Budgeted Units, Price/Unit, and Actual Units. If a SCDOT contract item cannot be found in the most current template, SCDOT should be contacted. The template will then be updated and uploaded to the extranet by SCDOT.

Weather - Considerations for normal weather shall be addressed within the activity duration.

Calendars – Contractor shall assign an appropriate SCDOT calendar to each activity in the schedule. Alternate calendars may be assigned, but specifics of the alternate calendars must be justified in the baseline narrative. Contractor shall assign all calendars as project specific – NOT GLOBAL. Acceptance of the alternate calendars is subject to review by the SCDOT. Considerations for weather shall be addressed within the activities – calendars shall not be modified to account for weather considerations. While calendars have been created to address established seasonal restrictions, it is the Contractor's responsibility to assure that all restrictions, as identified in the contract documents, are included. Where the Contractor elects to not utilize all available contract time in the baseline schedule submission, either by blocking out days in the calendar or including an activity for an extended period of no work, future delays against the time omitted will not warrant additional time.

The Baseline Construction Schedule shall not extend beyond the number of working days or contract completion date originally provided in the contract.

SUPPLEMENTAL SPECIFICATIONS

Cost Loading – All schedule activities shall be cost loaded using the contract bid items (Expense Categories), unit prices, and units (quantities) under “Expenses” in Primavera. Associated expenses shall correlate with the item of work covered by the activity.

Float – Float is not for the exclusive use or benefit of either the Department or the Contractor. Negative float in the original baseline schedule is not allowed.

Schedule Layout – Organize the schedule using a Work Breakdown Structure (WBS) consistent with the phasing and staging noted in the contract documents.

Default Values – Contractor shall use the following defaults, physical percent complete, retain logic, longest path critical activities, and under Admin Preferences, make Time Periods 8.0 hours/day, 40 hours/week, 172 hours/month, and 2,000 hours/year.

Submission, Review and Acceptance Process

Baseline Schedule –

Submission:

Regular Bid Projects:

Contractor shall submit a Critical Path Method (CPM) Contract Schedule and Narrative to the District Scheduler no more than 15 calendar days after execution of the contract or 15 days prior to the preconstruction conference, whichever is earlier. Once the initial baseline schedule is submitted, a preconstruction meeting date may be assigned by the RCE and Contractor. The CPM Schedule and Narrative shall be submitted via upload to the Extranet. Upon upload, the Contractor shall immediately notify the District Scheduler and the Resident Engineer via email that the CPM schedule has been submitted. The accepted CPM baseline schedule is paid for in the first available estimate period after contract execution.

A+B Bid Projects:

Contractor shall submit a Critical Path Method (CPM) Contract Schedule and Narrative to the District Scheduler no less than 15 calendar days prior to the preconstruction conference. Once the initial baseline schedule is submitted, a preconstruction meeting date can be assigned by the RCE and Contractor. The preconstruction meeting shall be assigned no earlier than 15 calendar days after the initial baseline submission. The CPM Schedule and Narrative shall be submitted via upload to the Extranet. Upon upload, the Contractor shall immediately notify the District Scheduler and the Resident Engineer via email that the CPM schedule has been submitted.

Review:

Upon receipt of the CPM Construction Schedule, SCDOT shall review and provide comments to the Contractor within 10 business days of receipt. The Contractor will have 5 business days to respond to SCDOT comments. This process will continue until the Engineer and the District Scheduler determines the construction schedule is acceptable.

The Contractor's representative familiar with the submitted schedule shall present and discuss their accepted schedule at the Preconstruction Conference. In the event the schedule has not been accepted (i.e. review process is ongoing), the most current schedule under review shall be presented.

Acceptance:

Acceptance of the submitted schedule by the SCDOT will establish the baseline schedule for the contract. This acceptance by SCDOT does not serve to excuse any omissions or errors in the Contractor's schedule (i.e. activities not included in baseline will not be considered in any time extensions).

Review and **acceptance of baseline schedule is required prior to start of work**. Delays in reaching this acceptance will not constitute a basis for granting additional contract time. If there is no concurrence or

SUPPLEMENTAL SPECIFICATIONS

input from the utility provider concerning the Contractor's utility durations within 15 days following the Preconstruction Conference, the submission with the Contractor's estimate of utility duration will be reviewed for baseline acceptance. Further utility duration changes beyond this point in time will be assessed in monthly schedule updates.

Monthly Updates –

Monthly updates shall be made no later than 15 calendar days following the most recent estimate period end date, whether or not an estimate was generated and shall have a data date one day beyond the most recent estimate period end date. If no work was completed during the estimate period, an update with the most current estimate period is required. Upon upload, the Contractor shall immediately notify the District Scheduler and the Resident Engineer via email that the CPM schedule has been submitted. Failure to submit timely updates will result in SCDOT evaluating contract status from the last submitted update schedule by adjusting the data date to the most current estimate period end date. Late update submittals may result in the Contractor being evaluated for preliminary delinquency in accordance with current version of the South Carolina Department of Transportation Standard Specifications for Highway Construction. Habitually late submittals may result in automatic delinquency. Failure to submit acceptable schedule updates as required will result in the withholding of the partial payment estimate regardless of preliminary delinquency. Updates shall include the following:

- Updated schedule to show actual progress on activities;
- Updated schedule to show actual costs on activities;
- Change orders that have occurred during the last estimate period;
- Any task dependent activity greater than 30 days in actual duration that has not incurred additional costs since the last update shall be terminated and broken into additional activities. Document the activity change and reason for late completion in the narrative;
- Remaining costs on completed activities are zeroed (if remaining costs are redistributed, indicate in the narrative the activities containing the costs);
- Update remaining cost appropriately;
- Updated schedule to show actual completion on milestones;
- Narrative to describe progress, planned activities, issues, adjustments to remedy any activities or milestones behind schedule, etc., in the format described in Schedule Submissions;
- Any changes other than those to actual start, actual finish, remaining duration, and Percent Complete are considered revisions. Revisions to a schedule update are subject to acceptance by the Engineer;

As-Built Schedule – A final As-Built Schedule shall be submitted within 15 calendar days following the contract completion. The as-built schedule should reflect the final project including extra work from change orders.

Baseline Schedule Changes – Once the baseline schedule has been accepted, all subsequent schedules provided will be considered schedule updates and compared to the original baseline. A new baseline will only be considered when significant changes in contract scope, changes in SCDOT priorities, or delays beyond the control of the Contractor occur.

If a baseline change is needed, the Contractor shall provide, in writing, a request to the Resident Construction Engineer with the following information:

- An electronic copy of the proposed baseline schedule using the following naming convention and in accordance with **Schedule Types** (included previously)

Type of Schedule Submitted:	Updated Baseline
File Name Convention:	[Contract ID]ub[Data Date]
File Name Example:	32.82571ub060201

- Narrative identifying changes warranting a new baseline

A decision for an updated baseline will be made jointly between the Resident Engineer and the District Scheduler within 10 business days of receipt of request.

SUPPLEMENTAL SPECIFICATIONS

Progress Meetings- The contractor shall present the most current schedule at progress meetings to discuss any issues and upcoming events. If found necessary by the SCDOT, the contractor shall attend meetings to specifically discuss issues about the schedule.

Level 3 Schedule Requirements

Level 3 schedule requirements will be enforced on contracts where the bid amount exceeds \$20 million and one of the following occurs:

- SCDOT financial status warrants the specific control of large project monthly payouts
- The contract SVI is less than -0.50 or greater than 0.50 for two consecutive months indicating the project is significantly behind or ahead of the Contractor’s baseline schedule.

In the event that the Department chooses to enforce the Level 3 Schedule Requirement, the Contractor will submit an updated baseline schedule within 15 days of notification. The Contractor schedule will be used for payment purposes once the baseline schedule has been accepted by the Department. In addition to meeting the requirements of the Level 2 Schedule, the following shall apply.

Once accepted by SCDOT, the project’s initial baseline cost loaded CPM will be used for SCDOT budget purposes and the contractor will not be paid in excess of the cumulative amount shown on the schedule through each payment date; regardless of what subsequent monthly updates indicate. For example, see chart below:

Pay period ending	12/31/11	1/31/12	2/29/12	3/31/12	4/30/12	5/31/12
Baseline CPM Planned Payout in Millions (Cumulative to Date)	2.0 (2.0)	3.0 (5.0)	3.0 (8.0)	4.0 (12.0)	4.0 (16.0)	3.0 (19.0)
Actual work performed (Cumulative to Date)	1.5 (1.5)	2.0 (3.5)	3.5 (7.0)	6.0 (13.0)	3.0 (16.0)	4.0 (20.0)
Payout by SCDOT (Cumulative to Date)	1.5 (1.5)	2.0 (3.5)	3.5 (7.0)	5.0 (12.0)	4.0 (16.0)	3.0 (19.0)

Partial payment estimates will be generated in SiteManager (computerized construction management system) based on actual quantities installed. If actual quantities installed exceed the cumulative schedule amount to date, a negative adjustment will be made in SiteManager to adjust the pay as necessary. For previous work exceeding the schedule amount, payments will be released as work progresses and payouts fall below the scheduled cumulative amount, never to exceed the cumulative scheduled amount through that pay period.

If significant contract changes are necessary, and upon approval by the SCDOT, a re-baseline to the initial CPM will be allowed per the CPM schedule specification and the payout schedule may be adjusted accordingly.

All subcontractors must be paid in accordance with the Prompt Payment Clause (Supplemental Specification dated June 14, 2000) for the quantities used to generate the partial payment estimates. In instances where a payout by SCDOT is less than the actual work installed under a given estimate, the Prompt Payment Clause is hereby amended to require full payment to all subcontractors, for work complete, within 7 days of receipt of said SCDOT payout.

Contract Schedule Performance Evaluation:

Project performance is not measured for contracts where the percent time < 0.30 for projects with a Level I Requirement and percent time < 0.20 for projects with the Level II Requirement or Level III Requirement.

Percent Time = (Last Estimate Date – NTP)/[(Adj Completion Date)-(NTP)]

Level I Requirement: Contracts with a minimal schedule requirement that are not deemed “on-call:”

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Performance curves were developed using historical data from SiteManager based on contract type and ranges of contract amount. For each of these groupings, three curves identifying minimal performance levels are used to measure project performance. On the example below, the curves indicate that projects falling below the 50th percentile line are slower than 50 percent of the projects of same type and in the range of the bid amount indicated. Projects falling below the 40th percentile line are slower than 60 percent of the projects of the same type and in the range of the bid amount indicated. Projects falling below the 25th percentile line are slower than 75 percent of the projects of the same type and in the range of the bid amount indicated.

On a monthly basis at the end of the estimate period, a comparison of Time Percent Complete vs. Work Percent Complete will be made and plotted on a performance curve matching the contract type within the bid amount. The measurements are defined as:

$$\text{Time Percent Complete} = (\text{Last Estimate Date} - \text{NTP}) / [(\text{Adj Completion Date}) - (\text{NTP})]$$

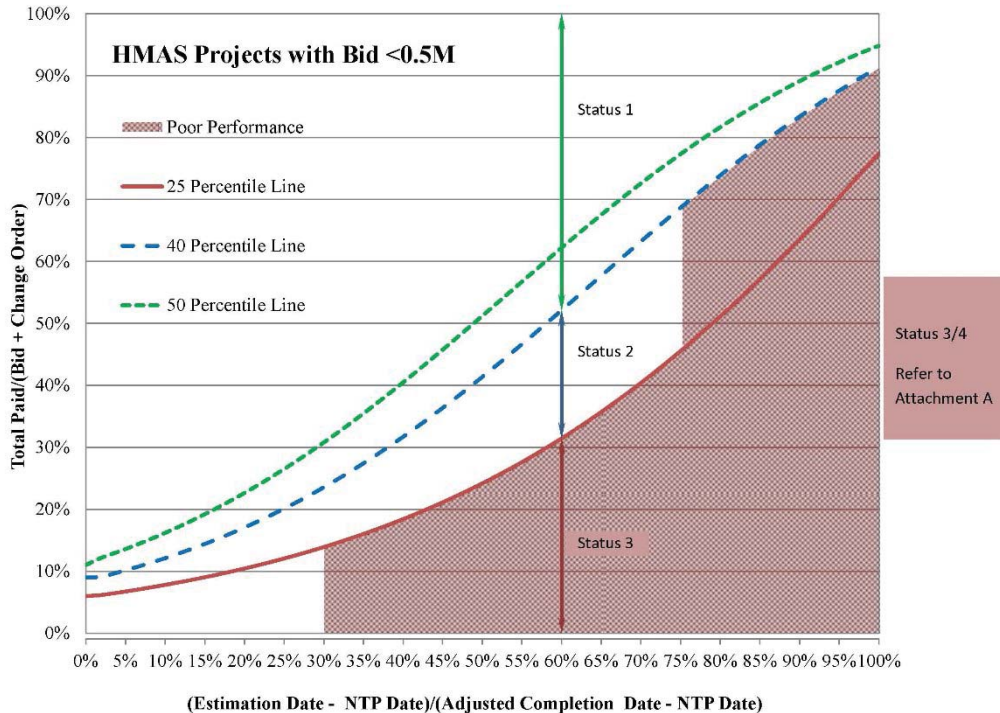
$$\text{Work Percent Complete} = \text{Total Paid} / (\text{Total Bid} + \text{CO})$$

Poor Performance is considered when any contract is beyond its Adjusted Contract Completion date or when Time Percent Complete versus Work Percent Complete plots in the shaded area (on the appropriate performance curve) as defined by:

[30%, 75%) time below the 25th percentile line

-or-

[75%, 100%] time below the 40th percentile line.



Example Performance Curve

Performance curves may be found under Construction Schedule Templates on the Extranet at:

<https://www.scdot.org/business/constructionletting-extranet.aspx>

Contracts with a CPM – Level II and III Schedule:

SUPPLEMENTAL SPECIFICATIONS

Monthly CPM updates are required for contracts with a CPM Level II or Level III schedule requirement as defined under **Submission, Review and Acceptance Process**. The contractor shall update actual completed quantities and physical percent complete (% of work complete for the activity) for all activities impacted during the most recent estimate period. Budgeted cost of the work performed (Earned Value) from the schedule update and budgeted cost of work planned (Planned Value) from the accepted baseline schedule are used to determine project variance in Primavera utilizing Schedule Variance Index (SVI). The calculation used by Primavera is:

$$\text{Schedule Variance Index (SVI)} = (\text{Earned Value} - \text{Planned Value}) / \text{Planned Value}$$

Where $SVI < -0.10$, the contract is considered to be slipping behind plan.

Contract Performance Action:

A summary of progress performance action is included in Attachment A. Preliminary Notice of Delinquency is abbreviated as PND.

Level I Schedules:

When plotting Time Percent Complete vs Work Percent Complete as indicated above, if the contract falls in the shaded section on the appropriate performance curve,

First Offense:

- PND w/o bonding notification
- Request recovery plan

Second Offense:

- PND w/bonding notice
- Request recovery plan
- Hold PND to monitor recovery plan. If plan not met, move to delinquency

Level II or III Schedules:

In any estimate period where the SVI is $(-0.20, -1.0]$ as defined under: **Contracts with a CPM – Level II and III Schedule:**

First Offense:

- PND w/o bonding notification
- Request recovery plan

Second Offense:

- PND w/bonding notice
- Request recovery plan
- Hold PND to monitor recovery plan. If plan not met, move to delinquency

Measurement and Basis of Payment

Level 1 Schedule

There is no separate measurement or payment for look-ahead schedules. All costs associated with the preparation or revision of a look-ahead schedule are considered incidental to the work.

Level 2 and 3 Schedules

The Department will make partial payments according to Section 109, Standard Specifications for Highway Construction, and as modified by the following schedule:

Basis of Payment	Percentage of Contract Unit Price of Item
After the Engineer has accepted the CPM Baseline schedule	60
After the Engineer has accepted the As-Built CPM schedule	40

SUPPLEMENTAL SPECIFICATIONS

Type of Schedule	Ahead of Schedule	Status 1 Action	Status 2 Action	Status 3 Action	Status 3 Action	Status 3 Action	Status 4 Action
Level I Performance Curve	Projects falling above the 50% curve Monitor payouts	No Action	When plotting Time Percent Complete vs Work Percent Complete, if the contract falls in the shaded section of Status 2 or Status 3 on the appropriate performance curve, <u>First Offense:</u> -PND w/o bonding notification -Request recovery <u>Second Offense:</u> -PND w/bonding notice -Request recovery plan -Hold PND to monitor recover plan. If plan not met, move to delinquency.	Complete	Complete	If the contract has not reached substantial completion and is beyond contract completion < 45 days Preliminary Notice of Default w/bonding notice - Request plan to complete -Hold preliminary notice to monitor plan to complete. If plan not met, move to Default.	If has not reached substantial completion and contract is beyond the contract completion > 45 days, Notice of Default according to the Standard Specifications -Request plan to complete
Level II or III CPM	SVI > 0.10 Monitor payouts	SVI > -0.10 No Action	SVI (-0.10, -0.25] SVI (-0.25, -1.0]			If the contract is beyond contract completion < 45 days Preliminary Notice of Default w/bonding notice - Request plan to complete -Hold preliminary notice to monitor plan to complete. If plan not met, move to Default.	If contract is beyond the contract completion > 45 days, Notice of Default according to the Standard Specifications - Request plan to complete
			Where SVI (-0.20, -1.0] <u>First Offense:</u> -PND w/o bonding notification -Request recovery <u>Second Offense:</u> -PND w/bonding notification -Request recovery plan -Hold PND to monitor recover plan. If plan not met, move to delinquency.				
		Notes: [indicates inclusive of value (indicates exclusive of value					

Attachment A – Summary of Progress Performance Action

January 4, 2012

FINE GRADING

Fine Grading is the work necessary to bring the subgrade material into the final shape and compacted condition prescribed in the Contract documents. The area considered for Fine Grading is defined in **Section 208** of the 2007 SCDOT Standard Specifications.

To clarify the area for the item Fine Grading, modify the following subsections in **Section 208** as indicated below.

Subsection 208.4.3 Fine Grading

Delete the third paragraph and replace it with the following:

- 3 Fine Grading is defined as the work necessary to bring the subgrade material into the final shape and compacted condition prescribed in the Contract documents. The subgrade surface area paid for as Fine Grading is only the area under the permanent pavement structure plus 18 inch beyond the longitudinal edge of the permanent pavement structure. Except for the additional 18 inches beyond the permanent pavement structure, the area under existing pavement that remains in place, unpaved shoulders, driveways, curbs, gutters, sidewalks, multi-use paths, temporary pavement, and slopes is not included in the Fine Grading area.

Subsection 208.5 Measurement

Delete the first and second paragraphs and replace them with the following:

- 1 The quantity for the pay item Fine Grading is the surface area of the subgrade that is constructed and prepared for the intended pavement structure as defined in paragraph 3 of **Subsection 208.4.3** and is measured by the square yard (SY), complete, and accepted. The bid quantity will be considered the full amount to be paid unless work requiring fine grading is deleted, or additional work is added to the project that was not required by the original bid documents.
- 2 If the pay item Fine Grading is not included in the Contract, subgrade work is not measured for payment directly and is considered included in contract unit bid price of the various other items of work. When Fine Grading is included in the Contract, the subgrade work for areas under previously existing pavement, unpaved shoulders, driveways, curbs, gutters, sidewalks, temporary pavement, and slopes is not measured for payment directly and is considered included in contract unit bid price of the various other items of work.

July 1, 2019

TRAFFIC CONTROL

Delete Subsection 601.1.3 of the Standard Specifications in their entirety and replace them with the following:

601.1.3 Closure Restrictions

601.1.3.1 General Restrictions

- ¹ The Department reserves the right to restrict the installation of lane closures, road closures, shoulder closures, ramp closures, pacing operations or any other operations that will impact the efficient flow of traffic or hinder normal traffic operations on the roads of the South Carolina state highway system during peak travel hours and/or days, holidays, holiday weekends, extended holiday periods, weekends, special events or any time traffic volumes are high. Lane closures on high volume highways during peak traffic periods or at any time traffic volumes exceed the numerical values determined to be acceptable by the Department are PROHIBITED. Lane closures on routes with high volume commuter traffic during peak traffic periods are PROHIBITED.
- ² Special events are events generating excessive traffic as determined by the Department. Lane closures, road closures, shoulder closures, pacing operations or any other operations that would impact the efficient flow of traffic or hinder normal traffic operations during special events are PROHIBITED unless otherwise directed by the Engineer.
- ³ The Department reserves the right to suspend a lane closure, road closure, shoulder closure, pacing operation or any other operation if the RCE determines a delay or a resulting traffic backup is excessive. Observe and maintain all project specific time restrictions as specified by the Plans, the Specifications and the RCE. Install and remove lane closures, road closures, shoulder closures, pacing operations, or any other operation that would impact the efficient flow of traffic or hinder normal traffic operations within the time restrictions including all relative traffic control devices and signs. Coordinate work activities requiring lane closures, road closures, shoulder closures, pacing operations or any other operation in accordance with all restrictions.
- ⁴ Installation and maintenance of a lane closure is PROHIBITED when not actively engaged in work activities specific to the location of the lane closure unless otherwise specified and approved by the RCE. The length of the lane closure shall not exceed the length of roadway anticipated to be subjected to the proposed work activities within the work shift time frame or the maximum lane closure length specified within the contract unless otherwise specified and approved by the RCE. Also, a maximum lane closure length specified within a contract does not warrant installation of the specified lane closure length when the length of the lane closure necessary for conducting the work activity is less. The length and duration of each lane closure, within the contract specified parameters, shall require approval by the RCE prior to installation. The length and duration of each lane closure may be reduced by the RCE if the work zone impacts generated by a lane closure are deemed excessive or unnecessary.
- ⁵ The presence of temporary signs, portable sign supports, traffic control devices, trailer mounted equipment, truck mounted equipment, personnel, and vehicles relative to the installation or removal of a closure is PROHIBITED within the temporary clear zone during the prohibited hours.

601.1.3.2 Holiday Restrictions

- ¹ The Department prohibits lane closures on interstate highways during holiday weekends and extended holiday periods as defined below unless otherwise directed by the Engineer. The Department's holiday lane closure restrictions for holidays that are observed on a Monday will include the weekend and are considered a holiday weekend unless otherwise established by these specifications. The Department defines the typical Monday holiday weekend as from 6:00 am of the Friday before the weekend until 6:00 a.m. of the Tuesday after the holiday. Lane closures, road closures, shoulder closures, pacing operations or any other operations that will impact the efficient flow of traffic or hinder normal traffic operations during these Monday holiday weekends as defined above

SUPPLEMENTAL SPECIFICATIONS

are PROHIBITED unless otherwise directed by the Engineer.

² Easter and Thanksgiving holidays are varied and extended holiday periods of a holiday weekend. Easter holidays are defined as from 12:00 noon of the Thursday before Easter until 6:00 p.m. of the Monday after Easter. Thanksgiving holidays are defined as from 12:00 noon of the Wednesday before Thanksgiving Day until 6:00 a.m. of the Monday after Thanksgiving Day. Lane closures, road closures, shoulder closures, pacing operations, or any other operations that will impact the efficient flow of traffic or hinder normal traffic operations during the Easter and Thanksgiving holidays as defined above are PROHIBITED unless otherwise directed by the Engineer.

³ Consider Independence Day (4th of July) an extended holiday period. This extended holiday period will vary from year to year depending upon the day of the week the 4th of July occurs. See the table below. Lane closures, road closures, shoulder closures, pacing operations or any other operations that will impact the efficient flow of traffic or hinder normal traffic operations during the Independence Day holiday as defined below are PROHIBITED unless otherwise directed by the Engineer.

INDEPENDENCE DAY (4th OF JULY) HOLIDAY	
DAY OF WEEK	DURATION
MONDAY	6:00 AM FRIDAY, JULY 1 ST through 10:00 PM TUESDAY, JULY 5 TH
TUESDAY	6:00 AM MONDAY, JULY 3 RD through 10:00 PM WEDNESDAY JULY 5 TH
WEDNESDAY	6:00 AM TUESDAY, JULY 3 RD through 10:00 PM THURSDAY JULY 5 TH
THURSDAY	6:00 AM WEDNESDAY, JULY 3 RD through 10:00 PM FRIDAY JULY 5 TH
FRIDAY	6:00 AM THURSDAY, JULY 3 RD through 10:00 PM MONDAY JULY 7 TH
SATURDAY	6:00 AM THURSDAY, JULY 2 ND through 10:00 PM MONDAY JULY 6 TH
SUNDAY	6:00 AM FRIDAY, JULY 2 ND through 10:00 PM TUESDAY JULY 6 TH

⁴ Consider Christmas an extended holiday period. This extended holiday period will vary from year to year depending upon the day of the week Christmas Day occurs. See the table below. Lane closures, road closures, shoulder closures, pacing operations or any other operations that will impact the efficient flow of traffic or hinder normal traffic operations during the Christmas holiday as defined below are PROHIBITED unless otherwise directed by the Engineer.

CHRISTMAS HOLIDAY

SUPPLEMENTAL SPECIFICATIONS

DAY OF WEEK	DURATION
MONDAY	6:00 AM FRIDAY, DECEMBER 22 ND through 10:00 PM WEDNESDAY JANUARY 3 RD
TUESDAY	6:00 AM FRIDAY, DECEMBER 21 ST through 10:00 PM THURSDAY JANUARY 3 RD
WEDNESDAY	6:00 AM FRIDAY, DECEMBER 20 TH through 10:00 PM FRIDAY JANUARY 3 RD
THURSDAY	6:00 AM TUESDAY, DECEMBER 23 RD through 10:00 PM SUNDAY JANUARY 4 TH
FRIDAY	6:00 AM WEDNESDAY, DECEMBER 23 RD through 10:00 PM SUNDAY JANUARY 3 RD
SATURDAY	6:00 AM THURSDAY, DECEMBER 23 RD through 10:00 PM MONDAY JANUARY 3 RD
SUNDAY	6:00 AM FRIDAY, DECEMBER 23 RD through 10:00 PM TUESDAY JANUARY 3 RD

601.1.3.3 Waiver of Restrictions

¹ Waiver or modification of these restrictions or the established hourly lane closure prohibition hours shall require approval from either the Deputy Secretary of Engineering, the Chief Engineer for Operations, or the Chief Engineer for Project Delivery. When requesting such a waiver or modification of these restrictions, submit the request to the RCE no less than 30 calendar days prior to the day in question. The Department reserves the right to approve, deny, and/or rescind waivers at its discretion. The Department reserves the right to suspend a lane closure, road closure, shoulder closure, pacing operation or any other operation if the RCE determines a delay or a resulting traffic backup is excessive.

January 1, 2020

SECTION 810: EROSION CONTROL MEASURES

In addition to the erosion control measures specified in the Plans, Standard Specifications, Supplemental Technical Specifications and the Special Provisions, the Contractor is advised that all land disturbing activities (clearing and grubbing, excavation, borrow and fill) are subject to the requirements set forth in the following permits and regulations:

- South Carolina Code of Regulations 63-380, Standard Plan for Erosion, Sediment, and Stormwater Runoff Control. The regulation can be found at the South Carolina Legislature website.
- Erosion and Sediment Reduction Act of 1983 (Title 48, Chapter 18 of the South Carolina Code of Laws of 1983, as amended). Section 70 of this code authorized the South Carolina Department of Health and Environmental Control (SCDHEC) to administer this regulation with respect to lands under the jurisdiction of the South Carolina Department of Transportation. The code can be found at the South Carolina Legislature website.
- National Pollutant Discharge Elimination System (NPDES) General Permit Number SCR160000, effective January 1, 2013 (or latest version): The Environmental Protection Agency, in accordance with the Federal Clean Water Act, has granted to the South Carolina Department of Health and Environmental Control (SCDHEC) the authority to administer the Federal NPDES permit program in the State of South Carolina. The permit may be viewed at the SCDOT website.

In accordance with the NPDES General Permit SCR160000 section 2.1.E: "The Prime Contractor hired by SCDOT for a project will become a Secondary Operator with SCDOT upon signing the awarded contract. The Secondary Operator must complete the agreement found in Appendix B of the SCDOT Contract, (Contractor Certification Form). The agreement is to be signed in accordance with the signatory requirements of §122.22 of the South Carolina Regulation 61-9. The agreement is to be maintained with the SWPPP.

By signing the Contract, the contractor accepts/understands the terms and conditions of the *Storm Water Pollution Prevention Plan (SWPPP)* as required by the NPDES General Permit SCR160000 and may be legally accountable to SCDHEC for compliance with the terms and conditions of the SWPPP. In addition the contractor is responsible for ensuring all subcontractors comply with the SWPPP and the permit requirements.

The SCDOT will complete and forward a *Notice of Intent (NOI)* to SCDHEC. If SCDHEC does not send a letter within 10 business days of receipt of the *NOI*, authorizing coverage, denying coverage, or advising that a review of the *SWPPP* will take place, coverage will be automatically granted.

At the pre-construction conference, with the contractor, the *SWPPP* will be explained and discussed so that the contractor is made aware of their responsibilities in the *SWPPP*.

Upon authorization of coverage, the *SWPPP* is to be fully implemented. The prompt installation of erosion control devices should be coordinated with construction activities to maintain compliance with the above regulations and NPDES General Permit.

Erosion and Sediment Control Inspections are to be conducted by a qualified individual (Certified Erosion Prevention and Sediment Control Inspectors (CEPSCI), P.E., or those as stated in the permit) by the Department at least every 7-calendar days. A representative of the Contractor is also encouraged to accompany the inspection. Correct deficiencies noted during these inspections within the assigned priority period.

SUPPLEMENTAL SPECIFICATIONS

If deficiencies are not corrected within this timeframe, the RCE can stop all work (except erosion and sediment control measures) until the deficiencies are corrected.

Give special attention to critical areas within the project limits (i.e., running streams, water bodies, wetlands, etc.). In these areas, the RCE may direct the Contractor to undertake immediate corrective action, but in no case allow these deficiencies to remain unresolved more than 48 hours for a priority 1 deficiency or 7 days for a priority 2 deficiency. This is in accordance with their assigned priority as identified during the Erosion and Sediment Control Inspection.

Failure to adequately comply with the provisions as detailed above or any other required erosion control measures can result in stoppage of all contract operations (except erosion and sediment control measures) until corrective action has been taken. Additional sanctions may be invoked by the SCDHEC in accordance with their authority.

Fines assessed on the Department by SCDHEC as the result of the Contractor's non-compliance or violation of said permit provisions will be paid by the Department and will subsequently be deducted from any monies due or that may become due to the Contractor. In case no monies are due or available, the fines incurred will be charged against the Contractor's Surety.

PROMPT PAYMENT CLAUSE

(1) Subject to the provisions on retainage provided in Paragraph (2) below, when a subcontractor has satisfactorily performed a work item of the subcontract, the Contractor must pay the subcontractor for the work item within seven (7) calendar days of the Contractor's receipt of payment from SCDOT. A subcontractor shall be considered to have "satisfactorily performed a work item of the subcontract" when the SCDOT pays the Contractor for that work item.

(2) The Contractor may withhold as retainage up to five (5%) percent of a subcontractor's payment until satisfactory completion of all work items of the subcontract. "Satisfactorily completion of all work items of the subcontract" shall mean when the SCDOT pays the Contractor for the last work item of the subcontract. The Contractor must release to the subcontractor any retainage withheld within seven (7) calendar days from the date the Contractor receives payment from SCDOT for the last work item of the subcontract.

(3) Prior to receiving payment of each monthly estimate, the Contractor shall certify to SCDOT that the construction estimate is complete and that all subcontractors have been paid for work covered by previous estimates.

(4) Failure to comply with any of the above provisions shall result in one or more of the following sanctions: (1) no further payments to the Contractor unless and until compliance is achieved; (2) the Contractor being placed in default; and/or (3) the Contractor being declared delinquent, such delinquency being subject to procedures and penalties provided in 108.08 of the Standard Specifications.

APPENDIX A

EDA Required Specification Documents

"General Decision Number: SC20230040 01/06/2023

Superseded General Decision Number: SC20220040

State: South Carolina

Construction Type: Highway

Counties: Allendale, Bamberg, Barnwell, Beaufort, Colleton, Georgetown, Hampton, Jasper, Newberry, Orangeburg and Williamsburg Counties in South Carolina.

DOES NOT INCLUDE SAVANNAH RIVER SITE IN ALLENDALE AND BARNWELL COUNTIES

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$16.20 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 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number Publication Date
 0 01/06/2023

SUSC2011-038 09/15/2011

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 14.47	**
CEMENT MASON/CONCRETE FINISHER...	\$ 14.11	**
IRONWORKER, REINFORCING.....	\$ 15.64	**
LABORER		
Asphalt, Includes Asphalt		
Distributor, Raker,		
Shoverler, and Spreader.....		
	\$ 10.96	**
Colleton.....	\$ 10.16	**
Common or General		
Beaufort.....	\$ 10.15	**
Colleton.....	\$ 10.16	**
Georgetown, Hampton,		
Jasper.....		
	\$ 10.07	**
Newberry, Allendale,		
Bamberg, Barnwell.....		
	\$ 11.82	**
Orangeburg.....	\$ 12.63	**
Williamsburg.....	\$ 10.01	**
Luteman.....	\$ 11.71	**
Pipelayer.....	\$ 13.87	**
Traffic Control-Cone Setter		
Allendale, Bamber,		
Barnwell, Newberry,		
Orangeburg.....		
	\$ 12.98	**
Beaufort, Colleton,		
Georgetown, Hampton,		
Jasper, Williamsburg.....		
	\$ 12.84	**
Traffic Control-Flagger.....	\$ 11.68	**
POWER EQUIPMENT OPERATOR:		
Backhoe/Excavator/Trackhoe		
Allendale, Bamberg,		
Barnwell, Newberry,		
Orangeburg.....		
	\$ 17.56	
Beaufort.....	\$ 15.20	**
Colleton.....	\$ 17.78	
Georgetown, Hampton,		
Jasper, Williamsburg.....		
	\$ 17.23	
Bulldozer.....	\$ 20.12	
Crane.....	\$ 16.62	
Grader/Blade.....	\$ 16.62	
Loader (Front End).....	\$ 15.51	**
Mechanic.....	\$ 18.22	
Milling Machine.....	\$ 18.83	
Paver		
Allendale, Bamberg,		
Barnwell, Newberry,		
Orangeburg, Williamsburg...		
	\$ 15.01	**
Beaufort.....	\$ 14.96	**
Colleton, Georgetown,		

Hampton, Jasper.....\$ 13.67 **
Roller.....\$ 12.76 **
Screed.....\$ 13.01 **
Tractor.....\$ 13.26 **

TRUCK DRIVER

Dump Truck.....\$ 12.00 **
Lowboy Truck.....\$ 14.43 **
Single Axle, Includes
Pilot Car.....\$ 12.04 **
Tractor Haul Truck.....\$ 16.25

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher
minimum wage under Executive Order 14026 (\$16.20) or 13658
(\$12.15). Please see the Note at the top of the wage
determination for more information.

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
<https://www.dol.gov/agencies/whd/government-contracts>.

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 National Office because National Office has 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 DECISIO"

U. S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION



EDA CONTRACTING PROVISIONS FOR CONSTRUCTION PROJECTS

These EDA Contracting Provisions for Construction Projects (EDA Contracting Provisions) are intended for use by recipients receiving federal assistance from the U. S. Department of Commerce - Economic Development Administration (EDA). They contain provisions specific to EDA and other federal provisions not normally found in non-federal contract documents. The requirements contained herein must be incorporated into all construction contracts and subcontracts funded wholly or in part with federal assistance from EDA.

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1. **DEFINITIONS**

Agreement – The written instrument that is evidence of the agreement between the Owner and the Contractor overseeing the Work.

Architect/Engineer - The person or other entity engaged by the Recipient to perform architectural, engineering, design, and other services related to the work as provided for in the contract.

Contract – The entire and integrated written agreement between the Owner and the Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

Contract Documents – Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents.

Contractor – The individual or entity with whom the Owner has entered into the Agreement.

Drawings or Plans – That part of the Contract Documents prepared or approved by the Architect/Engineer that graphically shows the scope, extent, and character of the Work to be performed by the Contractor.

EDA - The United States of America acting through the Economic Development Administration of the U.S. Department of Commerce or any other person designated to act on its behalf. EDA has agreed to provide financial assistance to the Owner, which includes assistance in financing the Work to be performed under this Contract. Notwithstanding EDA's role, nothing in this Contract shall be construed to create any contractual relationship between the Contractor and EDA.

Owner – The individual or entity with whom the Contractor has entered into the Agreement and for whom the Work is to be performed.

Project – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

Recipient – A non-Federal entity receiving a Federal financial assistance award directly from EDA to carry out an activity under an EDA program, including any EDA-approved successor to the entity.

Specifications – That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

Subcontractor – An individual or entity having direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

Work – The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

2. **APPLICABILITY**

The Project to which the construction work covered by this Contract pertains is being assisted by the United States of America through federal assistance provided by the U.S. Department of Commerce - Economic Development Administration (EDA). Neither EDA, nor any of its departments, entities, or employees is a party to this Contract. The following EDA Contracting Provisions are included in this Contract and all subcontracts or related instruments pursuant to the provisions applicable to such federal assistance from EDA.

3. **FEDERALLY REQUIRED CONTRACT PROVISIONS**

(a) All contracts in excess of the simplified acquisition threshold - currently fixed at \$150,000 (*see* 41 U.S.C. §§ 134 and 1908) must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate.

(b) All contracts in excess of \$10,000 must address termination for cause and for convenience by the Recipient including the manner by which it will be effected and the basis for settlement.

(c) All construction contracts awarded in excess of \$10,000 by recipients of federal assistance and their contractors or subcontractors shall contain a provision requiring compliance with Executive Order 11246 of September 24, 1965, *Equal Employment Opportunity*, as amended by Executive Order 11375 of October 13, 1967, and Department of Labor implementing regulations at 41 C.F.R. part 60.

(d) All prime construction contracts in excess of \$2,000 awarded by Recipients must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3148) as supplemented by Department of Labor regulations at 29 C.F.R. part 5. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. § 874 and 40 U.S.C. § 3145) as supplemented by Department of Labor regulations at 29 C.F.R. part 3.

(e) All contracts awarded by the Recipient in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704 (the Contract Work Hours and Safety Standards Act) as supplemented by Department of Labor regulations at 29 C.F.R. part 5.

(f) All contracts must include EDA requirements and regulations that involve a requirement on the contractor or sub-contractor to report information to EDA, the Recipient or any other federal agency.

- (g) All contracts must include EDA requirements and regulations pertaining to patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.
- (h) All contracts must include EDA requirements and regulations pertaining to copyrights and rights in data.
- (i) All contracts and subgrants in excess of \$150,000 must contain a provision that requires compliance with all applicable standards, orders, or requirements issued under the Clean Air Act (42 U.S.C. § 7401 *et seq.*) and the Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. § 1251 *et seq.*), and Executive Order 11738, *Providing for Administration of the Clean Air Act and the Federal Water Pollution Control Act With Respect to Federal Contracts, Grants, or Loans*.
- (j) Contracts must contain mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6201).
- (k) Contracts must contain a provision ensuring that contracts are not to be made to parties on the government wide Excluded Parties List System in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. part 180.
- (l) Contracts must contain a provision ensure compliance with the Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352) under which contractors that apply or bid for an award of \$100,000 or more must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.
- (m) If the Recipient is a state agency or agency of a political subdivision of a state, any contract awarded must contain a provision ensuring compliance with section 6002 of the Solid Waste Disposal Act (42 U.S.C. § 6962), as amended by the Resource Conservation and Recovery Act related to the procurement of recovered materials.

4. **REQUIRED PROVISIONS DEEMED INSERTED**

Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion of correction.

5. **INSPECTION BY EDA REPRESENTATIVES**

The authorized representatives and agents of EDA shall be permitted to inspect all work, materials, payrolls, personnel records, invoices of materials, and other relevant data and records.

6. **EXAMINATION AND RETENTION OF CONTRACTOR'S RECORDS**

(a) The Owner, EDA, or the Comptroller General of the United States, or any of their duly authorized representatives shall, generally until three years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

(b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders that do not exceed \$10,000.

(c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the Owner, EDA, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

7. **CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES**

Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in a form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due to the Contractor in accordance with the progress schedule. The Contractor also shall furnish the Owner (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimates of work done for the purpose of making partial payments thereon. The costs employed in making up any of these schedules will be used only to determine the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

8. **CONTRACTOR'S TITLE TO MATERIAL**

No materials, supplies, or equipment for the work shall be purchased by the Contractor or by any subcontractor that is subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants and guarantees that he/she has good title to all work, materials, and equipment used by him/her in the Work, free and clear of all liens, claims, or encumbrances.

9. **INSPECTION AND TESTING OF MATERIALS**

All materials and equipment used in the completion of the Work shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Owner. Materials of construction, particularly those upon which the strength and durability of any structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for intended uses.

10. **"OR EQUAL" CLAUSE**

Whenever a material, article, or piece of equipment is identified in the Contract Documents by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard. Any material, article, or equipment of other manufacturers and vendors that will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed is, in the opinion of the Architect/Engineer, of equal substance and function. However, such substitution material, article, or equipment shall not be purchased or installed by the Contractor without the Architect/Engineer's written approval.

11. **PATENT FEES AND ROYALTIES**

(a) Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device that is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Architect/Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the Owner in the Contract Documents.

(b) To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner and the Architect/Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

12. **CLAIMS FOR EXTRA COSTS**

No claims for extra work or cost shall be allowed unless the same was done in pursuance of a written order from the Architect/Engineer approved by the Owner.

13. **CONTRACTORS AND SUBCONTRACTORS INSURANCE**

(a) The Contractor shall not commence work under this Contract until the Contractor has obtained all insurance reasonably required by the Owner, nor shall the Contractor allow any subcontractor to commence work on his/her subcontract until the insurance required of the subcontractor has been so obtained and approved.

(b) Types of insurance normally required are:

- (1) Workers' Compensation
- (2) Contractor's Public Liability and Property Damage
- (3) Contractor's Vehicle Liability
- (4) Subcontractors' Public Liability, Property Damage and Vehicle Liability
- (5) Builder's Risk (Fire and Extended Coverage)

(c) **Scope of Insurance and Special Hazards:** The insurance obtained, which is described above, shall provide adequate protection for the Contractor and his/her subcontractors, respectively, against damage claims that may arise from operations under this contract, whether such operations be by the insured or by anyone directly or indirectly employed by him/her and also against any of the special hazards that may be encountered in the performance of this Contract.

(d) **Proof of Carriage of Insurance:** The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates, and dates of expiration of applicable insurance policies.

14. **CONTRACT SECURITY BONDS**

(a) If the amount of this Contract exceeds \$150,000, the Contractor shall furnish a performance bond in an amount at least equal to one hundred percent (100%) of the Contract price as security for the faithful performance of this Contract and also a payment bond in an amount equal to one hundred percent (100%) of the Contract price or in a penal sum not less than that prescribed by State, Territorial, or local law, as security for the payment of all persons performing labor on the Work under this Contract and furnishing materials in connection with this Contract. The performance bond and the payment bond may be in one or in separate instruments in accordance with local law. Before final acceptance, each bond must be approved by EDA. If the amount of this Contract does not exceed \$150,000, the Owner shall specify the amount of the payment and performance bonds.

(b) All bonds shall be in the form prescribed by the Contract Documents except as otherwise provided in applicable laws or regulations, and shall be executed by such sureties as are named in the current list of *Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies* as published in Treasury Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's

authority to act. Surety companies executing the bonds must also be authorized to transact business in the state where the Work is located.

15. **LABOR STANDARDS - DAVIS-BACON AND RELATED ACTS**
(as required by section 602 of PWEDA)

(a) **Minimum Wages**

(1) All laborers and mechanics employed or working upon the site of the Work in the construction or development of the Project will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act at 29 C.F.R. part 3, the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at the time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor, which is attached hereto and made a part hereof, regardless of any contractual relationship that may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 C.F.R. § 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 C.F.R. § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates determined under 29 C.F.R. § 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (i) Any class of laborers or mechanics to be employed under the Contract, but not listed in the wage determination, shall be classified in conformance with the wage determination. EDA shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(A) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(B) The classification is utilized in the area by the construction industry; and

(C) The proposed wage rate, including any bona fide fringe benefits, bears a

reasonable relationship to the wage rates contained in the wage determination.

(ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and EDA or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by EDA or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210.

(iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and EDA or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), EDA or its designee shall refer the questions, including the views of all interested parties and the recommendation of EDA or its designee, to the Administrator for determination.

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(2)(ii) or (iii) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(b) **Withholding**

EDA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper employed or working on the site of the Work in the construction or development of the Project, all or part of the wages required by the Contract, EDA or its designee may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations

have ceased. EDA or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

(c) **Payrolls and basic records**

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the Work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the Work in the construction or development of the Project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 C.F.R. § 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, the plan or program is financially responsible, and the plan or program has been communicated in writing to the laborers or mechanics affected, and provide records that show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (i) For each week in which Contract work is performed, the Contractor shall submit a copy of all payrolls to the Owner for transmission to EDA or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 C.F.R. part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose. It may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402; or downloaded from the U.S. Department of Labor's website at <https://www.dol.gov/whd/forms/wh347.pdf>. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

(A) That the payroll for the payroll period contains the information required to be maintained under 29 C.F.R. § 5.5(a)(3)(i) and that such information is correct and complete;

(B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 C.F.R. part 3; and

(C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

(iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 15(c)(2)(ii) of this section.

(iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under section 1001 of Title 18 and section 3729 of Title 31 of the U.S. Code.

(3) The Contractor or subcontractor shall make the records required under paragraph 15(c)(1) of this section available for inspection, copying, or transcription by authorized representatives of EDA or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, EDA or its designee may, after written notice to the Contractor or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 C.F.R. § 5.12.

(d) **Apprentices and Trainees.**

(1) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training (Bureau), or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any

apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a Project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) **Trainees.** Except as provided in 29 C.F.R. § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program that has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) **Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity

requirements of Executive Order 11246, *Equal Employment Opportunity*, as amended, and 29 C.F.R. part 30.

(e) **Compliance with Copeland Anti-Kickback Act Requirements.** The Contractor shall comply with the Copeland Anti-Kickback Act (18 U.S.C. § 874 and 40 U.S.C. § 3145) as supplemented by Department of Labor regulations (29 C.F.R. part 3, “Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States”). The Act provides that the Contractor and any subcontractors shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which they are otherwise entitled. The Owner shall report all suspected or reported violations to EDA.

(f) **Subcontracts.** The Contractor and any subcontractors will insert in any subcontracts the clauses contained in 29 C.F.R. §§ 5.5(a)(1) through (10) and such other clauses as EDA or its designee may require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 C.F.R. § 5.5.

(g) **Contract termination; debarment.** The breach of the contract clauses in 29 C.F.R. § 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 C.F.R. § 5.12.

(h) **Compliance with Davis-Bacon and Related Act Requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 C.F.R. parts 1, 3, and 5 are herein incorporated by reference in this contract.

(i) **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 C.F.R. parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and EDA or its designee, the U.S. Department of Labor, or the employees or their representatives.

(j) **Certification of Eligibility.**

(1) By entering into this Contract, the Contractor certifies that neither it nor any person or firm that has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 C.F.R. § 5.12(a)(1).

(2) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 C.F.R. § 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. § 1001.

16. **LABOR STANDARDS - CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

As used in this paragraph, the terms “laborers” and “mechanics” include watchmen and guards.

(a) **Overtime requirements.** No Contractor or subcontractor contracting for any part of the Contract work, which may require or involve the employment of laborers or mechanics, shall require or permit any such laborer or mechanic in any workweek in which that person is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(b) **Violation; liability for unpaid wages, liquidated damages.** In the event of any violation of the clause set forth in paragraph (a) of this section, the Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a) of this section.

(c) **Withholding for unpaid wages and liquidated damages.** EDA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any monies payable on account of work performed by the Contractor or subcontractor under any such Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b) of this section.

(d) **Subcontracts.** The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (a) through (c) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a) through (c) of this section.

17. **EQUAL EMPLOYMENT OPPORTUNITY**

(a) The Recipient hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 C.F.R. chapter 60, which is paid for in whole or in part with funds obtained from EDA, the following equal opportunity clause:

During the performance of this contract, the Contractor agrees as follows:

Economic Development Administration
Contracting Provisions for Construction Projects

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, 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 to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers representatives of the Contractor's commitments hereunder, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965 and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by EDA and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of

this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally-assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the portion of the sentence immediately preceding paragraph 17(a)(1) and the provisions of paragraphs 17(a)(1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as EDA or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by EDA or the Secretary of Labor, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

(9) The Recipient further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally-assisted construction work. Provided, however, that if the Recipient so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government that does not participate in work on or under the Contract.

(10) The Recipient agrees that it will assist and cooperate actively with EDA and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish EDA and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist EDA in the discharge of the EDA's primary responsibility for securing compliance.

(11) The Recipient further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by EDA or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the Recipient agrees that if it fails or refuses to comply with these undertakings, EDA may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this EDA financial assistance; refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case

to the Department of Justice for appropriate legal proceedings.

(b) Exemptions to Above Equal Opportunity Clause (41 C.F.R. chapter 60):

(1) Contracts and subcontracts not exceeding \$10,000 (other than Government bills of lading, and other than contracts and subcontracts with depositories of Federal funds in any amount and with financial institutions which are issuing and paying agents for U.S. savings bonds and savings notes) are exempt. The amount of the Contract, rather than the amount of the federal financial assistance, shall govern in determining the applicability of this exemption.

(2) Except in the case of subcontractors for the performance of construction work at the site of construction, the clause shall not be required to be inserted in subcontracts below the second tier.

(3) Contracts and subcontracts not exceeding \$10,000 for standard commercial supplies or raw materials are exempt.

18. **CONTRACTING WITH SMALL, MINORITY AND WOMEN'S BUSINESSES**

(a) If the Contractor intends to let any subcontracts for a portion of the work, the Contractor shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services.

(b) Affirmative steps shall consist of:

(1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(2) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;

(4) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises;

(5) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies;

(6) Requiring each party to a subcontract to take the affirmative steps of this section; and

(7) The Contractor is encouraged to procure goods and services from labor surplus area firms.

19. **HEALTH, SAFETY, AND ACCIDENT PREVENTION**

(a) In performing this contract, the Contractor shall:

(1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to their health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;

(2) Protect the lives, health, and safety of other persons;

(3) Prevent damage to property, materials, supplies, and equipment; and

(4) Avoid work interruptions.

(b) For these purposes, the Contractor shall:

(1) Comply with regulations and standards issued by the Secretary of Labor at 29 C.F.R. part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 3701 – 3708); and

(2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.

(c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this Contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 C.F.R. part 1904.

(d) The Owner shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the Work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Owner may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.

(e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as EDA, or the Secretary of Labor shall direct as a means of enforcing such provisions.

20. **CONFLICT OF INTEREST AND OTHER PROHIBITED INTERESTS**

- (a) No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept, or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part hereof.
- (b) No officer, employee, architect, attorney, engineer, or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the Project.
- (c) The Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the Contract Documents has a corporate or financial affiliation with the supplier or manufacturer.
- (d) The Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, may be involved. Such a conflict may arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in the Contractor. The Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors, or anything of monetary value from the Contractor or subcontractors.
- (e) If the Owner finds after a notice and hearing that the Contractor, or any of the Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of the Owner or EDA in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, the Owner may, by written notice to the Contractor, terminate this Contract. The Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which the Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.
- (f) In the event this Contract is terminated as provided in paragraph (e) of this section, the Owner may pursue the same remedies against the Contractor as it could pursue in the event of a breach of this Contract by the Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, the Owner may pursue exemplary damages in an amount (as determined by the Owner) which shall not be less than three nor more than ten times the costs the Contractor incurs in providing any such gratuities to any such officer or employee.

21. RESTRICTIONS ON LOBBYING

(a) This Contract, or subcontract is subject to 31 U.S.C. § 1352, regarding lobbying restrictions. The section is explained in the common rule, 15 C.F.R. part 28 (55 FR 6736-6748, February 26, 1990). Each bidder under this Contract or subcontract is generally prohibited from using federal funds for lobbying the Executive or Legislative Branches of the Federal Government in connection with this EDA Award.

(b) **Contract Clause Threshold:** This Contract Clause regarding lobbying must be included in each bid for a contract or subcontract exceeding \$100,000 of federal funds at any tier under the EDA Award.

(c) **Certification and Disclosure:** Each bidder of a contract or subcontract exceeding \$100,000 of federal funds at any tier under the federal Award must file Form CD-512, *Certification Regarding Lobbying – Lower Tier Covered Transactions*, and, if applicable, Standard Form-LLL, *Disclosure of Lobbying Activities*, regarding the use of any nonfederal funds for lobbying. Certifications shall be retained by the Contractor or subcontractor at the next higher tier. All disclosure forms, however, shall be forwarded from tier to tier until received by the Recipient of the EDA Award, who shall forward all disclosure forms to EDA.

(d) **Continuing Disclosure Requirement:** Each Contractor or subcontractor that is subject to the Certification and Disclosure provision of this Contract Clause is required to file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person. Disclosure forms shall be forwarded from tier to tier until received by the Recipient of the EDA Award, who shall forward all disclosure forms to EDA.

(e) **Indian Tribes, Tribal Organizations, or Other Indian Organizations:** Indian tribes, tribal organizations, or any other Indian organizations, including Alaskan Native organizations, are excluded from the above lobbying restrictions and reporting requirements, but only with respect to expenditures that are by such tribes or organizations for lobbying activities permitted by other federal law. An Indian tribe or organization that is seeking an exclusion from Certification and Disclosure requirements must provide EDA with the citation of the provision or provisions of federal law upon which it relies to conduct lobbying activities that would otherwise be subject to the prohibitions in and to the Certification and Disclosure requirements of 31 U.S.C. § 1352, preferably through an attorney's opinion. Note, also, that a non-Indian subrecipient, contractor, or subcontractor under an award to an Indian tribe, for example, is subject to the restrictions and reporting requirements.

22. HISTORICAL AND ARCHAEOLOGICAL DATA PRESERVATION

The Contractor agrees to facilitate the preservation and enhancement of structures and objects of historical, architectural or archaeological significance and when such items are found and/or unearthed during the course of project construction. Any excavation by the Contractor that uncovers an historical or archaeological artifact shall be immediately reported to the Owner and a representative of EDA. Construction shall be temporarily halted pending the notification process and further directions issued by EDA after consultation with the State Historic

Preservation Officer (SHPO) for recovery of the items. *See* the National Historic Preservation Act of 1966 (54 U.S.C. § 300101 *et seq.*, formerly at 16 U.S.C. § 470 *et seq.*) and Executive Order No. 11593 of May 31, 1971.

23. **CLEAN AIR AND WATER**

Applicable to Contracts in Excess of \$150,000

(a) **Definition.** “Facility” means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by the Contractor or any subcontractor, used in the performance of the Contract or any subcontract. When a location or site of operations includes more than one building, plant, installation, or structure, the entire location or site shall be deemed a facility except when the Administrator, or a designee, of the United States Environmental Protection Agency (EPA) determines that independent facilities are collocated in one geographical area.

(b) In compliance with regulations issued by the EPA, 2 C.F.R. part 1532, pursuant to the Clean Air Act, as amended (42 U.S.C. § 7401 *et seq.*); the Federal Water Pollution Control Act, as amended (33 U.S.C. § 1251 *et seq.*); and Executive Order 11738, the Contractor agrees to:

(1) Not utilize any facility in the performance of this contract or any subcontract which is listed on the Excluded Parties List System, part of the System for Award Management (SAM), pursuant to 2 C.F.R. part 1532 for the duration of time that the facility remains on the list;

(2) Promptly notify the Owner if a facility the Contractor intends to use in the performance of this contract is on the Excluded Parties List System or the Contractor knows that it has been recommended to be placed on the List;

(3) Comply with all requirements of the Clean Air Act and the Federal Water Pollution Control Act, including the requirements of section 114 of the Clean Air Act and section 308 of the Federal Water Pollution Control Act, and all applicable clean air and clean water standards; and

(4) Include or cause to be included the provisions of this clause in every subcontract and take such action as EDA may direct as a means of enforcing such provisions.

24. **USE OF LEAD-BASED PAINTS ON RESIDENTIAL STRUCTURES**

(a) If the work under this Contract involves construction or rehabilitation of residential structures over \$5,000, the Contractor shall comply with the Lead-based Paint Poisoning Prevention Act (42 U.S.C. § 4831). The Contractor shall assure that paint or other surface coatings used in a residential property does not contain lead equal to or in excess of 1.0 milligram per square centimeter or 0.5 percent by weight or 5,000 parts per million (ppm) by weight. For purposes of this section, “residential property” means a dwelling unit, common areas, building exterior surfaces, and any surrounding land, including outbuildings, fences and play equipment affixed to the land, belonging to an owner and available for use by residents, but not

including land used for agricultural, commercial, industrial or other non-residential purposes, and not including paint on the pavement of parking lots, garages, or roadways.

- (b) As a condition to receiving assistance under PWEDA, recipients shall assure that the restriction against the use of lead-based paint is included in all contracts and subcontracts involving the use of federal funds.

25. **ENERGY EFFICIENCY**

The Contractor shall comply with all standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6201) for the State in which the Work under the Contract is performed.

26. **ENVIRONMENTAL REQUIREMENTS**

When constructing a Project involving trenching and/or other related earth excavations, the Contractor shall comply with the following environmental constraints:

- (1) **Wetlands.** When disposing of excess, spoil, or other construction materials on public or private property, the Contractor shall not fill in or otherwise convert wetlands.
- (2) **Floodplains.** When disposing of excess, spoil, or other construction materials on public or private property, the Contractor shall not fill in or otherwise convert 100 year floodplain areas delineated on the latest Federal Emergency Management Agency (FEMA) Floodplain Maps, or other appropriate maps, i.e., alluvial soils on Natural Resource Conservation Service (NRCS) Soil Survey Maps.
- (3) **Endangered Species.** The Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the Contractor, the Contractor will immediately report this evidence to the Owner and a representative of EDA. Construction shall be temporarily halted pending the notification process and further directions issued by EDA after consultation with the U.S. Fish and Wildlife Service.

27. **DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSIONS**

As required by Executive Orders 12549 and 12689, *Debarment and Suspension*, 2 C.F.R. Part 180 and implemented by the Department of Commerce at 2 C.F.R. part 1326, for prospective participants in lower tier covered transactions (except subcontracts for goods or services under the \$25,000 small purchase threshold unless the subrecipient will have a critical influence on or substantive control over the award), the Contractor agrees that:

- (1) By entering into this Contract, the Contractor and subcontractors certify, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared Economic Development Administration Contracting Provisions for Construction Projects

ineligible, or voluntarily excluded from participation in this Contract by any federal department or agency.

(2) Where the Contractor or subcontractors are unable to certify to any of the statements in this certification, the Contractor or subcontractors shall attach an explanation to this bid.

See also 2 C.F.R. part 180 and 2 C.F.R. § 200.342.

28. **EDA PROJECT SIGN**

The Contractor shall supply, erect, and maintain in good condition a Project sign according to the specifications provided by EDA. To the extent practical, the sign should be a free standing sign. Project signs shall not be located on public highway rights-of-way. Location and height of signs will be coordinated with the local agency responsible for highway or street safety in the Project area, if any possibility exists for obstructing vehicular traffic line of sight. Whenever the EDA site sign specifications conflict with State law or local ordinances, the EDA Regional Director will permit such conflicting specifications to be modified so as to comply with State law or local ordinance.

29. **BUY AMERICA**

To the greatest extent practicable, contractors are encouraged to purchase American-made equipment and products with funding provided under EDA financial assistance awards.

EDA PROJECT SIGN

The Contractor shall supply, erect, and maintain in good condition a project sign according to the specifications set forth below:

EDA SITE SIGN SPECIFICATIONS

Size: 4' x 8' x ¾"

Materials: Exterior grade/MDO plywood (APA rating A-B)

Supports: 4" x 4" x 12' posts with 2" x 4" cross branching

Erection: Posts shall be set a minimum of three feet deep in concrete footings that are at least 12" in diameter.

Paint: Outdoor enamel

Colors: Jet Black, Blue (PMS300), and Gold (PMS7406). Specifically, on white background the following will be placed:

The U. S. Department of Commerce seal in blue, black, and gold;

“EDA” in blue;

“U. S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT
ADMINISTRATION” in black;

“In partnership with” in blue;

(Actual name of the) “EDA Grant Recipient” in black;

Lettering: Specific fonts are named below; positioning will be as shown on the attached illustration.

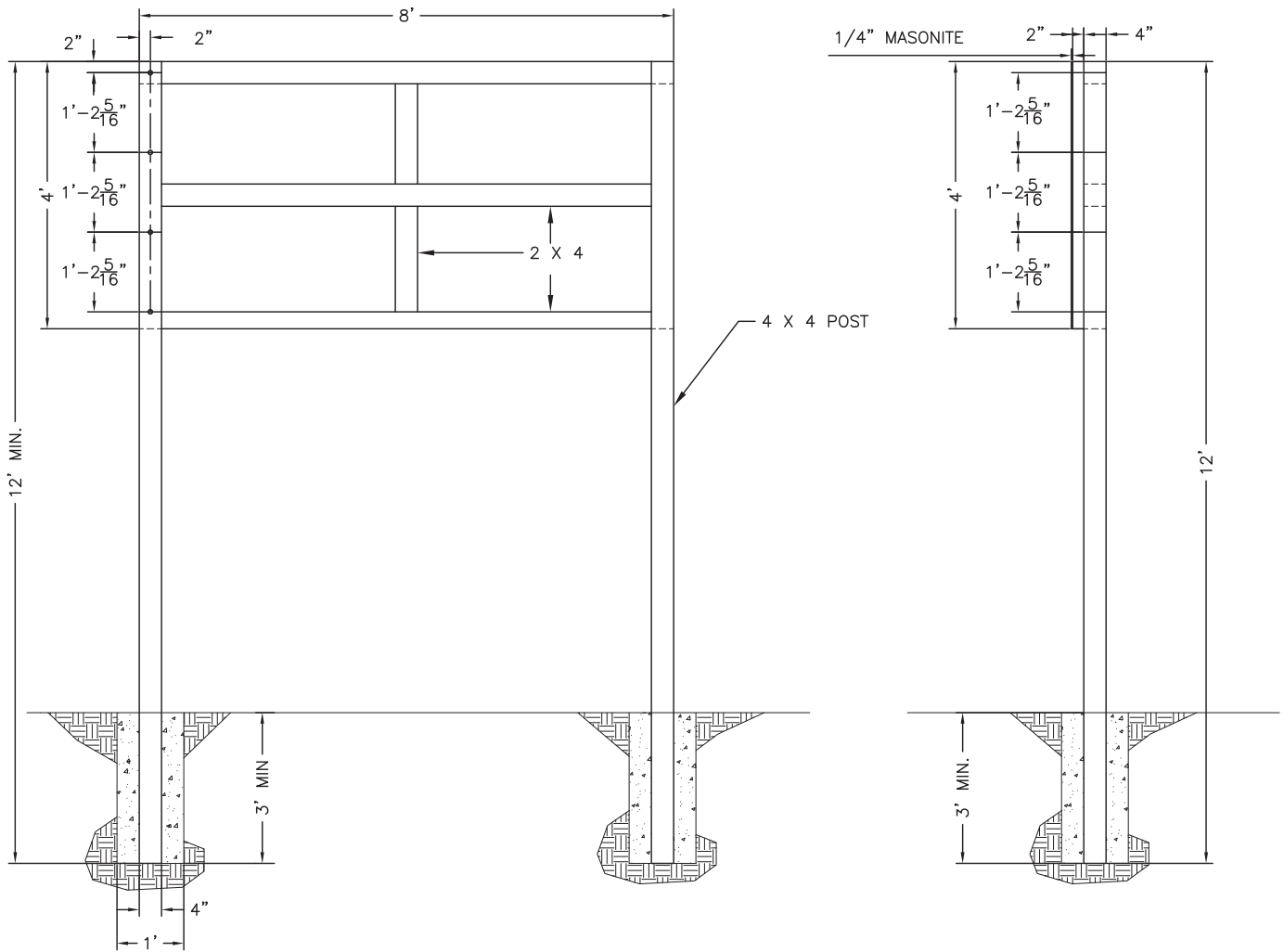
“U. S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT
ADMINISTRATION” use Bank Gothic Medium - **BANK GOTHIC MED**

“In partnership with” use Univers™ 55 Oblique - **Univers 55**

(Name of) “EDA Grant Recipient” use Univers™ Extra Black 85 **Univers 85**

Project signs will not be erected on public highway rights-of-way. If any possibility exists for obstruction to traffic line of sight, the location and height of the sign will be coordinated with the agency responsible for highway or street safety in the area.

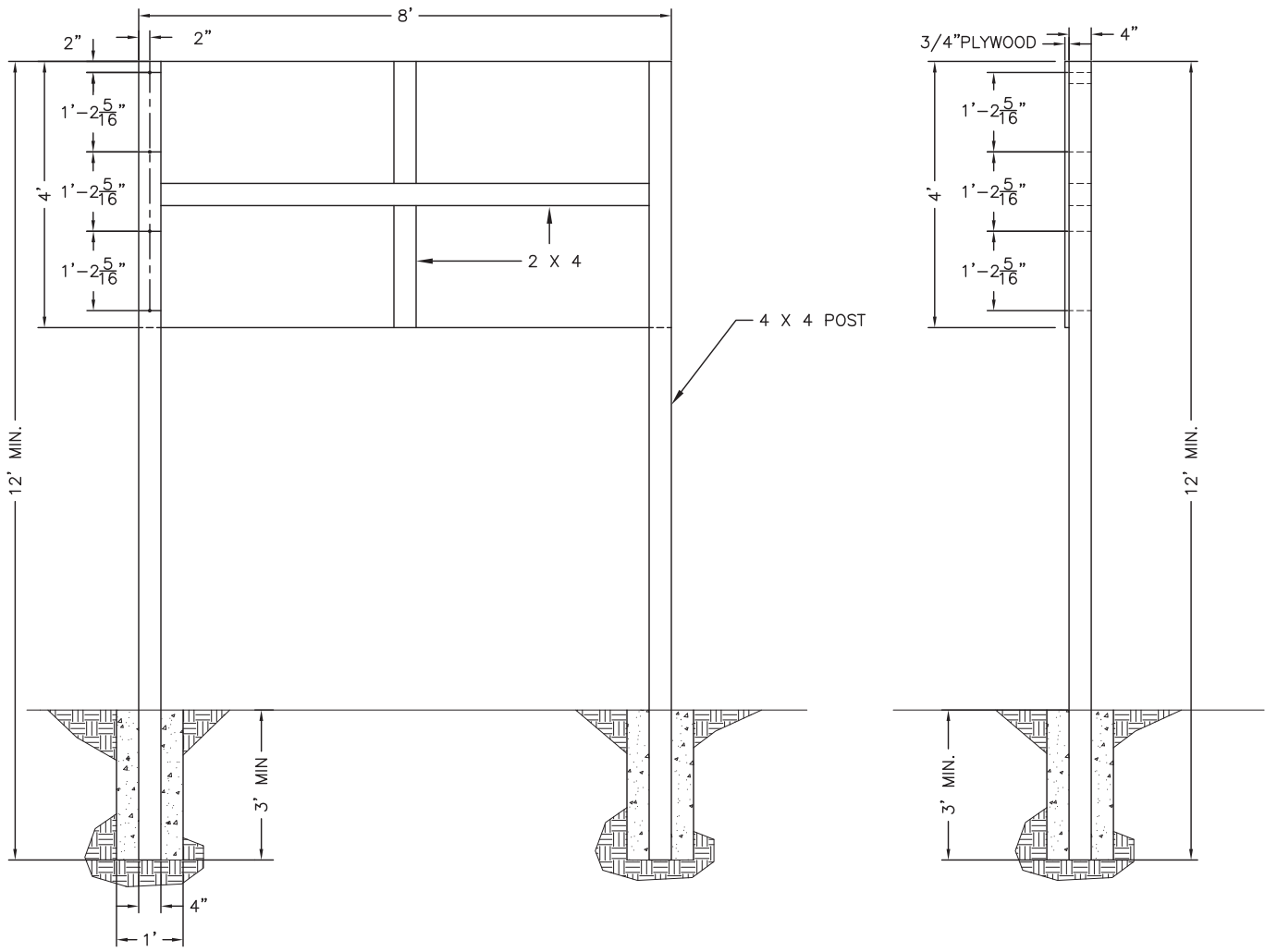
The EDA Regional Director may permit modifications to these specifications if they conflict with state law or local ordinances.



SIGN A
MASONITE SIGN
SCALE: 3/8" = 1'

PROJECT - SIGN A

ECONOMIC DEVELOPMENT ADMINISTRATION



SIGN B
PLYWOOD SIGN
SCALE: 3/8" = 1'

PROJECT - SIGN B

ECONOMIC DEVELOPMENT ADMINISTRATION



EEDA

Black
Blue= PMS300
Gold= PMS7406

U.S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION

In partnership with

Recipient Name

Joseph R. Biden, Jr., President of the United States



CERTIFICATION REGARDING LOBBYING LOWER TIER COVERED TRANSACTIONS

Applicants should review the instructions for certification included in the regulations before completing this form. Signature on this form provides for compliance with certification requirements under 15 CFR Part 28, "New Restrictions on Lobbying."

LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 15 CFR Part 28, for persons entering into a grant, cooperative agreement or contract over \$100,000 or a loan or loan guarantee over \$150,000 as defined at 15 CFR Part 28, Sections 28.105 and 28.110, the applicant certifies that to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

In any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above applicable certification.

NAME OF APPLICANT

AWARD NUMBER AND/OR PROJECT NAME

PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

SIGNATURE

DATE

**NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
(EXECUTIVE ORDER 11246 AND 41 CFR PART 60-4)**

The following Notice shall be included in, and shall be a part of all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of \$10,000.

The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables	Goals for minority participation for each trade	Goals for female participation for each trade
	33 %	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is:

State of South Carolina

County of Georgetown

City of Andrews

APPENDIX B

CSX Design and Construction Standard Specifications



DESIGN AND CONSTRUCTION STANDARD SPECIFICATIONS

Pipeline Occupancies

OFFICE OF:
VICE PRESIDENT - ENGINEERING
JACKSONVILLE, FLORIDA
ISSUED: September 15, 2003
REVISED: June 5, 2018

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PART 1 – INTRODUCTION

1.1 Scope

- a) This specification shall apply to the design and construction of pipelines carrying flammable or non-flammable substances and casings containing wires, cables, and carrier pipes across and along CSXT property and facilities. This specification shall also apply to tracks owned by others (sidings, industry tracks, etc.) over which CSXT operates its equipment.
- b) It is to be clearly understood that CSXT owns its right-of-way for the primary purpose of operating a railroad. All occupancies shall therefore be designed and constructed so that rail operations and facilities are not interfered with, interrupted, or endangered. In addition, the proposed facility shall be located to minimize encumbrance to the right-of-way so that the railroad will have unrestricted use of its property for current and future operations.

1.2 Definitions

CSXT	CSX Transportation, Inc.
CS	Corridor Services
Owner (Applicant)	Individual, Corporation, or Municipality desiring occupancy of CSXT property
Professional Engineer	Engineer licensed in the state where the facilities are to be constructed
Carrier Pipe	Pipe used to transport the commodity
Casing Pipe	Pipe through which the carrier pipe is installed under main tracks
Sidings or Industry Tracks	Tracks located off of CSXT's right-of-way, serving an industry

1.3 Application for Occupancy

- a) Owner (Applicant) desiring occupancy of CSXT property by pipeline occupations must satisfy the following: receive approval by CSXT of all engineering and construction details, execute an appropriate CSXT occupational agreement, and remit payment of any required fees and/or rentals specified therein.
- b) Occupancy applications shall be completed in full with all of the required information requested in order for the application to be processed. Review the entire application package, as well as the engineering specifications, before completing the application.

Applications must be submitted through the CSX Property Portal. Visit www.csx.com to establish an account and submit an application. Once on the site, use the following path: CUSTOMERS→CSX Real Estate→CSX Property Portal.

1.4 Right of Entry

- a) Entry upon CSXT property for the purpose of conducting surveys, field inspections, obtaining soils information, or any other purposes associated with the design and construction for the proposed occupancy, will not be permitted without a proper entry permit prepared by CSXT. The applicant must pay the associated fees and execute the entry permit.
- b) The issuance of an entry permit does not constitute authority to proceed with any construction. Construction cannot begin until a formal agreement is executed by CSXT and the Owner receives permission, from the designated inspection agency of CSXT, to proceed with the work.

1.5 Site Inspection

- a) For longitudinal occupancy of CSXT property, a site inspection along the proposed pipeline route may be required before final design plans are prepared. When a site inspection is required, the applicant and/or the engineer must meet with a CSXT Field Representative to view the entire length of the proposed occupancy; the applicant will be informed of the need for a meeting during application processing.
- b) Prior to the site inspection the applicant must submit the following information:
 - i) A plan view of the proposed route showing all tracks, both CSXT right-of-way lines, and all other facilities located on the right-of-way. The distance from the proposed pipeline to the adjacent track and to the right-of-way lines must be shown.
 - ii) A complete application form.
- c) Site inspections for pipe crossings are not required unless, in the opinion of CSXT, the size and location of the facility warrant an inspection.

1.6 Information Required for Submission

- a) All plans and documents required in the application package shall be submitted as per the instructions in the application package.
- b) Failure to follow these instructions may result in the return of the information provided without further action taken.

1.7 Notification to Proceed with Outside Party Request Form

- a) After approval of the engineering plans and full execution of the facility encroachment agreement, the Owner will receive an e-mail notification containing a special reference number and link to the CSX Property Portal – Outside Party Request Form application. CSX requires 30 days’ advance notice to schedule any activity.
- b) Once the OP Form is received, the Owner or their Contractor will be contacted to discuss construction scheduling.
- c) CSXT will determine if the project requires flagging, construction monitoring, or both. All costs associated with flagging and/or construction monitoring will be the responsibility of the Owner. CSXT, at its sole discretion, may elect to have the Owner remit payment for the estimated flagging/construction monitoring cost in advance or elect to invoice the Owner the actual cost as incurred.

END OF PART 1

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PART 2 – GENERAL REQUIREMENTS

2.1 Use of Casing Pipe

- a) A casing pipe will be required for all pipeline crossings carrying liquid or gaseous substances. The casing pipe for liquid and gaseous substances may be omitted if the proposed pipe will be installed by the horizontal directional drilling (HDD) method. Reference section 4.1.5 for additional information and requirements.
- b) For natural gas pipelines, the casing pipe may be omitted provided the carrier pipe meets the requirements in the Uncased Pipelines Carrying Gas section of this document. CSXT may require the use of a casing pipe at locations where increased risks from specific site conditions (traffic speed, traffic density, etc.) are present.
- c) For non-pressure sewer or drainage crossings, where the installation can be made by open cut (see Construction Requirements Section) or reinforced concrete pipe can be jacked under the railroad (see Construction Requirements Section), the casing pipe may be omitted.
- d) Pressure pipelines that are located within 25 feet of the centerline of any track shall be encased.
- e) At proposed pipe crossing the casing pipe shall be laid **across the entire width of the right-of-way**, except where a greater length is required to comply with the Design Requirements-Casing Pipe Section of this specification, even though such extension is beyond the right-of-way.
- f) At the discretion of CSXT a casing pipe may be required for any application regardless of the commodity carried.

2.2 Location of Pipeline on the Right-of-Way

- a) Pipelines laid longitudinally on CSXT's right-of-way shall be located as far as practicable from any tracks or other important structures and as close to the railroad property line as possible. Longitudinal pipelines must not be located in earth embankments or within ditches located on the right-of-way.
- b) Pipelines shall be located, where practicable, to cross tracks at approximate right angles to the track, but preferably at not less than 45 degrees.
- c) Pipelines shall not be placed within a culvert, under railroad bridges, nor closer than 45 feet to any portion of any railroad bridge, building, or other important structure, except in special cases, and then by special design, as approved by CSXT's Chief Engineer, Design and Construction. Proposed pipelines that are to be located within the public right-of-way will be considered pending engineering review. An effort should be made to maximize distance to any substructure.
- d) Pipelines shall not be located within the limits of a turnout (switch) when crossing the track. The limits of the turnout extend from the point of the switch to 15 feet beyond the last long timber.

- e) Pipeline installations shall not be designed as an open cut installation where the pipeline is to be located within the limits of a grade crossing. If it is shown that no other method of installation is possible, the owner will be responsible for reimbursing CSXT for all costs associated with the removal and reconstruction of the grade crossing (This cost will require advance funding by the pipeline owner).
- f) Pipelines carrying liquefied petroleum gas shall, where practicable, cross the railroad where tracks are carried on embankment.

2.3 Depth of Installation

2.3.1 Pipelines conveying non-flammable substances

- a) Casing/carrier pipes placed under CSXT track(s) shall be not less than 5.5 feet from base of rail to top of pipe at its shallowest point.
- b) Pipelines laid longitudinally on CSXT's right-of-way, 50 feet or less from centerline track shall be buried not less than 4 feet from ground surface to top of pipe. Where the pipeline is laid more than 50 feet from centerline of track, the minimum cover shall be at least 3 feet.

2.3.2 Pipelines conveying flammable substances

- a) Casing pipes under CSXT track(s) shall be not less than 5.5 feet from base of rail to top of pipe at its closest point. On other portions of the right-of-way, where the pipe is not directly beneath any track, the depth from ground surface or from bottom of ditch to top of pipe shall not be less than 3 feet. Where 3 feet of cover cannot be provided from bottom of ditch, a 6-inch thick reinforced concrete slab shall be provided over the pipeline for protection.
- b) Uncased natural gas pipelines under CSXT track(s) shall not be less than 10 feet from the base of rail to the top of the pipe at its closest point and not less than 6 feet from ground surface to top of pipe in all other locations. Where it is not possible to obtain the above depths, use of a casing pipe will be required.
- c) Pipelines laid longitudinally on CSXT's right-of-way, 50 feet or less from centerline track shall be buried not less than 6 feet from ground surface to top of pipe. Where the pipeline is laid more than 50 feet from centerline of track, the minimum cover shall be at least 5 feet.

2.3.3 Pipelines within Limits of a Dedicated Highway

- a) Pipelines within the limits of a dedicated highway are subject to all the requirements of this specification and must be designed and installed in accordance with this specification.
- b) The limits of the dedicated highway (right-of-way) must be clearly shown on the plans.

- c) Construction cannot begin until an agreement has been executed between CSXT and the Owner and proper notification has been given to CSXT's Regional Engineering Officer (See Notification to Proceed with Outside Party Request Form).

2.4 Modification of Existing Facilities

- a) Any replacement of an existing carrier pipe and/or casing shall be considered as a new installation, subject to the requirements of this specification.
- b) Modification of an existing carrier pipe and/or casing pipe by in-place, non-intrusive methods, such as Cured-in-Place Pipe (CIPP), may be considered as maintenance if there is an agreement between CSXT and the owner covering the existing pipe(s).
- c) CIPP installations will only be considered for the following scenarios:
 - i) Circular Pipes
 - ii) Within the following host pipe materials: brick, concrete, clay tile, vitrified clay, PVC, corrugated steel, cast and ductile iron, fiberglass, or AC pipe. CIPP will not be allowed within smooth wall steel pipes.
- d) CIPP design and installation plans and calculations must be submitted to CSXT's Corridor Services (CS) office for an engineering review if the following scenarios exist:
 - i) Excavation within CSXT right-of-way or TREL is required to access the existing facilities.
 - ii) The host pipe that the CIPP is being applied to is not within a casing pipe, such that the host pipe and CIPP will be subject to all external loads.
 - iii) The CIPP will be within a pipe that is parallel or longitudinal to the CSXT tracks.
- e) CIPP design requirements are included in the Cured-in-Place-Pipes (CIPP) section of this document.

2.5 Abandoned Facilities

- a) The owner of all pipe crossings proposed for abandonment shall notify CSXT, in writing, of the intention to abandon.
- b) Abandoned pipelines shall be removed or completely filled with cement grout, compacted sand, or other methods, as approved by CSXT.
- c) Abandoned manholes and other structures shall be removed to a minimum depth of 2 feet below finished grade and completely filled with cement grout, compacted sand, or other methods as approved by CSXT.

2.6 Conflict of Specifications

- a) Where laws or orders of public authority prescribe a higher degree of protection than specified herein, then the higher degree so prescribed shall be deemed a part of this specification.

2.7 Insulation

- a) Pipelines and casings shall be suitably insulated from underground conduits carrying electric wires on CSXT property.

2.8 Corrosion Protection and Petroleum Leak Prevention

- a) Pipelines on CSXT property that carry petroleum products, hazardous gases, or hazardous liquids shall be designed in accordance with current federal, state, and/or local regulations that mandate leak detection automatic shutoff, leak monitoring, sacrificial anodes, and/or exterior coatings to minimize corrosion and prevent petroleum releases.

2.9 Plastic Carrier Pipe Materials

- a) Plastic carrier pipe materials include, but are not limited to thermoplastic and thermoset plastic pipes, Thermoplastic types include Polyvinyl Chloride (PVC), Acrylonitrile Butadiene Styrene (ABS), High Density Polyethylene (HDPE), Polyethylene (PE), Polybutylene (PB), Cellulose Acetate Butyrate (CAB), and Styrene Rubber (SR), Thermoset types include Reinforced Plastic Mortar (RPM), Reinforced Thermosetting Resin (FRP) and Fiberglass Reinforce Plastic (FRP).
- b) Plastic carrier pipelines shall be encased according to AREMA Chapter 1 Section 5.1.5.
- c) Plastic pipe material shall not be used to convey **liquid** flammable substances.
- d) Plastic pipe material shall be resistant to the chemicals with which contact can be anticipated. Plastic carrier pipe shall not be utilized where there is potential for contact with petroleum contaminated soils or other non-polar organic compounds that may be present in surrounding soils.
- e) Plastic carrier pipe can be utilized to convey flammable **gas** products provided the pipe material is compatible with the type of product conveyed and the maximum allowable operating pressure is less than 100 PSI. Carrier pipe materials, design, and installation shall conform to Code of Federal Regulation 49CFR§178 to §199, specifically §192 and American National Standards Institute ASME B31.8 and ASTM D2513. Codes, specifications, and regulations current at time of construction of the pipeline shall govern the installation of the facility within the railway right-of-way. The proof testing of the strength of carrier pipe shall be in accordance with ANSI requirements. Plastic carrier pipes will be encased according to AREMA Chapter 1 Section 5.1.5.
- f) Plastic carrier pipe conveying flammable substances shall be encased the entire limits of the right-of-way. If special conditions exist which prevent encasement within the entire limits

of the right-of-way, the Chief Engineer, Design and Construction must approve the minimum encased length.

- g) Plastic carrier pipe must be encased under all tracks, including sidings and industrial tracks within the limits of the right-of-way.
- h) Longitudinal carrier pipeline shall be steel or ductile iron. Plastic carrier pipe may be utilized for longitudinal installation with approval by the Chief Engineer, Design and Construction, but shall be fully encased within the limits of the right-of-way.
- i) Codes, specifications, and regulations current at the time of construction the pipeline shall govern the installation of the facility within the railway rights-of-way. The proof testing of the strength of carrier pipe shall be in accordance with ANSI requirements.

Specification Number

ANSI/AWWA C900

ANSI/AWWA C901

ANSI/AWWA C902

ANSI/AWWA C905

ANSI/AWWA C906

ANSI/AWWA C907

ANSI/AWWA C950

Carrier Pipe Properties

PVC pressure pipe 4" through 12"

PE pressure pipe and tubing ½" through 3" for water

PE pressure pipe and tubing ½" through 3" for water

PVC water pipe, 14" through 36"

PE pressure pipe and fittings 4" – 63" for water

PVC pressure fittings 4" – 8"

Fiberglass pressure pipe

END OF PART 2

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PART 3 – DESIGN REQUIREMENTS

3.1 Soil Investigation

3.1.1 General Requirements

- a) Test borings or other soil investigations, approved by CSXT's Chief Engineer, Design and Construction, shall be made to determine the nature of the underlying material for all pipe crossings with casing pipe sizes greater or equal to 48 inches in diameter and larger under track(s).
- b) Test borings or other soil investigations, approved by CSXT's Chief Engineer, Design and Construction, may be required when, in the judgment of CSXT, they are necessary to determine the adequacy of the design and construction of pipe crossings with casings less than 48 inches in diameter and for other facilities located on the right-of-way. Note: the applicant shall be responsible for the notification of all underground utilities including CSX signal cables.

3.1.2 Location

- a) Borings shall be made on each side of the track(s), on the centerline of the pipe crossing, and as close to the track(s) as practicable. **Entry upon CSXT property for the purpose of conducting borings requires a Right of Entry permit.**
- b) Test boring logs shall be accompanied with a plan, drawn to scale, showing the location of the borings in relation to the track(s) and the proposed pipe.

3.1.3 Sampling

- a) Test borings shall be made in accordance with current ASTM Designation D1586 except that sampling must be continuous from the ground surface to 5 feet below the proposed invert unless rock is encountered before this depth. Where rock is encountered, it is to be cored using a Series "M" Double Tube Core Barrel, with a diamond bit, capable of retrieving a rock core at least 1 5/8" in diameter. Individual core runs are not to exceed 5 feet in length.
- b) All borings shall be sealed, for their full depth, with a 4-3-1 bentonite-cement- sand grout after accurate ground water readings have been taken and recorded.
- c) Soil samples taken from auger vanes or return washwater are not acceptable.

3.1.4 Boring Logs

- a) Test boring logs shall clearly indicate **all** of the following:
 - i) Boring number as shown on the required boring location plan.
 - ii) Ground elevation at each boring using same datum as the pipeline construction plans.

- iii) Engineering description of soils or rock encountered.
 - iv) Depth and percent recovery of all soil samples.
 - v) Depth from surface for each change in strata.
 - vi) Blows for each 6 inches of penetration for the standard penetration test described in ASTM D 1586. Blows for lesser penetrations should be recorded.
 - vii) Percent recovery and Rock Quality Designation (RQD) for all rock cores.
 - viii) Depth to ground water while sampling and when it has stabilized in the bore hole.
- b) The location of the carrier pipe and/or casing pipe shall be superimposed on the boring logs before submission to CSXT.

3.1.5 Additional Information

- a) When directed by CSXT, additional borings may be required for the purpose of taking undisturbed thin-wall piston samples or Dennison type samples for laboratory testing to determine the index and engineering properties of certain soil strata.

3.2 Design Loads

3.2.1 General Requirements

- a) All pipes, manholes, and other facilities shall be designed for the external and internal loads to which they will be subjected.
- b) To allow for placement of additional track(s) or shifting of the existing track(s), all proposed pipelines or structures shall be designed as if a railroad loading is directly above the facility.

3.2.2 Earth Load

- a) The dead load of the earth shall be considered as 120 pounds per cubic foot unless soil conditions warrant the use of a higher value.

3.2.3 Railroad Load (live load and impact)

- a) The railroad live load used shall be a Cooper E-80 loading. This loading consists of 80 kip axle loads spaced 5 feet on centers.
- b) An impact factor of 1.75 (multiply live load by the impact factor) shall be used for depth of cover up to 5 feet. Between 5 and 30 feet, the impact factor is reduced by 0.03 per foot of depth. Below a depth of 30 feet, the impact factor is one.
- c) The values shown in Table 1 shall be used for the vertical pressure on a buried structure for the various heights of cover.

Table 1 - Live loads, including impact for various heights of cover for a Cooper E-80 loading

Height of Cover	Load	
	Pound per square foot	(kPa)
2	3800	(162.8)
3	3150	(150.8)
4	2850	(136.5)
5	2550	(122.1)
6	2250	(107.7)
7	1950	(93.4)
8	1700	(81.4)
9	1500	(71.8)
10	1300	(62.2)
12	1000	(47.9)
14	800	(38.3)
16	625	(29.9)
18	500	(23.9)
20	400	(19.2)
25	250	(12.0)
30	150	(7.2)

- d) To determine the horizontal pressure caused by the railroad loading on a sheet pile wall or other structure adjacent to the track, the Boussinesq analysis shall be used. The load on the track shall be taken as a strip load with a width equal to the length of the ties which is typically, 8.5 feet. The vertical surcharge, q (psf), caused by each axle, shall be uniform and equal to the axle load divided by the tie length and the axle spacing, 5 feet. For the E-80 loading this results in:

$$q = 80,000 / (8.5 \times 5) = 1882 \text{ psf}$$

The horizontal pressure due to the live load surcharge at any point on the wall or other structure is p_h and can be calculated by the following:

$$p_h = (2q/\pi)(\beta - \sin \beta (\cos 2\alpha))$$

- e) The vertical and horizontal pressures given above shall be used unless an alternate design method is approved by CSXT. Proposals to use an alternate design method must include acceptable references and a statement explaining the justification for choosing the alternate method.

3.3 Design Assumptions

- a) To design a casing pipe or an uncased carrier pipe for the external loads on CSXT's right-of-way, the following design assumptions shall be used, unless site conditions indicate more conservative values are required:

3.3.1 Flexible Pipe (Steel, DIP, CMP, and Tunnel Liner Plate)

a) Steel Pipe (Bored and jacked in place)

i) Spangler's Iowa formula shall be used for design with:

Deflection lag factor	-	$D_f = 1.5$
Modulus of soil reaction	-	$E' = 1080 \text{ psi}$
Bedding constant	-	$K_b = 0.096$
Soil loading constant	-	$K_u = 0.13$
Allowable deflection of pipe	-	3% of pipe diameter

b) Ductile Iron Pipe (Open Cut)

i) AWWA Specification C150 shall be used for design with:

Pipe laying condition = Type 3
Earth load - ANSI A 51.50 prism method

c) Corrugated Steel Pipe & Corrugated Structural Steel Plate Pipe (Open Cut)

i) AREMA Chapter 1, Sections 4.9 & 4.10 shall be used for design with:

Soil stiffness factor - $K = 0.33$
Railroad impact as per Design Requirements-Casing Pipe Section of this specification.

d) Tunnel Liner Plate (Tunneled)

i) AREMA Chapter 1, Part 4, Section 4.16 shall be used for design with:

Soil stiffness factor - $K = 0.33$
Railroad impact as per Design Requirements-Casing Pipe Section of this specification.

3.3.2 Rigid Pipe (RCP, Vitrified Clay Pipe, and PCCP)

a) Reinforced Concrete Pipe, Vitrified Clay Pipe and Prestressed Concrete Cylinder Pipe (Open Cut)

i) American Concrete Pipe Association design manual shall be used for design with:

Marston load theory used for earth load

Bedding (Load Factor)	-	$L_f = 1.9$
Factor of safety	-	FS = 1.25 for RCP FS = 1.50 for VCP

Railroad impact as per Design Requirements-Casing Pipe Section of this specification.

b) Reinforced Concrete Pipe (Jacked)

i) American Concrete Pipe Association design manual shall be used for design with:

Marston load theory used for earth load

Bedding (Load Factor)	-	$L_f = 3.0$
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Factor of safety = 1.25

Railroad impact as per Design Requirements-Design Loads Section of this specification.

Others – As approved by CSXT

3.4 Casing Pipe

3.4.1 General Requirements

- a) Casing pipe shall be so constructed as to prevent leakage of any substance from the casing throughout its length, except at ends of casing where ends are left open, or through vent pipes when ends of casing are sealed. Casing shall be installed so as to prevent the formation of a waterway under the railroad, and with an even bearing throughout its length, and shall slope to one end (except for longitudinal occupancy).
- b) The casing pipe and joints shall be of steel and of leakproof construction when the pipeline is carrying liquid flammable products or highly volatile substances under pressure.
- c) The inside diameter of the casing pipe shall be such as to allow the carrier pipe to be removed subsequently without disturbing the casing or the roadbed. For steel pipe casings, the inside diameter of the casing pipe shall be at least 2 inches greater than the largest outside diameter of the carrier pipe joints or couplings, for carrier pipe less than 6 inches in diameter; and at least 4 inches greater for carrier pipe 6 inches and over in diameter.
- d) For flexible casing pipe, a maximum vertical deflection of the casing pipe of 3 percent of its diameter, plus ½ inch (13 mm) clearance shall be provided so that no loads from the roadbed, track, traffic, or casing pipe itself are transmitted to the carrier pipe. When insulators are used on the carrier pipe, the inside diameter of the flexible casing pipe shall be at least 2 inches greater than the outside diameter of the carrier pipe for pipe less than 8 inches in diameter; at least ¾ inches greater for pipe 8 inches to 16 inches, inclusive, in diameter and at least 4½ inches greater for pipe 18 inches and over in diameter.
- e) In no event shall the casing pipe diameter be larger than is necessary to permit the insertion of the carrier pipe.

- f) Casing pipe under railroad tracks and across CSXT's right-of-way shall extend the **greater** of the following distances, measured at right angle to centerline of track:
- i) Across the entire width of the CSXT right-of-way.
 - ii) 3 feet beyond ditch line.
 - iii) 2 feet beyond toe of slope.
 - iv) A minimum distance of 25 feet from each side of centerline of outside track when casing is sealed at both ends.
 - v) A minimum distance of 45 feet from centerline of outside track when casing is open at both ends.
 - vi) Beyond the theoretical railroad embankment line. This line begins at a point 12 feet horizontally from centerline track, 18 inches below top-of-rail, and extends downward on a 1½ (H) to 1 (V) slope.
- g) If additional tracks are constructed in the future, the casing shall be extended correspondingly at the Owner's expense.

3.4.2 Steel Pipe

- a) Steel pipe may be installed by open cut, boring or jacking depending on situation.
- b) Steel pipe shall have a specified minimum yield strength, SMYS, of at least 35,000 psi. The ASTM or API specification and grade for the pipe are to be shown on the Application Form.
- c) Joints between the sections of pipe shall be constructed to be capable of withstanding railroad loading. Joints can either be constructed through butt welding or through the use of interlocking joints.
- d) Steel casing pipe, with a **minimum** cover of 5.5 ft., shall have a minimum wall thickness as shown in Table 2, unless computations indicate that a thicker wall is required.

Table 2 – Steel Casing Pipe Wall Thicknesses

Pipe Diameter Nominal Pipe Size (in.)	Coated or Cathodically Protected Nominal Wall Thickness (in.)	Uncoated and Unprotected Nominal Wall Thickness (in.)
10 and under	0.188	0.188
12 & 14	0.188	0.250
16	0.219	0.281
18	0.250	0.312
20 & 22	0.281	0.344
24	0.312	0.375
26	0.344	0.406
28	0.375	0.438
30	0.406	0.469
32	0.438	0.500
34 & 36	0.469	0.532
38	0.500	0.562
40	0.531	0.594
42	0.562	0.625
44 & 46	0.594	0.657
48	0.625	0.688
50	0.656	0.719
52	0.688	0.750
54	0.719	0.781
56 & 58	0.750	0.812
60	0.781	0.844
62	0.812	0.875
64	0.844	0.906
66 & 68	0.875	0.938
70	0.906	0.969
72	0.938	1.000

- e) Coated steel pipe that is bored or jacked into place shall conform to the wall thickness requirements for uncoated steel pipe since the coating may be damaged during installation.
- f) For the required wall thicknesses on uncased steel carrier pipes conveying natural gas, refer to Uncased Pipelines Carrying Gas section in this document.
- g) Smooth wall steel pipes with a nominal diameter over 72 inches will not be permitted.

3.4.3 Ductile Iron Pipe

- a) Ductile iron pipe may be used only at the sole discretion of the Chief Engineer, Design and Construction when placed by the open cut method. Jacking or boring through the railroad embankment is not permitted due to the bell and spigot joints.
- b) Ductile iron pipe shall conform to the requirements of ANSI A21.51/AWWA C-151. Class 56 pipe shall be used unless computations, in accordance with the Design Requirements- Design Loads and Design Assumptions sections, are provided.

- c) Table 3 is based on the design assumptions given in the Design Requirements-Design Loads Section with a minimum cover of 5.5 feet. This table is provided for information only.

Table 3 – Ductile Iron Pipe Wall Thicknesses

Pipe Diameter (in.)	Thickness Class		Pressure Class
	Wall Thickness (in.)	Class	
3	0.25	51	350
4	0.25	51	350
6	0.25	50	350
8	0.25	50	350
10	0.26	51	350
12	0.28	51	350
14	0.31	52	350
16	0.34	52	350
18	0.36	53	350
20	0.38	53	350
24	0.42	55	350
30	0.49	56	350
36	0.56	56	350
42	0.63	56	350
48	0.70	56	350
54	0.79	56	350

- d) The pipe shall have mechanical or push on type joints.

3.4.4 Corrugated Steel Pipe and Corrugated Structural Steel Plate Pipe

- a) Corrugated steel pipe and corrugated structural steel plate pipe may be used for a casing only when placed by the open cut method. Jacking or boring through the railroad embankment is not permitted.
- b) Corrugated steel pipe and corrugated structural steel plate pipe may be used for a casing provided the pressure in the carrier pipe is less than 100 psi.
- c) Pipe shall be bituminous coated and shall conform to the current AREMA Specifications Chapter 1, Part 4.
- d) Corrugated steel pipe shall have a minimum sheet thickness as shown in Table 4. Corrugated structural steel plate pipe shall have a minimum plate thickness of 8 gage, 0.168 in. If computations indicate that a greater thickness is required, the thicker sheet or plate shall be used.

Table 4 – Corrugated Steel Pipe Wall Thicknesses

Pipe Diameter (in.)	Sheet Thickness	
	(Gauge)	(in.)
12 to 30	14	0.079
36	12	0.109
42 to 54	10	0.138
60 to 120	8	0.168

3.4.5 Steel Tunnel Liner Plate

- a) Liner plates shall be installed by the tunneling method as detailed in the Construction Requirements-Method of Installation section of this specification.
- b) Tunnel liner plates shall be galvanized and bituminous coated and shall conform to current AREMA guidelines. If the tunnel liner plates are used only to maintain a tunneled opening until the carrier pipe is installed, and the annular space between the carrier pipe and the tunnel liner is completely filled with cement grout within a reasonably short time after completion of the tunnel, then the tunnel liner plates need not be galvanized and coated.
- c) Tunnel liner plates are to be a minimum of 12 gage and shall be fabricated from structural quality, hot-rolled, carbon-steel sheets or plates conforming to ASTM Specification A 1011.
- d) The following liner plate information must be shown on the Application Form:
 - i) Number of flanges (2 or 4)
 - ii) Width of plate
 - iii) Type of plate (smooth or corrugated)

3.4.6 Reinforced Concrete Pipe

- a) Reinforced concrete pipe shall be installed by the open cut (at the sole discretion of the Chief Engineer, Design and Construction) or jacking method.
- b) Reinforced concrete pipe shall conform to ASTM Specification C 76. Class V pipe, Wall B or C shall be used unless computations, in accordance with the Design Requirements-Design Assumptions, are provided.
- c) Reinforced concrete pipe may be used for a casing provided the pressure in the carrier pipe is less than 100 psi.
- d) Pipe placed by open cut shall be installed in accordance with AREMA Guidelines except that backfill and compaction shall be in accordance with the Construction Requirements-Method of Installation section of this specification.

- e) Pipe jacked into place shall have tongue and groove joints and shall be installed in accordance with the Construction Requirements-Method of Installation section of this specification.
- f) Joints between sections of the RCP shall be sealed with a gasket conforming to ASTM C 443 or approved equal.

3.4.7 Concrete Encasement

- a) At locations where the installation is by open cut and a casing pipe is required, but cannot be installed due to elbows or other obstructions, concrete encasement may be used when approved by CSXT.
- b) The concrete encasement must provide a minimum cover of 6 inches of concrete around the pipe. A 6 x 6 - W 2.9 x W 2.9 welded wire fabric shall be placed in the concrete on all sides.

3.5 Carrier Pipe

3.5.1 General Requirements

- a) The pipe shall be laid with sufficient slack so that it is not in tension.
- b) Steel pipe shall not be used to convey sewage, storm water, or other liquids that could cause corrosion.
- c) Carrier pipes located on CSXT's right-of-way or under tracks which CSXT operates, shall be manufactured in accordance with the following specifications:
 - i) Steel Pipe - The ASTM or API specification and grade for the pipe is to be shown on the Application Form. The specified minimum yield strength is to be at least 35,000 psi. For flammable substances, see the Design Requirements-Carrier Pipe Section of this document for additional requirements.
 - ii) Ductile Iron Pipe - ANSI A21.51/AWWA C151
 - iii) Corrugated Metal Pipe - AREMA Chapter 1, Part 4
 - iv) Reinforced Concrete Pipe - ASTM C 76
 - v) Vitrified Clay Pipe - ASTM C 700
 - vi) Prestressed Concrete Cylinder Pipe - AWWA C301
 - vii) Reinforced Concrete Cylinder Pipe - AWWA C300
 - viii) Others - As approved by CSXT.

- d) Carrier pipes installed within a casing pipe shall be designed for the internal pressure to which it will be subjected.
- e) Gravity flow carrier pipes, installed without a casing pipe, shall meet the requirements, of the particular pipe material, as given in Design Requirements-Casing Pipe Section of this specification.
- f) Design computations, stamped by a Professional Engineer, must be submitted for all uncased pressure pipelines installed on CSXT's right-of- way. The pipe must be designed for the internal and external loads (see the Design Requirements Section of this document) to which it may be subjected. The design assumptions given in Design Requirements Section shall apply.

3.5.2 Pipelines Carrying Flammable Substances

- a) Products shall be of steel and conform to the requirements of the current ASME B 31.4 Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia, and Alcohols, and other applicable ASME codes, except that the maximum allowable stresses for design of steel pipe shall not exceed the following percentages of the specified minimum yield strength (multiplied by the longitudinal joint factor) of the pipe as defined in the above codes:
 - i) Seventy-two percent on oil pipelines.
 - ii) Fifty percent for pipelines carrying condensate, natural gasoline, natural gas liquids, liquefied petroleum gas, and other liquid petroleum products.
 - iii) Sixty percent for installations on gas pipelines.
- b) The following percentages apply to hoop stress in steel pipe within a casing under railroad tracks, across railroad right-of-way and longitudinally on railroad right-of-way:
 - i) Sixty percent on oil pipelines.
 - ii) Forty percent for pipelines carrying condensate, natural gasoline, natural gas liquids, liquefied petroleum gas, and other liquid petroleum products.
- c) The following percentages apply to hoop stress in steel pipe laid longitudinally on railroad right-of-way without a casing:
 - i) Sixty percent for oil pipelines.
 - ii) Forty percent for pipelines carrying condensate, natural gasoline, natural gas liquids, liquefied petroleum gas, and other liquid petroleum products.
- d) Computations, based on the above requirements and stamped by a Professional Engineer shall be submitted with the application for occupancy.

3.5.3 Uncased Pipelines Carrying Gas

- a) Pipelines carrying flammable and nonflammable gas products shall be steel and shall conform to the requirements of the current ASME B 31.8 Gas Transmission and Distribution Piping Systems, and other applicable ANSI codes.

- b) The minimum wall thickness for uncased carrier pipe shall be in accordance with the values provided in AREMA, Chapter 1, Part 5, Section 5.2.
- c) A durable coating, which will resist abrasion (fusion bonded epoxy or other suitable material), shall be used to protect the uncased pipeline when the boring method of installation is used.
- d) If CSXT determines there is the potential for damage to the uncased pipeline (foreign material in the subgrade, third party damage, etc.), special protection of the pipeline will be required. Special protection may include the use of concrete jacketed carrier pipe, a protection slab over the pipeline, increased depth of bury or other means.

3.6 Casing Pipe End Seals

- a) Casings for carrier pipes of flammable and hazardous substances shall be suitably sealed to the outside of the carrier pipe. Details of the end seals shall be shown on the plans.
- b) Casings for carrier pipes of non-flammable substances shall have both ends of the casing blocked up in such a way as to prevent the entrance of foreign material, but allowing leakage to pass in the event of a carrier break.
- c) The ends of a casing pipe may be left open when the ends are at or above ground surface and above high water level, provided drainage is afforded in such a manner that leakage will be conducted away from railroad tracks and structures.

3.7 Vents

- a) Sealed casings for flammable substances shall be properly vented. Vent pipes shall be of sufficient diameter, but in no case less than two inches in diameter, and shall be attached near each end of the casing and project through the ground surface at right-of-way lines or not less than 45 feet, measured at right angles from centerline of nearest track.
- b) Vent pipes shall extend not less than 4 feet above the ground surface. Top of vent pipe shall have a down-turned elbow, properly screened, or a relief valve. Vents in locations subject to high water shall be extended above the maximum elevation of high water and shall be supported and protected in a manner approved by CSXT.
- c) Vent pipes shall be at least 4 feet, vertically, from aerial electric wires or greater if required by National Electrical Safety Code (ANSI C2).
- d) When the pipeline is in a public highway, street-type vents shall be installed.

3.8 Signs

- a) All pipelines (except those in streets where it would not be practical to do so) shall be prominently marked at right-of-way lines (on both sides of track for crossings) by durable, weatherproof signs located over the centerline of the pipe. Signs shall show the following:
 - i) Name and address of owner

- ii) Contents of pipe
 - iii) Pressure in pipe
 - iv) Pipe depth below grade at point of a sign
 - v) Emergency telephone number in event of pipe rupture
- b) For pipelines running longitudinally on CSXT property, signs shall be placed over the pipe (or offset and appropriately marked) at all changes in direction of the pipeline. Such signs should also be located so that when standing at one sign the next adjacent marker in either direction is visible. In no event shall they be placed more than 500 feet apart unless otherwise specified by CSXT.
- c) The Owner must maintain all signs on CSXT's right-of-way as long as the occupational agreement is in effect.

3.9 Warning Tape

- a) All pressure pipelines installed by the trench method, without a casing, shall have a warning tape placed directly above the pipeline, 2 feet below the ground surface.

3.10 Shut-off Valves

- a) Accessible emergency shut-off valves shall be installed within 2,000 feet on both sides of the pipeline crossing or longitudinal occupancy.
- b) Steel pipelines conveying Natural Gas may exceed the 2,000 foot spacing requirement provided the following conditions are met:
 - i) The pipeline is equipped with Automatic or Remotely Controlled shut-off valves.
 - ii) Location of valves shall be in compliance with all State and Federal Regulations.
 - iii) The pipeline is monitored on a continuous, 24 hour - 365 day basis from a central control center.
 - iv) The pipeline operator shall provide CSXT with current emergency contact information

3.11 Cathodic Protection

- a) Cathodic protection shall be applied to all pipelines carrying flammable substances on CSXT's right-of-way.

- b) For crossings and at other locations where the pipeline must be placed within a casing, the casing is to have cathodic protection or the wall thickness is to be increased to the requirements of the Design Requirements Section Table 2.
- c) Uncased gas carrier pipes must be coated and cathodically protected to industry standards and test sites, for monitoring the pipeline, provided within 50 feet of the crossing.
- d) Where casing and/or carrier pipes are cathodically protected by other than anodes, CSXT shall be notified and a suitable test made to ensure that other railroad structures and facilities are adequately protected from the cathodic current in accordance with the recommendation of current Reports of Correlating Committee on Cathodic Protection, published by the National Association of Corrosion Engineers.
- e) Where sacrificial anodes are used, the locations shall be marked with durable signs.

3.12 Manholes

- a) Manholes shall not be located on CSXT property where possible. At locations where this is not practical, including longitudinal occupancies, manholes shall be precast concrete sections conforming to ASTM Designation C 478, "Specification for Precast Concrete Manhole Sections."
- b) The top of manholes located on CSXT property shall be flush with top of ground.
- c) The distance from centerline of adjacent track to centerline of proposed manhole shall be shown on the plans.

3.13 Box Culverts

- a) Reinforced concrete box culverts shall be designed in conformance with CSX Standards and AREMA Guidelines.

3.14 Drainage

- a) Occupancies shall be designed, and their construction shall be accomplished, so that adequate and uninterrupted drainage of CSXT's right-of-way is maintained.
- b) All pipes, ditches, and other structures carrying surface drainage on CSXT property and/or under CSXT track(s) shall be designed to carry the run-off from a one hundred (100) year storm. Plans submitted to CSXT for approval shall be prepared by a Professional Engineer and should indicate design, suitable topographic plan, and outline of total drainage area.
- c) If the drainage is to discharge into an existing drainage channel on CSXT's right-of-way and/or through a drainage structure under CSXT's track(s), the computations must include the hydraulic analysis of any existing ditch and/or structure.
- d) When calculating the capacity of existing or proposed drainage structures, under CSXT's track(s), the headwater calculation at the structure shall not be greater than one (1) pipe diameter.

- e) Pipe(s) used to carry surface drainage on CSXT's right-of-way shall have a minimum diameter of 24 inches.
- f) Detention ponds must not be placed on any part of CSXT's right-of-way. Also, the railroad embankment must not be used as any part of a detention pond structure.
- g) Formal approval of the proposed design, by the appropriate governmental agency having jurisdiction, shall be submitted with the drainage computations.

3.15 Pipelines on Bridges

- a) Pipelines **cannot** be installed on any bridge carrying CSXT tracks.
- b) Overhead pipe bridges will only be considered over CSXT right-of-way when underground installation of the pipeline is not possible. The Applicant must show that no practicable alternative is available and overhead pipe bridges will be permitted provided the conditions in Section 3.17 are met.
- c) Pipelines carrying flammable substances or non-flammable substances, which by their nature might cause damage if escaping on or near railroad facilities or personnel, shall not be installed on bridges over CSXT tracks. In special cases when it can be demonstrated to CSXT's satisfaction that such an installation is necessary and that no practicable alternative is available, CSXT may permit the installation and only by special design approved by the Chief Engineer, Design and Construction.
- d) When permitted, pipelines on bridges over CSXT tracks shall be so located as to minimize the possibility of damage from vehicles, railroad equipment, vandalism, and other external causes. They shall be encased in a casing pipe as directed by CSXT.

3.16 Cured-in-Place Pipes (CIPP)

- a) CIPP installations shall be designed in accordance with ASTM F1216 Appendix X1.
- b) CIPP to be installed in a casing pipe or an uncased carrier pipe shall be designed for a Fully Deteriorated condition. A Partially Deteriorated design condition will only be accepted for CIPP of carrier pipe that is already within a casing pipe. All CIPP calculations must be signed and sealed by a licensed Professional Engineer.
- c) CIPP designs will not be accepted when the wall thickness of the CIPP liner is greater than 2 inches.

3.17 Pipe Bridges / Conveyors

- a) The following are minimum requirements for the construction of pipe bridges:
 - i) The vertical clearance, distance from top of rail to closest component of structure, is shown and is a minimum of 23 feet, measured at a point 6 feet horizontally from centerline track.

- ii) The support bents for the overhead structure are located off CSXT's right-of-way or a minimum clear distance of 20 feet from centerline track, whichever distance is greater.
 - iii) Support bents within 25 feet of centerline track have pier protection in accordance with AREMA, Chapter 8 Section 2.1.5.
 - iv) Complete structural plans and design computations for the structure and foundations, sealed by a licensed Professional Engineer, are submitted with the application.
 - v) A fence (topped with barbed wire) or other measures are provided which will prevent access to the bridge by unauthorized personnel or vandals.
- b) The following are minimum requirements for the construction of conveyors:
- i) The vertical clearance, distance from top of rail to closest component of structure, is shown and is a minimum of 23 feet, measured at a point 6 feet horizontally from centerline track.
 - ii) The support bents for the overhead structure are located off CSXT's right-of-way or a minimum clear distance of 20 feet from centerline track, whichever distance is greater.
 - iii) Support bents within 25 feet of centerline track have pier protection in accordance with AREMA, Chapter 8 Section 2.1.5.
 - iv) Complete structural plans and design computations for the structure and foundations, sealed by a licensed Professional Engineer, are submitted with the application.
 - v) A fence (topped with barbed wire) or other measures are provided which will prevent access to the bridge by unauthorized personnel or vandals.
 - vi) Plan revisions, if applicable, are to include all proposed utilities attached to the proposed conveyor that do not service the conveyor.

END OF PART 3

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PART 4 – CONSTRUCTION REQUIREMENTS

4.1 Method of Installation

4.1.1 General Requirements

- a) Bored, jacked, or tunneled installations shall have a bore hole essentially the same as the outside diameter of the pipe plus the thickness of the protective coating.
- b) The use of water or other liquids to facilitate casing emplacement and spoil removal is prohibited.
- c) If, during installation, an obstruction is encountered which prevents installation of the pipe in accordance with this specification, notify CSXT immediately, abandon the pipe in place, and immediately fill with grout. A new installation procedure and revised plans must be submitted to, and approved by, CSXT before work can resume.

4.1.2 Bore and Jack (Steel Pipe)

- a) This method consists of pushing the pipe into the earth with a boring auger rotating within the pipe to remove the spoil.
- b) The boring operation shall be progressed on a 24-hour basis without stoppage (except for adding lengths of pipe) until the leading edge of the pipe has reached the receiving pit.
- c) The front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger from leading the pipe so that no unsupported excavation is ahead of the pipe.
- d) The auger and cutting head arrangement shall be removable from within the pipe in the event an obstruction is encountered.
- e) The over-cut by the cutting head shall not exceed the outside diameter of the pipe by more than ½ inch. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe (plus coating) by more than approximately 1 inch grouting (see the Construction Requirements-Grouting Section) or other methods approved by CSXT, shall be employed to fill such voids.
- f) The face of the cutting head shall be arranged to provide a reasonable obstruction to the free flow of soft or poor material.
- g) Plans and description of the arrangement to be used shall be submitted to CSXT for approval and no work shall proceed until such approval is obtained.
- h) Any method that employs simultaneous boring and jacking for pipes over 8 inches in diameter that does not have above approved arrangement **will not be permitted**. For pipe 8 inches and less in diameter, auguring or boring without this arrangement may be considered for use only as approved by CSXT.

4.1.3 Jacking (RCP and Steel Pipe)

- a) This method consists of pushing sections of pipe into position with jacks placed against a backstop and excavation performed by hand from within the jacking shield at the head of the pipe. Ordinarily 36 inch pipe is the least size that should be used, since it is not practical to work within smaller diameter pipes.
- b) Jacking shall be in accordance with the current AREMA Guidelines, Chapter 1, Section 4.13, "Earth Boring and Jacking Culvert Pipe Through Fills." This operation shall be conducted without hand mining ahead of the pipe and without the use of any type of boring, auguring, or drilling equipment.
- c) Bracing and backstops shall be so designed and jacks of sufficient rating used so that the jacking can be progressed on a 24-hour basis without stoppage (except for adding lengths of pipe) until the leading edge of the pipe has reached the receiving pit.
- d) When jacking reinforced concrete pipe, a jacking shield shall be fabricated as a special section of reinforced concrete pipe with a steel cutting edge, hood, breasting attachments, etc., cast into the pipe. The wall thickness and reinforcing shall be designed for the jacking stresses.
- e) When jacking reinforced concrete pipe tapped for no smaller than 1½- inch pipe, grout holes shall be cast into the pipe at manufacture. Three grout holes equally spaced around the circumference and 4 feet longitudinally shall be provided for greater than 54 inches and smaller. Four grout holes equally spaced around the circumference and 4 feet longitudinally shall be provided for RCP 60 inches and larger.
- f) Immediately upon completion of jacking operations, the installation shall be pressure grouted as per Construction Requirements-Grouting Section of this specification.

4.1.4 Tunneling (Tunnel Liner Plate)

- a) This method consists of placing rings of liner plate within the tail section of a tunneling shield or tunneling machine. A tunneling shield shall be used for all liner plate installations unless otherwise approved by CSXT.
- b) The shield shall be of steel construction, designed to support a railroad track loading as specified in the Design Requirements-Casing Pipe of this specification, in addition to the other loadings imposed. The advancing face shall be provided with a hood, extending no less than 20 inches beyond the face and extending around no less than the upper 240 degrees of the total circumference. It shall be of sufficient length to permit the installation of at least one complete ring of liner plates within the shield before it is advanced for the installation of the next ring of liner plates. The shield shall conform to and not exceed the outside dimensions of the liner plate tunnel being placed by more than 1 inch at any point on the periphery unless otherwise approved by CSXT.
- c) The shield shall be adequately braced and provided with necessary appurtenances for completely bulkheading the face with horizontal breastboards, and arranged so that the excavation can be benched as may be necessary. Excavation shall not be advanced beyond the edge of the hood, except in rock.

- d) Manufacturer's shop detail plans and manufacturer's computations showing the ability of the tunnel liner plates to resist the jacking stresses shall be submitted to CSXT for approval.
- e) Unless otherwise approved by CSXT, the tunneling shall be conducted continuously, on a 24-hour basis, until the tunnel liner extends at least beyond the theoretical railroad embankment line.
- f) At any interruption of the tunneling operation, the heading shall be completely bulkheaded.
- g) The liner plates shall have tapped grout holes for no smaller than 1½- inch pipe, spaced at approximately 3 feet around the circumference of the tunnel liner and 4 feet longitudinally.
- h) Grouting behind the liner plates shall be in accordance with the Construction Requirements-Grouting Section of this specification.

4.1.5 Horizontal Directional Drilling

- a) **Installations by this method are considered a variance to CSXT Pipeline Occupancy Specifications**, but special consideration will be given where the depth of cover is substantial, 15 feet or greater, or the bore is in rock. Factors considered will be track usage, pipe size, contents of pipeline, soil conditions, boring equipment and procedures, etc. Reference the CSXT Interim Guidelines for Horizontal Directional Drilling (HDD) for additional information and instructions.

4.1.6 Jack Conduit

- a) Installations by this method are generally not acceptable, but may be considered under special circumstances. This method consists of using hydraulic jacking equipment to push a solid steel rod under the railroad from a launching pit to a receiving pit. At the receiving pit, a cone shaped “expander” is attached to the end of the rod and the conduit (casing pipe) is attached to the expander. The rod, expander, and conduit are then pulled back from the launching pit until the full length of the conduit is in place.
- b) This method may be used to place steel conduit (casing pipe), up to and including 6 inches in diameter, under the railroad.
- c) The project specifications must require the contractor to submit, to CSXT for approval, a complete construction procedure of the proposed boring operation. Included with the submission shall be the manufacturer’s catalog information describing the type of equipment to be used.

4.1.7 Open Cut – Not a readily accepted practice

- a) The Owner must request open cut approval when making application for occupancy. All procedures will be in compliance with AREMA Chapter 1 Section 5.1.5.1(b).
- b) Installations beneath the track by open trench methods will be permitted only with the approval of the Chief Engineer, Design and Construction.

- c) Installations by open cut will not be permitted under mainline tracks, tracks carrying heavy tonnage or tracks carrying passenger trains. Also, open cut shall not be used within the limits of a highway/railroad grade crossing or its approaches, 25 feet either side of traveled way, where possible.
- d) Rigid pipe (RCP, VCP, and PCCP) must be placed in a Class B bedding or better.
- e) At locations where open cut is permitted, the trench is to be backfilled with crushed stone with a top size of the aggregate to be a maximum of 2 inches and to have no more than 5% passing the number 200 sieve. The gradation of the material is to be such that a dense stable mass is produced.
- f) The backfill material shall be placed in loose 6 inch lifts and compacted to at least 95% of its maximum density with a moisture content that is no more than 1% greater than or 2% less than the optimum moisture as determined in accordance with current ASTM Designation D - 1557 (Modified Proctor). When the backfill material is within 3 feet of the subgrade elevation (the interface of the ballast and the subsoil) a compaction of at least 98% will be required. Compaction test results confirming compliance must be provided to CSXT's Regional Engineering Office by the Owner.
- g) All backfilled pipes laid either perpendicular or parallel to the tracks must be designed so that the backfill material will be positively drained. This may require the placement of lateral drains on pipes laid longitudinally to the track and the installation of stub perforated pipes at the edge of the slopes.
- h) Unless otherwise agreed upon, all work involving rail, ties, and other track material will be performed by railroad employees at the sole expense of the Owner, subject to advance payments by the owner.

4.2 Grouting

- a) For jacked and tunneled installations a uniform mixture of 1:6 (cement: sand) cement grout shall be placed under pressure through the grout holes to fill any voids, which exist between the pipe or liner plate and the undisturbed earth.
- b) Grouting shall start at the lowest hole in each grout panel and proceed upwards simultaneously on both sides of the pipe.
- c) A threaded plug shall be installed in each grout hole as the grouting is completed at that hole.
- d) When grouting tunnel liner plates, grouting shall be kept as close to the heading as possible, using grout stops behind the liner plates if necessary. Grouting shall proceed as directed by CSXT, but in no event shall more than 6 lineal feet of tunnel be progressed beyond the grouting.

4.3 Soil Stabilization

- a) Pressure grouting of the soils or freezing of the soils before jacking, boring, or tunneling may be required at the direction of CSXT Chief Engineer, Design and Construction to stabilize the soils, control water, prevent loss of material, and prevent settlement or displacement of embankment. Grout shall be cement, chemical, or other special injection material selected to accomplish the necessary stabilization.

- b) The materials to be used and the method of injection shall be prepared by a Licensed Professional Soils Engineer, or by an experienced and qualified company specializing in this work and submitted for approval to CSXT before the start of work. Proof of experience and competency shall accompany the submission.

4.4 Dewatering

- a) When water is known or expected to be encountered all plans and specification must be submitted to the Chief Engineer, Design and Construction for approval before the process begins. Pumps of sufficient capacity to handle the flow shall be maintained at the site, provided the contractor has received approval from CSXT to operate them. Pumps in operation shall be constantly attended on a 24-hour basis until, in the sole judgment of CSXT, the operation can be safely halted. When dewatering, a process for monitoring for any settlement of track or structures must be in place.

4.5 Safety Requirements

- a) All operations shall be conducted so as not to interfere with, interrupt, or endanger the operation of trains nor damage, destroy, or endanger the integrity of railroad facilities. All work on or near CSXT property shall be conducted in accordance with CSXT safety rules and regulations. Specifically all licensee's employees and agents, while on CSXT property, shall be required to wear an orange hard hat, safety glasses with side shields, 6" lace up boots with a distinct heel, shirts with sleeves, and long pants; additional personal protective equipment may be required for certain operations including abrasive cutting, use of torches, use of chainsaws, etc. The contractor and its employees shall comply with the CSXT safety rules at all times while occupying CSXT's property. Operations will be subject to CSXT inspection at any and all times.
- b) All cranes, lifts, or other equipment that will be operated in the vicinity of the railroad's electrification and power transmission facilities shall be electrically grounded as directed by CSXT. Use of a crane or other lifting equipment is subject to requirements as stated in the CSXT Public Projects manual.
- c) Whenever equipment or personnel are working closer than 25 feet from the centerline of an adjacent track, that track shall be considered as being obstructed. Insofar as possible, all operations shall be conducted no less than this distance. All operations shall be conducted only with the permission of, and as directed by, a duly qualified railroad employee present at the site of the work. All costs related to Railroad protection will be passed on to the applicant.
- d) Crossing of tracks at grade by equipment and personnel is prohibited except by prior arrangement with and as directed by, CSXT.

4.6 Blasting

- a) Blasting will not be permitted under or on CSXT's right-of-way.

4.7 Temporary Track Supports

- a) When the jacking, boring or tunneling method of installation is used, and depending upon the size and location of the crossing, temporary track supports shall be installed at the direction of CSXT.

- b) The Owner's contractor shall supply the track supports with installation and removal performed by CSXT employees.
- c) The Owner shall reimburse CSXT for all costs associated with the installation and removal of the track supports.

4.8 Protection of Drainage Facilities

- a) If, in the course of construction, it may be necessary to block a ditch, pipe, or other drainage facility, temporary pipes, ditches, or other drainage facilities shall be installed to maintain adequate drainage, as approved by CSXT. Upon completion of the work, the temporary facilities shall be removed and the permanent facilities restored.
- b) Soil erosion methods shall be used to protect railroad ditches and other drainage facilities during construction on and adjacent to CSXT's right-of-way.

4.9 Support of Excavation Adjacent to Track

4.9.1 Launching and Receiving Pits

- a) The location and dimensions of all pits or excavations shall be shown on the plans. The distance from centerline of adjacent track to face of pit or excavation shall be clearly labeled. Also, the elevation of the bottom of the pit or excavation must be shown on the profile.
- b) The face of all pits shall be located a minimum of 25 feet from centerline of adjacent track, **measured at right angles to track**, unless otherwise approved by CSXT.
- c) If the bottom of the pit excavation intersects the theoretical railroad embankment line, interlocking steel sheet piling, driven prior to excavation, must be used to protect the track stability. The use of trench boxes or similar devices is not acceptable in this area.
- d) Design plans and computations for the pits, sealed by a Licensed Professional Engineer, must be submitted by the Owner at time of application or by the contractor prior to start of construction. If the pit design is to be submitted by the contractor, the project specifications must require the contractor to obtain approval from CSXT's Chief Engineer, Design and Construction prior to beginning any work on or which may affect CSXT property.
- e) The sheeting shall be designed to support all lateral forces caused by the earth, railroad and other surcharge loads. See Design Requirements- Design Loads for railroad loading.
- f) After construction and backfilling, all sheet piling within 10 feet of centerline track must be cut off 3' – 0" below final grade and left in place.
- g) All excavated areas are to be illuminated (flashing warning lights not permitted), fenced, and otherwise protected as directed by CSXT.

4.9.2 Parallel Trenching and Other Excavation

- a) When excavation for a pipeline or other structure will be within the theoretical railroad embankment line of an adjacent track, interlocking steel sheet piling will be required to protect the track.
- b) The design and construction requirements for this construction shall be in accordance with the requirements of the Construction Requirements – Support of Excavation Adjacent to Track section of this document.

4.9.3 Inspections and Testing

- a) For pipelines carrying flammable or hazardous materials, ANSI Codes, current at time of constructing the pipeline, shall govern the inspection and testing of the facility on CSXT property, except as follows:
- b) One hundred percent of all field welds shall be inspected by radiographic examinations, and such field welds shall be inspected for 100 percent of the circumference.
- c) The proof testing of the strength of carrier pipe shall be in accordance with ANSI requirements.

4.9.4 Reimbursement of CSXT Costs

- a) All CSXT costs associated with the pipe installation (inspection, flagging, track work, protection of signal cables, etc.) shall be reimbursed to CSXT by the Owner of the facility. Estimates for Railroad costs will be provided to the Owner prior to the commencement of any work on Railroad right-of-way. **At CSX's option, CSX may require the funds to be paid in advance of any work being done.**

END OF PART 4

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PART 5 – PUBLICATION STANDARDS SOURCES

5.1 Publication Standards Sources

Table 5 – Publication Standards Sources

Organization	Contact Information
ANSI	American National Standards Institute 1899 L Street, NW, 11 th Floor Washington, DC 20036 Tel: 202-293-8020
AREMA	The American Railway Engineering and Maintenance-of-Way Association 4501 Forbes Blvd., Suite 130 Lanham, MD 20706 Tel: 301-459-3200
ASTM	American Society for Testing and Materials PO Box C700 West Conshohocken, PA 19428-2959 Tel: 877-909-2786
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235 Tel: 1-800-926-7337
NACE	Then National Association of Corrosion Engineers Houston, TX USA 1-800-797-6223

- a) NOTE: If other than AREMA, ASTM, or AWWA specifications are referred to for design, materials, or workmanship on the plans and specifications for the work, then copies of the applicable sections of such other specifications referred to shall accompany the plans and specification for the work.

END OF PART 5

APPENDIX C

SCDOT Encroachment Permit

**SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
Encroachment Permit**

Permit No : 265485

Permit Decision Date :
3/28/2023

Expiration Date : 3/28/2024

Type

Permit : DRAINAGE

Location:

<u>District</u>	<u>Work County</u>	<u>Type</u>	<u>Route</u>	<u>Aux</u>	<u>Begin MP</u>	<u>End MP</u>
5	Georgetown, SC	L-	20	None	7.255	7.255
5	Georgetown, SC	US	521	None	13.448	13.448
5	Georgetown, SC	S-	383	None	0.441	0.441

Contact

Information

Applicant: GeorgetownCounty

Phone:

Contact: Joseph Garrison

Address: 108 Screven Street,

City: Georgetown

State: SC

Zip: 29440

Comments

Improvements will be made along Lester Creek east of Andrews in Georgetown County. The SCDOT crossings that will be upgraded are Gapway Road, Georgetown Highway, and Old Cemetery Road.

Special

Provisions:

0005 - APPLICANT SHALL PROVIDE TO THE DEPARTMENT THE OPPORTUNITY OF ATTENDING ANY PRE-CONSTRUCTION MEETING PRIOR TO THE BEGINNING OF WORK.

0301 - THE DITCHES AND/OR SHOULDERS DISTURBED DURING THE INSTALLATION SHALL BE RE-ESTABLISHED TO PROPER GRADE, ORIGINAL CROSS SECTION, STABILIZED, AND ALL DRAIN PIPES CLEARED.

0310 - FIELD CHANGES, IF NECESSARY, MUST BE APPROVED IN WRITING BEFORE ACTUAL CONSTRUCTION OF PROPOSED CHANGES.

0312 - THE PERMITTEE SHALL HOLD THE DEPARTMENT HARMLESS FOR DAMAGES TO BOTH UPSTREAM AND DOWNSTREAM PROPERTIES.

9999 - See Attached for Additional Special Provisions

Applicant's Sig: _____ Title: _____

Application for Encroachment Permit

S.C. Department of Transportation
Form 637 (Rev 09/2015)

Contact Information

Applicant: Georgetown County

Street: 108 Screven Street

City: Georgetown

State: SC Zip Code: 29440

Phone: (843)554-8602 Fax: (843)747-6485

Email: jgarrison@davisfloyd.com

Contact: Joseph Garrison

Project Location

Primary County: Georgetown

County	Road Name
Georgetown	Gapway Rd (S-20)
Georgetown	Georgetown Hwy (US 521)
Georgetown	Old Cemetary Rd (S-383)

1. Type of Encroachment: DRAINAGE

Drainage improvements along Lester Creek including replacing existing crossings with new culverts and pipes, including headwalls and wingwalls.

2. Description of Location:

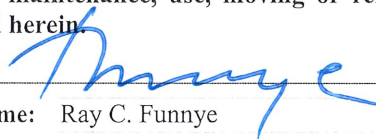
Improvements will be made along Lester Creek east of Andrews in Georgetown County. The SCDOT crossings that will be upgraded are Gapway Road, Georgetown Highway, and Old Cemetery Road.

(Attach sketch indicating roadway features such as: pavement width, shoulder width, sidewalk and curb and gutter location, significant drainage structure, north arrow, right of way width, and location of the proposed encroachment with respect to the roadway centerline and the nearest intersecting road on the State system.)

Customer Agreement

3. The undersigned applicant hereby requests the SCDOT to permit encroachment on the SCDOT right of way as described herein. It is expressly understood that the encroachment, if and when constructed, shall be installed in accordance with the sketch attached hereto and made a part hereof. The applicant agrees to comply with and be bound by the SCDOT's "A Policy for Accommodating Utilities on Highways Rights of way", "Standard Specifications for Highway Construction", the "General Provisions" and "Special Provisions", attached hereto or made a part hereof by reference, during the installation, operation and maintenance of said encroachment within the SCDOT's Right of Way. DISCHARGES OF STORM WATER AND NON-STORM WATER: Work within State Highway right-of-way shall be conducted in compliance with all applicable requirements of the National Pollutant Discharge Elimination System (NPDES) permit(s) issued to the Department of Transportation (Department), to govern the discharge of storm water and non-storm water from its properties. Work shall also be in compliance with all other applicable Federal, State and Local laws and regulations, and with the Department's Encroachment Permits Manual and encroachment permit. The encroachment permit will not be issued until the applicant has received an NPDES construction permit from SC Department of Health and Environmental Control.

The applicant agrees to comply with all current SCDOT Standards Specifications for Highway Construction including all Supplemental Technical Specifications. The applicant hereby further agrees, and binds his/her/its heirs, personal representatives, successors, assigns, to assume any and all liability for accidents or injuries to persons, or damage to property, including the highway, that may be caused by the construction, maintenance, use, moving or removing of the physical appurtenances contemplated herein.


9.1.2022
 Applicant's Name: Ray C. Funnye Date:
 (Please print or type)

For Office Use Only

For Office Use Only

In accordance with your request and subject to all the provisions, terms, conditions, and restrictions stated in the application and the general and special provisions attached hereto, the SCDOT hereby approves your application for an encroachment permit. This permit shall become null and void unless the work contemplated herein shall have been completed prior to:

See Attached Special Provision and/or Permit Requirements

	NPDES Permit Nbr:	<input style="width: 90%;" type="text"/>
<input style="width: 90%;" type="text"/> <small>(Date received by res. Maint. Engr.)</small>	<input style="width: 90%;" type="text"/> <small>(SCDOT Approval)</small>	<input style="width: 90%;" type="text"/> <small>(Date)</small>

General Provisions

Application for Encroachment Permit
General Provisions

1. **DEFINITIONS:** The word "Permittee" used herein shall mean the name of the person, firm, or corporation to whom this permit is addressed, his, her, its, heirs, personal representatives, successors and assigns. The word "DEPARTMENT" shall mean the South Carolina Department of Transportation.
2. **NOTICE PRIOR TO STARTING WORK:** Before starting the work contemplated herein within the limits of the highway right of way, the Department's Resident Maintenance Engineer in the county in which the proposed work is located shall be notified 24 hours in advance so that he may be present while the work is under way.
3. **PERMIT SUBJECT TO INSPECTION:** This permit shall be kept at the site of the work at all times while said work is under way and must be shown to any representative of the Department or law enforcement officer on demand.
4. **PROTECTION OF HIGHWAY TRAFFIC:** The applicant shall be responsible for the protection of the highway traffic at all times during the construction, maintenance, removing or moving of the encroachment permitted herein. Detours, barricades, warning signs and flagmen, as necessary, shall be provided by and at the expense of the Permittee and shall be in accordance with the "Manual on Uniform Traffic Control Devices" (MUTCD). The work shall be planned and carried out so that there will be the least possible inconvenience to the motoring public. The Permittee agrees to observe all rules and regulations of the Department while carrying on the work contemplated herein and take all other precautions that circumstances warrant.
5. **STANDARDS OF CONSTRUCTION:** All work shall conform to the Department's standards of construction and shall be performed in a workman-like manner. The applicant shall make adequate provisions for maintaining the proper drainage of the highway as it may be affected by the encroachment permitted herein. All work shall be subject to the supervision and satisfaction of the Department.
6. **FUTURE MOVING OF PHYSICAL APPURTENANCES:** If, in the opinion of the State Highway Engineer, it should ever become necessary to move or remove the physical appurtenances, or any part thereof contemplated herein, on account of change in location of the highway, widening of the highway, or for any other sufficient reason, such moving shall be done on demand of the Department at the expense of the Permittee.
7. **RESTORATION OF HIGHWAY FACILITIES UPON MOVING OR REMOVING OF PHYSICAL APPURTENANCES:** If, and when, the physical appurtenances contemplated herein shall be moved or removed, either on the demand of the Department or at the option of the Permittee, the highway and facilities shall immediately be restored to their original condition at the expense of the Permittee.
8. **COSTS:** All work in connection with the construction, maintenance, moving or removing of the physical appurtenances contemplated herein shall be done by and at the expense of the Permittee.
9. **ADDITIONAL PERMISSIONS:**
 - (a) It is distinctly understood that this permit does not in any way grant or release any rights lawfully possessed by the abutting property owners. The Permittee shall secure any such rights, as necessary, from said abutting property owners.
 - (b) The Permittee shall be responsible for obtaining all other approvals or permits necessary for installation of the encroachment from other government entities.



2022-08-26, 11:14

(c) There shall be no excavation of soil nearer than two feet to any public utility line or appurtenant facility except with the consent of the owner thereof, or except upon special permission of this Department after an opportunity to be heard is given the owner of such line or appurtenant facility.

10. **ADDITIONAL WORK PERFORMANCE:**

(a) All crossings over the highway shall be constructed in accordance with "Specifications for Overhead Crossings of Light and Power Transmission Lines and Telegraph Lines over each other and over Highway Rights of Way in South Carolina," as approved by the Public Service Commission of South Carolina and effective as of date of this permit.

(b) All tunneling, boring, or jacking shall be done in such a way as not to disturb the highway surfacing.

(c) No pavement shall be cut unless specifically authorized herein.

(d) No excavation shall be nearer than three feet to the edge of pavement unless specifically authorized herein.

(e) Underground facilities will be located at minimum depths as defined in the "Utility Accommodations Manual" for the transmittant, generally as follows: 4 feet minimum for hazardous or dangerous transmittant, 3 feet minimum for other lines. The Department may approve shallower depths if adequate protection is provided. Such approval must be obtained in writing.

(f) Service and other small diameter pipes shall be jacked, driven, or otherwise forced underneath the pavements on any surfaced road without disturbing the pavement. The section under the highway pavement and within a distance of three (3) feet on either side shall be continuous without joints.

11. **ACCESS:**

(a) Permittee is responsible for maintaining reasonable access to private driveways during construction.

(b) It is expressly provided that, with respect to any limited access highway, the Permittee shall not have or gain access from the main traveled way of the highway, or the on or off ramps to such facility, except upon approval by the Department.

12. **DRIVEWAYS:**

(a) The existing crown of the highway shall be continued to the outside shoulder line of the highway.

(b) If the driveway or approach is concrete pavement, the pavement shall be constructed at least 6 inches thick and with a minimum of class 2500 concrete. There shall be a bituminous expansion joint, not less than 3/4 inches in thickness, placed between the highway paving and the paving of the approach for the full width of the approach.

13. **BEAUTIFICATION:**

(a) All trees, plants, flowers, etc. shall be placed in accordance with the provisions specifically stipulated herein.

(b) All trees, plants, flowers, etc. shall be maintained by, and at the expense of, the Permittee and the provisions of this permit shall become null and void, if and when said Permittee ceases to maintain aid trees, plants, flowers, etc.

14. **AS-BUILT PLANS:**

(a) The applicant shall provide the Department with survey-quality as-built plans in accordance with the requirements set forth in the Department's "A Policy for Accommodating Utilities on Highway Rights of Way".

15. **COMPLETE STREETS:**

Reference Departmental Directive 28, "Complete Streets". For encroachment permit types that require a Traffic Impact Study (TIS), the applicant shall consider the inclusion of walking, bicycling, and transit accommodations within the scope of the encroachment. The applicant shall review walking, bicycling, and transit plans from Metropolitan Planning Organizations (MPOs), Councils of Government (COGs), and regional transit providers to determine the scope of accommodations for complete streets. Coordination with the District Permit Engineer is required to determine if the inclusion of walking, bicycling, and transit accommodations are conducive for implementation based on the scope of the encroachment.




APPENDIX D

SCDHEC NPDES and CZC Determination



Coastal Zone Consistency Determination

To: Tracy Jones, Georgetown County
From: Holli D Martin, OCRM Coastal Zone Consistency Section 
Project Name: East Andrews Drainage Improvements
Site Location: Old Cemetery to North Street, Andrews, Georgetown County, SC
Ref #: HPR-W4Z9-27NYH
Date: April 7, 2023

The staff of the Office of Ocean and Coastal Resource Management (OCRM) reviewed the above referenced Coastal Zone Consistency project request for NPDES Stormwater Land Disturbance permit associated with the construction and upgrades of seven crossings and clearing for drainage improvements for Stormwater permit. No wetland impacts. The total area of disturbance will be 0.4 acre project site.

We hereby certify the above referenced project is Conditionally Consistent with the Guidelines for the Evaluation of All Projects as well as the Transportation Facilities (*Roads and Highways, Parking Facilities*), Commercial Development, Public Services and Facilities (*Sewage Treatment and Water Supply*), and Stormwater Management (*Runoff*) policies contained in the S.C. Coastal Zone Management Program provided the provided the following conditions are included in the permit and adhered to by the applicant.

Conditions for Minor Impact Projects

1. The Coastal Zone Consistency certification does not alleviate the applicant's responsibility for obtaining any other necessary local, state and/or federal approvals for the development of the residential lot prior to work beginning.
2. All construction BMPs must be installed, inspected and maintained to hold sediment onsite and to protect any adjacent or downstream critical area, wetlands and waters through the life of the project. Upon completion of construction activities, all disturbed (includes undeveloped) areas, including those impacted for access, must be immediately stabilized.
3. Projects that are part of a LCP are authorized/granted coverage provided the consistency determination review for the development including its stormwater management drainage system has been approved under a previously authorized NPDES CGP Land Disturbance Permit (clearing and grading or site development). The development infrastructure, and site layout deemed consistent under the referenced NPDES Land Disturbance Permit's Stormwater Pollution Prevention Plan (SWPPP) remains unchanged from the time of

approval as referenced under Section 2.2.2.A of the current NPDES General Permit For Stormwater Discharges From Construction Activities, as well as, compliant with the S.C. Stormwater Management and Sediment Reduction Regulations (26 S.C. Code Ann. Regs. 72-300) and Chapter III, Section XIII, A, E, and D of the SCCZMP.

4. The project, as applicable, must be compliant with any MOA or Restrictive Covenants/Recorded plats for the project associated with previous Coastal Zone Consistency Determinations of any respective Bureau Permit. Proof of compliance must be included with the request narrative and shown on the lot construction plan sheet.
5. In the event that any historic or cultural resources and/or archaeological materials are found during the course of work, the applicant must notify the State Historic Preservation Office (SHPO) and the South Carolina Institute of Archaeology and Anthropology. Historic or cultural resources consist of those sites listed in the National Register of Historic Places and those sites that are eligible for the National Register. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials.
6. The applicant must continue to adhere to all conditions of any Coastal Zone Consistency Determinations of respective Bureau permits.
7. Project development must not result in adverse impacts through nonpoint stormwater runoff and/or point source water discharge on adjacent lands.
8. The project must adhere to sediment, erosion and water quality controls required by the current NPDES General Permit for Stormwater Discharges from Large and Small Construction Activities and the S.C. Stormwater Management and Sediment Reduction Regulations (26 S.C. Code Ann. Regs. 72-300, as amended, are satisfied by the project design and are correctly installed and maintained.
9. The proposed activity is not located in areas identified as "Areas of Special Resource Significance" as detailed in Chapter III, Section XII of the SCCZMP, as refined. Areas of Special Resource Significance includes (1) Barrier Islands, (2) Dune Areas (outside of the critical area), (3) Navigation Channels, (4) Public Open Spaces, and (5) Wetlands.
10. The proposed activity is not located in areas identified as GAPCs as detailed in Chapter IV of the SCCZMP; Areas of Unique Natural Resource Value: (1) Heritage Trust Sites, (2) State Wildlife Preserves, (3) State Parks, (4) Scenic Rivers, (5) Marine and Estuarine Sanctuaries, (6) Shellfish Areas, (7) Groundwater Resources, and (8) Threatened and Endangered Species; Activities or Facilities Dependent on Coastal Location: (1) State Ports, (2) Navigation Channels, and (3) Mining Operations; Areas of Special Historic, Archaeological or Cultural Significance: (1) special historic, (2) archaeological, or (3) culturally significant sites. For those projects adjacent to or that may significantly affect a priority of use for any GAPC, DHEC OCRM will determine a project's affects during individual review of application for coverage

under this GCZC. Those projects which are likely to adversely affect the priority of use for a GAPC will require an individual certification.

This determination shall serve as the DHEC OCRM State/Federal Coastal Zone Consistency Determination for the work described above. This determination **does not** serve as the final permitting decision and **does not** alleviate the applicant's responsibility to obtain final authorizing State or Federal permit(s). Local government authorizations **may also** be required.

Lindsey E. Keziah, PE

From: Winkler, Pamela D. <WINKLEPD@dhec.sc.gov>
Sent: Tuesday, February 21, 2023 1:20 PM
To: Joseph Garrison, PE; Martin, Holli
Cc: Lindsey E. Keziah, PE
Subject: Re: East Andrews Drainage Improvements Autocoverage Submittal Georgetown County

DHEC Stormwater is currently not reviewing or issuing letters for small projects. Until we begin to review small projects again, DHEC approval is not required to commence construction during this time. Please consider this email as confirmation in place of a letter since we are not issuing small project letters. However, please complete the D-0451 NOI and submit to the coastalstormwaternotification@dhec.sc.gov email address so we have a record of the project (and include email correspondence so we know you discussed the project with us). Below is some information regarding automatic coverage vs exemption and the conditions of each scenario.

Projects that disturb less than 1 acre, **not** within 0.5 miles of a coastal receiving water (CRW), **not** part of a larger common plan of development or sale (LCP) (i.e., stormwater from the site is not routed to an existing detention pond/master stormwater plan, or not building on a site that has been previously built upon since 1992) are **exempt** from permitting requirements across the State all together including the General Coastal Zone Consistency form (GCZC). State exemption can be self-invoked based upon the applicant/consultant findings with the appropriate use of best management practices during construction.

Projects that disturb less than 1 acre, **are within** 0.5 miles of a CRW, **not** part of a larger common plan of development or sale (LCP) (i.e., stormwater from the site is not routed to an existing detention pond/master stormwater plan, or not building on a site that has been previously built upon since 1992) are **automatically covered** under the NPDES CGP and does not require review by DHEC Stormwater. However, a Coastal Zone Consistency determination is required for any site that is located within 0.5 miles of a CRW due to the permit coverage requirement. Contact DHEC's Office of Ocean and Coastal Resource Management (DHEC-OCRM) for any submittal requirements, and submit the CZC submittal directly to [DHEC-OCRM](#).

Pamela Winkler
Bureau of Water - Coastal Stormwater Permitting
Administrative Coordinator I
1362 McMillan Ave, Ste 300
Charleston, SC 29405
S.C. Dept. of Health & Environmental Control
Office: (843) 953-5324
Connect: www.scdhec.gov [Facebook](#) [Twitter](#)



From: Joseph Garrison, PE <jgarrison@davisfloyd.com>
Sent: Monday, February 20, 2023 10:43 AM
To: Martin, Holli <martinhd@dhec.sc.gov>; Winkler, Pamela D. <WINKLEPD@dhec.sc.gov>
Cc: Lindsey E. Keziah, PE <lkeziah@davisfloyd.com>
Subject: FW: East Andrews Drainage Improvements Autocoverage Submittal Georgetown County

***** Caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. *****

Holli and Pamela,

Can you confirm that the autocoverage submittal referenced in the forwarded email does not require written approval from SCDHEC and CZC?

If you have any questions or if there is someone else that I should contact about this please let me know.

Thanks,
Joseph



Joseph Garrison, PE
TRANSPORTATION ENGINEER

1940 Algonquin Road
Suite 301, Charleston, SC 29405

O. (843) 554-8602 Ext. 2106

E. jgarrison@davisfloyd.com | www.davisfloyd.com

Beaufort | Charleston | Columbia | Florence | Greenville | Greenwood

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From: Joseph Garrison, PE
Sent: Tuesday, November 1, 2022 3:24 PM
To: coastalstormwatnotification <coastalstormwatnotification@dhec.sc.gov>
Subject: East Andrews Drainage Improvements Autocoverage Submittal Georgetown County

APPENDIX E

USACE Nationwide Permit



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, CHARLESTON DISTRICT
1949 INDUSTRIAL PARK ROAD, ROOM 140
CONWAY, SOUTH CAROLINA 29526

February 23, 2023

Regulatory Division

Mr. Ray Funnye
Georgetown County
129 Screven Street
Georgetown, South Carolina 29440
Rcfunnye@gtcounty.org

Dear Mr. Funnye:

This is in response to a Pre-Construction Notification (PCN) (SAC-2020-01259) received on November 1, 2022, and considered complete on February 23, 2023. In submitting the PCN, you requested verification the proposed project is authorized by a Department of the Army (DA) Nationwide Permit (NWP).

The work affecting waters of the United States is part of an overall project known as the East Andrews Drainage Improvement Project. The activities in waters of the United States include eight separate impacts to Lester Creek to improve drainage and alleviate flooding in the Town of Andrews. In detail, the project consists of the placement of fill material within seven different areas along Lester Creek, totaling 317 linear feet, for the replacement of culverts and the installation of armoring. Additionally, an eighth impact consists of the realignment of 162 linear feet of Lester Creek. The project involves impacts to not more than 479 linear feet of waters of the United States. The project is located on Lester Creek, north of Old Cemetery Road, in the Town of Andrews, Georgetown County, South Carolina (Starting Latitude: 33.4554°, Longitude: -79.5472°; Ending Latitude: 33.4394°, Longitude: -79.5443°). The PCN also includes the following supplemental information:

- a. Drawing sheets 1-13 of 13 titled "SAC-2020-01259 / E. Andrews Drainage Improvement Project / Georgetown County, South Carolina" and dated February 23, 2023.
- b. A mitigation plan.

Based on a review of the PCN, including the supplemental information indicated above, the Corps has determined the proposed activity will result in minimal individual and cumulative adverse environmental effects and is not contrary to the public interest. Furthermore, the activity meets the terms and conditions of NWP #18 (Minor Discharges).

For this authorization to remain valid, the project must comply with the enclosed NWP General Conditions, Charleston District Regional Conditions, and the following special conditions:

- a. **That impacts to aquatic areas do not exceed those specified in the above mentioned PCN, including any supplemental information or revised permit drawings that were submitted to the Corps by the permittee.**
- b. **That the construction, use, and maintenance of the authorized activity is in accordance with the information given in the PCN, including the supplemental information listed above, and is subject to any conditions or restrictions imposed by this letter.**
- c. **That the permittee shall submit the attached signed compliance certification to the Corps within 30 days following completion of the authorized work.**
- d. **The permittee recognizes that their commitment to perform and implement the following conditions was a deciding factor in the favorable and timely decision on this permit and recognizes that a failure on their part to both actively pursue and implement these conditions may be grounds for modification, suspension, or revocation of this Department of the Army authorization:**
 1. **That as compensatory mitigation for impacts to aquatic resources, the permittee agrees to purchase or debit a total of 642.6 credits from a Corps approved mitigation bank. The permittee must submit the name of the proposed mitigation bank from which the credits will be purchased to the Corps for approval prior to credit purchase. At least one half of the required credits [321.3 credits] must be restoration/non-buffer enhancement credits. In addition, no more than one half of the required mitigation credits [321.3 credits] may be preservation credits.**
 2. **That in order to fulfill your responsibility to complete the required compensatory mitigation as set forth in Special Condition d, the permittee must submit evidence of the purchase or debit of the required mitigation credits to both the Corps of Engineers and SCDHEC prior to commencement of the authorized work.**
- e. **That the permittee shall incorporate Best Management Practices (BMPs) during construction to protect adjacent wetlands and Waters of the United States from sediment and erosion during construction. BMPs to be utilized, independently or in combination, may include but are not limited to:**

erosion control matting, mulch, silt fences, sediment tubes, and other devices. BMPs shall be maintained until the fill material is stabilized.

This verification is valid until March 14, 2026, unless the district engineer modifies, suspends, or revokes the NWP authorization in accordance with 33 CFR 330.5(d). If prior to this date, the NWP authorization is reissued without modification or the activity complies with any subsequent modification of the NWP authorization, the verification continues to remain valid until March 14, 2026. If you commence, or are under contract to commence this activity before the NWP expires, or the NWP is modified, suspended, or revoked by the Chief of Engineers or division engineer in accordance with 33 CFR 330.5(b) or (c), respectively, in such a way that the activity would no longer comply with the terms and conditions of the NWP, you will have 12 months after the date the NWP expires or is modified, suspended, or revoked, to complete the activity under the present terms and conditions of this NWP.

This NWP is verified based on information you provided. It is your responsibility to read the attached NWP(s) along with the General, Regional, and Special Conditions before you begin work. If you determine your project will not be able to meet the NWP and the conditions, you must contact the Corps before you proceed.

In all future correspondence, please refer to file number SAC-2020-01259. A copy of this letter is forwarded to State and/or Federal agencies for their information. If you have any questions, please contact me at (843) 365-1709 or by email at Ann.W.Eaddy@usace.army.mil.

Sincerely,



Ann Eaddy
Project Manager

Attachments

Permit Drawings

NWP #18

Nationwide Permit General Conditions

Nationwide Permit Regional Conditions

Compliance Certification Form

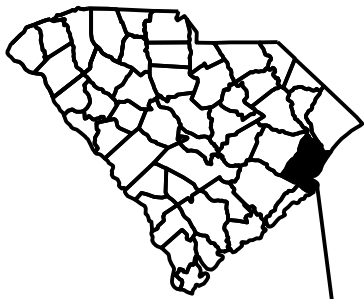
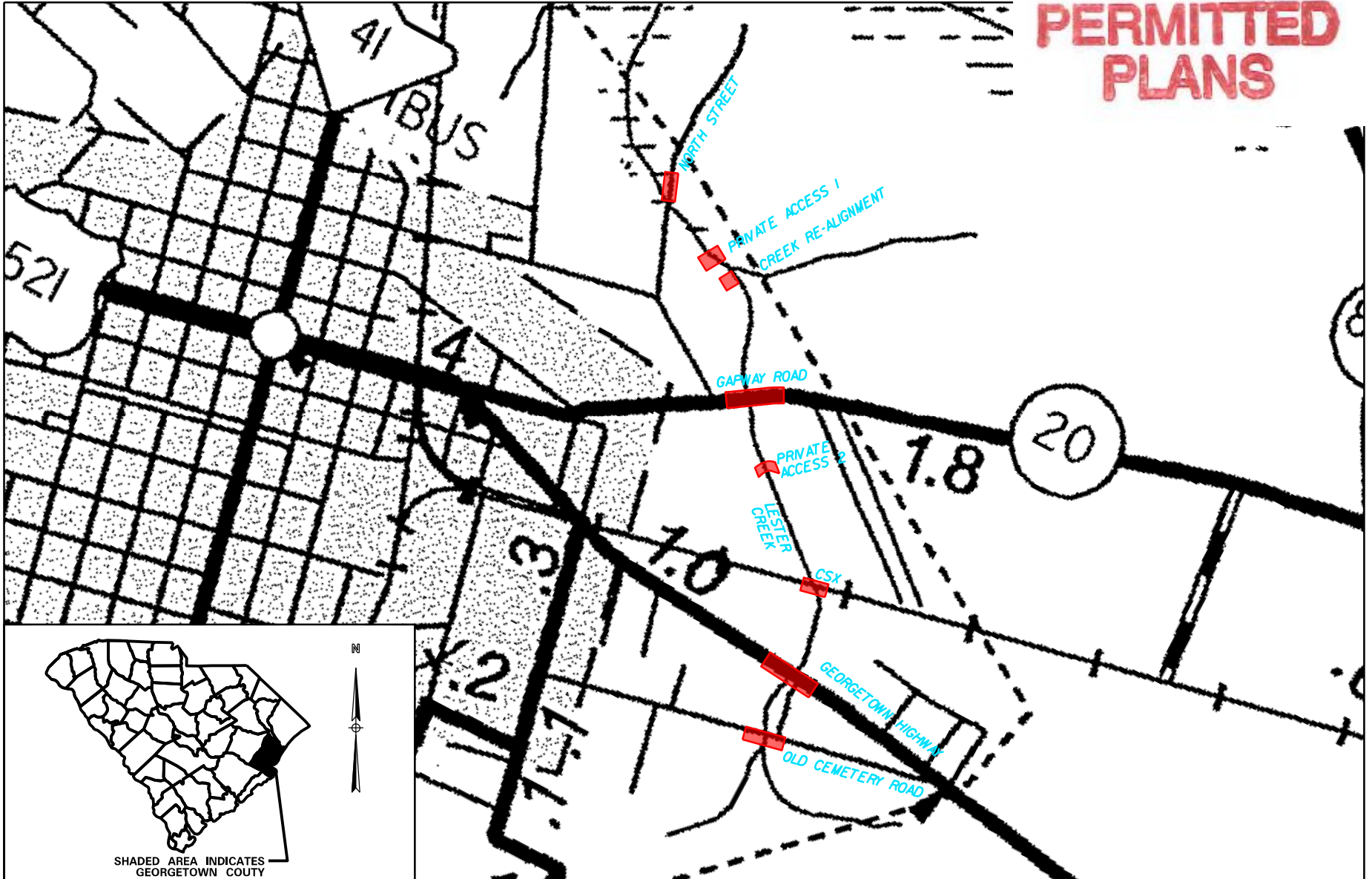
Copies Furnished:

Mr. Corey Singleton
The Brigman Company
PO Box 1532
Conway, South Carolina 29528
csingleton@thebrigmancompany.com

SC DHEC - Bureau of Water
2600 Bull Street
Columbia, South Carolina 29201
WQCWetlands@dhec.sc.gov

SC DHEC - OCRM
1362 McMillan Avenue, Suite 400
North Charleston, South Carolina 29405
OCRMPermitting@dhec.sc.gov

PERMITTED PLANS



SHADED AREA INDICATES
GEORGETOWN COUNTY



PREPARED BY:
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CHARLESTON, SC

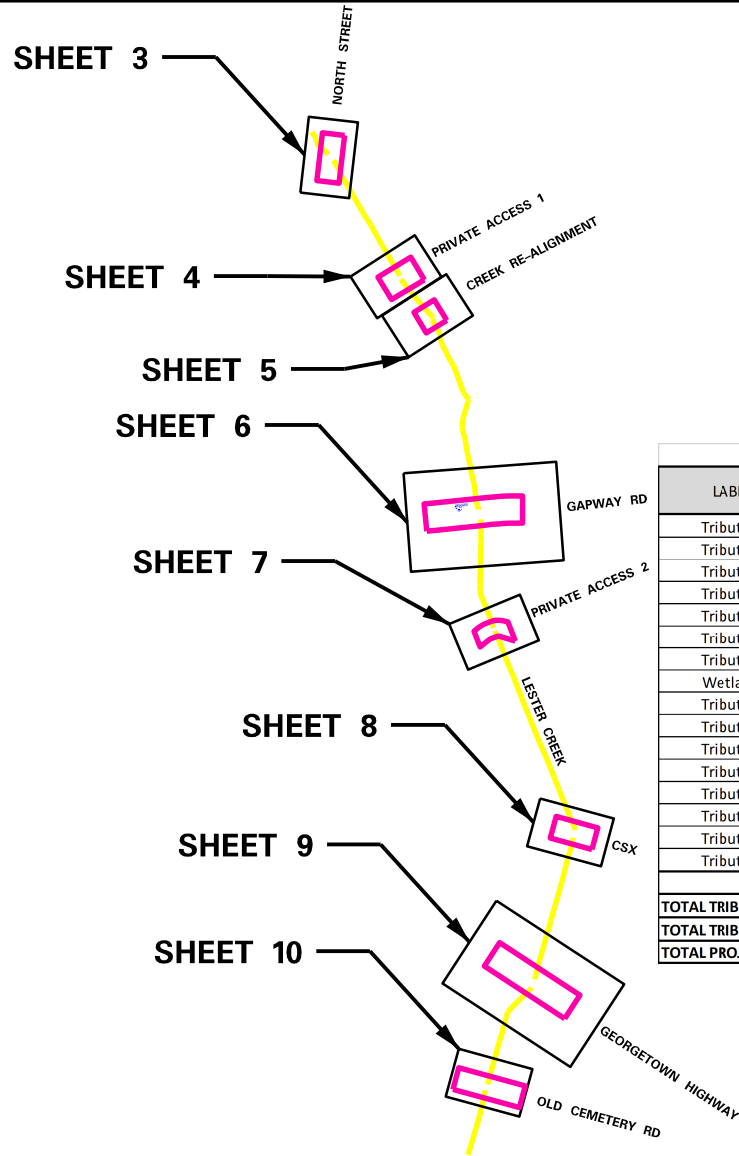


LEGEND

 PROJECT STUDY AREA

SAC-2020-01259
E. Andrews Drainage Improvement Project
Georgetown County, South Carolina
Date: February 23, 2023
Sheet 1 of 13

PERMITTED PLANS



LABEL	NAME	SHEET NUMBERS	LINEAR FEET	PERMITTED IMPACTS						
				PERMANENT FILL			EXCAVATION		CLEARING	
				SF	AC	FILL (CY)	SF	AC	SF	AC
Tributary	T-15	SHEET 5	0	0	0.000	0.000	-	-	-	-
Tributary	T-14	SHEET 3	31	785	0.018	12.000	-	-	-	-
Tributary	T-13	SHEET 3	30	498	0.011	9.000	-	-	-	-
Tributary	T-12	SHEET 4	26	610	0.014	10.000	-	-	-	-
Tributary	T-11	SHEET 4	23	274	0.006	5.000	-	-	-	-
Tributary	T-10	SHEET 6	22	1014	0.023	9.000	-	-	-	-
Tributary	T-9	SHEET 6	19	436	0.010	5.000	-	-	-	-
Wetland	W-01	SHEET 6	-	0	0.000	0.000	0	0.00	0	0.00
Tributary	T-8	SHEET 7	23	513	0.012	5.000	-	-	-	-
Tributary	T-7	SHEET 7	20	804	0.018	5.000	-	-	-	-
Tributary	T-6	SHEET 8	21	464	0.011	1.000	-	-	-	-
Tributary	T-5	SHEET 8	13	297	0.007	0.000	-	-	-	-
Tributary	T-4	SHEET 9	25	361	0.008	9.000	-	-	-	-
Tributary	T-3	SHEET 9	19	352	0.008	8.000	-	-	-	-
Tributary	T-2	SHEET 10	26	301	0.007	3.000	-	-	-	-
Tributary	T-1	SHEET 10	19	180	0.004	2.000	-	-	-	-
TOTAL:			317	6889	0.158	83.000	0	0.00	0	0.00
TOTAL TRIBUTARY IMPACTS (AC):			0.16							
TOTAL TRIBUTARY IMPACTS (LF):			317.00							
TOTAL PROJECT AREA (AC):			9.97							

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CHARLESTON, SC



LEGEND

- PROJECT AREA BOUNDARY
- TRIBUTARY IMPACTS
- WETLAND
- EXISTING ROAD

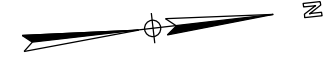
SAC-2020-01259

E. Andrews Drainage Improvement Project
Georgetown County, South Carolina

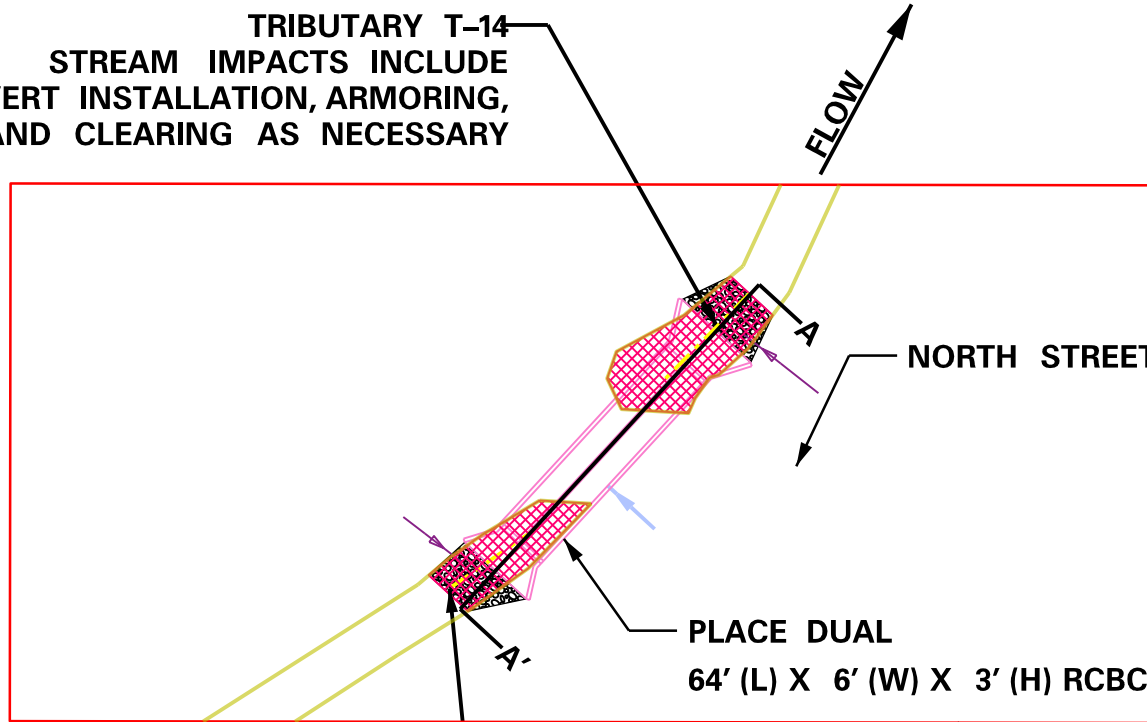
Date: February 23, 2023

Sheet 2 of 13

PERMITTED PLANS



**TRIBUTARY T-14
STREAM IMPACTS INCLUDE
NEW CULVERT INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY**



**TRIBUTARY T-13
STREAM IMPACTS INCLUDE
NEW CULVERT INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY**

- PROPOSED CHANNEL ACTIVITIES:**
 1. CLEAN EXISTING CHANNEL TO ORIGINAL GRADE AND CONTOUR.
 2. STABILIZE BANKS WHERE OBSERVED USING NATIVE SOILS AND COIR MATTING.
 ALL STABILIZATION PRACTICES WILL OCCUR ABOVE THE ORDINARY HIGH WATER MARK.

IMPACT TOTALS: SHEET 3								
NAME	LINEAR FEET	PERMANENT FILL			EXCAVATION		CLEARING	
		SF	AC	VOL (CY)	SF	AC	SF	AC
T-14	31	785	0.018	12.000	-	-	-	-
T-13	30	498	0.011	9.000	-	-	-	-
TOTAL IMPACTS	61	1283	0.029	21.000	0	0.00	0	0.00

**PREPARED BY:
DAVIS &
FLOYD, INC.
CHARLESTON, SC**



LEGEND

- PROJECT AREA BOUNDARY
- TRIBUTARY IMPACT
- PIPES
- CULVERTS / WINGWALLS
- RIP RAP
- WETLAND
- EXISTING ROAD
- PERMANENT FILL IM

SAC-2020-01259

**E. Andrews Drainage Improvement Project
Georgetown County, South Carolina**

Date: February 23, 2023

Sheet 3 of 13

**TRIBUTARIES T-14
AND T-13**

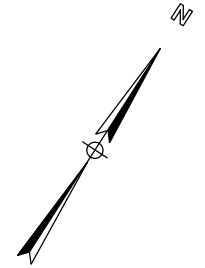
SHEET 3

PERMITTED PLANS

**TRIBUTARY T-12
STREAM IMPACTS INCLUDE
NEW CULVERT INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY**

FLOW

PROJECT STUDY AREA



PRIVATE ACCESS 1

**TRIBUTARY T-11
STREAM IMPACTS INCLUDE
NEW CULVERT
INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY**

**PLACE DUAL
30' (L) X 6' (W) X 3' (H) RCBC**

- PROPOSED CHANNEL ACTIVITIES:
 1. CLEAN EXISTING CHANNEL TO ORIGINAL GRADE AND CONTOUR.
 2. STABILIZE BANKS WHERE OBSERVED USING NATIVE SOILS AND COIR MATTING.
 ALL STABILIZATION PRACTICES WILL OCCUR ABOVE THE ORDINARY HIGH WATER MARK.

IMPACT TOTALS: SHEET 4

NAME	LINEAR FEET	PERMANENT FILL			EXCAVATION		CLEARING	
		SF	AC	VOL (CY)	SF	AC	SF	AC
T-12	26	610	0.014	10.000	-	-	-	-
T-11	23	274	0.006	5.000	-	-	-	-
TOTAL IMPACTS	49	884	0.020	15.000	0	0.00	0	0.00

**PREPARED BY:
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FLOYD, INC.
CHARLESTON, SC**



LEGEND

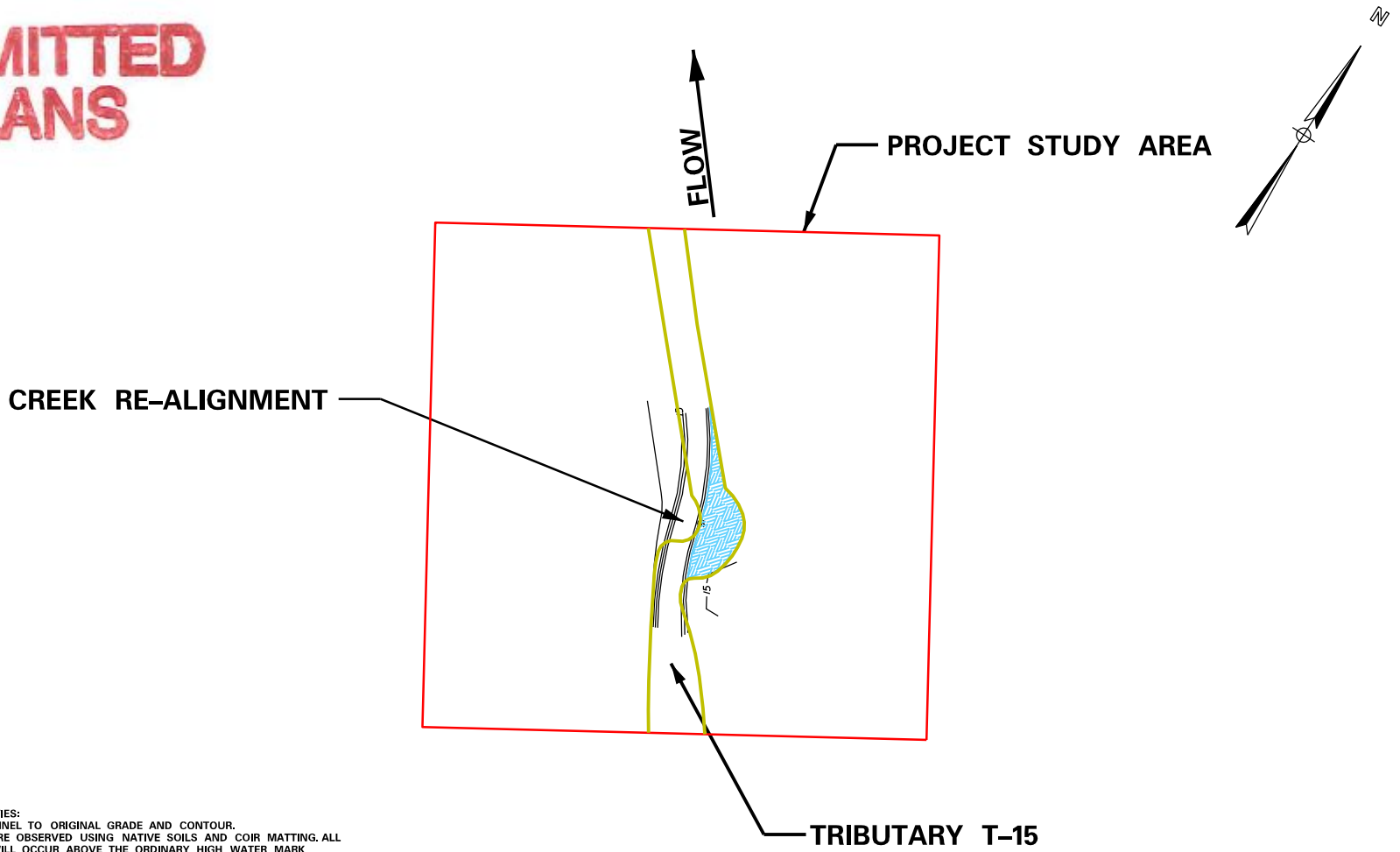
- PROJECT AREA BOUNDARY
- TRIBUTARY IMPACT
- PIPES
- CULVERTS / WINGWALLS
- RE-GRADING
- RIP RAP
- WETLAND
- EXISTING ROAD
- PERMANENT FILL IMPACT

SAC-2020-01259
E. Andrews Drainage Improvement Project
Georgetown County, South Carolina
Date: February 23, 2023
Sheet 4 of 13

**TRIBUTARIES T-12
AND T-11**

SHEET 4

PERMITTED PLANS



PROPOSED CHANNEL ACTIVITIES:
 1. CLEAN EXISTING CHANNEL TO ORIGINAL GRADE AND CONTOUR.
 2. STABILIZE BANKS WHERE OBSERVED USING NATIVE SOILS AND COIR MATTING. ALL STABILIZATION PRACTICES WILL OCCUR ABOVE THE ORDINARY HIGH WATER MARK.

IMPACT TOTALS: SHEET 5							
NAME	LINEAR FEET	PERMANENT FILL		EXCAVATION		CLEARING	
		SF	AC	SF	AC	SF	AC
T-15	0	0	0.000	-	-	-	-
TOTAL IMPACTS	0	0	0.000	0	0.00	0	0.00

PREPARED BY:
DAVIS & FLOYD, INC.
 CHARLESTON, SC



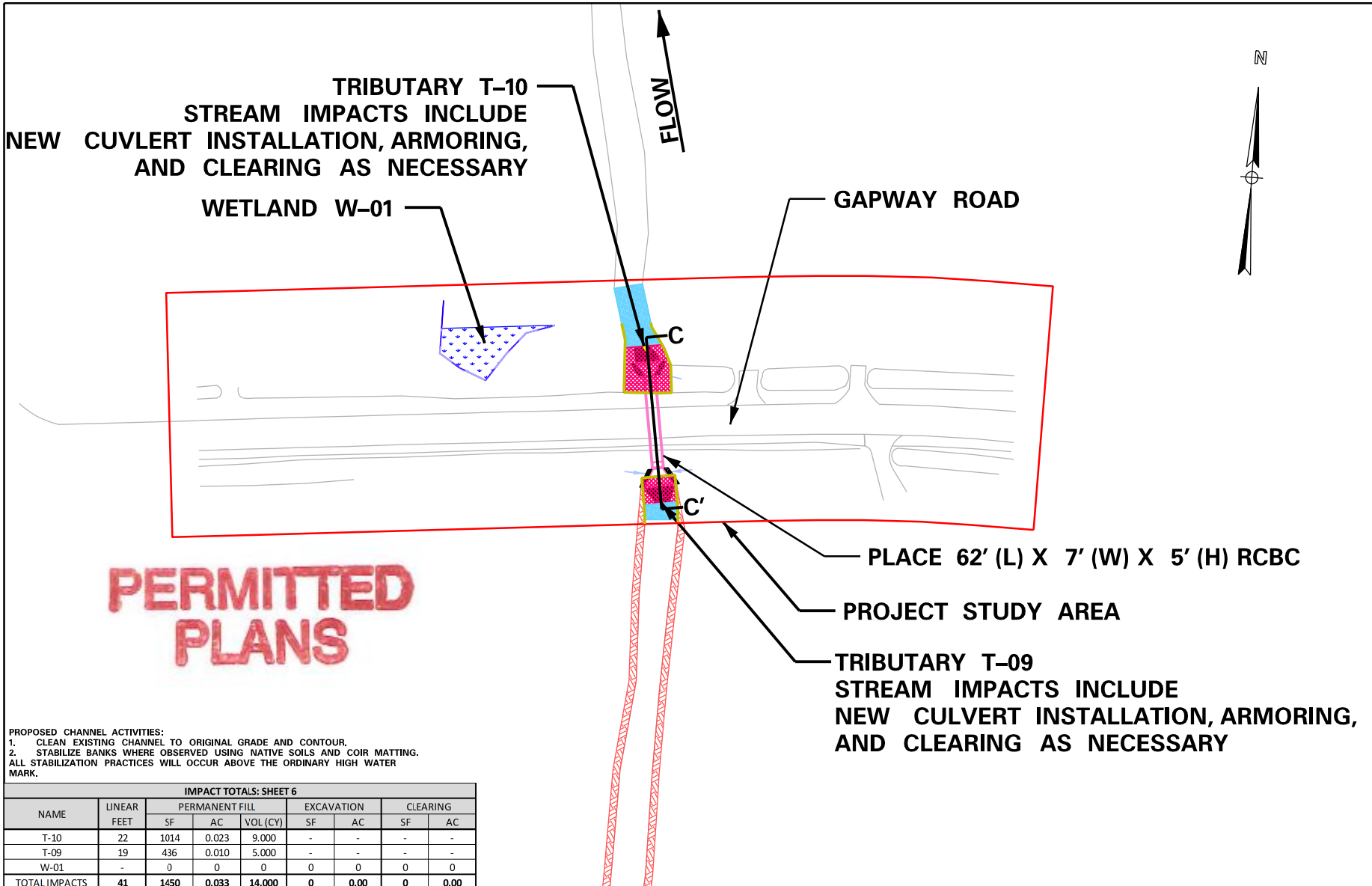
LEGEND

- PROJECT AREA BOUNDARY
- TRIBUTARY IMPACT
- PIPES
- CULVERTS / WINGWALLS
- RE-GRADING
- RIP RAP
- WETLAND
- EXISTING ROAD
- PERMANENT FILL IMPACT

SAC-2020-01259
 E. Andrews Drainage Improvement Project
 Georgetown County, South Carolina
 Date: February 23, 2023
 Sheet 5 of 13

TRIBUTARY T-15

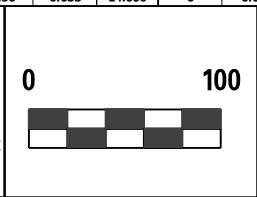
SHEET 5



PROPOSED CHANNEL ACTIVITIES:
 1. CLEAN EXISTING CHANNEL TO ORIGINAL GRADE AND CONTOUR.
 2. STABILIZE BANKS WHERE OBSERVED USING NATIVE SOILS AND COIR MATTING.
 ALL STABILIZATION PRACTICES WILL OCCUR ABOVE THE ORDINARY HIGH WATER MARK.

IMPACT TOTALS: SHEET 6								
NAME	LINEAR FEET	PERMANENT FILL			EXCAVATION		CLEARING	
		SF	AC	VOL (CY)	SF	AC	SF	AC
T-10	22	1014	0.023	9,000	-	-	-	-
T-09	19	436	0.010	5,000	-	-	-	-
W-01	-	0	0	0	0	0	0	0
TOTAL IMPACTS	41	1450	0.033	14,000	0	0.00	0	0.00

**PREPARED BY:
DAVIS &
FLOYD, INC.
CHARLESTON, SC**



LEGEND

PROJECT AREA BOUNDARY	RIP RAP
TRIBUTARY IMPACT	WETLAND
PIPES	EXISTING ROAD
CULVERTS / WINGWALLS	PERMANENT FILL IMPACT
MULCHING	RE-GRADING

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Georgetown County, South Carolina
Date: February 23, 2023
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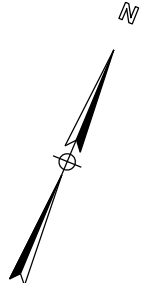
**TRIBUTARIES T-10
AND T-09**

SHEET 6

PERMITTED PLANS

**TRIBUTARY T-08
STREAM IMPACTS INCLUDE
NEW CULVERT INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY**

FLOW



PLACE 30' (L) X 7' (W) X 3' (H) RCBC

PRIVATE ACCESS 2

**TRIBUTARY T-07
STREAM IMPACTS INCLUDE
NEW CULVERT INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY**

PROJECT STUDY AREA

PROPOSED CHANNEL ACTIVITIES:

1. CLEAN EXISTING CHANNEL TO ORIGINAL GRADE AND CONTOUR.
 2. STABILIZE BANKS WHERE OBSERVED USING NATIVE SOILS AND COIR MATTING.
- ALL STABILIZATION PRACTICES WILL OCCUR ABOVE THE ORDINARY HIGH WATER MARK.

IMPACT TOTALS: SHEET 7

NAME	LINEAR FEET	PERMANENT FILL			EXCAVATION		CLEARING	
		SF	AC	VOL (CY)	SF	AC	SF	AC
T-08	23	513	0.012	5.000	-	-	-	-
T-07	20	804	0.018	5.000	-	-	-	-
TOTAL IMPACTS	43	1317	0.030	10.000	0	0.00	0	0.00

**PREPARED BY:
DAVIS &
FLOYD, INC.
CHARLESTON, SC**



LEGEND

- PROJECT AREA BOUNDARY
- [Symbol] RIP RAP
- [Symbol] TRIBUTARY IMPACT
- [Symbol] WETLAND
- PIPES
- EXISTING ROAD
- [Symbol] CULVERTS / WINGWALLS
- [Symbol] PERMANENT FILL IMPACT
- [Symbol] MULCHING
- [Symbol] RE-GRADING

SAC-2020-01259

**E. Andrews Drainage Improvement Project
Georgetown County, South Carolina**

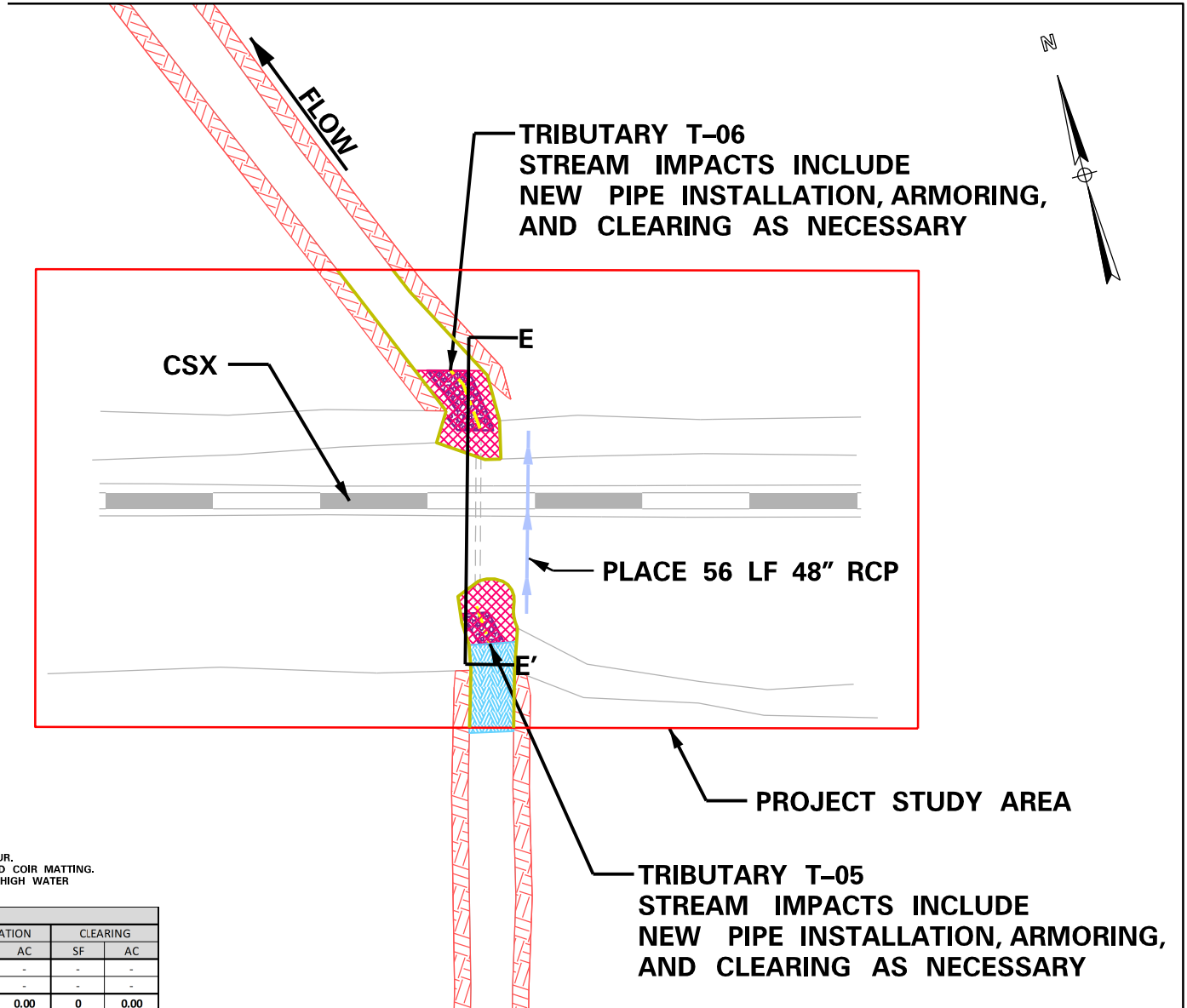
Date: February 23, 2023

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**TRIBUTARIES T-08
AND T-07**

SHEET 7

PERMITTED PLANS



- PROPOSED CHANNEL ACTIVITIES:
 1. CLEAN EXISTING CHANNEL TO ORIGINAL GRADE AND CONTOUR.
 2. STABILIZE BANKS WHERE OBSERVED USING NATIVE SOILS AND COIR MATTING.
 ALL STABILIZATION PRACTICES WILL OCCUR ABOVE THE ORDINARY HIGH WATER MARK.

IMPACT TOTALS: SHEET 8								
NAME	LINEAR FEET	PERMANENT FILL			EXCAVATION		CLEARING	
		SF	AC	VOL (CY)	SF	AC	SF	AC
T-06	21	454	0.011	1.000	-	-	-	-
T-05	13	297	0.007	0.000	-	-	-	-
TOTAL IMPACTS	34	751	0.017	1.000	0	0.00	0	0.00

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LEGEND	
PROJECT AREA BOUNDARY	RIP RAP
TRIBUTARY IMPACT	WETLAND
PIPES	EXISTING ROAD
CULVERTS / WINGWALLS	PERMANENT FILL IMPACT
MULCHING	RE-GRADING

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TRIBUTARIES T-06
 AND T-05

SHEET 8

PERMITTED PLANS

GEORGETOWN HIGHWAY

FLOW

TRIBUTARY T-04
STREAM IMPACTS INCLUDE
NEW PIPE INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY

PLACE DUAL 63' (L) X 5' (W) X 3' (H) RCBC

PROJECT STUDY AREA

TRIBUTARY T-03
STREAM IMPACTS INCLUDE
NEW PIPE INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY

PROPOSED CHANNEL ACTIVITIES:
1. CLEAN EXISTING CHANNEL TO ORIGINAL GRADE AND CONTOUR.
2. STABILIZE BANKS WHERE OBSERVED USING NATIVE SOILS AND COIR MATTING.
ALL STABILIZATION PRACTICES WILL OCCUR ABOVE THE ORDINARY HIGH WATER MARK.

IMPACT TOTALS: SHEET 9								
NAME	LINEAR FEET	PERMANENT FILL			EXCAVATION		CLEARING	
		SF	AC	VOL (CY)	SF	AC	SF	AC
T-04	25	351	0.008	9.000	-	-	-	-
T-03	19	352	0.008	8.000	-	-	-	-
TOTAL IMPACTS	44	713	0.016	17.000	0	0.00	0	0.00

PREPARED BY:
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FLOYD, INC.**
CHARLESTON, SC



LEGEND

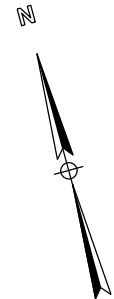
- PROJECT AREA BOUNDARY
- TRIBUTARY IMPACT
- PIPES
- CULVERTS / WINGWALLS
- MULCHING
- RIP RAP
- WETLAND
- EXISTING ROAD
- PERMANENT FILL IMPACT
- RE-GRADING

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TRIBUTARIES T-04
AND T-03

SHEET 9

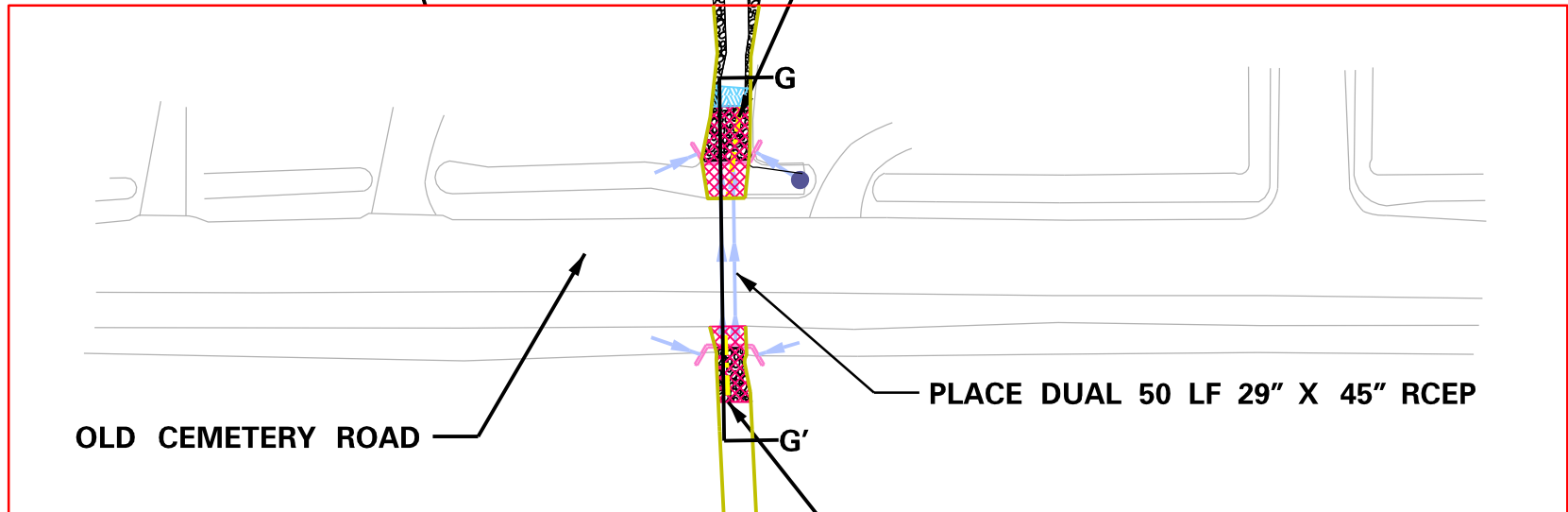
PERMITTED PLANS



PROJECT STUDY AREA

FLOW

TRIBUTARY T-02
STREAM IMPACTS INCLUDE
NEW PIPE INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY



PLACE DUAL 50 LF 29" X 45" RCEP

TRIBUTARY T-01
STREAM IMPACTS INCLUDE
NEW PIPE INSTALLATION, ARMORING,
AND CLEARING AS NECESSARY

- PROPOSED CHANNEL ACTIVITIES:
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 2. STABILIZE BANKS WHERE OBSERVED USING NATIVE SOILS AND COIR MATTING.
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IMPACT TOTALS: SHEET 10

NAME	LINEAR FEET	PERMANENT FILL			EXCAVATION		CLEARING	
		SF	AC	VOL (CY)	SF	AC	SF	AC
T-02	26	301	0.007	3.000	-	-	-	-
T-01	19	180	0.004	2.000	-	-	-	-
TOTAL IMPACTS	45	481	0.011	5.000	0	0.00	0	0.00

PREPARED BY:
**DAVIS &
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CHARLESTON, SC



LEGEND

- PROJECT AREA BOUNDARY
- TRIBUTARY IMPACT
- PIPES
- CULVERTS / WINGWALLS
- RE-GRADING
- RIP RAP
- WETLAND
- EXISTING ROAD
- PERMANENT FILL IMPACT

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TRIBUTARIES T-02
AND T-01

SHEET 10

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PERMITTED PLANS

PREPARED BY:
**DAVIS &
 FLOYD, INC.**
 CHARLESTON, SC

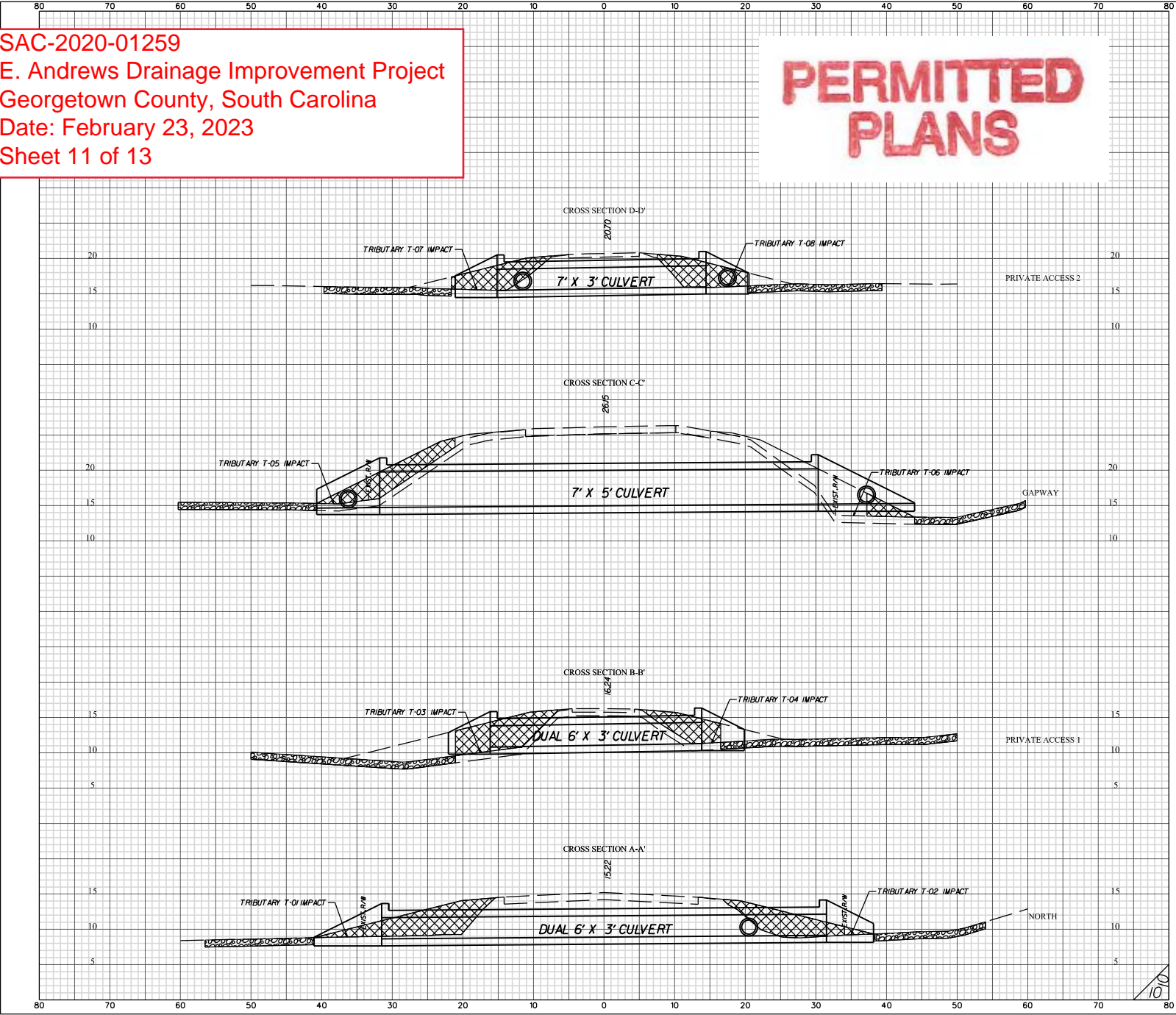
PERMANENT EXCAVATION IMPACT

PERMANENT FILL IMPACT

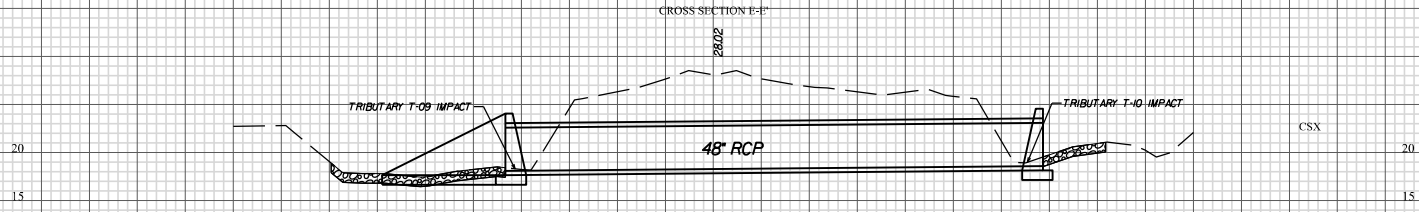
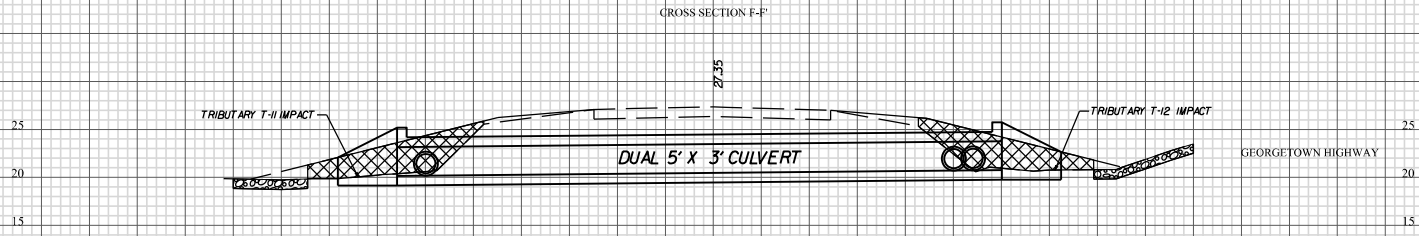
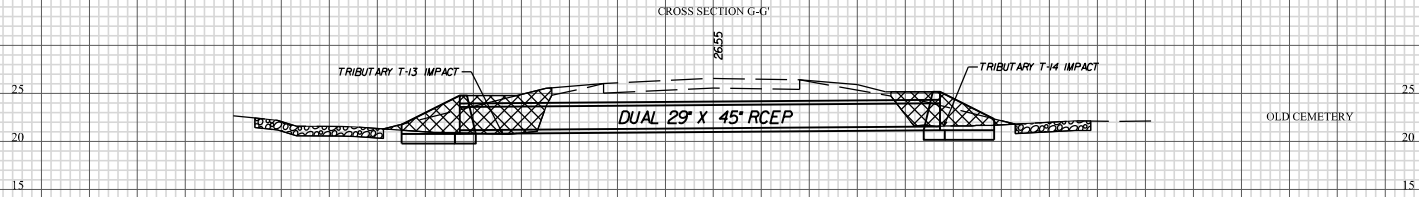
EAST ANDREWS
 CROSS-SECTIONS

SHEET 11

1" = 20'



PERMITTED PLANS



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PREPARED BY:
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PERMANENT EXCAVATION IMPACT

PERMANENT FILL IMPACT

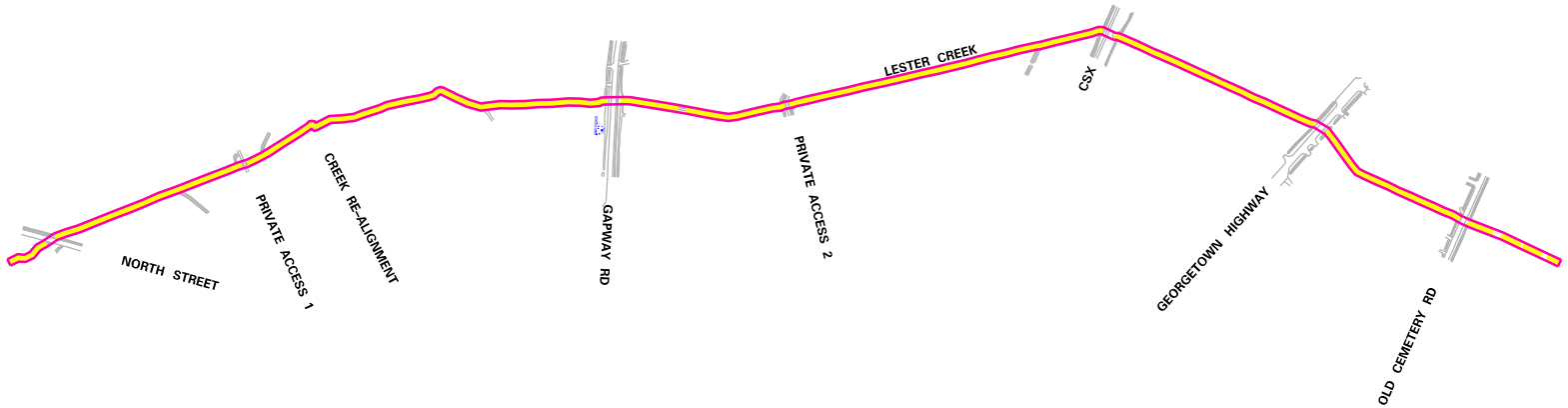
EAST ANDREWS CROSS-SECTIONS

SHEET 12

1" = 20'



PERMITTED PLANS





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PREPARED BY:
 DAVIS &
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 CHARLESTON, SC



LEGEND

- PROJECT AREA BOUNDARY
- TRIBUTARY MAINTENANCE
-  WETLAND
-  EXISTING ROAD

PERMIT DRAWING
 PLAN SHEET
 LESTER CREEK

18. Minor Discharges. Minor discharges of dredged or fill material into all waters of the United States, provided the activity meets all of the following criteria:

(a) The quantity of discharged dredged or fill material and the volume of area excavated do not exceed 25 cubic yards below the plane of the ordinary high water mark or the high tide line;

(b) The discharge of dredged or fill material will not cause the loss of more than 1/10-acre of waters of the United States; and

(c) The discharge of dredged or fill material is not placed for the purpose of a stream diversion.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the discharge of dredged or fill material or the volume of area excavated exceeds 10 cubic yards below the plane of the ordinary high water mark or the high tide line, or (2) the discharge of dredged or fill material is in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404)

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued.

Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR

402.02 for the definition of “effects of the action” for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding “activities that are reasonably certain to occur” and “consequences caused by the proposed action.”

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWP.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take”

provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR

330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106

consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only

after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the

required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWP, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency

to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank

stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee

cannot begin the activity until receiving written notification from the Corps that there is “no effect” on listed species or “no potential to cause effects” on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee’s right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity’s purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible

inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity’s adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity’s compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies’ concerns were

considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource

functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is

required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

Nationwide Permit Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWP, a waterbody is a "water of the United States." If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, CHARLESTON DISTRICT
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

FINAL REGIONAL CONDITIONS FOR THE 2021 NATIONWIDE PERMITS IN CHARLESTON DISTRICT (SAC)

Effective Date for Modified Regional Conditions for 16 NWP: January 19, 2022
Effective Date for Regional Conditions for 41 NWP: February 25, 2022
Expiration Date for Regional Conditions for All NWP: March 14, 2026

This Regional Condition document supersedes all prior Regional Condition documents for the Charleston District.

A. BACKGROUND/APPLICABILITY

1. The following regional conditions have been approved by the Division Engineer for the South Atlantic Division (SAD) for use in the Charleston District (SAC) for the following Nationwide Permits (NWP):
 - a. The NWP published in the January 13, 2021 Federal Register (86 FR 2744) announcing the reissuance of twelve (12) existing NWP (that is, NWP 12, 21, 29, 39, 40, 42, 43, 44, 48, 50, 51, and 52) and issuance of four (4) new NWP (that is, NWP 55, 56, 57, and 58), as well as the reissuance of NWP general conditions and definitions with some modifications. These 16 NWP were effective on March 15, 2021 and will expire on March 14, 2026; and
 - b. The NWP published in the December 27, 2021 Federal Register (86 FR 73522) announcing the reissuance of the remaining unmodified forty (40) existing NWP (that is, NWP 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 27, 28, 30, 31, 32, 33, 34, 35, 36, 37, 38, 41, 45, 46, 49, 53, and 54) and issuance of one (1) new NWP (that is, NWP 59). At this time, NWP 26 and 47 are reserved. These 41 NWP will be effective as of February 25, 2022 and will expire on March 14, 2026.
2. Status of Activities Under Prior NWP and/or Regional Conditions.
 - i. 16 NWP: The modified regional conditions that were issued on January 19, 2022 and are incorporated in this document **supersede** the previous regional conditions that were approved for the 16 NWP that went into effect on March 15, 2021, **except** for the following scenarios:
 1. NWP verification letters for one or more of the 16 NWP that were issued **prior** to January 19, 2022; or

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2. NWP activities that do not require a pre-construction notification (PCN)¹, are covered by one or more of the 16 NWPs, and have either commenced, are under contract to commence, or have been completed **prior** to January 19, 2022.
 - ii. 40 NWPs: For information about whether an activity can continue under the 2017 versions of the 40 existing NWPs (for example, the status of prior permit verifications and pre-construction notifications) and, accordingly, the 2017 Regional Conditions, see the discussion in the Reissuance and Modification of Nationwide Permits at 86 FR 73522 in Section I.D. on page 73525 or contact the Charleston District Regulatory Office directly.
3. The following regional conditions will provide additional protection for the aquatic environment that is necessary to ensure that the NWPs authorize only those activities with no more than minimal adverse environmental effects.
4. As specified, under NWP General Condition 27, Regional and Case-By-Case Conditions: The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case-specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its Section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

B. EXCLUDED WATERS AND/OR AREAS

Not applicable.

C. REGIONAL CONDITIONS APPLICABLE TO ALL NWPs

1. Use of nationwide permits does not preclude requirements to obtain all other applicable Federal, State, county, and local government authorizations.
2. NWP activities are not authorized in areas known or suspected to have sediment contamination, with the exception of the following: (1) activities authorized by NWP 38; (2) activities authorized by NWP 53 when used in combination with NWP 38; (3) sediment sampling for dredging projects authorized by NWP 6; and (4) activities authorized by NWP 20.
3. For all proposed activities, both temporary and permanent, that would be located within a FEMA designated floodway, the prospective permittee must submit a PCN to the District Engineer in accordance with General Condition 32.

¹ The acronym "PCN" used throughout this document refers to *Pre-Construction Notification*, as defined in NWP General Condition 32.

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4. For all NWPs, the prospective permittee must submit a PCN to the District Engineer in accordance with General Conditions 31 and 32, for any activity that would be located in or adjacent to an authorized USACE Civil Works project, including Federal Navigation projects:
 - a. **USACE Civil Works projects:** Buck Creek in Horry County, Eagle Creek in Dorchester County, Kingstree Branch in Williamsburg County, Sawmill Branch in Berkeley and Dorchester Counties, Scotts Creek in Newberry County, Socastee Creek in Horry County and Turkey Creek in Sumter County, Wilson Branch in Chesterfield County, Edisto River in Orangeburg and Dorchester Counties, North Edisto River in Aitken and Orangeburg Counties, Folly Beach in Charleston County, Hunting Island Beach, waste water treatment plant and water line in Beaufort County, Myrtle Beach in Georgetown and Horry County, Pawleys Island Beach in Georgetown County, Edisto Island Beach in Charleston County, Crab Bank in Charleston County, Morris Island Lighthouse in Charleston County, Miller Corner Disposal area Phragmites Control in Georgetown County, Cape Marsh Management area (Santee Coastal Reserve) in Charleston County, Murphy Island in Charleston County, Pocolaligo River and Swamp in Clarendon and Sumter Counties, Pinopolis Dam in Berkeley County, Battery Pringle in Charleston County, Castle Pinckney in Charleston County, Pompion Hill Chapel along the Cooper River in Berkeley County, Drayton Hall in Charleston County, Indian Bluff in Orangeburg County, Singleton Swash at Shore Drive in Horry County, Turkey Creek Bridge at Pineview Drive in Lancaster, Big Dutchman Creek Bridge at West Oak Drive in Rock Hill, SC, Calabash Branch Bridge at Tom Joye Road in Clover, Blue Branch Bridge at Fortanberry Road in Gaffney, Glenn Creek Bridge at Sulphur Springs Road in Spartanburg County, Cow Castle Creek (Bowman) in Orangeburg County, Cowpen Swamp at Simpson Creek in Horry County, Crabtree Swamp in Horry County, Saluda River (North, South, and Middle Fork) in Greenville County, Shot Pouch Creek in Sumter County, Simpson Creek in Horry County, and Todd Swamp in Horry County.
 - b. **Defined Federal Navigation projects:** Ashley River (0.5 miles east of Hwy 7 bridge downstream to the Atlantic Intracoastal Waterway (AIWW)), Atlantic Intracoastal Waterway ((AIWW) GA/SC line to SC/NC line), Brookgreen Garden Canal, Calabash Creek, Charleston Harbor (including the Cooper River, Town Creek, Shem Creek to Coleman Blvd and Mount Pleasant Channel), Folly River, Georgetown Harbor (Winyah Bay, Sampit River and Bypass Channel), Jeremy Creek, Little River Inlet, Murrells Inlet (Main Creek), Port Royal Harbor, Shipyard River, Savannah River (Below Augusta) and Town Creek McClellanville (i.e., Five Fathoms Creek, AIWW to Bulls Bay).
 - c. **Undefined Federal Navigation projects:** Adams Creek, Archers Creek (From intersection with Beaufort River for 2 miles), Edisto River (River mile 0.00 to 175.0), Great Pee Dee River (Waccamaw River via Bull Creek then to

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Smith Mills, then to Cheraw), Lynches River/Clark Creek (Clark Creek to Lynches River, River Mile 0.0 to 56.0), Mingo Creek (to Hemmingway Bridge), Salkehatchie River (5 miles above Toby's Bluff to Hickory Hill, River mile 20.4 to 62.3), Santee River (Closed to navigation at mile 87 (Santee Dam)), Waccamaw River (river mile 0.0 to 90 (state line)), Wateree River (Mouth to Camden), and Village Creek (Morgan River to Porpoise Fish Co., 2.2 miles).

5. For all proposed activities that would be located in or adjacent to an authorized Federal Navigation project, as referenced in Regional Condition C.4.b, the project drawings must include the following information: (1) State Plane Coordinates (NAD 1983) for a minimum of two corners of each structure or fill where it is closest to the Federal channel; (2) the distance from the watermost edge of the proposed structure or fill to the nearest edge of the Federal channel; and (3) Mean Low Water line and the Mean High Water line.
6. For all NWPs requiring a PCN and when the activity involves the discharge of dredged or fill material into waters of the U.S. associated with mechanized land clearing that results in the permanent conversion of forested or scrub-shrub wetlands to herbaceous wetlands, the PCN should include the following information: (1) a written description and/or drawings of the proposed conversion activity and (2) acreage of the permanent conversion.

D. REGIONAL CONDITIONS APPLICABLE TO SPECIFIC NWPs

1. For NWP 3, paragraph (a) activities, the prospective permittee must submit a PCN to the District Engineer in accordance with General Condition #32 for the repair, rehabilitation or replacement of existing utility lines, which include electric lines and/or telecommunication lines, constructed over navigable waters of the United States (i.e., Section 10 waters), and existing utility lines, electric lines, telecommunication lines and/or pipelines routed in or under navigable waters of the United States (i.e., Section 10 waters), even if no discharge of dredged or fill material occurs.
2. For NWP 3, the prospective permittee must submit a PCN to the District Engineer in accordance with General Condition 32, for maintenance activities related to stormwater management that would occur in tidal waters, including tidal wetlands.
3. For NWPs 3, 11, 12, 13, 14, 15, 20, 22, 33, 57, 58, and 59, temporary structures, fills, and/or work, including the use of temporary mats, are authorized for the minimum amount of time necessary to accomplish the work, which shall not exceed a period of 180 days without additional Corps approval. **However, temporary sidecast material authorized by NWPs 12, 57, or 58 cannot ever exceed a period of 180 days.** The temporary structures, fills, and/or work, including the use of temporary mats, shall be removed as soon as the work is

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complete and the disturbed areas be restored to pre-construction contours and conditions. The temporary mats include timber mats, metal, synthetic and/or artificial mats, or other materials that may serve the purpose of mats.

4. For NWPs 3, 11, 12, 13, 14, 15, 20, 22, 33, 57, 58 and 59 that require PCNs and when the activity involves temporary structures, fills, and/or work, including the use of temporary mats, the PCN should include the following information: (1) a written description and/or drawings of the proposed temporary activities that will be used during project construction; (2) the timeframe that the proposed temporary activities will be in place; and (3) specifications of how pre-construction contours will be re-established and verified after construction. Temporary mats include timber mats, metal, synthetic and/or artificial mats, or other materials that may serve the purpose of mats.
5. For NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 in accordance with General Condition 22(a) and for NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38 and 54, in accordance with General Condition 22(b), the ACE Basin National Estuarine Research Reserve and the North Inlet Winyah Bay National Estuarine Research Reserve are Designated Critical Resource Waters. Activities described in the NWPs listed herein are subject to the limitations and/or PCN requirements listed in General Condition 22 (a) and (b).
6. For NWPs 7 and 58 activities that involve intake structures, the associated intake structure must be screened to prevent entrainment of juvenile and larval organisms, and the inflow velocity of the associated intake structures cannot exceed 0.5 feet/second.
7. For NWPs 12, 57 and 58 activities that involve horizontal directional drilling beneath navigable waters of the United States (i.e., Section 10 waters), the PCN should include a proposed remediation plan (i.e., frac-out plan).
8. For NWPs 12, 14, 29, 39, 46, 51, 52, 57 and 58 activities that involve crossings, all culverts must be adequately sized to maintain flow. For these activities that require submittal of a PCN, the PCN should include the minimum size of and number of culvert/pipes that are proposed.
9. For NWPs 12, 14, 18, 43, 51, 57 and 58, the prospective permittee must submit a PCN to the District Engineer in accordance with General Condition #32, for activities that involve the loss of greater than 0.005 acre of stream bed.
10. For NWPs 12, 14, 18, 21, 29, 39, 40, 42, 43, 44, 50, 51, 52, 57, 58 and 59, activities that involve the loss of greater than 0.005 acre of stream bed, compensatory mitigation will be required and the PCN should include a compensatory mitigation plan.

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11. For NWPs 12, 14, 18, 21, 27, 29, 39, 40, 42, 43, 44, 50, 51, 52, 57, 58, and 59, the discharge cannot cause the loss of greater than 0.05 acre of stream bed.
12. For NWPs 29 and 39, the discharges of dredged or fill material for the construction of stormwater management facilities in perennial streams are not authorized.
13. For NWP 33, the prospective permittee must submit a PCN to the District Engineer, in accordance with General Condition #32, for temporary construction, access, and dewatering activities that impact greater than 0.1 acre of non-tidal waters of the United States, including wetlands. In addition, the PCN should include a restoration plan.
14. For existing NWP 48 activities that involve changing from bottom culture to floating or suspended culture OR proposed NWP 48 activities that involve floating or suspended culture, the prospective permittee must submit a PCN to the District Engineer in accordance with General Condition #32.
15. For proposed NWP 48 activities involving floating or suspended culture and/or proposed NWPs 55 and 56 activities that will occur adjacent to property that is not owned by the prospective permittee, the PCN should include the following information:
 - a. A map or depiction that shows the adjacent property(ies) and adjacent property owners' contact information. Note: This information may be obtained online from the applicable county's tax information pages.
 - b. A signed letter(s) of "no objection" to the proposed mariculture activity from each of the adjacent property owner(s). Each letter shall include the name, mailing address, property address, property Tax Map Parcel (TMS) number, and signature of the property owner. Or, if the prospective permittee is unable to obtain a letter(s) of "no objection", the Corps will notify the adjacent property owner(s) of the proposed project by letter wherein the adjacent property owner will be given 15 days to provide comments.
16. For NWP 53, the PCN should include a Tier I evaluation, in accordance with the Inland Testing Manual, for the project area immediately upstream of the low-head dam. If the Tier I evaluation indicates contaminated sediments are present, a Tier II evaluation may be required.
17. The prospective permittee is advised of the following for activities under any NWP for which (1) the 401 Water Quality Certifications (WQC) were denied (see F.1.a), and/or (2) activities under the NWP were found to be inconsistent with the S.C. Coastal Zone Management Program and, therefore, concurrence with the Coastal Zone Consistency determination was denied (see F.2.a), and/or (3) the

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proposed activity is located in one of the “Critical Areas” of the Coastal Zone (see F.3):

- a. For NWPs 12, 14, 16, 17, 21, 23, 29, 34, 39, 44, 46, 49, 50, 54, 57, 58 and 59 where WQC was denied, the prospective permittee should provide to the Corps a copy of the Individual WQC or evidence demonstrating a waiver was granted.
- b. For NWPs 12, 14, 16, 17, 21, 23, 24, 29, 34, 35, 39, 42, 44, 46, 49, 50, 51, 55, 56, 57, 58 and 59 where concurrence with the Coastal Zone Consistency was denied, the prospective permittee should provide to the Corps a copy of the Individual CZC Concurrence or presumed concurrence for the proposed activity.
- c. For all NWPs in any of the “Critical Areas” of the Coastal Zone, an Individual Critical Area permit is required (see F.3). Therefore, the prospective permittee should provide a copy of the Individual Critical Area permit to the Corps for the proposed activity.

Note: For WQC conditions on activities under NWPs 43, 51, and 52, see F.1.b. For Coastal Zone Consistency conditions on activities under NWPs 43 and 52, see F.2.b.

18. For NWPs 12, 57 and 58, the prospective permittee must submit a PCN to the District Engineer in accordance with General Condition 32 if the activity involves the discharge of dredged or fill material into waters of the U.S. associated with mechanized land clearing that results in the permanent conversion of forested or scrub-shrub wetlands to herbaceous wetlands for a maintained right-of-way.

E. ACTIVITY SPECIFIC REGIONAL CONDITIONS

Not applicable.

F. SECTION 401 WATER QUALITY CERTIFICATION (WQC) AND/OR COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION SUMMARY AND APPLICABLE CONDITIONS

1. Water Quality Certification (WQC)

a. WQC Denied

The Water Quality Certifications (WQC) for the following NWPs are denied; therefore, an Individual WQC, or evidence demonstrating a waiver was granted, from the South Carolina Department of Health and Environmental Control (SCDHEC) will be required for authorization under these NWPs:

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NWPs 12, 14, 16, 17, 21, 23, 29, 34, 39, 44, 46, 49, 50, 54, 57, 58 and 59.

b. **WQC Granted With Conditions**

The following WQC Conditions, as stated in the SCDHEC's Notice of Department Decision dated November 25, 2020, are also considered 2021 NWP Regional Conditions:

- i. For NWP 43, "Activities authorized by this certification are limited to maintenance of existing facilities, such as stormwater ponds, detention and retention basins, water control structures, outfall structures, emergency spillways, and existing ponds, that are proposed for use as water quantity or volume control. This NWP cannot be used for existing ponds that are proposed to be converted into water quality treatment facilities, such as sediment basins, sediment traps, or other similar structures."
- ii. For NWP 51, "This NWP is not certified for activities that cause the loss of more than 300 linear feet of stream bed."
- iii. For NWP 52, "This NWP is not certified for activities that cause the loss of more than 300 linear feet of stream bed."

c. **WQC Granted Without Conditions**

The WQCs for NWPs 3, 4, 5, 6, 7, 13, 15, 18, 19, 20, 22, 25, 27, 30, 31, 32, 33, 36, 37, 38, 40, 41, 42, 45, 48 and 53 were granted without conditions.

d. **No WQC Required**

NWPs 1, 2, 8, 9, 10, 11, 24, 28, 35, 55 and 56 do not require WQCs.

2. **Coastal Zone Consistency (CZC)**

a. **CZC Concurrence Denied**

The following NWPs were found to be inconsistent with the S.C. Coastal Zone Management Program; thus, the CZC concurrence is denied and an Individual CZC concurrence, or presumed concurrence for the proposed activity, will be required for these NWPs:

NWPs 12, 14, 16, 17, 21, 23, 24, 29, 34, 35, 39, 42, 44, 46, 49, 50, 51, 54, 55, 56, 57, 58 and 59.

b. **CZC Concurrence Granted With Conditions**

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The following CZC Conditions, as stated in the SCDHEC's Notice of Department Decision dated November 25, 2020, are also considered 2021 NWP Regional Conditions:

- i. For NWP 43, "Activities authorized by this certification are limited to maintenance of existing facilities, such as stormwater ponds, detention and retention basins, water control structures, outfall structures, emergency spillways, and existing ponds that are proposed for use as water quantity or volume control. This NWP cannot be used for existing ponds that are proposed to be converted into water quality treatment facilities such as sediment basins, sediment traps, or other similar structures."
- ii. For NWP 52, "This NWP is not certified for activities that cause the loss of more than 300 linear feet of stream bed."

c. **CZC Concurrence Granted Without Conditions**

The CZCs for NWPs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 18, 19, 20, 22, 25, 27, 28, 30, 31, 32, 33, 36, 37, 38, 40, 41, 45, 48 and 53 were granted without conditions.

d. **No CZC required**

Not applicable.

3. **Coastal Zone Consistency (CZC) General Condition**

The following CZC General Condition, as stated in the SCDHEC 401/CZC Letter dated December 14, 2020, is considered a 2021 NWP Regional Condition:

For all NWPs, "Activities in the Critical Areas (as defined in 48-39-10, R 30.1(D) and R 30.10) require a direct permit from SCDHEC OCRM. SCDHEC OCRM's action on direct critical areas permits will serve as the consistency determination for the critical area activity."

G. **DISTRICT POINT OF CONTACT**

Tracy D. Sanders
USACE- Charleston District
69A Hagood Avenue
Charleston, South Carolina 29403
843-329-8044
Tracy.d.sanders@usace.army.mil
SAC.RD.Charleston@usace.army.mil

Project Number: SAC-2020-01259

Name of Permittee: Georgetown County

Date of Issuance: February 23, 2023

Upon completion of the activity authorized by this Nationwide Permit/General Permit authorization letter, including any compensatory mitigation, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Regulatory Division – Northeast Branch
1949 Industrial Park Road, Suite 140
Conway, South Carolina 29526

Please note that the authorized activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of your Nationwide Permit/General Permit authorization letter, this office may suspend, modify, or revoke this authorization.

=====

I hereby certify that the work authorized by the above referenced Nationwide Permit/General Permit authorization letter has been completed in accordance with the terms and conditions of said authorization letter, including the performance of any required compensatory mitigation.

Signature of Permittee

APPENDIX F

Georgetown County Land Disturbance Permit



**Georgetown County
Department of Public Services
Stormwater Division**

Innovative Leadership & Teamwork!



February 3, 2023

Joseph Garrison, P.E.
Davis & Floyd
1940 Algonquin Road
Suite 301
Charleston, SC 29405

via email: jgarrison@davisfloyd.com

Reference: Georgetown County Land Disturbance Permit Application: East Andrews Drainage Improvement Project

Dear Mr. Garrison,

The Georgetown County Stormwater Division has completed a technical review of the documents submitted for the Georgetown County Land Disturbance Application for the subject project. It has been determined that the subject project meets the overall minimum requirements of the Georgetown County Stormwater Management Ordinance, 2014-44. Please provide copies of all outstanding permit approvals electronically to stormwater@gtcounty.org at your earliest convenience.

Georgetown County Land Disturbance Application (dated 9-6-22):

- ~~1. The Treatment Volume Provided and Treatment Volume Required values are always applicable. Please provide calculations for water quality for this project or provide a request to waive this requirement by using the detailed description of this linear project.~~

SC DHEC NOI (not dated)

1. Please provide a copy of the automatic coverage for this project

Plan Set (dated 11-1-22):

Stormwater Division

129 Screven Street • Georgetown, SC 29440
Phone: 843-545-3524 • Fax: 843-545-3005 • email: stormwater@gtcounty.org

East Andrews Drainage Improvement Project

02/03/2023

- ~~1. Provide notes indicating Georgetown County Close Out Process to include submittal of asbuilts, asbuilt certification form, and close out certification form.~~
- ~~2. Please indicate on plan sheets any downstream SEC measures to be used to prevent transport of sediment downstream of all channel cleaning. Refer to detail of SEC Measure.~~

SWPPP (dated 9-13-22):

- ~~1. Accepted as submitted.~~

Stormwater Management Report (dated 10-28-22):

- ~~1. Accepted as submitted~~

BMP Maintenance Agreement and Plan:

- ~~1. No BMP Agreement for this linear project.~~

ACOE Wetlands Determination Letter (not provided):

- ~~1. Only exhibits were provided, please provide the entire submittal for review.~~

PERMITS

1. Please provide copies of the following permits:
 - a. ACOE Determination Letter
 - b. ~~CZC Certification Letter~~
 - c. ~~Stamped and Approved NOI/NPDES Permit~~
 - d. SCDOT/County Encroachment Permit
 - e. ~~Planning/ Zoning Approval~~
 - f. And/or any other applicable state or federal permits

Sincerely,
Stormwater Division
Department of Public Services
Georgetown County

cc. Owner: Ray C. Funnye via email: rcfunnye@gtcounty.org

Stormwater Division

129 Screven Street • Georgetown, SC 29440
Phone: 843-545-3524 • Fax: 843-545-3005 • email: stormwater@gtcounty.org

APPENDIX G

Geotechnical Exploration Reports



Geotechnical Site Characterization

**East Andrews Drainage Improvements
Phase 3: Channel Improvements
Andrews, South Carolina**

January 13, 2023

Terracon Project No. ER225057

Prepared for:

Davis & Floyd Inc.
North Charleston, SC

Prepared by:

Terracon Consultants, Inc.
Myrtle Beach, South Carolina



January 13, 2023

Davis & Floyd Inc.
3229 W Montague Avenue
North Charleston, SC 29418-7915



Attn: Ms. Lindsey Keziah, PE
E: lkeziah@davisfloyd.com

Re: **Geotechnical Site Characterization Report**
East Andrews Drainage Improvements
Phase 3: Channel Improvements
Andrews, South Carolina
Terracon Project No. ER225057

Dear Ms. Keziah,

We have completed the Geotechnical Site Characterization services required for design of the above referenced project. This study was performed in general accordance with Terracon Proposal No. PER225057 dated July 13, 2022. This report describes our understanding of the project, presents the findings of the subsurface exploration and laboratory testing.

We appreciate the opportunity to be of service to you on this project. If you have any questions or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

A handwritten signature in black ink, appearing to read "Wendy H. Parsons".

Wendy H. Parsons, P.E.
Senior Engineer



A handwritten signature in black ink, appearing to read "Forrest Foshee".

Forrest Foshee, P.E.
Senior Engineer

REPORT TOPICS

INTRODUCTION.....	1
SITE CONDITIONS.....	1
PROJECT DESCRIPTION.....	2
SITE SUBSURFACE CHARACTERIZATION	2
GENERAL COMMENTS.....	4
ATTACHMENTS	1

Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Site Characterization Report

East Andrews Drainage Improvements

Andrews, South Carolina

Terracon Project No. ER225057
January 13, 2023

INTRODUCTION

This report presents the results of the geotechnical exploration services we performed for Phase 3 of the East Andrews Drainage Improvements project located in Andrews, South Carolina. The scope of services for Phase 3 included widening of the existing drainage channel. The purpose of these services is to provide information relative to:

- Subsurface soil conditions
- Groundwater conditions
- Grain Size Analysis

The geotechnical exploration Scope of Services for this project included the advancement of eight Hand Auger Borings (HAB) to a depth of 5 feet below the ground surface (BGS).

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is based on observation made during our field exploration.

Item	Description
Parcel Information	The project is located along an existing drainage channel extending from North Street to Old Cemetery Road in Andrews, South Carolina. Latitude: 33.44825° Longitude: -79.54426° See Site Location
Site Description	The area of exploration was along the project drainage channel alignment. The alignment was densely vegetated except for the section extending from US Hwy 521 Business to Cemetery Road.

PROJECT DESCRIPTION

Our current understanding of the proposed site development is tabulated below.

Item	Description
Information Provided	Undated proposed Plans (60% complete) were provided by the client via e-mail on 8/22/2022.
Proposed Improvements	Based on discussion with the client, we understand Phase 3 will consist of channel widening along the existing drainage channel alignment extending from North Street to Old Cemetery Road.

SITE SUBSURFACE CHARACTERIZATION

Subsurface Profile

Based on the results of the field exploration, subsurface conditions on the project site can be generalized as follows:

Description	Approximate Depth to Bottom of Stratum	Material Encountered ¹
Stratum 1	6 inches	Topsoil
Stratum 2	5 feet ²	Clayey sand to sandy lean clay

1. Material descriptions are based on visual classification from STB samples and correlations with in-situ data.
2. Termination of deepest testing.

Conditions encountered at each test location are indicated on the individual test records. Stratification boundaries on the test records represent the approximate location of changes in soil types. The transition between materials may be gradual. Details for each of the tests can be found in **Exploration Results**.

Laboratory Testing

The project engineer reviewed the collected field data and assigned laboratory tests to better understand the engineering properties of various soil strata. The laboratory testing consisted of the following:

- 8 Grain Size Distribution (ASTM D422)
- 8 Natural Moisture Content Tests (ASTM D2216)

Geotechnical Site Characterization Report

East Andrews Drainage Improvements ■ Andrews, South Carolina

January 13, 2023 ■ Terracon Project No. ER225057



The results of the laboratory testing are shown on the lab testing reports and in a summary table in [Exploration Results](#).

Groundwater Conditions

At the time of our exploration, groundwater was estimated at a depth of approximately 4 ½ feet BGS at time of boring at locations HAB-09 and 11. Groundwater was not encountered at the remaining locations within the exploration depth of 5 feet. The groundwater depths were determined by measuring the water table depths in the voids left by soil test borings. Groundwater depth at each testing location can be found in [Exploration and Testing Procedures](#).

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project. The groundwater surface should be checked prior to construction to assess its effect on site work and other construction activities.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Geotechnical Site Characterization Report

East Andrews Drainage Improvements ■ Andrews, South Carolina

January 13, 2023 ■ Terracon Project No. ER225057



ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Type of Test	Number of Borings	Boring Depth (feet)	Location
Hand Auger Borings (HAB)	8	5 feet	Drainage Channel Alignment

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. The test locations were located in the field by Terracon personnel utilizing a commercially available handheld Global Position System (GPS) unit which are typically considered accurate to within ± 20 feet. The locations should be considered accurate only to the degree implied by the means and methods used to define them. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

The field exploration was performed on November 22, 2022.

Hand Auger Borings

Hand auger borings were conducted in general accordance with ASTM D 1452-80, Standard Practice for Soil Exploration and Sampling by Auger Borings. In this test, hand auger borings are drilled by rotating and advancing a bucket auger to the desired depths while periodically removing the auger from the hole to clear and examine the auger cuttings. The soils were classified in accordance with ASTM D 2488.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D1140 Standard Test Methods for Determining the Amount of Material Finer than 75- μm (No. 200 Sieve in Soils by Washing)

The laboratory testing program often included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan

Exploration Plan

Note: All attachments are one page unless noted above.

SITE LOCATION

East Andrews Drainage Improvements ■ Andrews, South Carolina
January 13, 2023 ■ Terracon Project No. ER225057

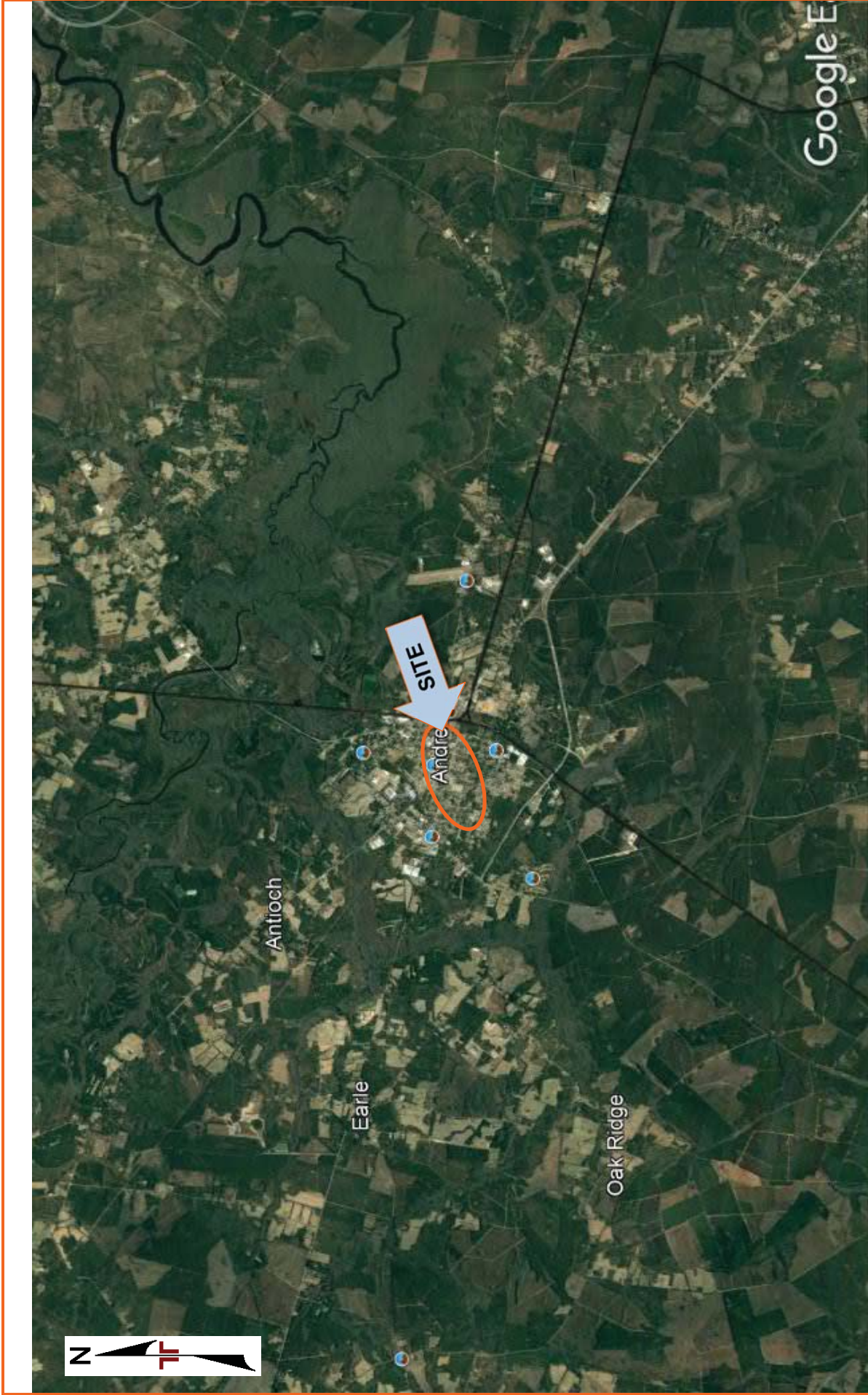
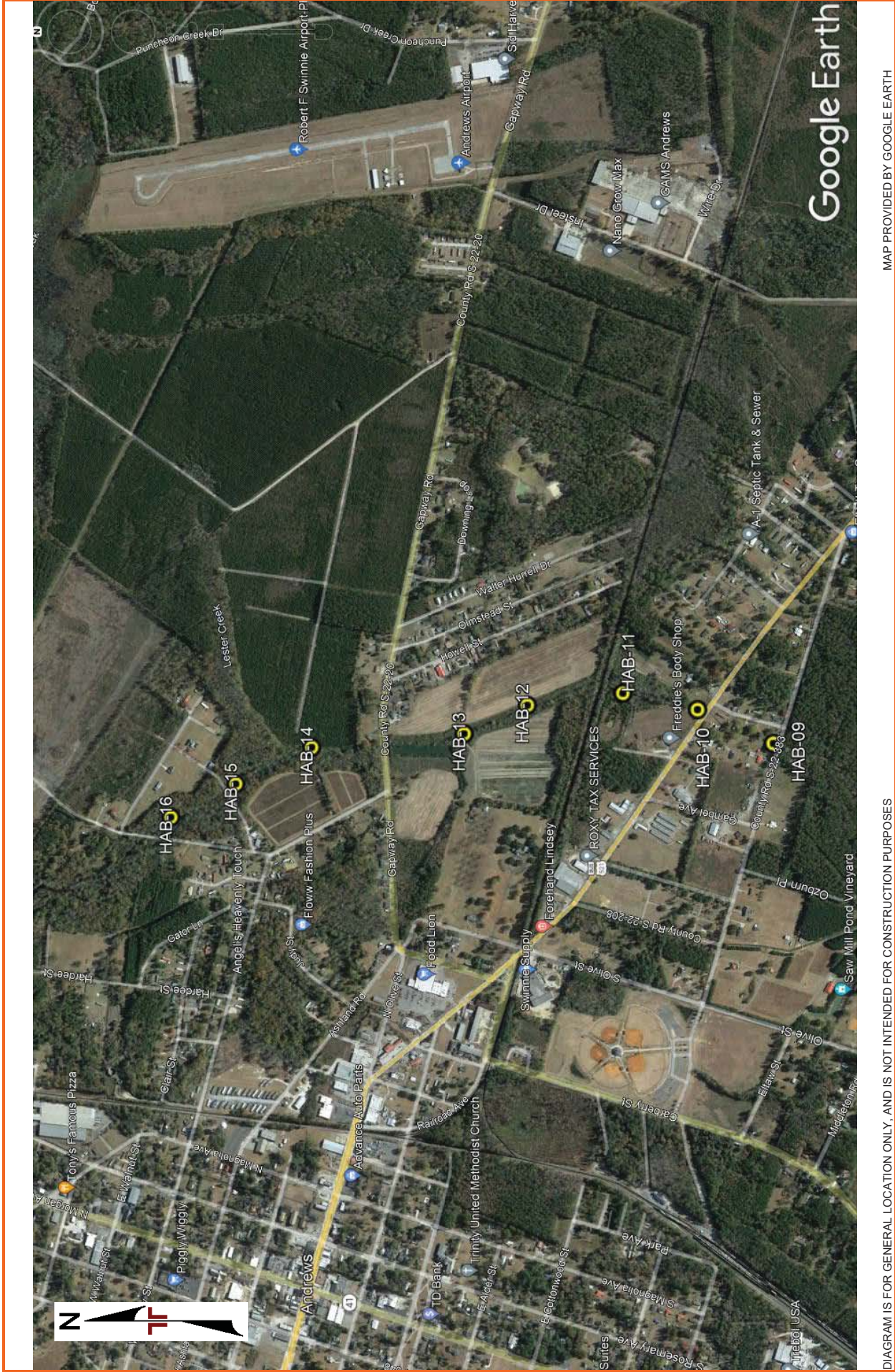


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY GOOGLE EARTH

EXPLORATION PLAN

East Andrews Drainage Improvements ■ Andrews, South Carolina
January 13, 2023 ■ Terracon Project No. ER225057



Google Earth

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY GOOGLE EARTH

EXPLORATION RESULTS

Contents:

Hand Auger Boring Logs (HAB-09 to HAB-16)
Laboratory Test Results

Note: All attachments are one page unless noted above.




BORING LOG NO. HAB-09

PROJECT: East Andrews Drainage Improvements


CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Along Existing Channel
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL ER225057 EAST ANDREWS DRAI.GPJ TERRACON.DATATEMPLATE.GDT 12/21/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Percent Fines (%)	Moisture Content (%)
	DEPTH					
	TOPSOIL					
0.5						
	SANDY LEAN CLAY TO LEAN CLAY (CL) , brown gray	1				
		2				
		3			66	24
		4				
5.0		5				
	Boring Terminated at 5 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Manual Hand Auger		Notes:	
Abandonment Method: Boring backfilled with auger cuttings upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 11-22-2022	Boring Completed: 11-22-2022
 At time of boring		Drill Rig:	Driller:
	 1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	

BORING LOG NO. HAB-10

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Along Existing Channel
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL ER225057 EAST ANDREWS DRAINAGE IMPROVEMENTS TERRACON DATATEMPLATE.GDT 12/21/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Percent Fines (%)	Moisture Content (%)
DEPTH						
	TOPSOIL	0.5				
	CLAYEY SAND (SC) , brown gray	1				
	SANDY LEAN CLAY (CL) , gray and orange	2			67	24
		3				
		4				
		5				
	Boring Terminated at 5 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Manual Hand Auger		Notes:	
Abandonment Method: Boring backfilled with auger cuttings upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 11-22-2022	Boring Completed: 11-22-2022
<i>Not encountered at time of boring</i>		Drill Rig:	Driller:
	1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	





BORING LOG NO. HAB-11

PROJECT: East Andrews Drainage Improvements



CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Along Existing Channel
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL ER225057 EAST ANDREWS DRAI.GPJ TERRACON DATATEMPLATE.GDT 12/21/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Percent Fines (%)	Moisture Content (%)
	DEPTH					
	TOPSOIL	0.5				
	CLAYEY SAND (SC) , brown gray	1.5				
	SANDY LEAN CLAY (CL) , orange and gray	5.0			51	20
	Boring Terminated at 5 Feet	5				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Manual Hand Auger		Notes:	
Abandonment Method: Boring backfilled with auger cuttings upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 11-22-2022	Boring Completed: 11-22-2022
 At time of boring		Drill Rig:	Driller:
	 1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	





BORING LOG NO. HAB-12

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Along Existing Channel
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL ER225057 EAST ANDREWS DRAI.GPJ TERRACON DATATEMPLATE.GDT 12/21/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Percent Fines (%)	Moisture Content (%)
	DEPTH					
	TOPSOIL	0.5				
	SILTY CLAYEY SAND (SC-SM) , brown	1.5				
	SANDY LEAN CLAY (CL) , gray and orange	4.5			73	27
	SANDY LEAN CLAY/CLAYEY SAND (CL) , gray	5.0				
	Boring Terminated at 5 Feet	5				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Manual Hand Auger		Notes:	
Abandonment Method: Boring backfilled with auger cuttings upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 11-22-2022	Boring Completed: 11-22-2022
<i>Not encountered at time of boring</i>		Drill Rig:	Driller:
	1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	

BORING LOG NO. HAB-13

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Along Existing Channel
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL ER225057 EAST ANDREWS DRAI.GPJ TERRACON.DATATEMPLATE.GDT 12/21/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Percent Fines (%)	Moisture Content (%)
DEPTH						
	TOPSOIL	0.5				
	SANDY LEAN CLAY TO LEAN CLAY (CL) , brown to gray	1 2 3 4 5			73	33
	Boring Terminated at 5 Feet	5				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Manual Hand Auger		Notes:	
Abandonment Method: Boring backfilled with auger cuttings upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 11-22-2022	Boring Completed: 11-22-2022
<i>Not encountered at time of boring</i>	1246 Howard Ave Myrtle Beach, SC	Drill Rig:	Driller:
		Project No.: ER225057	

BORING LOG NO. HAB-14

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Along Existing Channel
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL ER225057 EAST ANDREWS DRAINAGE IMPROVEMENTS TERRACON DATATEMPLATE.GDT 12/21/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Percent Fines (%)	Moisture Content (%)
DEPTH						
	TOPSOIL	0.5				
	SILTY SAND (SM) , dark brown	1.5				
	CLAYEY SAND (SC) , brown and gray	3.0			43	16
	Boring Terminated at 5 Feet	5.0				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Manual Hand Auger		Notes:	
Abandonment Method: Boring backfilled with auger cuttings upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 11-22-2022	Boring Completed: 11-22-2022
<i>Not encountered at time of boring</i>		Drill Rig:	Driller:
	1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	





BORING LOG NO. HAB-15

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Along Existing Channel
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_ER225057 EAST ANDREWS DRAI.GPJ TERRACON DATATEMPLATE.GDT 12/21/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Percent Fines (%)	Moisture Content (%)
	DEPTH					
	TOPSOIL	0.5				
	SANDY LEAN CLAY (CL) , brown	1.5				
	CLAYEY GRAVEL (GC) , brown gray	3.5			40	15
	SANDY LEAN CLAY (CL) , grey and orange	5.0				
	Boring Terminated at 5 Feet	5				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Manual Hand Auger		Notes:	
Abandonment Method: Boring backfilled with auger cuttings upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 11-22-2022	Boring Completed: 11-22-2022
<i>Not encountered at time of boring</i>		Drill Rig:	Driller:
	 1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	





BORING LOG NO. HAB-16

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Along Existing Channel
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_ER225057 EAST ANDREWS DRAI.GPJ TERRACON DATATEMPLATE.GDT 12/21/22

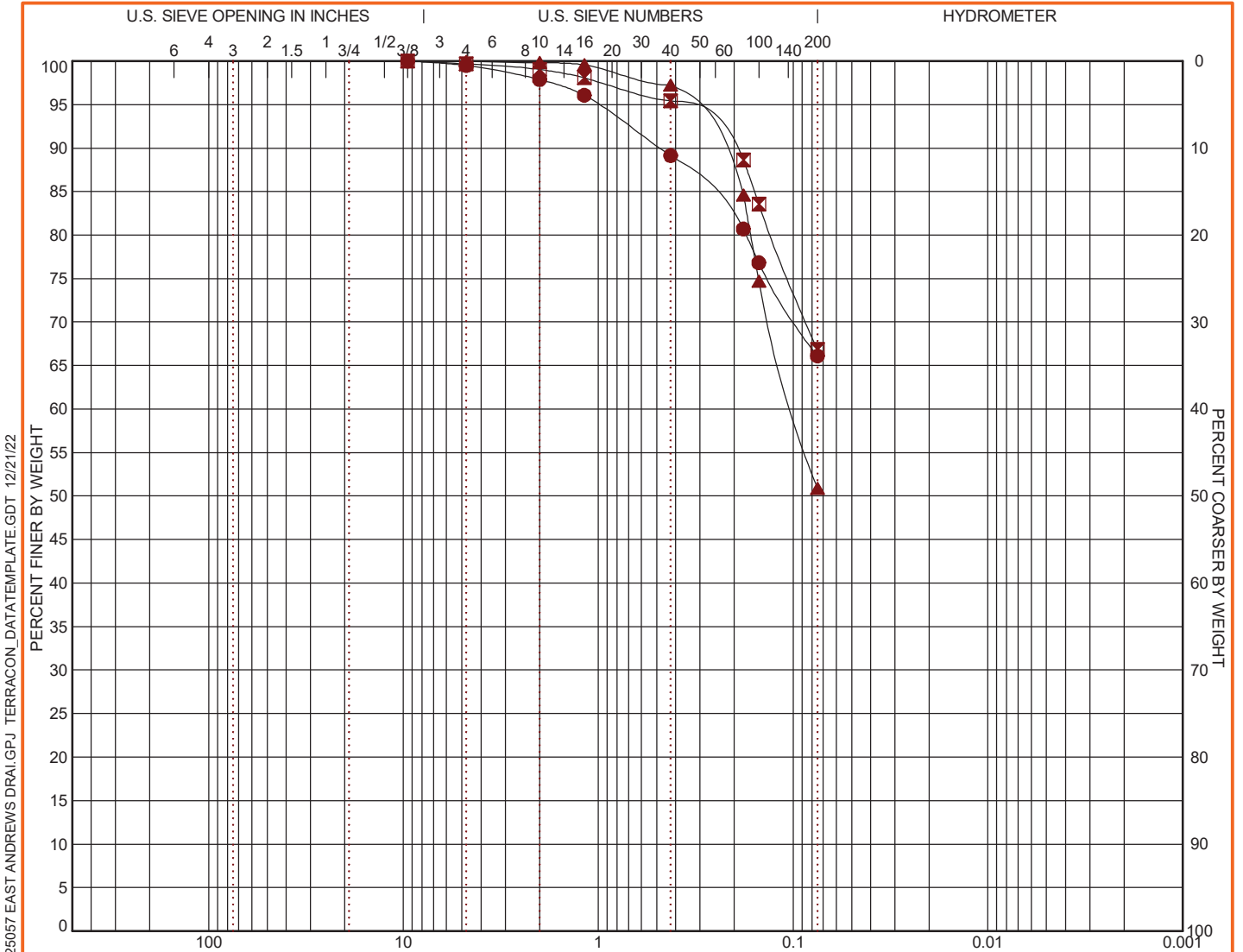
GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Percent Fines (%)	Moisture Content (%)
	DEPTH					
	TOPSOIL	0.5				
	SANDY LEAN CLAY (CL) , brown	1			76	27
	CLAYEY GRAVEL (GC) , brown	3				
	LEAN CLAY (CL) , gray and orange	4				
	Boring Terminated at 5 Feet	5				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Manual Hand Auger		Notes:	
Abandonment Method: Boring backfilled with auger cuttings upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 11-22-2022	Boring Completed: 11-22-2022
<i>Not encountered at time of boring</i>		Drill Rig:	Driller:
	1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 ER225057 EAST ANDREWS DRAINAGE IMPROVEMENTS TERRACON DATATEMPLATE.GDT 12/21/22

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
HAB-09	2 - 4.5	0.0	0.5	33.4		66.1		CL
HAB-10	2 - 5	0.0	0.3	32.8		66.8		CL
HAB-11	1.5 - 4	0.0	0.0	49.1		50.9		CL

GRAIN SIZE			
	●	☒	▲
D ₆₀			0.098
D ₃₀			
D ₁₀			
COEFFICIENTS			
	●	☒	▲
C _c			
C _u			

●		☒		▲	
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
3/8"	100.0	3/8"	100.0	#4	100.0
#4	99.48	#4	99.68	#10	99.82
#10	97.88	#10	99.03	#16	99.59
#16	96.07	#16	98.06	#40	97.26
#40	89.13	#40	95.43	#80	84.61
#80	80.69	#80	88.66	#100	74.7
#100	76.81	#100	83.55	#200	50.91
#200	66.1	#200	66.83		

SOIL DESCRIPTION	
●	SANDY LEAN CLAY
☒	SANDY LEAN CLAY
▲	SANDY LEAN CLAY
REMARKS	
●	
☒	
▲	

PROJECT: East Andrews Drainage Improvements

SITE: Along Existing Channel
Andrews, SC

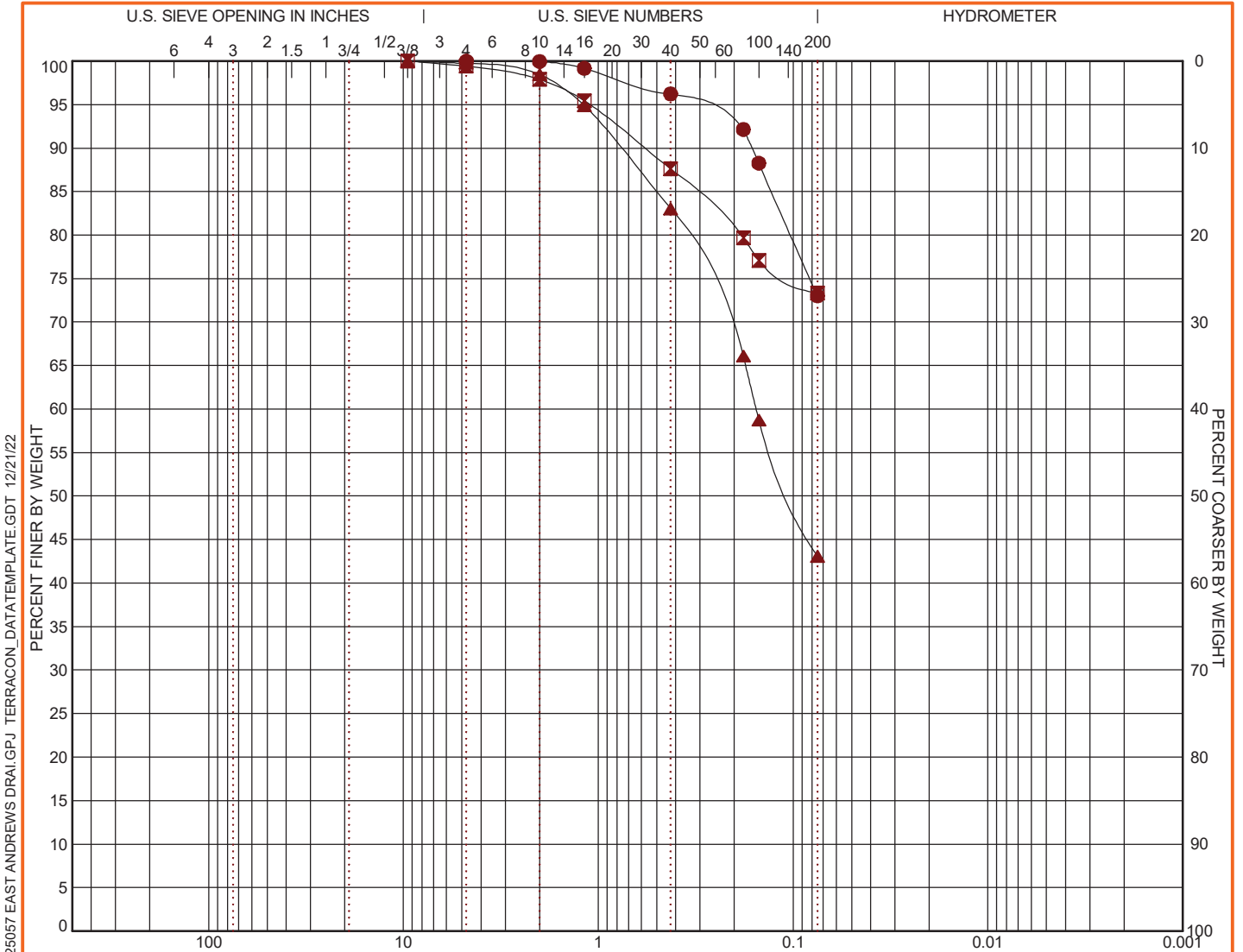


PROJECT NUMBER: ER225057

CLIENT: Davis & Floyd Inc
North Charleston, SC

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

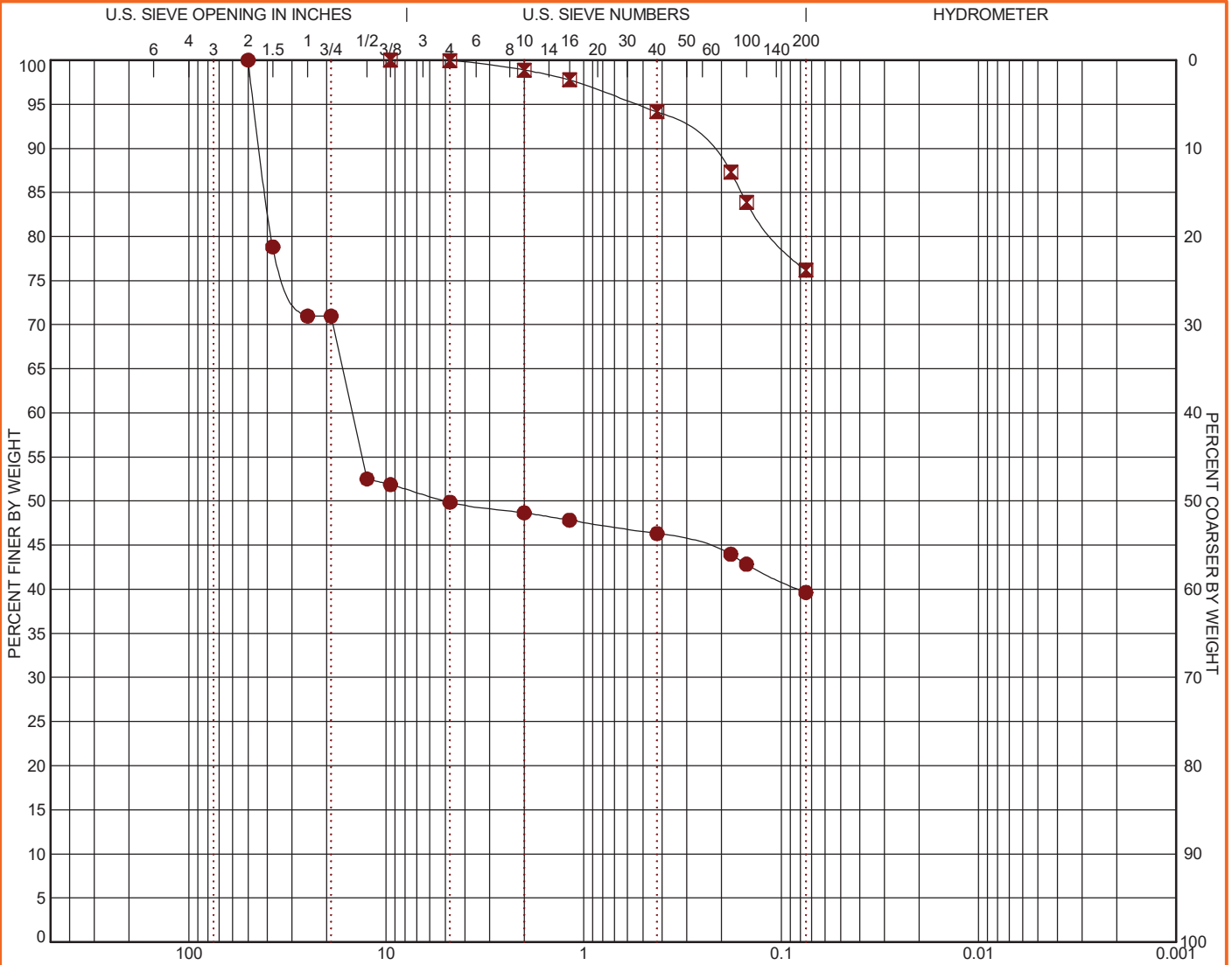
BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
HAB-12	1.5 - 4.5	0.0	0.0	27.0		73.0		CL
HAB-13	1.5 - 5	0.0	0.6	26.0		73.4		CL
HAB-14	1.5 - 4.5	0.0	0.3	56.7		43.1		SC

GRAIN SIZE			
	●	☒	▲
D ₆₀			0.155
D ₃₀			
D ₁₀			
COEFFICIENTS			
	●	☒	▲
C _c			
C _u			

●		☒		▲	
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#4	100.0	3/8"	100.0	3/8"	100.0

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
HAB-15	1.5 - 3.5	0.0	50.1	10.2		39.6		GC
HAB-16	0.5 - 3	0.0	0.0	23.8		76.2		CL

GRAIN SIZE	
D ₆₀	14.814
D ₃₀	
D ₁₀	

COEFFICIENTS	
C _c	
C _u	

Sieve	% Finer	Sieve	% Finer
2"	100.0	3/8"	100.0
1 1/2"	78.82	#4	99.95
1"	70.97	#10	98.87
3/4"	70.97	#16	97.75
1/2"	52.51	#40	94.13
3/8"	51.86	#80	87.33
#4	49.86	#100	83.86
#10	48.66	#200	76.17
#16	47.83		
#40	46.32		
#80	43.97		
#100	42.84		
#200	39.63		

SOIL DESCRIPTION	
●	CLAYEY GRAVEL
☒	SANDY LEAN CLAY

REMARKS	
●	
☒	

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 ER225057 EAST ANDREWS DRAINAGE IMPROVEMENTS TERRACON DATATEMPLATE.GDT 12/21/22

PROJECT: East Andrews Drainage Improvements
 SITE: Along Existing Channel Andrews, SC



PROJECT NUMBER: ER225057
 CLIENT: Davis & Floyd Inc North Charleston, SC

SUPPORTING INFORMATION

Contents:

Unified Soil Classification System
General Notes

Note: All attachments are one page unless noted above.

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification		
				Group Symbol	Group Name ^B	
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well-graded gravel ^F	
			$Cu < 4$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	GP	Poorly graded gravel ^F	
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}	
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}	
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E	SW	Well-graded sand ^I	
			$Cu < 6$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	SP	Poorly graded sand ^I	
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}	
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}	
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	$PI > 7$ and plots on or above "A" line	CL	Lean clay ^{K, L, M}	
			$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}
			Liquid limit - not dried			Organic silt ^{K, L, M, O}
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}	
			PI plots below "A" line	MH	Elastic Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}
			Liquid limit - not dried			Organic silt ^{K, L, M, Q}
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat	

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

^E $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

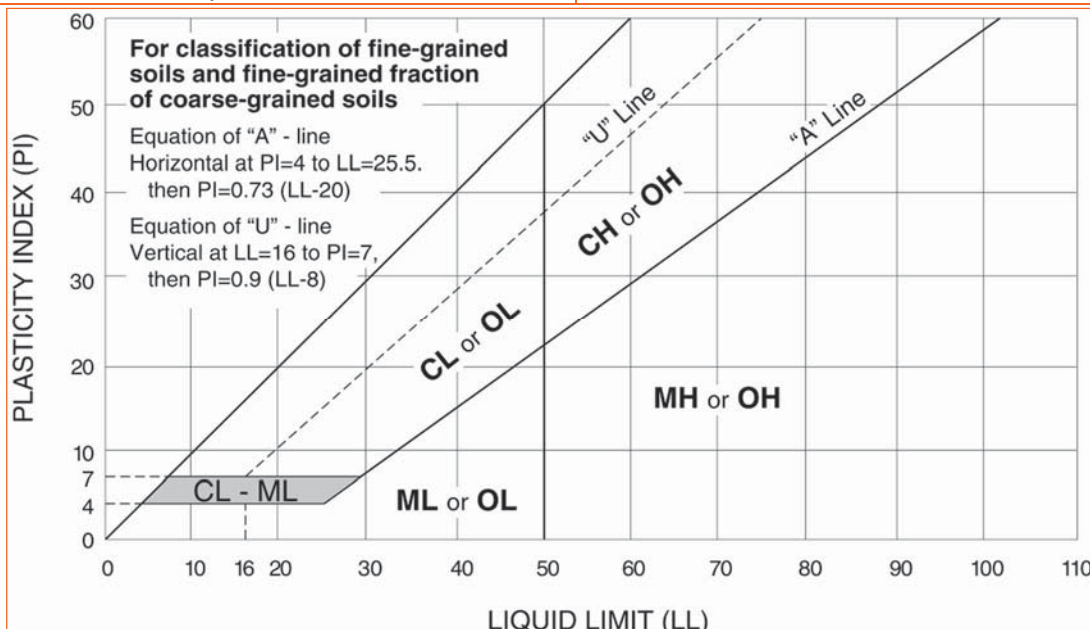
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.












^P PI plots on or above "A" line.

^Q PI plots below "A" line.



GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING			WATER LEVEL		Water Initially Encountered	FIELD TESTS	(HP) Hand Penetrometer
	Auger	Split Spoon			Water Level After a Specified Period of Time		(T) Torvane
					Water Level After a Specified Period of Time		(b/f) Standard Penetration Test (blows per foot)
	Shelby Tube	Macro Core		Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.			(PID) Photo-Ionization Detector
							(OVA) Organic Vapor Analyzer
Ring Sampler	Rock Core						
							
Grab Sample	No Recovery						

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS	RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
	Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, tsf	Standard Penetration or N-Value Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 sieve (0.075mm)

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30



Geotechnical Engineering Report- Revision 1

**East Andrews Drainage Improvements
Phase 1: Roadway Culvert Crossings
Andrews, South Carolina**

February 8, 2023

Terracon Project No. ER225057

Prepared for:

Davis & Floyd Inc.
North Charleston, SC

Prepared by:

Terracon Consultants, Inc.
Myrtle Beach, South Carolina



February 8, 2023

Davis & Floyd Inc.
3229 W Montague Avenue
North Charleston, SC 29418-7915



Attn: Ms. Lindsey Keziah, PE
E: lkeziah@davisfloyd.com

Re: **Geotechnical Engineering Report- Revision 1**
East Andrews Drainage Improvements
Phase 1: Roadway Culvert Crossings
Andrews, South Carolina
Terracon Project No. ER225057

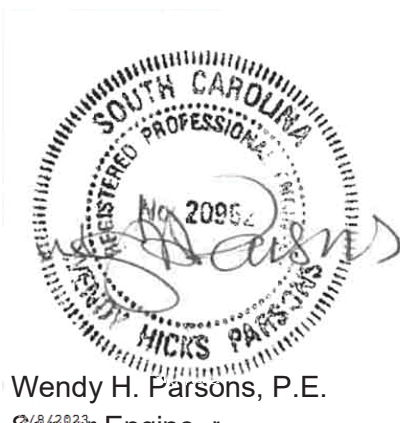
Dear Ms. Keziah,

We have completed the Geotechnical Engineering services required for design of the above referenced project. This study was performed in general accordance with Terracon Proposal No. PER225057 dated July 13, 2022. This report describes our understanding of the project, presents the findings of the subsurface exploration, and provides geotechnically-related design recommendations for earthwork and foundations.

We appreciate the opportunity to be of service to you on this project. If you have any questions or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.



A handwritten signature in blue ink, appearing to read "Forrest W. Foshee".

Forrest Foshee, P.E.
Senior Engineer

REPORT TOPICS

INTRODUCTION..... 1

SITE CONDITIONS..... 2

PROJECT DESCRIPTION..... 2

SITE SUBSURFACE CHARACTERIZATION 3

EARTHWORK..... 5

SHALLOW FOUNDATIONS..... 7

GENERAL COMMENTS..... 12

Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

- EXPLORATION AND TESTING PROCEDURES**
- SITE LOCATION AND EXPLORATION PLANS**
- EXPLORATION RESULTS**
- SUPPORTING INFORMATION**

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report – Revision 1
East Andrews Drainage Improvements
Andrews, South Carolina
Terracon Project No. ER225057
February 8, 2023

INTRODUCTION

Updated plans have been provided by the client since issuance of our initial report. We understand the pipe types/culverts, sizes and inverts and number of barrels have been updated. These changes have been reflected in this report revision.

This report presents the results of the geotechnical engineering services we performed for Phase 1 of the East Andrews Drainage Improvements project located in Andrews, South Carolina. The scope of services for Phase 1 included replacement of existing roadway culverts beneath Old Cemetery Road, US 521, Gapway Road and North Street. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Lateral Earth Pressures
- Estimated settlement of culverts

The geotechnical engineering Scope of Services for this project included the advancement of a combination of Cone Penetrations Tests (CPT), Soil Test Borings (STB) and Hand Auger Borings (HAB). The following testing was performed at each proposed culvert crossing:

- **North Street:** 1 CPT to 16 feet and 1 STB to 25-½ feet
- **Gapway Road:** 2 CPT's to 13-½ feet and 1 STB to 18-½ feet
- **US 521 Business:** 2 CPT's to 9-½ to 13 feet and 1 STB to 19 feet
- **Old Cemetery Road:** 2 CPT's to 11 to 13-½ feet and 1 HAB to 8 feet

CPT's were substituted for the STB's initially proposed due to overhead utility constraints at some of the crossings. CPT refusal was encountered at depths of 9-½ to 16 feet at all locations. Soil Test Borings (STB's) were then performed to deeper depths where access allowed.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively.

SITE CONDITIONS

The following description of site conditions is based on observation made during our field exploration.

Item	Description
Parcel Information	<p>The project is located along an existing drainage channel extending from North Street to Old Cemetery Road in Andrews, South Carolina.</p> <p>Latitude: 33.44825° Longitude: -79.54426°</p> <p>See Site Location</p>
Site Description	<p>The areas of exploration included four roadway crossings with existing culverts in place along the project drainage channel alignment. Old Cemetery road, US 521 Business, and Gapway Road are paved with asphalt. North Street has a slag ground cover.</p>

PROJECT DESCRIPTION

Our current understanding of the proposed site development is tabulated below. If building loads, fill heights, or traffic loadings exceed those assumed, we must be allowed to review the variations to determine if our recommendations are still valid.

Item	Description
Information Provided	<ul style="list-style-type: none"> ■ Undated proposed Plans (60% complete) were provided by the client via e-mail on 8/22/2022. ■ Undated proposed Plans (90% complete) were provided by the client via e-mail on 1/16/2023.
Proposed Improvements	<p>Based on discussion with the client, we understand Phase 1 of this project will consist of the following four roadway “open cut” culvert crossings:</p> <ul style="list-style-type: none"> ■ North Street – Replace 2 existing 36” x 72” CMPs with dual 64’ x 6’ x 3’ box culverts ■ Gapway Road – Replace existing 48” RCP with 62’ x 7’ x 5’ box culvert ■ US 521 Business (Old Georgetown Hwy) – Replace existing dual 36” CMPs with dual 63’ x 5’ x 3’ box culverts ■ Old Cemetery Road – Replace existing dual 24” CMPs with dual 50’ of 29” x 45” RCEP
Maximum Loads	<p>Structural loads have not been provided. We have assumed the following maximum culvert loads based on culvert dimensions provided and our experience with similar construction:</p> <p><u>Box Culvert:</u> 4 tons per linear foot (max)</p> <p><u>Estimated Soil Contact Pressure from Box Culvert Dead Load:</u> 500 pounds per square foot (psf) (max)</p>

Geotechnical Engineering Report

East Andrews Drainage Improvements ■ Andrews, South Carolina

February 8, 2023 ■ Terracon Project No. ER225057



Item	Description
Grading	<p>Finished grades were not included on the plans provided. We have assumed existing grades at the roadway crossing will approximate finished grades since they are within existing roadways. The following bottom of culvert elevations have been estimated based on the plans provided:</p> <ul style="list-style-type: none">■ North Street: Elevation 8.0 feet (approximately 7 feet below existing grade) – Plan Sheet 19■ Gapway Road: Elevation 14.0 feet (approximately 12 feet below existing grade) – Plan Sheet 20■ US 521 Business: Elevation 19.0 feet (approximately 8 feet below existing grade) – Plan Sheet 21■ Old Cemetery Road: Elevation 21.0 feet (approximately 5 feet below existing grade) – Plan Sheet 22

SITE SUBSURFACE CHARACTERIZATION

Subsurface Profile

Based on the results of the field exploration, subsurface conditions on the project site can be generalized as follows:

Existing Road Surfacing

Location	Average Asphalt Thickness (in)	Average Concrete Thickness (in)	Slag Thickness (in)	Base Course Thickness (in)
North Street (STB-8)	0	0	10	0
Gapway Road (CPT-5 and 6, STB-5)	9	0	0	0
US 521 Business (CPT-3A and 4, STB-4)	7 to 9	7 to 8	0	0
Old Cemetery Road (CPT-1 and 2A)	3	0	0	0

Geotechnical Engineering Report

East Andrews Drainage Improvements ■ Andrews, South Carolina

February 8, 2023 ■ Terracon Project No. ER225057



General Subsurface Profile

Description	Approximate Depth to Bottom of Stratum	Material Encountered ¹
Stratum 1	Varies	Existing Road Surfacing
Stratum 2	9 to 13 feet ²	Very loose to medium dense clayey sand and very soft to stiff sandy clay
Stratum 3	17 to 19 feet	Medium dense to very dense sand with gravel and varying silt content; calcareous; hard drilling depths noted on individual logs
Stratum 4	25 feet ³	Medium dense sand with silt ³

1. Material descriptions are based on visual classification from STB/HAB samples and correlations with in-situ data.

2. CPT equipment refusal encountered at depths ranging from 9 to 15 feet BGS at SCPT/CPT test locations.

3. Termination of deepest testing.

Conditions encountered at each test location are indicated on the individual test records. Stratification boundaries on the test records represent the approximate location of changes in soil types. The transition between materials may be gradual. Details for each of the tests can be found in [Exploration Results](#).

Laboratory Testing

The project engineer reviewed the collected field data and assigned laboratory tests to better understand the engineering properties of various soil strata. The laboratory testing consisted of the following:

- 4 Grain Size Distribution (ASTM D422)
- 4 Natural Moisture Content Tests (ASTM D2216)

The results of the laboratory testing are shown on the lab testing reports and in a summary table in [Exploration Results](#).

Groundwater Conditions

At the time of our exploration, groundwater was estimated at the following depths below the existing ground surface at each crossing:

- North Street: 3 to 5 feet
- Gapway Road: 7 to 9 feet
- US 521 Business: 6-½ to 9 feet
- Old Cemetery Road: 3-½ to 4 feet

The groundwater depths were determined by using the depth to the beginning of the hydrostatic porewater pressure detected in the CPT soundings as well as using a groundwater probe within the voids left by Hand Auger Borings (HABs) and Soil Test Borings (STBs). Groundwater depth at each testing location can be found in **Exploration and Testing Procedures**.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project. The groundwater surface should be checked prior to construction to assess its effect on site work and other construction activities.

Fine-grained soils located near the existing ground surface may impede percolation of rainfall into the ground surface. Therefore, after periods of heavy rainfall “perched” groundwater conditions may occur for extended periods. A “perched” groundwater table occurs when water collects above low permeability soils, such as located immediately below the surface of this site. During heavy rainfall periods, water will tend to move laterally across the site and collect in low-lying areas before it slowly descends into the groundwater table.

EARTHWORK

Earthwork will include excavations and dewatering. The following presents recommendations for site and subgrade preparation and the placement of Controlled Fill for this project. Earthwork on the project should be observed and evaluated by Terracon personnel. The evaluation of earthwork should include observation and sufficient testing of Controlled Fill and subgrade preparation, and other geotechnical conditions exposed during the construction of the project.

Site Preparation & Pipe Bedding Considerations

The initial step in site preparation is to remove pavement, topsoil, existing drainage structures planned for removal, and any deleterious material (if encountered) from within the proposed drainage structure footprints to their respective bottom of culvert elevations. Once this is complete, placement of the new culvert/box culvert and subsequent backfill can commence.

We understand that RCP sections and box culverts will be installed as part of this project. Weak soils were encountered at the planned excavation depths at North Street, Gapway Road, US Hwy 521 Business and Old Cemetery Road. Due to the presence of these unstable soils, a minimum of 24 inches of free draining #57 stone or equivalent should be utilized as bedding material beneath the proposed culverts at these locations. Shallower excavation may be required at Gapway Road where denser soils were encountered approximately one foot below bottom of culvert elevation. The stone will aid in dewatering using sump pumps and provide a stable

working surface during construction. The stone should be wrapped with a nonwoven geotextile fabric to limit the migration of fines into the stone.

At the time of our field exploration, groundwater was observed at depths shallower than the proposed bottom of culvert elevations at all crossing locations. Dewatering can be expected at the time of construction. Groundwater levels within the construction areas should be maintained at a minimum of 3 feet below the base of the excavation as the subgrade is expected to be soft clays at and additional undercutting may be required to achieve a stable subgrade during construction operations. Additional recommendations on dewatering and excavations can be found in the subsequent section entitled **Earthwork Construction Considerations**

Our field exploration encountered very dense sands with gravel at the Gapway Road crossing, beginning at a depth of 13-½ feet below existing grade. We have estimated the bottom of culvert depth to be approximately 14 feet. Difficult excavation may be encountered within these very dense soils.

If conditions encountered vary from those described in this report, we should be notified to provide an evaluation and supplemental recommendations, if needed.

Structural Fill

Structural fill is material used below, or within 10 feet of structures, pavements, or constructed slopes. The grading contractor should provide samples of proposed fill soils prior to placement. Earthen materials used for structural fill should meet the following material property requirements:

Soil Type ¹	USCS Classification	Acceptable Parameters (for Structural Fill)
Structural, Imported Fill	SP, SP-SM, SP-SW, SW	Non-plastic Less than 12% passing No. 200 sieve Modified Proctor (ASTMD1557) ≥ 100 pcf

1. Structural fill should consist of approved materials free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the Geotechnical Engineer for evaluation prior to use on this site.

Compaction Requirements

ITEM	DESCRIPTION
Fill Lift Thickness	When heavy, self-propelled compaction equipment is used, fill lifts shall have a maximum of 10 inches in loose thickness.
	When hand-guided equipment (i.e., jumping jack or plate compactor) is used, fill lifts shall have a maximum of 6 inches in loose thickness.

ITEM	DESCRIPTION
Compaction Requirements ¹	Structural fill should be compacted to 95% of the material's maximum Modified Proctor dry density (ASTM D1557).
Moisture Content – Controlled Fill or Onsite Soils ²	Within the range of ±2% of optimum moisture content value as determined by the Modified Proctor test.

1. Fill should be tested for moisture content and compaction during placement. If the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.
2. Specifically, moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the structural fill material pumping when proofrolled.

Backfill Construction Observation and Testing

The exposed subgrade and each lift of compacted fill should be tested, evaluated, and reworked, as necessary, until approved by the geotechnical engineer's representative prior to placement of additional lifts. We recommend that each lift of fill be tested for density and moisture content at a frequency of one test for every 50 linear feet of compacted utility trench backfill.

Excavation Dewatering

Groundwater was estimated at depths of 3 to 9 feet below the ground surface at the time of our field exploration. Dewatering will be necessary to provide a stable work environment during excavation and construction below the groundwater table. If the site is large enough to allow the excavations to be sloped sufficiently without the use of shielding, the #57 stone already planned for stabilization of the excavation subgrades will facilitate pumping to remove groundwater during construction.

If shielding comprised of steel sheeting is utilized, the design of the excavation dewatering system should be undertaken concurrently with the shielding design. The dewatering design should be undertaken by an engineer registered in the State of South Carolina, employed by the contractor and is familiar with this type of operation. The sheet pile installation should extend past the anticipated bottom depth of the excavation a sufficient depth to minimize the potential for bottom heave and to limit groundwater inflow to a level that can be adequately controlled with sumps, pumps or sanded well points. The dewatering system should include provisions to limit uplift forces during construction.

We recommend surface stormwater runoff be prevented from entering the open excavation with either a berm and swale system constructed around the perimeter of the excavation. Soils used to construct the berm may consist of the less permeable clayey soils removed from the excavation.

General Excavation Notes

We expect that excavation can be accomplished with a trackhoe and typical excavation bucket. Unless accounted for and allowed by the shielding design, soils removed from the excavation should not be placed closer than 30 feet from the edge of the excavation to prevent surcharge loading on the shielding system and to prevent spillage of spoil material back into the excavation.

The Occupational Safety and Health Administration (OSHA) requires soils within the proposed excavation be classified for shielding and safety considerations. The estimated soil parameters in the Lateral Earth Pressure section may be used in conjunction with OSHA Standards 29 CFR 1926 Subpart P Appendix A for the contractor's shielding design.

OSHA standards require daily inspections of excavations, their surrounding areas, and protective systems by a geotechnical engineer or other competent person. Daily inspections are to be conducted prior to the start of work in the excavation, after each storm event or other hazard-increasing occurrence and as needed throughout the workday. These inspections search for evidence of situations that could result in possible cave-ins, indications of failure of the protective systems, or other hazardous conditions.

Safety guidelines concerning means of egress into and out of the excavation, worker protection from falling loads, and other issues as outlined in OSHA Standard 29 CFR Part 1926 should be followed.

LATERAL EARTH PRESSURES

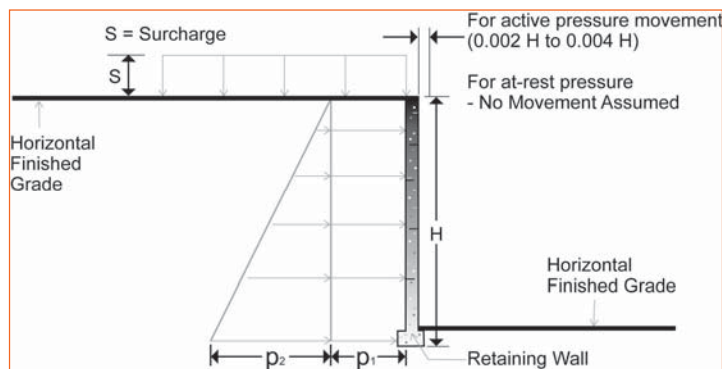
Design Parameters

Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown in the diagram below. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).

Geotechnical Engineering Report

East Andrews Drainage Improvements ■ Andrews, South Carolina

February 8, 2023 ■ Terracon Project No. ER225057



Lateral Earth Pressure Design Parameters

Test Locations 1 through 4 – Old Cemetery Road & US Hwy 521 Bus.

Stratum ¹	Approx. Depth to bottom of stratum (ft.)	Estimated Soil Properties					
		Total/Effective Unit Weight (pcf)	Friction Angle (ϕ)	Cohesion (psf)	Earth Pressure Coeff.		
					Active K_a	At Rest K_o	Passive K_p
Imported	N/A	120	32	N/A	0.31	0.47	3.25
2	10 to 11	105	N/A	800	1	1	1
3	13 to 19 ²	115	32	N/A	0.31	0.47	3.25

1. Soil layer/stratification boundaries are based on the soil profile presented in the **Subsurface Profile** of this report.
2. Termination of deepest boring/sounding.

Test Locations 5 and 6 – Gapway Road

Stratum ¹	Approx. Depth to bottom of stratum (ft.)	Estimated Soil Properties					
		Total/Effective Unit Weight (pcf)	Friction Angle (ϕ)	Cohesion (psf)	Earth Pressure Coeff.		
					Active K_a	At Rest K_o	Passive K_p
Imported	N/A	120	32	N/A	0.31	0.47	3.25
2	11	110	30	N/A	0.33	0.5	3
3	13	105	N/A	750	1	1	1
4	17 to 19 ²	120	36	N/A	0.26	0.41	3.85

3. Soil layer/stratification boundaries are based on the soil profile presented in the **Subsurface Profile** of this report.
4. Termination of deepest boring/sounding.

Test Locations 7 and 8 – North Street

Stratum ¹	Approx. Depth to bottom of stratum (ft.)	Estimated Soil Properties					
		Total/Effective Unit Weight (pcf)	Friction Angle (ϕ)	Cohesion (psf)	Earth Pressure Coeff.		
					Active K_a	At Rest K_o	Passive K_p
Imported	N/A	120	32	N/A	0.31	0.47	3.25
2	10	105	N/A	650	1	1	1
3	14	100	28	N/A	0.36	0.53	2.76
4	25 ¹	120	36	N/A	0.26	0.41	3.85

5. Soil layer/stratification boundaries are based on the soil profile presented in the **Subsurface Profile** of this report.

6. Termination of deepest boring/sounding. These soils were encountered within boring depths at STB-08 only.

Intermittent very dense lenses were encountered beginning at depths of approximately 10 to 12 feet below existing grade as shown on the individualized STB logs. CPT refusal was also encountered at depths of 9 to 15 feet at all locations. This dense material is present at test locations at all culvert crossing locations and additional effort may be required during any necessary sheet pile installation performed within this type material and should be accounted for in design of excavation dewatering and shoring by others.

Applicable conditions to the above include:

- For active earth pressure, wall must rotate about base, with top lateral movements of about 0.002 H to 0.004 H, where H is wall height
- For passive earth pressure to develop, wall must move horizontally to mobilize resistance
- Uniform surcharge, where S is surcharge pressure
- In-situ soil backfill weight of 120 pcf
- Horizontal backfill, compacted to 95 percent of modified Proctor maximum dry density
- Loading from heavy compaction equipment not included
- No hydrostatic pressures acting on wall
- No dynamic loading
- No safety factor included

Backfill placed against structures should consist of granular soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively.

BOX CULVERT DESIGN

We understand existing culverts will be replaced with reinforced concrete culverts or box culverts at the locations noted below. The settlement and bearing capacity of the new culverts/box culverts were evaluated based on the tests performed at the existing culvert locations and assumed loading conditions and are presented below in the following table.

Box Culvert Settlement

Culvert Location	Number of Culverts	Culvert Dimensions			Loading Condition	Settlement	Bearing Capacity
		Total Length	Total Width	Total Height			
North Street	2	64 ft.	6 ft.	3 ft.	Static	1 inch or less	2000 psf
Gapway Road	1	62 ft.	7 ft.	5 ft.	Static	1 inch or less	2000 psf
US Hwy 521 Business	2	61 ft.	5 ft.	3 ft.	Static	1 inch or less	2000 psf
Old Cemetery Road	2	50 ft.	29 in.	45 in.	Static	1 inch or less	2000 psf

General Construction Considerations

Construction methods and materials used in the development of the new pavement areas should meet the minimum requirements as directed by SCDOT Standard Specifications for Highway Construction, 2007 edition.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Type of Test	Number of Borings	Boring Depth (feet)	Planned Location
Cone Penetration Test (CPT)	7	9-½ to 16 feet	All Culvert Crossings
Soil Test Borings (STB)	3	18-½ to 25-½ feet	North Street, Gapway Road and US 521 Bus
Hand Auger Borings (HAB)	1	8 feet	Old Cemetery Road

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. The test locations were located in the field by Terracon personnel utilizing a commercially available handheld Global Position System (GPS) unit which are typically considered accurate to within ±20 feet. The locations should be considered accurate only to the degree implied by the means and methods used to define them. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

The field exploration was performed on September 1st and 19th, 2022. The in-situ tests were advanced with a truck mounted rig. The STBs were advanced with a track mounted CME 45C rig.

Hand Auger Borings

Hand auger borings were conducted in general accordance with ASTM D 1452-80, Standard Practice for Soil Exploration and Sampling by Auger Borings. In this test, hand auger borings are drilled by rotating and advancing a bucket auger to the desired depths while periodically removing the auger from the hole to clear and examine the auger cuttings. The soils were classified in accordance with ASTM D 2488.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

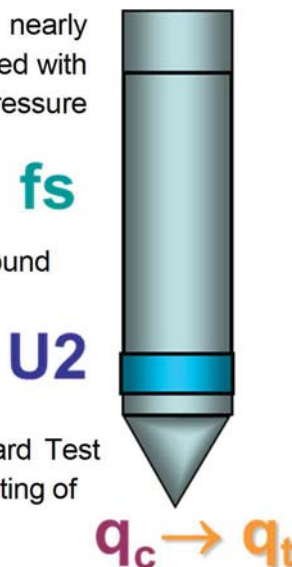
- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D1140 Standard Test Methods for Determining the Amount of Material Finer than 75- μm (No. 200 Sieve in Soils by Washing

The laboratory testing program often included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Subsurface Exploration Procedures:

Cone Penetration Testing

The CPT hydraulically pushes an instrumented cone through the soil while nearly continuous readings are recorded to a portable computer. The cone is equipped with electronic load cells to measure tip resistance and sleeve resistance and a pressure transducer to measure the generated ambient pore pressure. The face of the cone has an apex angle of 60° and an area of 10 cm^2 . Digital data representing the tip resistance, friction resistance, pore water pressure, and probe inclination angle are recorded about every 2 centimeters while advancing through the ground at a rate between $1\frac{1}{2}$ and $2\frac{1}{2}$ centimeters per second. These measurements are correlated to various soil properties used for geotechnical design. No soil samples are gathered through this subsurface exploration technique.



CPT testing is conducted in general accordance with ASTM D5778 "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils."

Upon completion, the data collected were downloaded and processed by the project engineer.

Soil Test Borings

Soil Test Borings (STBs) were performed in accordance with ASTM D1586 *Test Method for Penetration Test and Split-Barrel Sampling of Soils*. STBs were advanced with a track-mounted rotary drill rig using mud rotary drilling techniques. Four samples are obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. For safety purposes, all borings were backfilled with auger cuttings after their completion. Pavements were patched with cold-mix asphalt and/or pre-mixed concrete, as appropriate.

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan

Exploration Plan

Note: All attachments are one page unless noted above.

SITE LOCATION

East Andrews Drainage Improvements ■ Andrews, South Carolina
February 8, 2023 ■ Terracon Project No. ER225057

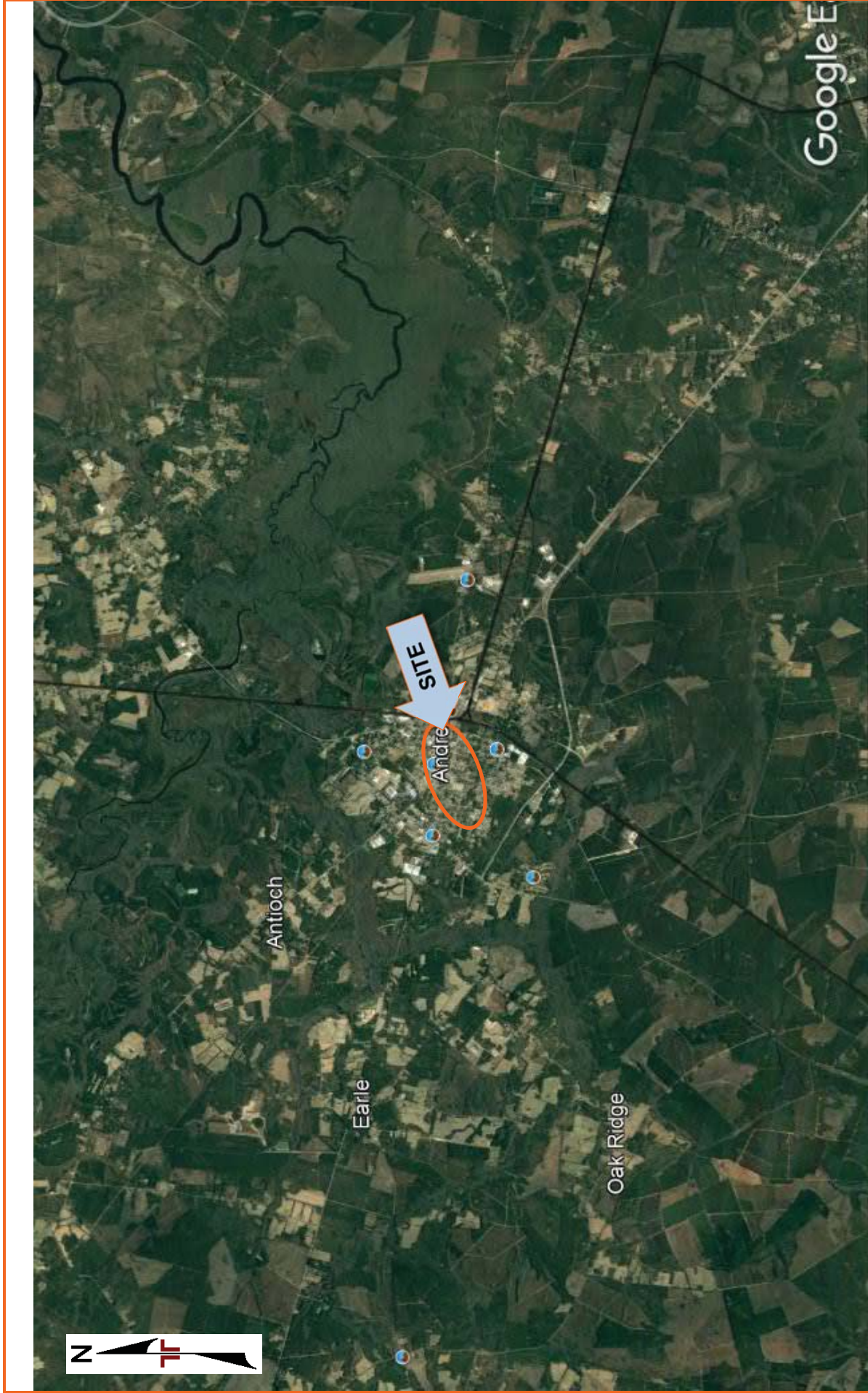


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

East Andrews Drainage Improvements ■ Andrews, South Carolina
February 8, 2023 ■ Terracon Project No. ER225057

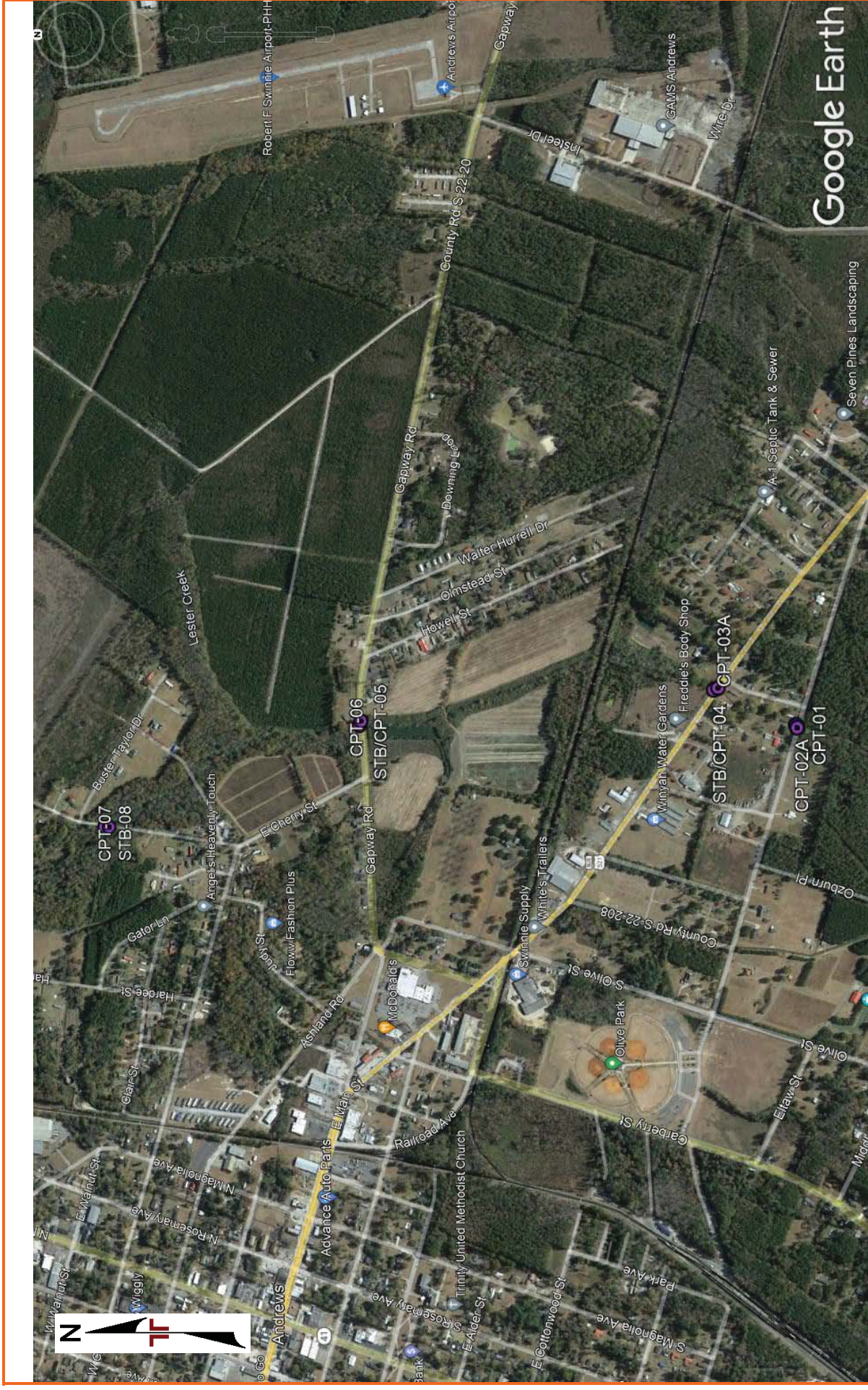


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Contents:

In-situ Sounding Logs (CPT Logs)
Soil Test Boring Logs (STB Logs)
Hand Auger Boring Log (HAB Log)
Laboratory Test Results

Note: All attachments are one page unless noted above.

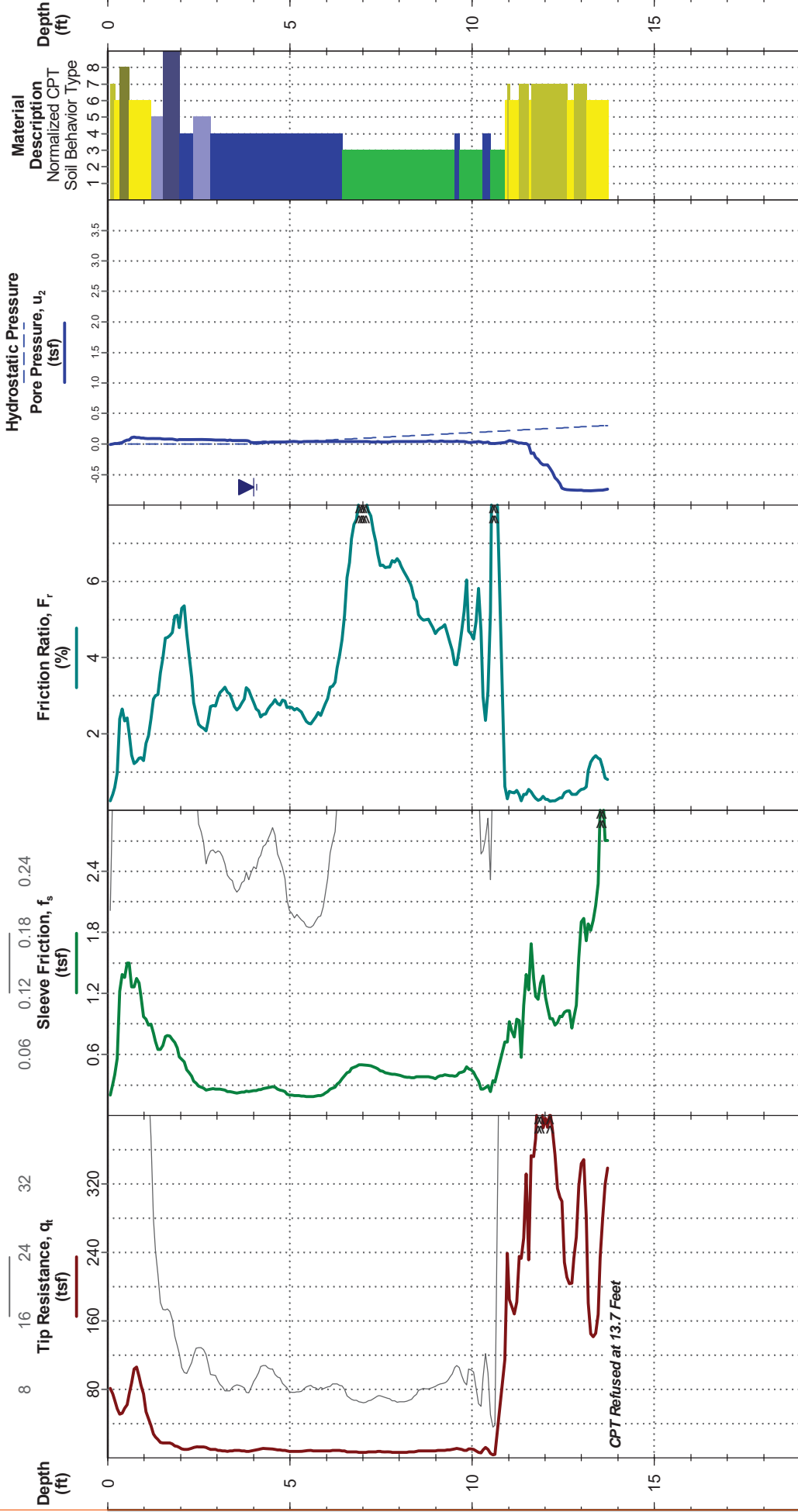
CPT LOG NO. CPT-01

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

TEST LOCATION: See [Exploration Plan](#)

SITE: Old Cemetery Rd
Andrews, SC



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any). CPT sensor calibration reports available upon request.

- 1 Sensitive, fine grained
- 2 Organic soils - clay
- 3 Silty clay to clay
- 4 Silty clay to silty silt
- 5 Sand mixtures - silty sand to sandy silt
- 6 Sands - clean sand to silty sand
- 7 Gravelly sand to dense sand
- 8 Very stiff sand to clayey sand
- 9 Very stiff fine grained

WATER LEVEL OBSERVATION	Probe no. 5008 with net area ratio of .83	CPT Completed: 9/1/2022
4 ft estimated water depth (used in normalizations and correlations)	U2 pore pressure transducer location Manufactured by Geotech A.B.; calibrated 3/14/2022	Rig: Truck
	Tip and sleeve areas of 15 cm ² and 225 cm ²	Operator: AM/AF
	Ring friction reducer with O.D. of 2 in	Project No.: ER225057



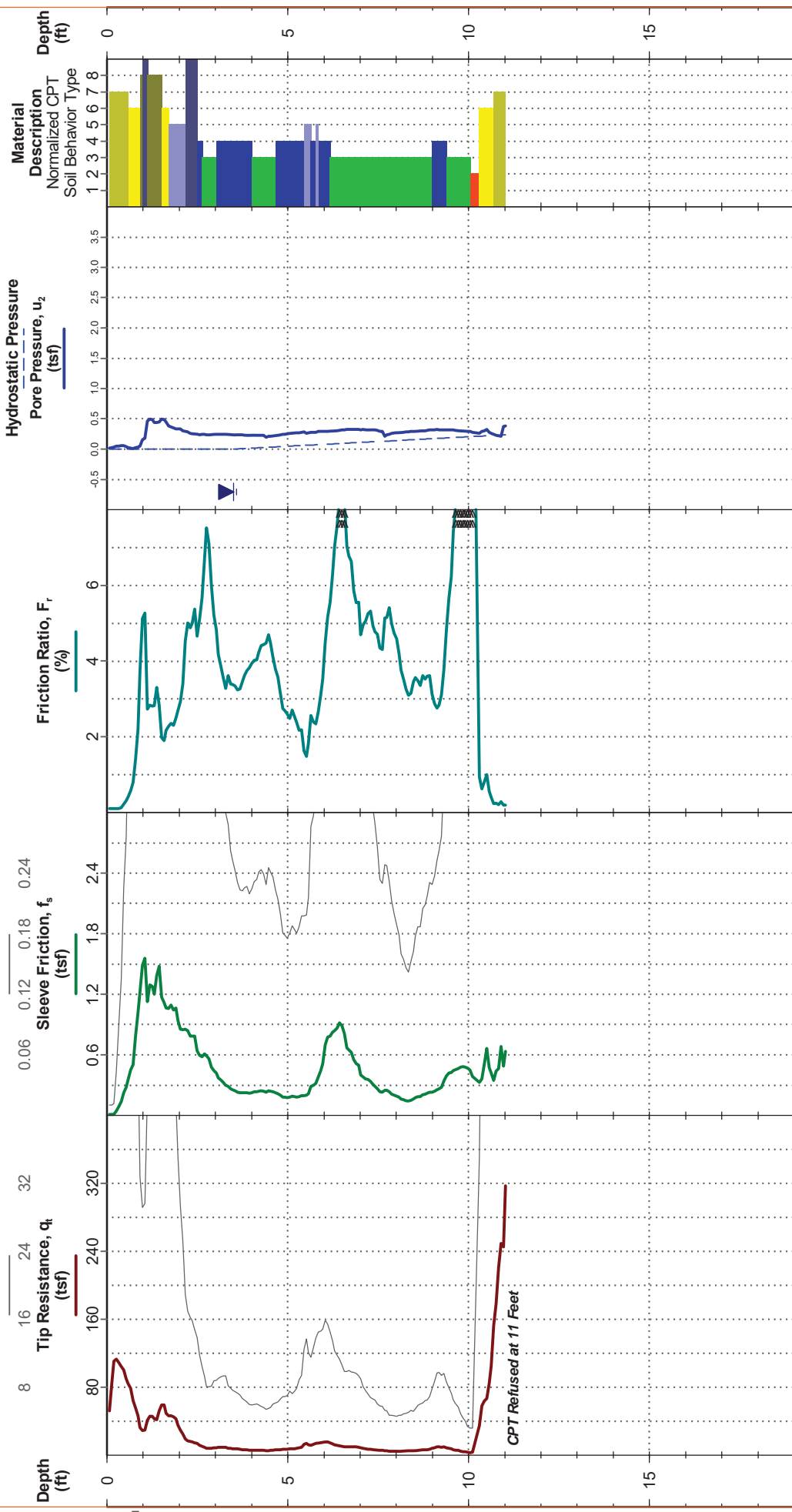
CPT LOG NO. CPT-02A

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

TEST LOCATION: See [Exploration Plan](#)

SITE: Old Cemetery Rd
Andrews, SC



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any). CPT sensor calibration reports available upon request.



Probe no. 5008 with net area ratio of .83
U2 pore pressure transducer location
Manufactured by Geotech A.B.; calibrated 3/14/2022
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 2 in

WATER LEVEL OBSERVATION
3.5 ft estimated water depth
(used in normalizations and correlations)

CPT Started: 9/1/2022
Rig: Truck
Project No.: ER225057

CPT Completed: 9/1/2022
Operator: AM/AF

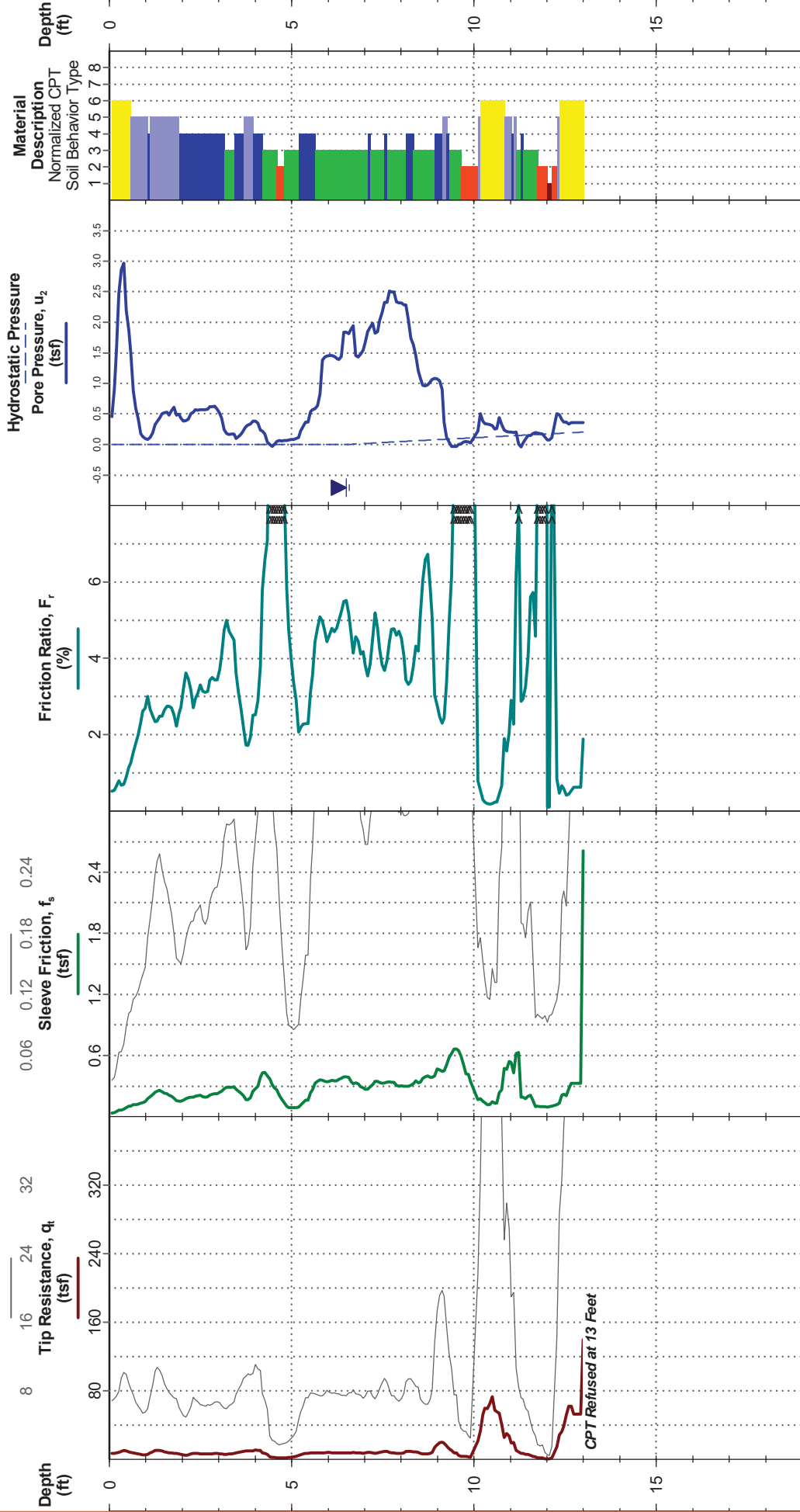
CPT LOG NO. CPT-03A

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

TEST LOCATION: See [Exploration Plan](#)

SITE: Hwy 521
Andrews, SC



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any). CPT sensor calibration reports available upon request.

WATER LEVEL OBSERVATION
 6.5 ft estimated water depth (used in normalizations and correlations)

Probe no. 5008 with net area ratio of .83
 U2 pore pressure transducer location
 Manufactured by Geotech A.B.; calibrated 3/14/2022
 Tip and sleeve areas of 15 cm² and 225 cm²
 Ring friction reducer with O.D. of 2 in



CPT Started: 9/1/2022
 Rig: Truck
 Project No.: ER225057

CPT Completed: 9/1/2022

Operator: AM/AF

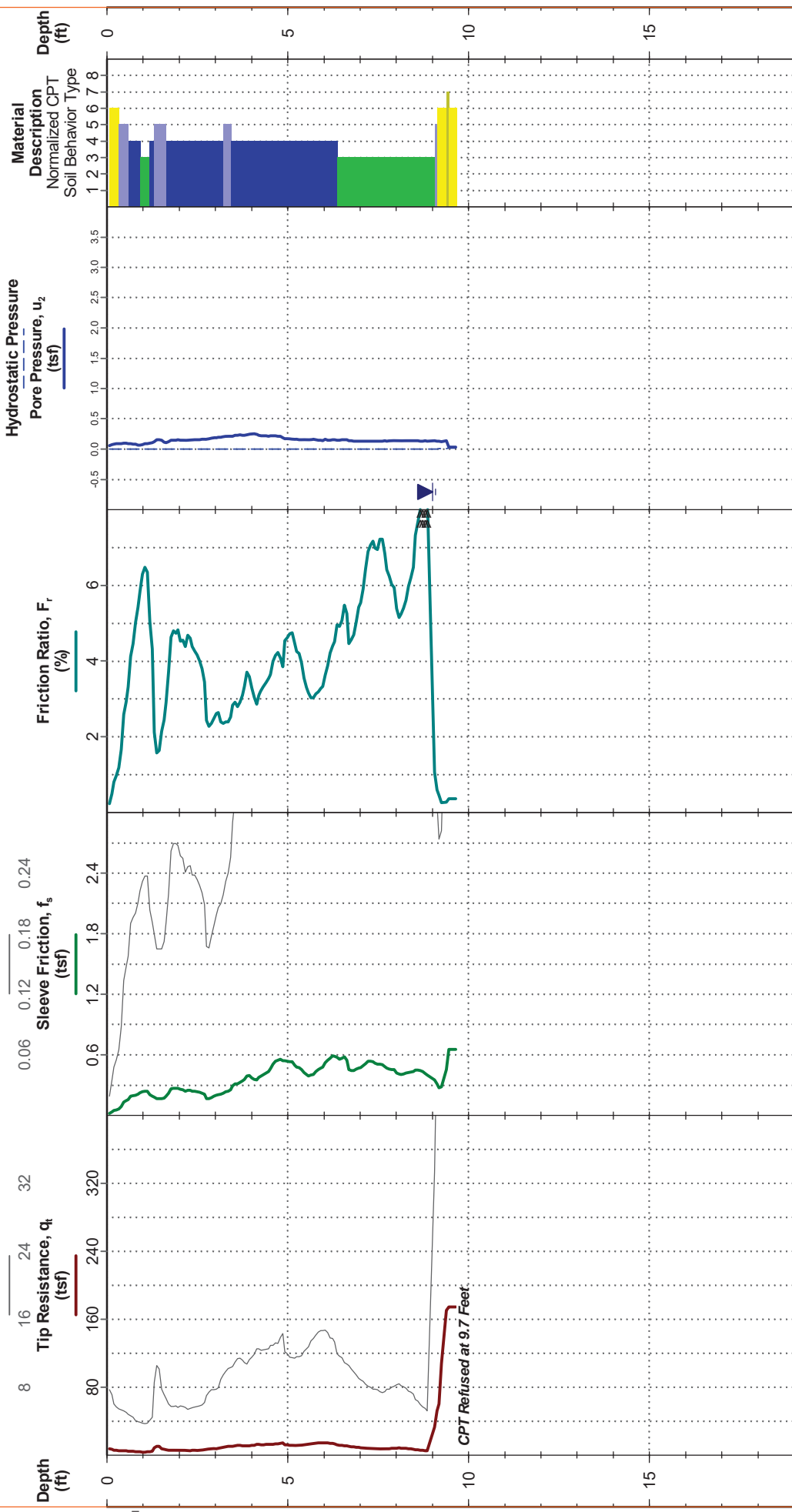
CPT LOG NO. CPT-04

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

TEST LOCATION: See [Exploration Plan](#)

SITE: Hwy 521
Andrews, SC



WATER LEVEL OBSERVATION
 9 ft estimated water depth
 (used in normalizations and correlations)

Terracon
 1246 Howard Ave
 Myrtle Beach, SC

Probe no. 5008 with net area ratio of .83
 U2 pore pressure transducer location
 Manufactured by Geotech A.B.; calibrated 3/14/2022
 Tip and sleeve areas of 15 cm² and 225 cm²
 Ring friction reducer with O.D. of 2 in

CPT Started: 9/1/2022
 RIG: Truck
 Operator: AM/AF
 Project No.: ER225057
 CPT Completed: 9/1/2022

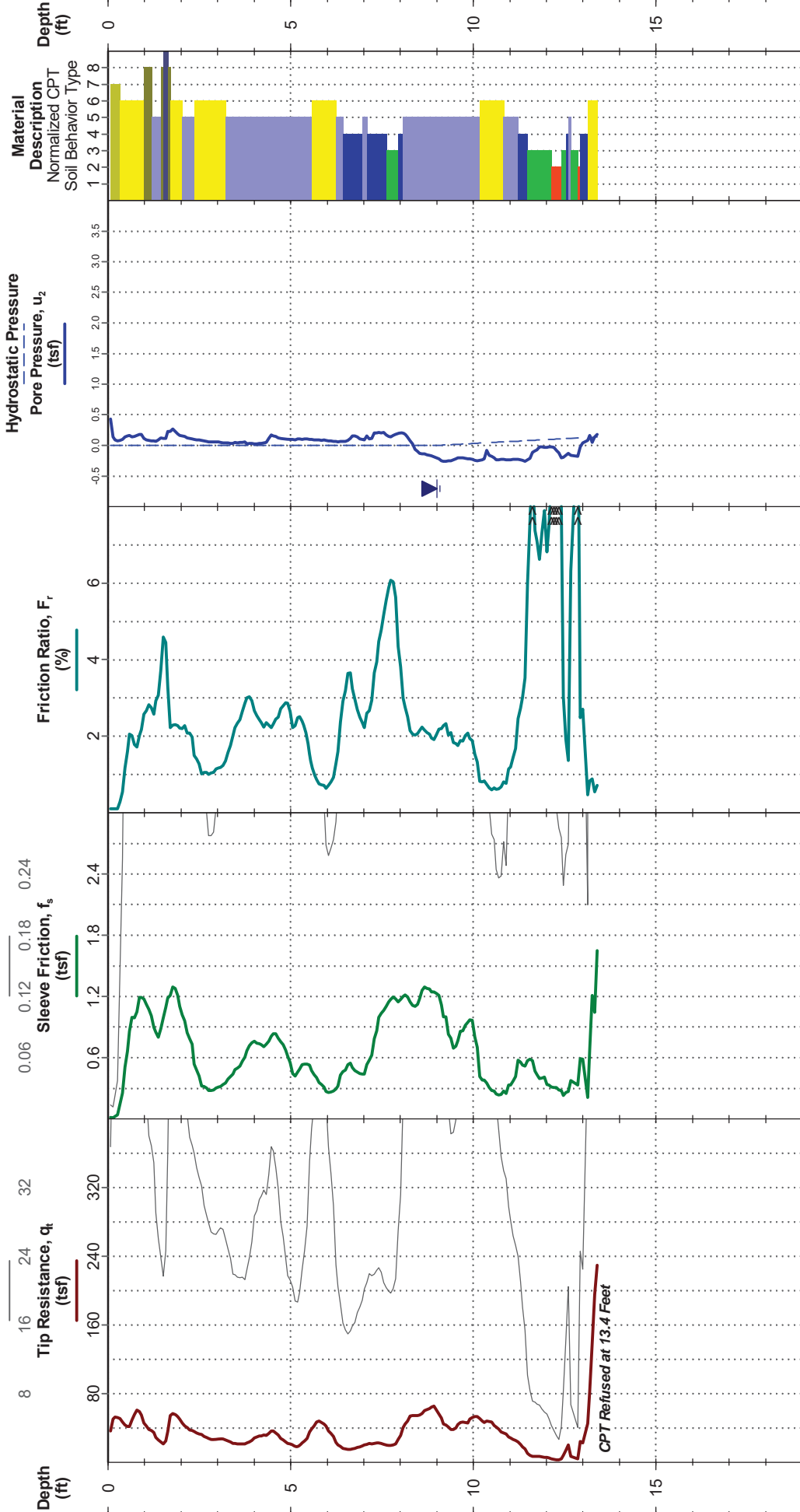
CPT LOG NO. CPT-05

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

TEST LOCATION: See [Exploration Plan](#)

SITE: Gapway Rd
Andrews, SC



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any). CPT sensor calibration reports available upon request.

WATER LEVEL OBSERVATION
 9 ft estimated water depth
 (used in normalizations and correlations)

Probe no. 5008 with net area ratio of .83
 U2 pore pressure transducer location
 Manufactured by Geotech A.B.; calibrated 3/14/2022
 Tip and sleeve areas of 15 cm² and 225 cm²
 Ring friction reducer with O.D. of 2 in



CPT Started: 9/1/2022
 Rig: Truck
 Project No.: ER225057

CPT Completed: 9/1/2022

Operator: AM/AF

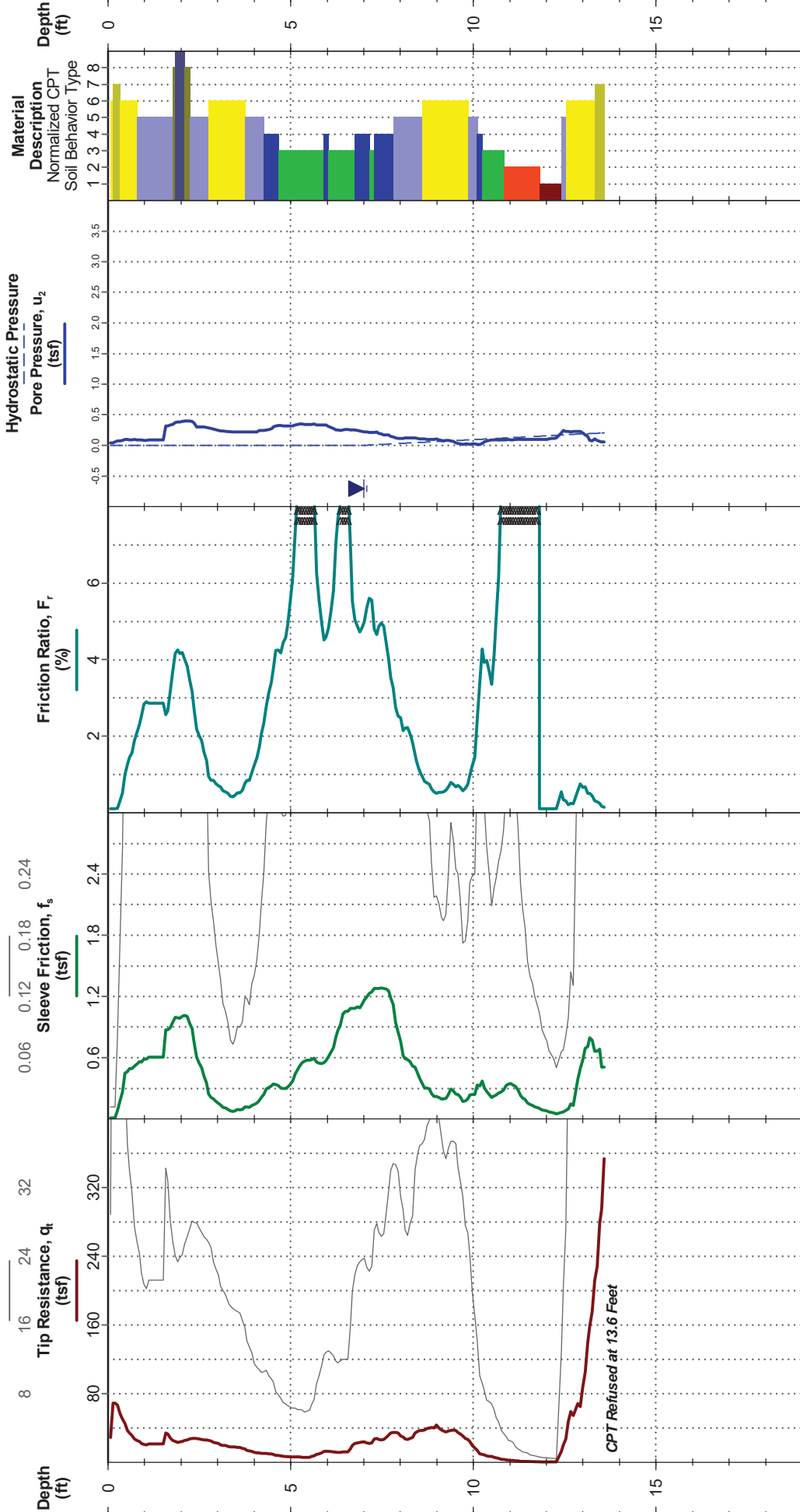
CPT LOG NO. CPT-06

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

TEST LOCATION: See [Exploration Plan](#)

SITE: Gapway Rd
Andrews, SC



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any). CPT sensor calibration reports available upon request.

- 1 Sensitive, fine grained
- 2 Organic soils - clay
- 3 Silty clay to clay
- 4 Silty clay to silty silt
- 5 Sand mixtures - silty sand to sandy silt
- 6 Sands - clean sand to silty sand
- 7 Gravelly sand to dense sand
- 8 Very stiff sand to clayey sand
- 9 Very stiff fine grained

WATER LEVEL OBSERVATION		Probe no. 5008 with net area ratio of .83	
7 ft estimated water depth (used in normalizations and correlations)		U2 pore pressure transducer location	
		Manufactured by Geotech A.B.; calibrated 3/14/2022	
		Tip and sleeve areas of 15 cm ² and 225 cm ²	
		Ring friction reducer with O.D. of 2 in	
		CPT Started: 9/1/2022	CPT Completed: 9/1/2022
		Rig: Truck	Operator: AM/AF
		Project No.: ER225057	



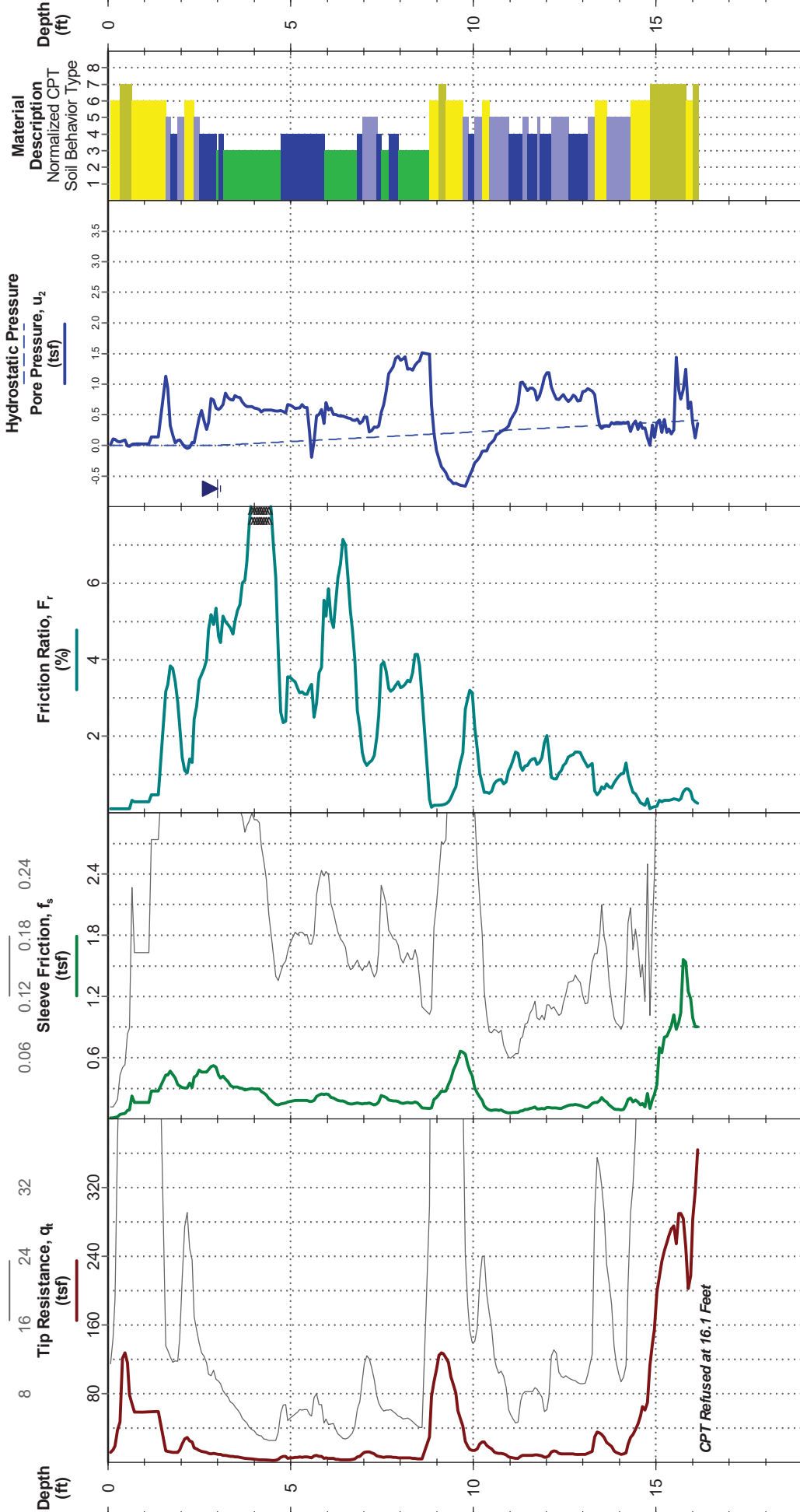
CPT LOG NO. CPT-07

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

TEST LOCATION: See [Exploration Plan](#)

SITE: North St
Andrews, SC



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any). CPT sensor calibration reports available upon request.

- 1 Sensitive, fine grained
- 2 Organic soils - clay
- 3 Silty clay to clay
- 4 Silty clay to silty silt
- 5 Sand mixtures - silty sand to sandy silt
- 6 Sands - clean sand to silty sand
- 7 Gravelly sand to dense sand
- 8 Very stiff sand to clayey sand
- 9 Very stiff fine grained

WATER LEVEL OBSERVATION	Probe no. 5008 with net area ratio of .83	CPT Completed: 9/1/2022
3 ft estimated water depth (used in normalizations and correlations)	U2 pore pressure transducer location	Rig: Truck
	Manufactured by Geotech A.B.; calibrated 3/14/2022	Operator: AM/AF
	Tip and sleeve areas of 15 cm ² and 225 cm ²	Project No.: ER225057
	Ring friction reducer with O.D. of 2 in	



BORING LOG NO. STB-04

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Hwy 521
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_ER225057 EAST ANDREWS DRAI.GPJ TERRACON DATATEMPLATE.GDT 9/26/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Field Test Results	Percent Fines (%)	Moisture Content (%)
	DEPTH						
0.6	ASPHALT , 7-1/2 inches in thickness						
1.3	CONCRETE , 7-1/2 inches in thickness						
3.5	SANDY LEAN CLAY/CLAYEY SAND (CL/SC) , brown and gray, very loose			X	2-2-1-1		
5.0	SANDY LEAN CLAY (CL) , brown and gray, soft to stiff	5		X	WOH-1-1-1		
10.0	SILTY SAND WITH GRAVEL (SM) , medium dense, calcareous, with interbedded lenses of CL type soils	10	▽	X	1-2-3-4		
19.3		15		X	5-5-4-4	72	23
				X	6-6-8-12	46	30
				X	7-8-11-3		
				X	36-50/3"	14	21
	Boring Terminated at 19.25 Feet						

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Rotary Wash		Notes:	
Abandonment Method: Backfilled with cement-grout and surface capped with asphalt upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 09-13-2022	Boring Completed: 09-13-2022
▽ At time of boring	Terracon	Drill Rig: CME 45C	Driller: Mid Atlantic Drilling
	1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	

BORING LOG NO. STB-05

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Hwy 521
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_ER225057 EAST ANDREWS DRAINAGE IMPROVEMENTS TERRACON DATATEMPLATE.GDT 9/26/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Field Test Results	Percent Fines (%)	Moisture Content (%)
	DEPTH						
0.8	ASPHALT , 9 inches in thickness						
	CLAYEY SAND (SC) , brown gray and tan, very loose to medium dense	5		X	4-5-6-3		
		5		X	3-3-3-2		
		5		X	2-2-2-2		
		10		X	1-1-1-1	46	23
		10	▽	X	4-3-3-6		
		15		X	10-32-28-20	12.5	22
	SILTY SAND WITH GRAVEL (SM) , calcareous, very dense						
		16.0					
	POSSIBLE LIMESTONE , very dense, Hard drilling from 16 to 18-1/2 feet, no recovery at 18-1/2 feet						
		18.8					
	Boring Terminated at 18.83 Feet			X	50/4"		

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Rotary Wash		Notes:	
Abandonment Method: Backfilled with cement-grout and surface capped with asphalt upon completion.			
WATER LEVEL OBSERVATIONS			
▽ <i>At time of boring</i>		Boring Started: 09-13-2022	Boring Completed: 09-13-2022
		Drill Rig: CME 45C	Driller: Mid Atlantic Drilling
		Project No.: ER225057	



BORING LOG NO. STB-08

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Hwy 521
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. ER225057 EAST ANDREWS DRAINAGE IMPROVEMENTS TERRACON DATATEMPLATE.GDT 9/26/22

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Field Test Results	Percent Fines (%)	Moisture Content (%)
	DEPTH 0.8 SLAG , 10 inches in thickness LEAN CLAY WITH SAND TO LEAN CLAY (CL) , dark gray with tan, very soft to soft	5	▽	X	1-2-2-3		
		10		X	2-1-1-1		
		15		X	WOH/12"-1-1		
		20		X	WOH/24"		
		25		X	1-2-8-8	34	37
		30		X	10-13-15-10	9.7	17
	9.0 CLAYEY SAND (SC) , gray, loose 12.0 POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) , calcareous, medium dense, hard drilling from 12 to 12-1/2 feet and 15-1/2 to 17 feet 17.0 POORLY GRADED SAND WITH SILT (SP-SM) , gray, medium dense 25.5 Boring Terminated at 25.5 Feet						

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Rotary Wash		Notes:	
Abandonment Method: Backfilled with cement-grout and surface capped with asphalt upon completion.			
WATER LEVEL OBSERVATIONS			
▽ At time of boring		Boring Started: 09-13-2022	Boring Completed: 09-13-2022
		Drill Rig: CME 45C	Driller: Mid Atlantic Drilling
		Project No.: ER225057	



BORING LOG NO. HAB at CPT-02A

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: Old Cemetery Rd
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL ER225057 EAST ANDREWS DRAI.GPJ TERRACON DATATEMPLATE.GDT 9/7/22

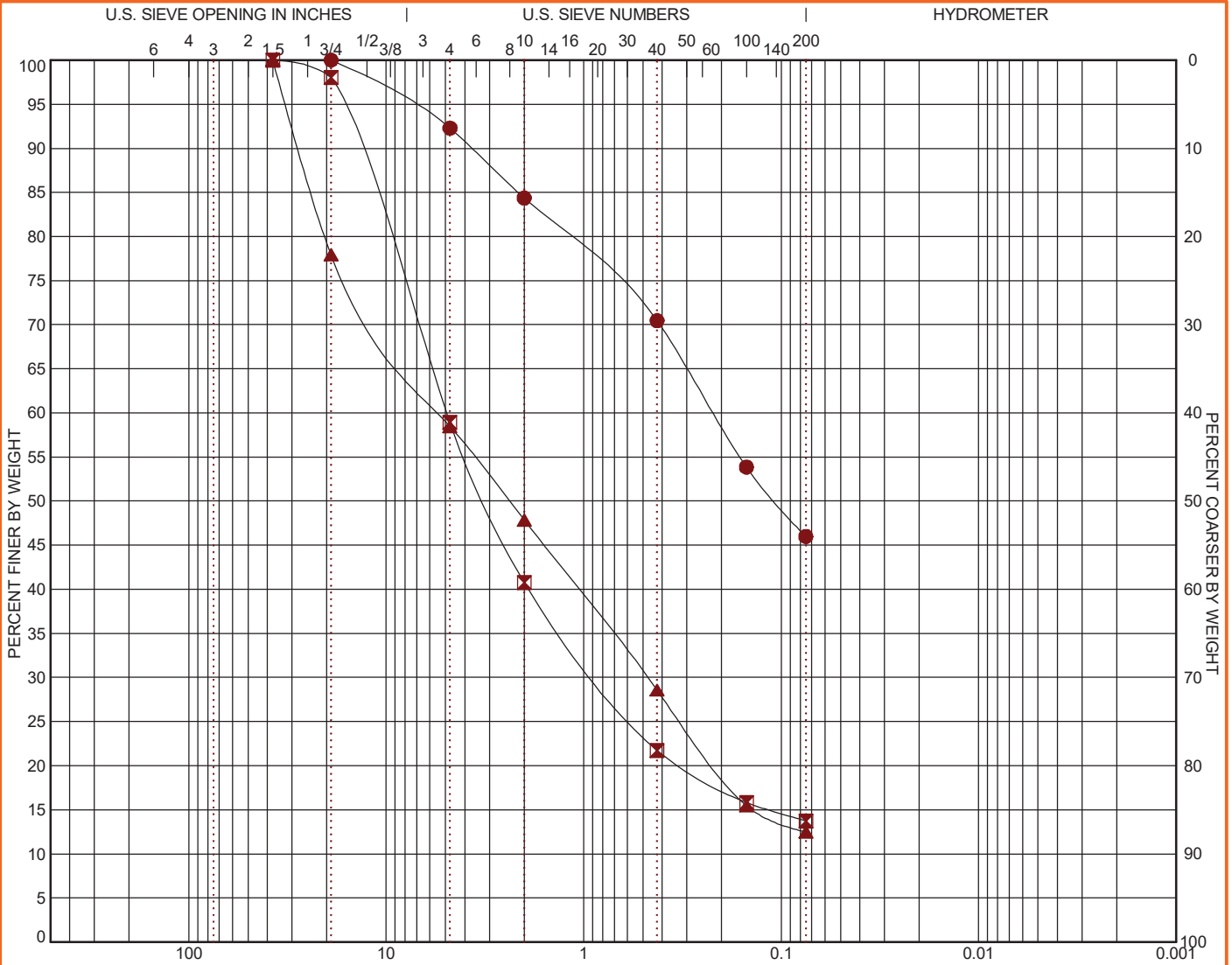
GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE
	DEPTH			
0.3	ASPHALT , approximately 3 inches in thickness			
0.3 2.5	CLAYEY SAND (SC) , tan to dark gray	1		
2.5 8.0	SANDY LEAN CLAY (CL) , gray brown	2		
		3	▽	
		4		
		5		
		6		
		7		
		8		
	Boring Terminated at 8 Feet			

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Coring Bit / Manual Hand Auger		Notes:	
Abandonment Method: Backfilled with cement-grout and surface capped with asphalt upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 09-01-2022	Boring Completed: 09-01-2022
▽ Groundwater encountered at 3-1/2 ft at time of boring	Terracon	Drill Rig:	Driller: GR
	1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
● STB-04	9.5 - 11.5	0.0	7.7	46.3		46.0		SM/CL w/ Gravel
☒ STB-04	18.5 - 19.3	0.0	41.1	45.2		13.7		SM w/ Gravel
▲ STB-05	13.5 - 15.5	0.0	41.5	46.0		12.5		SM w/ Gravel

GRAIN SIZE			
	●	☒	▲
D ₆₀	0.221	4.94	5.303
D ₃₀		0.832	0.477
D ₁₀			

	●	☒	▲
Sieve	% Finer	Sieve	% Finer
3/4"	100.0	1 1/2"	100.0
#4	92.29	3/4"	98.05
#10	84.37	#4	58.89
#40	70.46	#10	40.79
#100	53.85	#40	21.74
#200	45.98	#100	15.83
		#200	13.74

SOIL DESCRIPTION	
●	SILTY SAND/SANDY LEAN CLAY WITH GRAVEL
☒	SILTY SAND WITH GRAVEL
▲	SILTY SAND WITH GRAVEL

COEFFICIENTS			
	●	☒	▲
C _c			1.01
C _u			124.58

REMARKS	
●	
☒	
▲	

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 ER225057 EAST ANDREWS DRAINAGE TERRACON DATATEMPLATE.GDT 9/26/22

PROJECT: East Andrews Drainage Improvements

SITE: Hwy 521
Andrews, SC



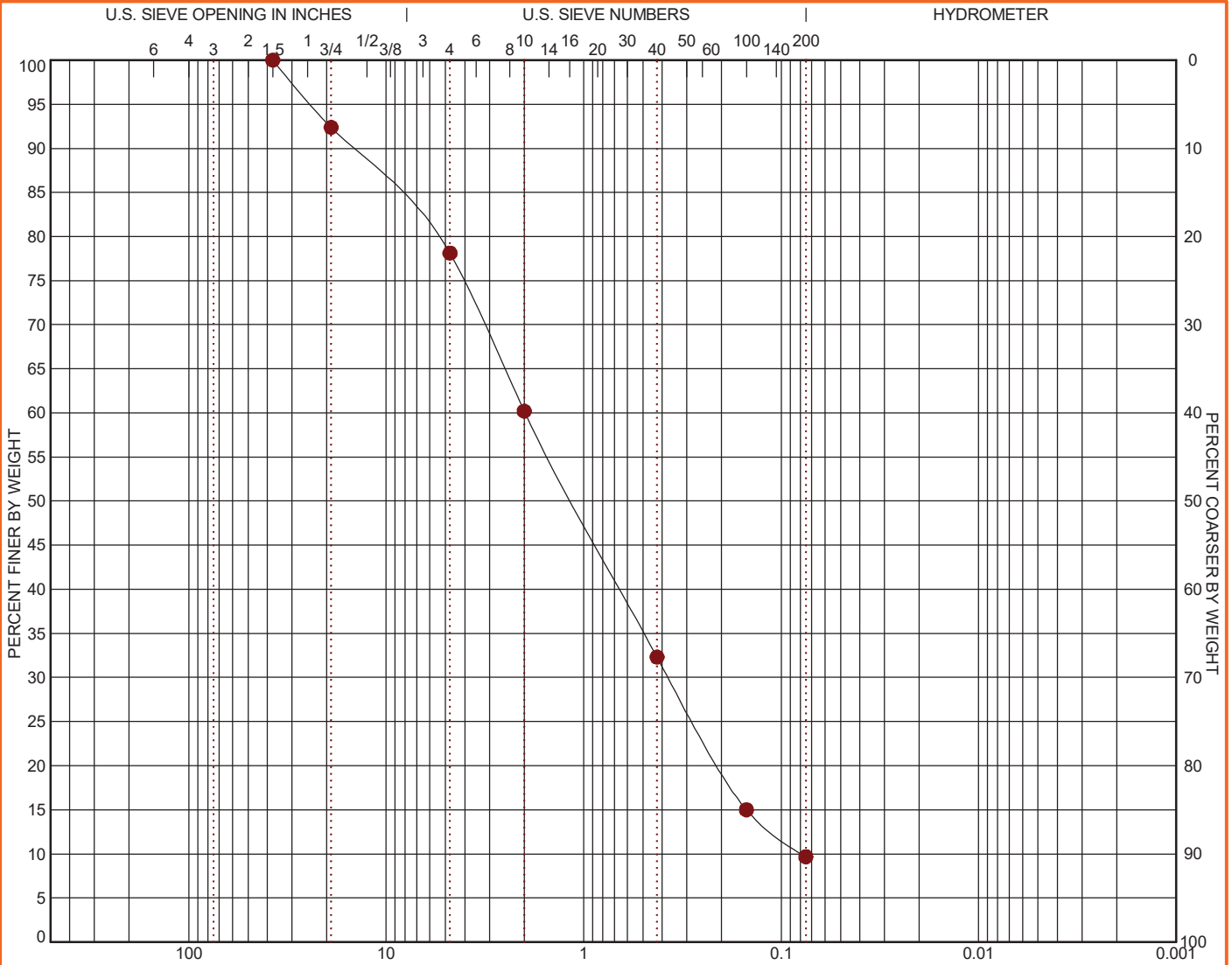
1246 Howard Ave
Myrtle Beach, SC

PROJECT NUMBER: ER225057

CLIENT: Davis & Floyd Inc
North Charleston, SC

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
● STB-08	13.5 - 15.5	0.0	21.9	68.5		9.7		SP-SM w/ Gravel

GRAIN SIZE	
D ₆₀	1.978
D ₃₀	0.37
D ₁₀	0.078

COEFFICIENTS	
C _c	0.88
C _u	25.26

Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
1 1/2"	100.0				
3/4"	92.38				
#4	78.12				
#10	60.2				
#40	32.31				
#100	14.99				
#200	9.67				

SOIL DESCRIPTION	
●	SAND WITH SILT AND GRAVEL

REMARKS	
●	

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 ER225057 EAST ANDREWS DRAINAGE IMPROVEMENTS TERRACON DATATEMPLATE.GDT 9/26/22

PROJECT: East Andrews Drainage Improvements

SITE: Hwy 521
Andrews, SC



PROJECT NUMBER: ER225057

CLIENT: Davis & Floyd Inc
North Charleston, SC

SUPPORTING INFORMATION

Contents:

Unified Soil Classification System












General Notes

CPT General Notes

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING			WATER LEVEL		Water Initially Encountered	FIELD TESTS	(HP) Hand Penetrometer
	Auger	Split Spoon			Water Level After a Specified Period of Time		(T) Torvane
					Water Level After a Specified Period of Time		(b/f) Standard Penetration Test (blows per foot)
	Shelby Tube	Macro Core		Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.			(PID) Photo-Ionization Detector
							(OVA) Organic Vapor Analyzer
Ring Sampler	Rock Core						
							
Grab Sample	No Recovery						

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS	RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
	Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, tsf	Standard Penetration or N-Value Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 sieve (0.075mm)

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification		
				Group Symbol	Group Name ^B	
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well-graded gravel ^F	
			$Cu < 4$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	GP	Poorly graded gravel ^F	
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}	
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}	
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E	SW	Well-graded sand ^I	
			$Cu < 6$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	SP	Poorly graded sand ^I	
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}	
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}	
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	$PI > 7$ and plots on or above "A" ^J	CL	Lean clay ^{K, L, M}	
			$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}
			Liquid limit - not dried			Organic silt ^{K, L, M, O}
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}	
			PI plots below "A" line	MH	Elastic Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}
			Liquid limit - not dried			Organic silt ^{K, L, M, Q}
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat	

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

^E $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

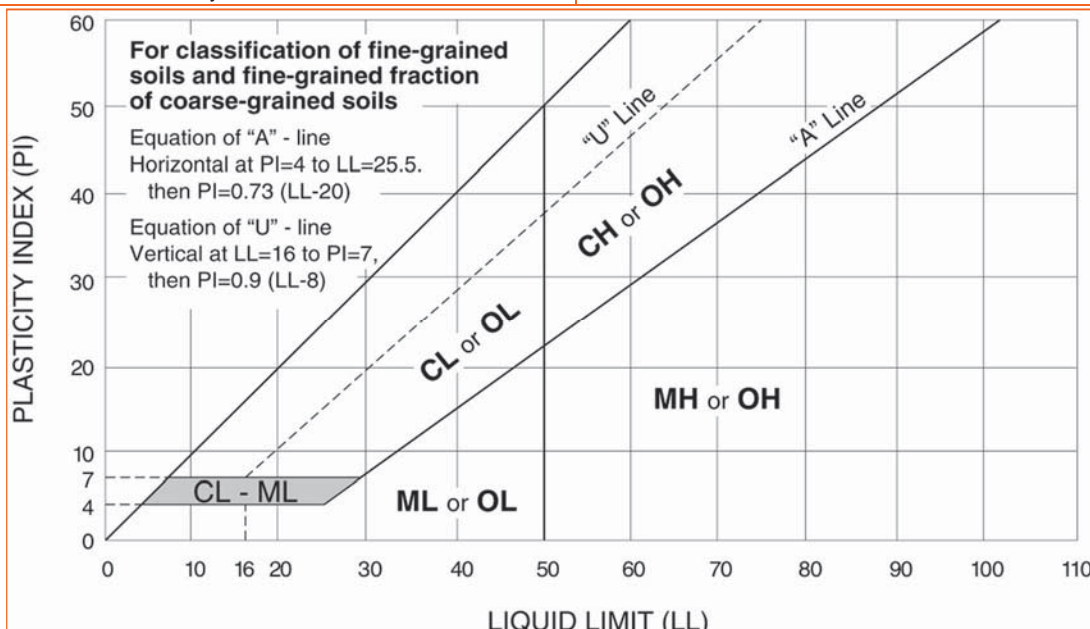
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.



CPT GENERAL NOTES

DESCRIPTION OF MEASUREMENTS AND CALIBRATIONS

To be reported per ASTM D5778:

Uncorrected Tip Resistance, q_t
Measured force acting on the cone divided by the cone's projected area

Corrected Tip Resistance, q_t
Cone resistance corrected for porewater and net area ratio effects
 $q_t = q_c + U2(1 - a)$

Where a is the net area ratio, a lab calibration of the cone typically between 0.70 and 0.85

Pore Pressure, U1/U2

Pore pressure generated during penetration
U1 - sensor on the face of the cone
U2 - sensor on the shoulder (more common)

Sleeve Friction, f_s

Frictional force acting on the sleeve divided by its surface area

Normalized Friction Ratio, FR

The ratio as a percentage of f_s to q_t , accounting for overburden pressure

To be reported per ASTM D7400, if collected:

Shear Wave Velocity, V_s
Measured in a Seismic CPT and provides direct measure of soil stiffness

DESCRIPTION OF GEOTECHNICAL CORRELATIONS

Normalized Tip Resistance, Q_t

$$Q_t = (q_t - \sigma_{v0}) / \sigma'_{v0}$$

Over Consolidation Ratio, OCR

$$\text{OCR (1)} = 0.25(Q_t)^{1.25}$$

$$\text{OCR (2)} = 0.33(Q_t)$$

Undrained Shear Strength, S_u

$$S_u = Q_t \times \sigma'_{v0} / N_{kt}$$

N_{kt} is a geographical factor (shown on S_u plot)

Sensitivity, St

$$St = (q_t - \sigma_{v0} / N_{kt}) \times (1 / fs)$$

Effective Friction Angle, ϕ'

$$\phi' (1) = \tan^{-1}(0.373[\log(q_t / \sigma'_{v0}) + 0.29])$$

$$\phi' (2) = 17.6 + 11[\log(Q_t)]$$

Unit Weight

$$UW = (0.27[\log(FR)] + 0.36[\log(q_t / \text{atm})] + 1.236) \times UW_{\text{water}}$$

σ_{v0} is taken as the incremental sum of the unit weights

Small Strain Shear Modulus, G_0

$$G_0 (1) = \rho V_s^2$$

$$G_0 (2) = 0.015 \times 10^{(0.55k + 1.68)} (q_t - \sigma_{v0})$$

Soil Behavior Type Index, I_c

$$I_c = [(3.47 - \log(Q_t))^2 + (\log(FR) + 1.22)^2]^{0.5}$$

SPT N_{60}

$$N_{60} = (q_t / \text{atm}) / 10^{(1.1268 - 0.2817k)}$$

Elastic Modulus, E_s (assumes $q_t / q_{t, \text{ultimate}} \sim 0.3$, i.e. FS = 3)

$$E_s (1) = 2.6 \Psi G_0 \text{ where } \Psi = 0.56 - 0.33 \log Q_{t, \text{clean sand}}$$

$$E_s (2) = G_0$$

$$E_s (3) = 0.015 \times 10^{(0.55I_c + 1.68)} (q_t - \sigma_{v0})$$

$$E_s (4) = 2.5q_t$$

Constrained Modulus, M

$$M = \alpha_M (q_t - \sigma_{v0})$$

For $I_c > 2.2$ (fine-grained soils)

$$\alpha_M = Q_t \text{ with maximum of } 14$$

For $I_c < 2.2$ (coarse-grained soils)

$$\alpha_M = 0.0188 \times 10^{(0.55k + 1.68)}$$

Hydraulic Conductivity, k

$$\text{For } 1.0 < I_c < 3.27 \quad k = 10^{(0.952 - 3.04k)}$$

$$\text{For } 3.27 < I_c < 4.0 \quad k = 10^{(-4.52 - 1.37k)}$$

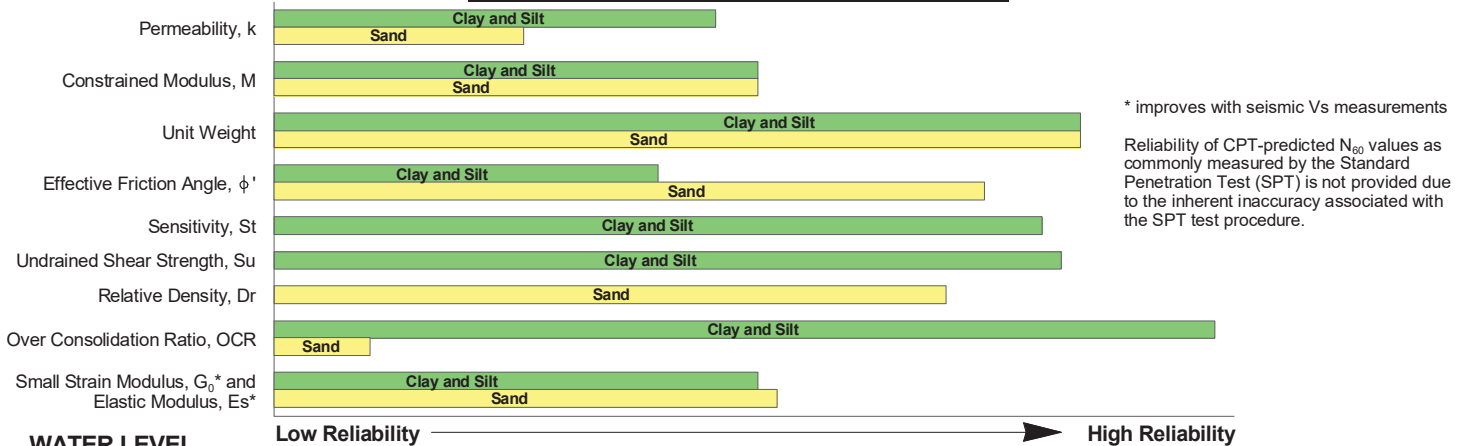
Relative Density, Dr

$$Dr = (Q_t / 350)^{0.15} \times 100$$

REPORTED PARAMETERS

CPT logs as provided, at a minimum, report the data as required by ASTM D5778 and ASTM D7400 (if applicable). This minimum data include tip resistance, sleeve resistance, and porewater pressure. Other correlated parameters may also be provided. These other correlated parameters are interpretations of the measured data based upon published and reliable references, but they do not necessarily represent the actual values that would be derived from direct testing to determine the various parameters. The following chart illustrates estimates of reliability associated with correlated parameters based upon the literature referenced below.

RELATIVE RELIABILITY OF CPT CORRELATIONS



WATER LEVEL

The groundwater level at the CPT location is used to normalize the measurements for vertical overburden pressures and as a result influences the normalized soil behavior type classification and correlated soil parameters. The water level may either be "measured" or "estimated."

Measured - Depth to water directly measured in the field

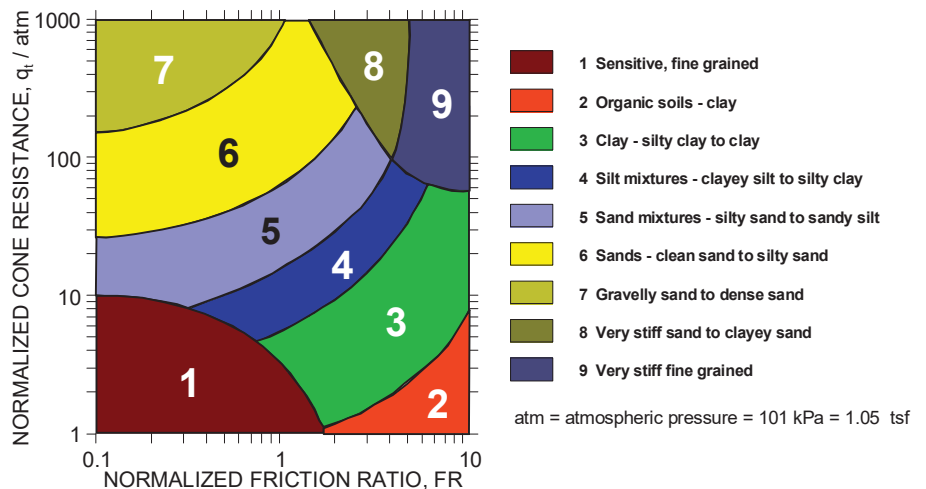
Estimated - Depth to water interpolated by the practitioner using pore pressure measurements in coarse grained soils and known site conditions

While groundwater levels displayed as "measured" more accurately represent site conditions at the time of testing than those "estimated," in either case the groundwater should be further defined prior to construction as groundwater level variations will occur over time.

CONE PENETRATION SOIL BEHAVIOR TYPE

The estimated stratigraphic profiles included in the CPT logs are based on relationships between corrected tip resistance (q_t), friction resistance (f_s), and porewater pressure (U2). The normalized friction ratio (FR) is used to classify the soil behavior type.

Typically, silts and clays have high FR values and generate large excess penetration porewater pressures; sands have lower FRs and do not generate excess penetration porewater pressures. Negative pore pressure measurements are indicative of fissured fine-grained material. The adjacent graph (Robertson et al.) presents the soil behavior type correlation used for the logs. This normalized SBT chart, generally considered the most reliable, does not use pore pressure to determine SBT due to its lack of repeatability in onshore CPTs.



REFERENCES

- Kulhavy, F.H., Mayne, P.W., (1997). "Manual on Estimating Soil Properties for Foundation Design," Electric Power Research Institute, Palo Alto, CA.
- Mayne, P.W., (2013). "Geotechnical Site Exploration in the Year 2013," Georgia Institute of Technology, Atlanta, GA.
- Robertson, P.K., Cabal, K.L. (2012). "Guide to Cone Penetration Testing for Geotechnical Engineering," Signal Hill, CA.
- Schmertmann, J.H., (1970). "Static Cone to Compute Static Settlement over Sand," *Journal of the Soil Mechanics and Foundations Division*, 96(SM3), 1011-1043.



Geotechnical Site Characterization- Revision 1

**East Andrews Drainage Improvements
Phase 2: Railroad Crossing
Andrews, South Carolina**

February 8, 2023

Terracon Project No. ER225057

Prepared for:

Davis & Floyd Inc.
North Charleston, SC

Prepared by:

Terracon Consultants, Inc.
Myrtle Beach, South Carolina



February 8, 2023

Davis & Floyd Inc.
3229 W Montague Avenue
North Charleston, SC 29418-7915



Attn: Ms. Lindsey Keziah, PE
E: lkeziah@davisfloyd.com

Re: **Geotechnical Site Characterization Report – Revision 1**
East Andrews Drainage Improvements
Phase 2: Railroad Crossing
Andrews, South Carolina
Terracon Project No. ER225057

Dear Ms. Keziah,

We have completed the Geotechnical Site Characterization services required for design of the above referenced project. This study was performed in general accordance with Terracon Proposal No. PER225057 dated July 13, 2022. This report describes our understanding of the project and presents the findings of the subsurface exploration.

We appreciate the opportunity to be of service to you on this project. If you have any questions or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.



Wendy H. Parsons, P.E.
Senior Engineer



A handwritten signature in blue ink, appearing to read "Forrest W. Foshee".

Forrest Foshee, P.E.
Senior Engineer

REPORT TOPICS

INTRODUCTION.....	1
SITE CONDITIONS.....	1
PROJECT DESCRIPTION.....	2
SITE SUBSURFACE CHARACTERIZATION	2
LATERAL EARTH PRESSURES	3
GENERAL COMMENTS.....	5

Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Site Characterization Report – Revision 1

East Andrews Drainage Improvements

Andrews, South Carolina

Terracon Project No. ER225057
February 8, 2023

INTRODUCTION

This report presents the results of the geotechnical exploration services we performed for Phase 2 of the East Andrews Drainage Improvements project located in Andrews, South Carolina. The scope of services for Phase 2 included placement of an additional culvert beneath CSX Railroad. The purpose of these services is to provide information relative to:

- Subsurface soil conditions
- Groundwater conditions
- Lateral Earth Pressures

The geotechnical exploration Scope of Services for this project included the advancement of two Soil Test Borings (STB) to a depth of 20 feet below the ground surface (BGS). An STB was performed at the bottom of the embankment on each side of the railroad.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is based on observation made during our field exploration.

Item	Description
Parcel Information	The project is located along an existing drainage channel extending from North Street to Old Cemetery Road in Andrews, South Carolina. Latitude: 33.44381° Longitude: -79.54247° See Site Location

Geotechnical Site Characterization Report

East Andrews Drainage Improvements ■ Andrews, South Carolina

February 8, 2023 ■ Terracon Project No. ER225057



Item	Description
Site Description	The area of exploration is a railroad crossing with an existing culvert in place along the project drainage channel alignment. Approximately two feet of gravel track bedding was observed along the railroad track. The gravel track embankment was bordered by moderate to dense vegetation with ditching flanking both sides. Our review of project plans indicates the top of the embankment elevation is approximately 28.0 feet and the bottom of ditching is approximately elevation 18.0 feet.

PROJECT DESCRIPTION

Our current understanding of the proposed site development is tabulated below.

Item	Description
Information Provided	Undated proposed Plans (60% complete) were provided by the client via e-mail on 8/22/2022.
Proposed Improvements	Based on discussion with the client and the plans provided, we understand Phase 2 of this project consists of the jack and bore installation of an additional 48" RCP under the CSX Railroad crossing.
Grading	Finished grades were not included on the plans provided. We have assumed existing grade at the roadway crossing will approximate finished grade since this is a jack and bore installation. The estimated bottom of culvert elevation based on the plans provided is 18.0 feet.

SITE SUBSURFACE CHARACTERIZATION

Subsurface Profile

Based on the results of the field exploration, subsurface conditions on the project site can be generalized as follows:

Description	Approximate Depth to Bottom of Stratum	Material Encountered ¹
Stratum 1	6 inches	Topsoil
Stratum 2	10 feet	Very loose clayey sand and very soft to stiff sandy clay
Stratum 3	20 feet ²	Dense to very dense silty sand with gravel; calcareous; hard drilling depths noted on individual logs

1. Material descriptions are based on visual classification from STB samples and correlations with in-situ data.

2. Termination of deepest testing.

Geotechnical Site Characterization Report

East Andrews Drainage Improvements ■ Andrews, South Carolina

February 8, 2023 ■ Terracon Project No. ER225057



Conditions encountered at each test location are indicated on the individual test records. Stratification boundaries on the test records represent the approximate location of changes in soil types. The transition between materials may be gradual. Details for each of the tests can be found in [Exploration Results](#).

Laboratory Testing

The project engineer reviewed the collected field data and assigned laboratory tests to better understand the engineering properties of various soil strata. The laboratory testing consisted of the following:

- 2 Grain Size Distribution Analyses (ASTM D422)
- 2 Natural Moisture Content Tests (ASTM D2216)

The results of the laboratory testing are shown on the lab testing reports and in a summary table in [Exploration Results](#).

Groundwater Conditions

At the time of our exploration, groundwater was encountered at a depth of approximately 8 feet BGS in both borings. The groundwater depths were determined by simply measuring the water table depths in the voids left by the soil test borings.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project. The groundwater surface should be checked prior to construction to assess its effect on site work and other construction activities.

LATERAL EARTH PRESSURES

Design Parameters

We understand jack and bore pipe installation methods are proposed for this project. A generalized subsurface profile and associated design parameters are presented in the table below.

Geotechnical Site Characterization Report

East Andrews Drainage Improvements ■ Andrews, South Carolina

February 8, 2023 ■ Terracon Project No. ER225057



Depth ¹ (feet)	Soil Type ¹	Unit Weight (pcf)	Shear Strength ²		Lateral Earth Pressure Coefficients		
			C psf	ϕ degrees	Active (k_a)	At Rest (k_o)	Passive (k_p)
N/A	Imported	120	N/A	32	0.31	0.47	3.25
0 to 10	Very soft to stiff Lean clays	105 (42.6) ³	500	N/A	1	1	1
10 to 20	Dense to very dense silty sand with gravel; calcareous	120 (57.6) ³	N/A	36	0.26	0.41	3.85

1. Stratification boundaries and soil layers are based on the soil profile presented in **Subsurface Profile**.
2. The provided soil parameters are derived from interpretations of the measured data based on published correlations and our experience with area geology.
3. Effective unit weight of soils below ground water table.

Very soft clays were encountered to a depth of about 10 feet. Hard drilling and intermittent very dense lenses were encountered beginning at depths of approximately 10 feet below existing grade as shown on the individualized STB logs. Additional effort may be required during any construction activities (boring) within this type material and should be accounted for in design of these activities by others.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Type of Test	Number of Borings	Boring Depth (feet)	Location
Soil Test Borings (STB)	2	20 feet	CSX Railroad

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. The test locations were located in the field by Terracon personnel utilizing a commercially available handheld Global Position System (GPS) unit which are typically considered accurate to within ± 20 feet. The locations should be considered accurate only to the degree implied by the means and methods used to define them. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

The field exploration was performed on December 12, 2022. The in-situ tests were advanced with a truck mounted rig. The STBs were advanced with a track mounted CME 45C rig.

Subsurface Exploration Procedures:

Soil Test Borings

Soil Test Borings (STBs) were performed in accordance with ASTM D1586 *Test Method for Penetration Test and Split-Barrel Sampling of Soils*. STBs were advanced with a track-mounted rotary drill rig using mud rotary drilling techniques. Four samples are obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. For safety purposes, all borings were backfilled with auger cuttings after their completion. Pavements were patched with cold-mix asphalt and/or pre-mixed concrete, as appropriate.

Geotechnical Site Characterization Report

East Andrews Drainage Improvements ■ Andrews, South Carolina

February 8, 2023 ■ Terracon Project No. ER225057



Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D1140 Standard Test Methods for Determining the Amount of Material Finer than 75- μm (No. 200 Sieve in Soils by Washing)

The laboratory testing program often included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

Contents:

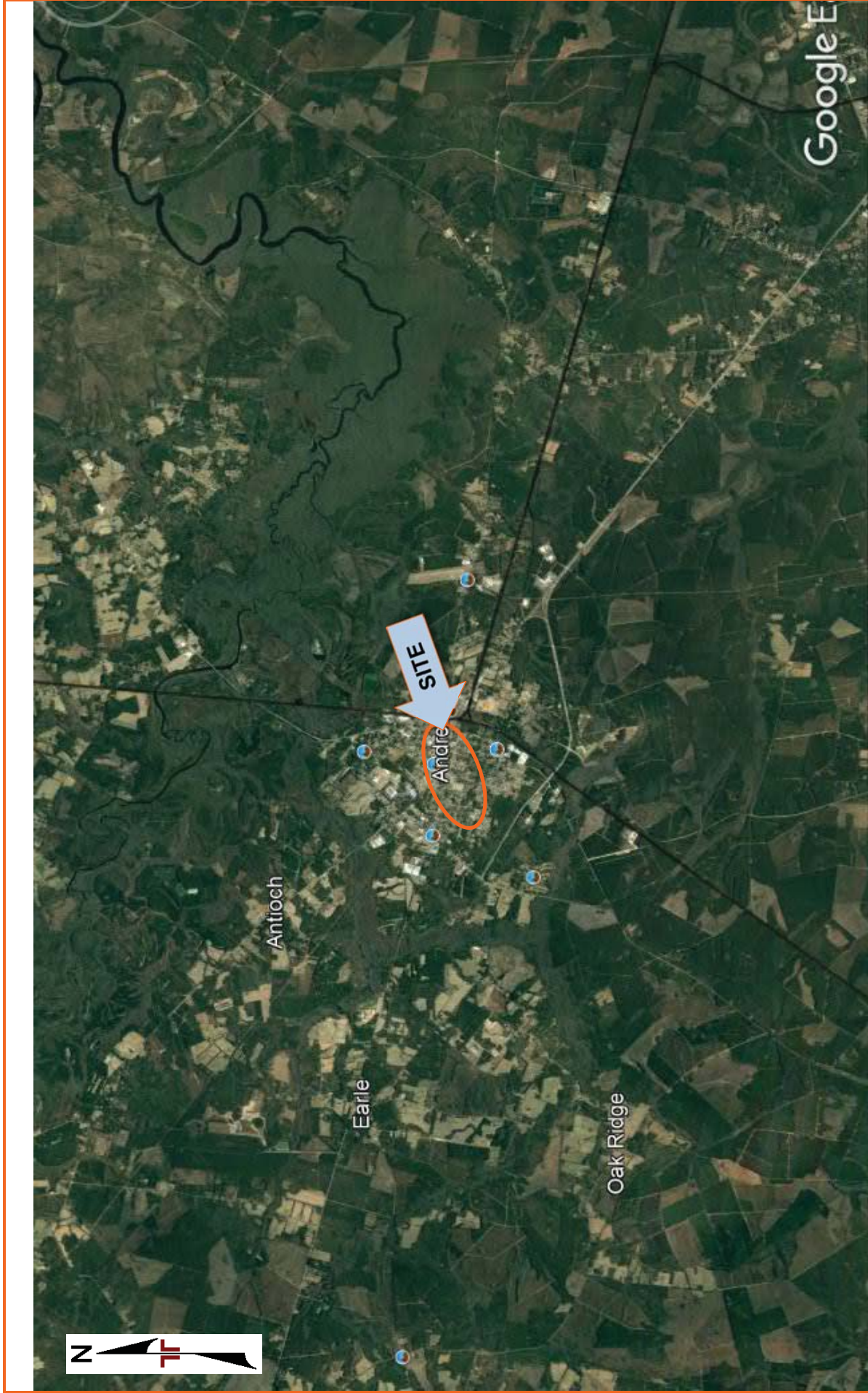
Site Location Plan

Exploration Plan

Note: All attachments are one page unless noted above.

SITE LOCATION

East Andrews Drainage Improvements ■ Andrews, South Carolina
February 8, 2023 ■ Terracon Project No. ER225057



EXPLORATION PLAN

East Andrews Drainage Improvements ■ Andrews, South Carolina
February 8, 2023 ■ Terracon Project No. ER225057



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY GOOGLE EARTH

EXPLORATION RESULTS

Contents:

Soil Test Boring Logs (STB Logs)
Laboratory Test Results

Note: All attachments are one page unless noted above.

BORING LOG NO. STB-09

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: CSX Railroad
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_ER225057 EAST ANDREWS DRAI.GPJ TERRACON DATATEMPLATE.GDT 1/6/23

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Field Test Results	Percent Fines (%)	Moisture Content (%)
	DEPTH						
0.5	TOPSOIL						
	SANDY LEAN CLAY (CL) , brown, very soft to soft			X	1-2-1-1		
3.0	CLAYEY SAND (SC) , brown gray, loose			X	1-2-3-3		
5.5	SANDY LEAN CLAY (CL) , brown and gray, very soft, trace gravel from 8 to 10 feet	5		X	4-3-3-2	47	23
			▽	X	2-1-1-1		
10.0	SM - SILTY SAND WITH GRAVEL (SM) , calcareous, dense to very dense, hard drilling from 10 to 17 feet	10		X	WOH-1-1-2		
				X	43-50/4"		
20.0	Boring Terminated at 20 Feet	20		X	16-23-26		

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Rotary Wash		Notes:	
Abandonment Method: Backfilled with cement-grout upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 12-12-2022	Boring Completed: 12-12-2022
▽ At time of boring	Terracon	Drill Rig:	Driller: Mid Atlantic Drilling
	1246 Howard Ave Myrtle Beach, SC	Project No.: ER225057	

BORING LOG NO. STB-10

PROJECT: East Andrews Drainage Improvements

CLIENT: Davis & Floyd Inc
North Charleston, SC

SITE: CSX Railroad
Andrews, SC

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_ER225057 EAST ANDREWS DRAI.GPJ TERRACON DATATEMPLATE.GDT 1/6/23

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	Field Test Results	Percent Fines (%)	Moisture Content (%)
DEPTH							
0.5	TOPSOIL						
	CLAYEY SAND (SC) , brown, very loose			X	1-2-1-1		
4.0	SANDY LEAN CLAY (CL) , gray brown, very soft to stiff, trace gravel from 8 to 10 feet	5		X	1-1-1-1		
				X	1-3-2-3		
			▽	X	6-6-6-4	71	23
10.0	SM - SILTY SAND WITH GRAVEL (SM) , calcareous, dense to very dense, hard drilling from 10 to 18 feet	10		X	WOH-1-1-1		
				X	50/4"		
				X	16-17-22		
20.0	Boring Terminated at 20 Feet	20					

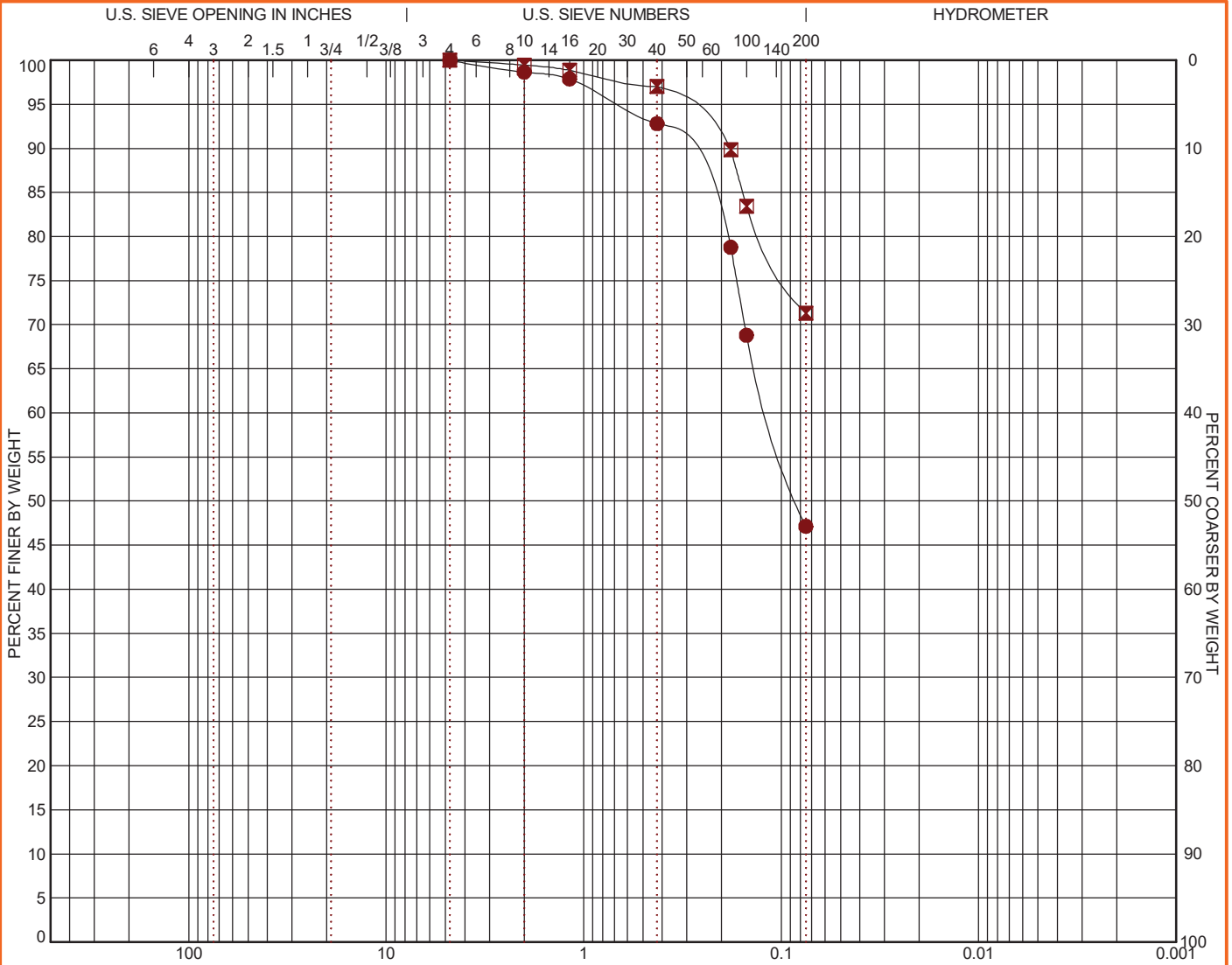
Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method: Rotary Wash		Notes:	
Abandonment Method: Backfilled with cement-grout upon completion.			
WATER LEVEL OBSERVATIONS		Boring Started: 12-12-2022	Boring Completed: 12-12-2022
▽ At time of boring		Drill Rig:	Driller: Mid Atlantic Drilling
		Project No.: ER225057	



GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
● STB-09	4 - 6	0.0	0.0	52.9		47.1		SC
☒ STB-10	6 - 8	0.0	0.0	28.7		71.3		CL

GRAIN SIZE			
	●	☒	
D ₆₀	0.113		
D ₃₀			
D ₁₀			
COEFFICIENTS			
	●	☒	
C _c			
C _u			

Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#4	100.0	#4	100.0		
#10	98.64	#10	99.44		
#16	97.87	#16	98.84		
#40	92.8	#40	97.03		
#80	78.78	#80	89.82		
#100	68.79	#100	83.46		
#200	47.14	#200	71.33		

SOIL DESCRIPTION	
●	CLAYEY SAND
☒	SANDY LEAN CLAY
REMARKS	
●	
☒	

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 ER225057 EAST ANDREWS DRAINAGE IMPROVEMENTS TERRACON DATATEMPLATE.GDT 1/13/23

PROJECT: East Andrews Drainage Improvements

SITE: CSX Railroad
Andrews, SC



1246 Howard Ave
Myrtle Beach, SC

PROJECT NUMBER: ER225057

CLIENT: Davis & Floyd Inc
North Charleston, SC

SUPPORTING INFORMATION

Contents:

Unified Soil Classification System
General Notes

Note: All attachments are one page unless noted above.

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification		
				Group Symbol	Group Name ^B	
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well-graded gravel ^F	
			$Cu < 4$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	GP	Poorly graded gravel ^F	
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}	
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}	
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E	SW	Well-graded sand ^I	
			$Cu < 6$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	SP	Poorly graded sand ^I	
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}	
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}	
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	$PI > 7$ and plots on or above "A" line	CL	Lean clay ^{K, L, M}	
			$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}
			Liquid limit - not dried			Organic silt ^{K, L, M, O}
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}	
			PI plots below "A" line	MH	Elastic Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}
			Liquid limit - not dried			Organic silt ^{K, L, M, Q}
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat	

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

^E $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

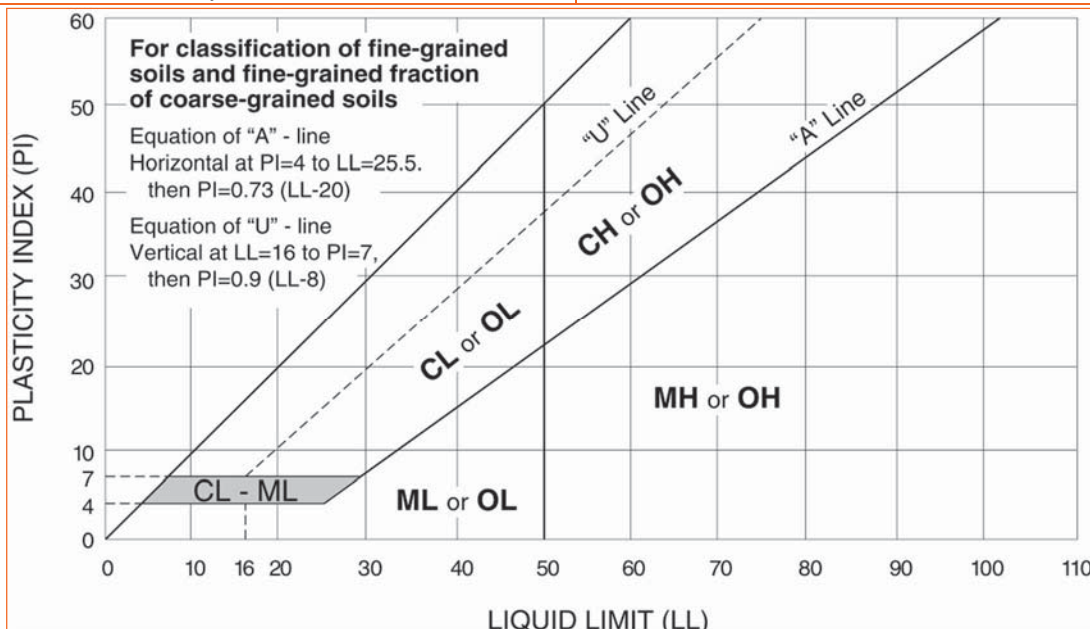
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.












^P PI plots on or above "A" line.

^Q PI plots below "A" line.



GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING			WATER LEVEL		Water Initially Encountered	FIELD TESTS	(HP) Hand Penetrometer	
	Auger	Split Spoon			Water Level After a Specified Period of Time		(T) Torvane	
					Water Level After a Specified Period of Time		(b/f) Standard Penetration Test (blows per foot)	
	Shelby Tube	Macro Core		Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.			(PID) Photo-Ionization Detector	
							(OVA) Organic Vapor Analyzer	
Ring Sampler	Rock Core							
								
Grab Sample	No Recovery							

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS	RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
	Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, tsf	Standard Penetration or N-Value Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

APPENDIX H

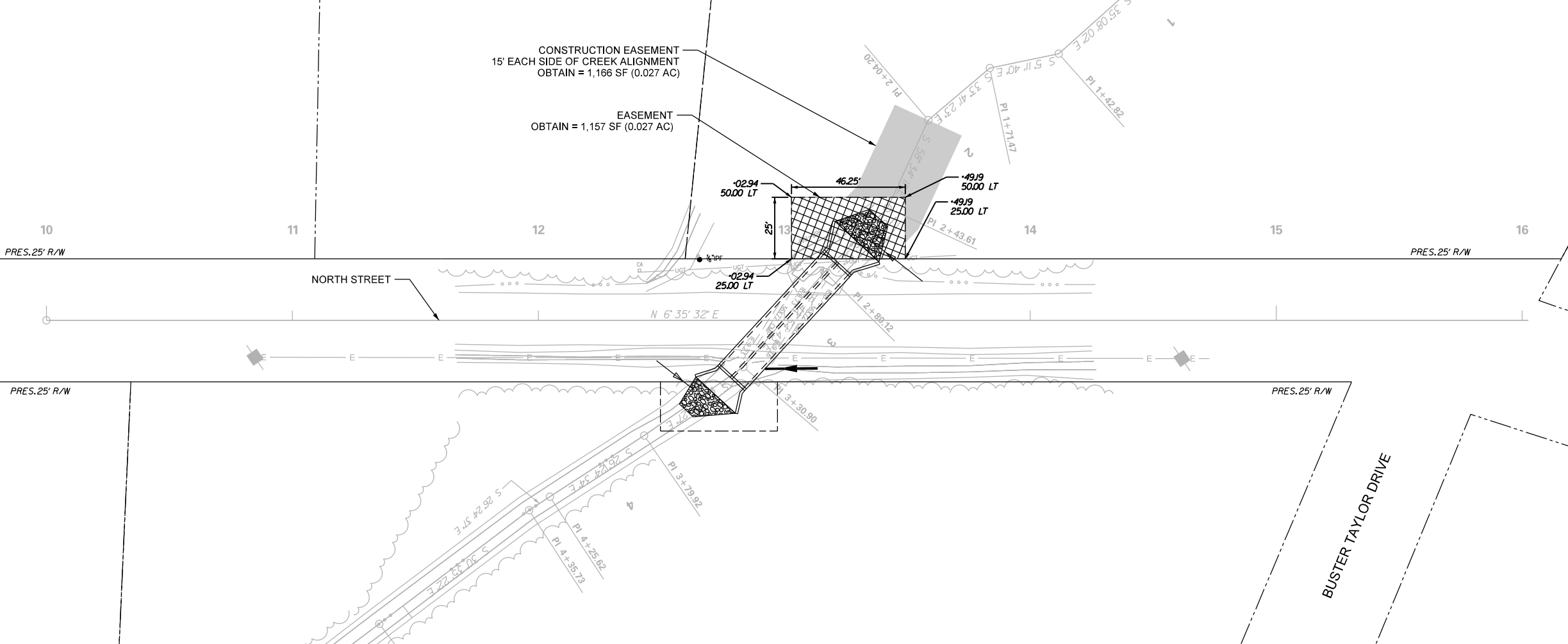
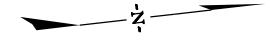
Project Easement Exhibits



EXHIBIT A


DRAWING #1

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.

①
 EASEMENT = 1,157 SF (0.027 AC)
 CONST. EASEMENT = 1,166 SF (0.027 AC)
 JOHN M MORRIS
 TMS# 02-0414-013-06-00



 Easement
 Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
 Area of Acquisition From Tract No. 1 D&F Project No. : 31969.00
 Scale: 1" = 50'

 Original prepared: 10/10/2022
 Revised: NA

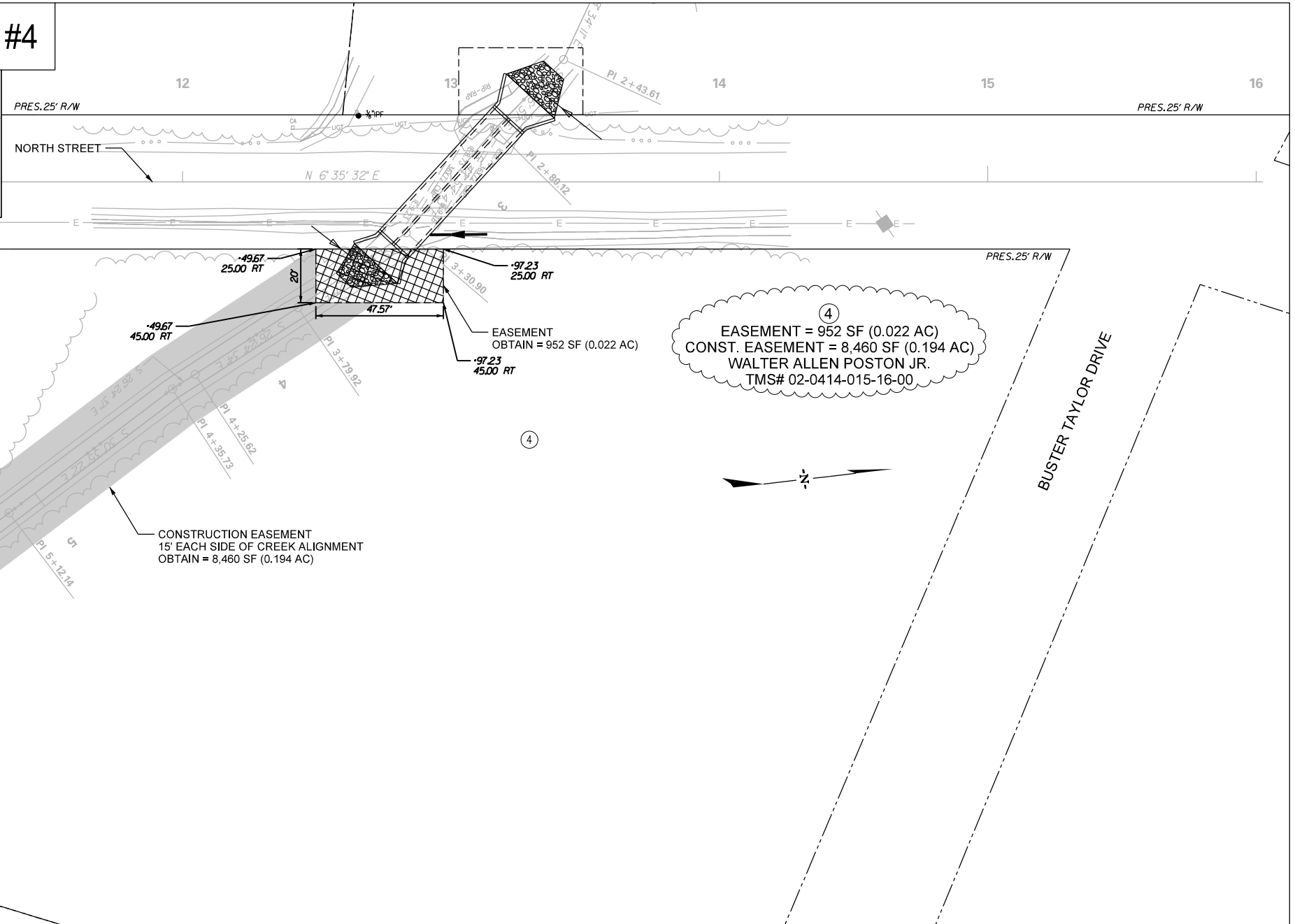
DAVIS & FLOYD
 SINCE 1954

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 Easement
 Construction Easement

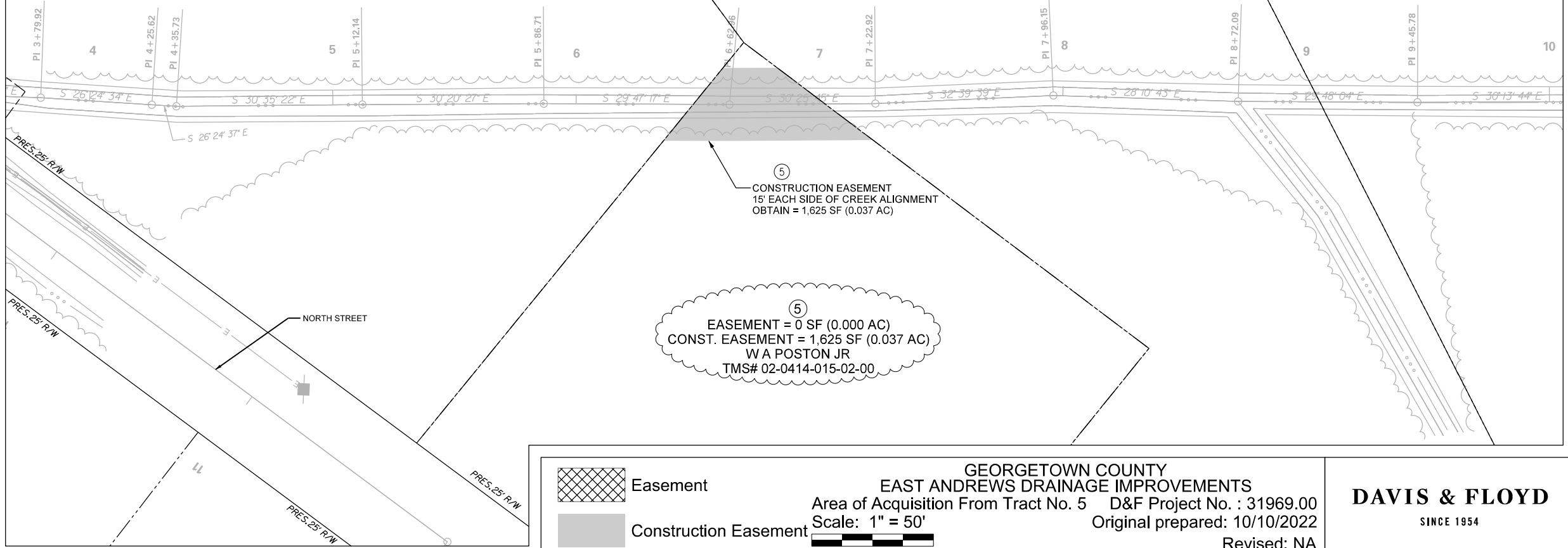
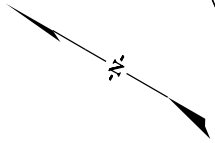
GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 4 D&F Project No. : 31969.00
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Original prepared: 10/10/2022
Revised: NA

DAVIS & FLOYD
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EXHIBIT A

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Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 5 D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

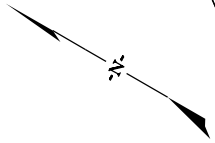
DAVIS & FLOYD
SINCE 1954

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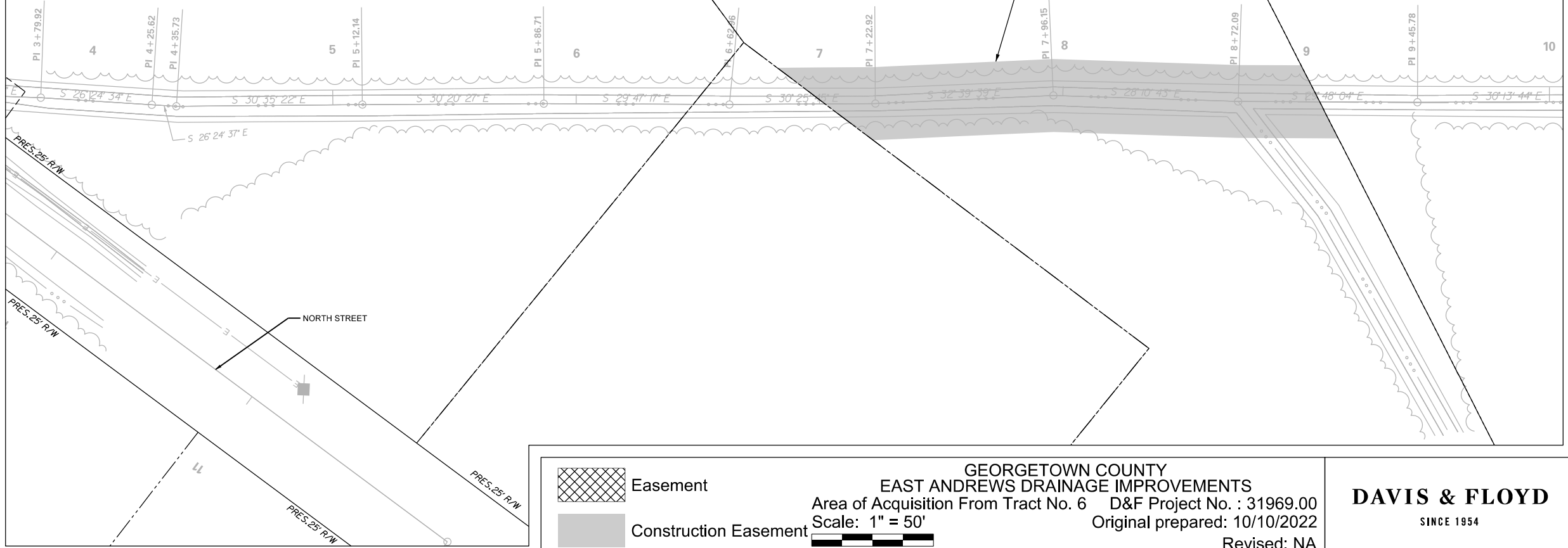
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⑥
 EASEMENT = 0 SF (0.000 AC)
 CONST. EASEMENT = 6,102 SF (0.140 AC)
 JAMES RICHARD POSTON
 TMS# 02-0414-015-15-00

CONSTRUCTION EASEMENT
 15' EACH SIDE OF CREEK ALIGNMENT
 OBTAIN = 6,102 SF (0.140 AC)



 Easement
 Construction Easement

GEORGETOWN COUNTY
 EAST ANDREWS DRAINAGE IMPROVEMENTS
 Area of Acquisition From Tract No. 6 D&F Project No. : 31969.00
 Scale: 1" = 50'
 Original prepared: 10/10/2022
 Revised: NA

DAVIS & FLOYD
 SINCE 1954

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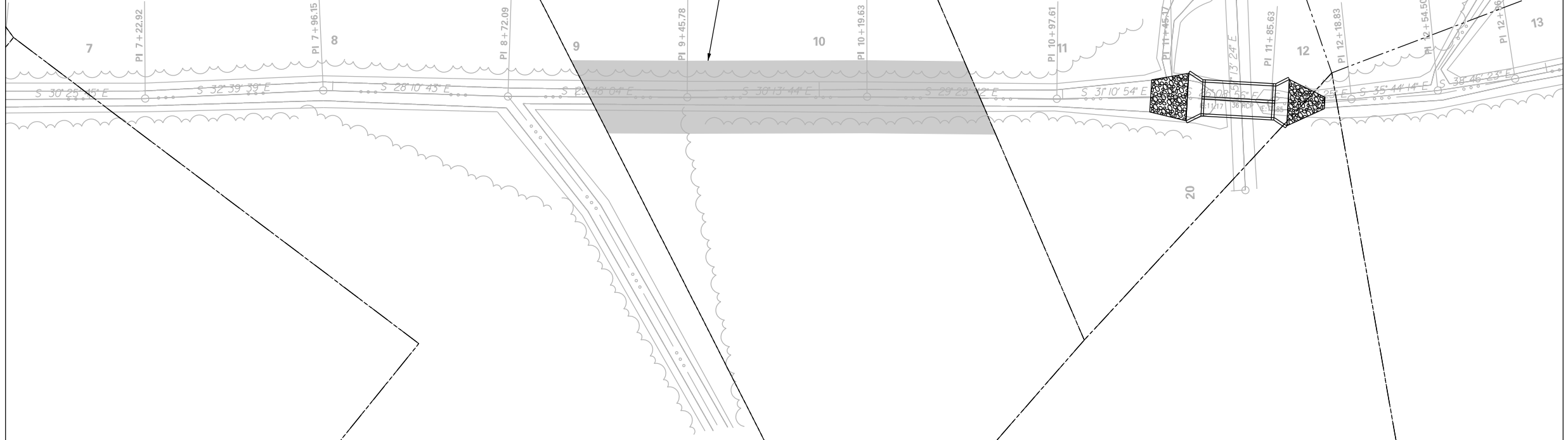
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⑦
EASEMENT = 0 SF (0.000 AC)
CONST. EASEMENT = 4,814 SF (0.111 AC)
JAMES R POSTON II
TMS# 02-0414-015-14-00

CONSTRUCTION EASEMENT
15' EACH SIDE OF CREEK ALIGNMENT
OBTAIN = 4,814 SF (0.111 AC)

PRIVATE ACCESS ROAD 1



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 7 D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

DAVIS & FLOYD
SINCE 1954

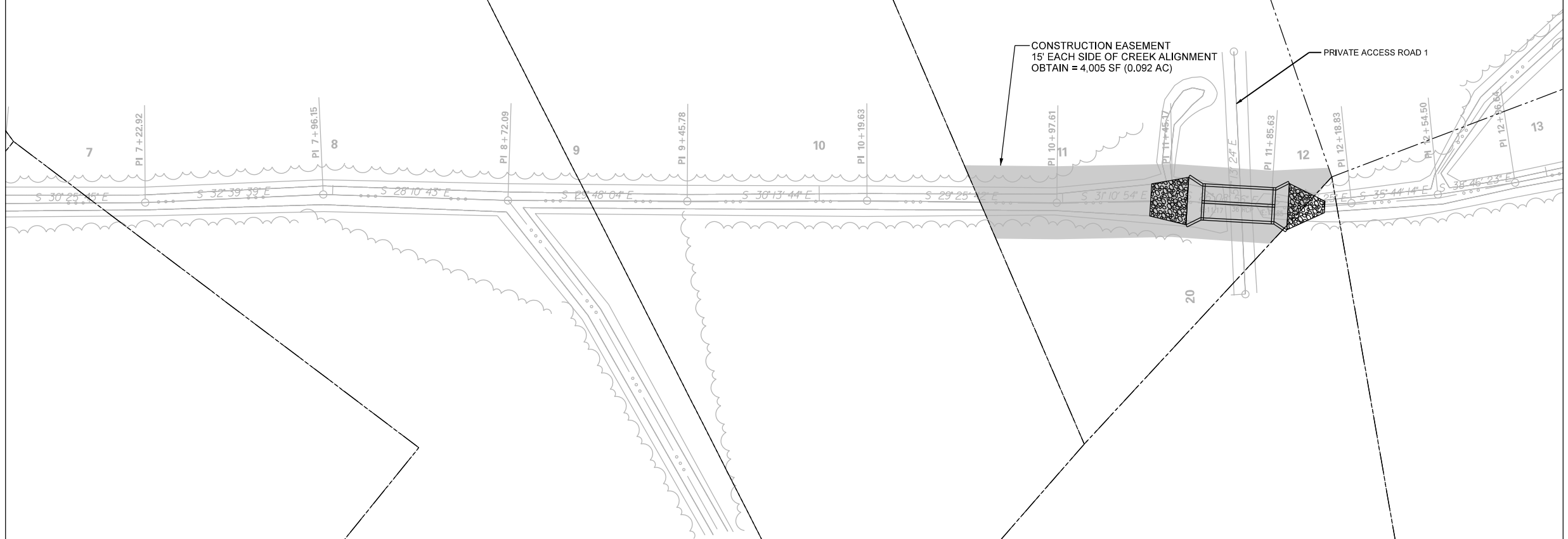
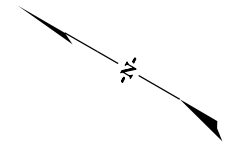
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EXHIBIT A

DRAWING #8

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⑧
EASEMENT = 0 SF (0.000 AC)
CONST. EASEMENT = 4,005 SF (0.092 AC)
JAMES RICHARD POSTON
TMS# 02-0414-015-13-00



 Easement
 Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 8 D&F Project No. : 31969.00
Scale: 1" = 50'


Original prepared: 10/10/2022
Revised: NA

DAVIS & FLOYD
SINCE 1954

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SCALE: 1"=50' (1:500)
FILE: G:\Jobs\02031989-00\Production\Transportation\Sign\Exhibits\Easement Exhibits TRACT 6.dgn

EXHIBIT A

DRAWING #9

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.

⑨
EASEMENT = 0 SF (0.000 AC)
CONST. EASEMENT = 26 SF (0.001 AC)
JAMES R POSTON
TMS# 02-0414-015-08-00

PRIVATE ACCESS ROAD 1

CONSTRUCTION EASEMENT
15' EACH SIDE OF CREEK ALIGNMENT
OBTAIN = 26 SF (0.001 AC)



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 9 D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

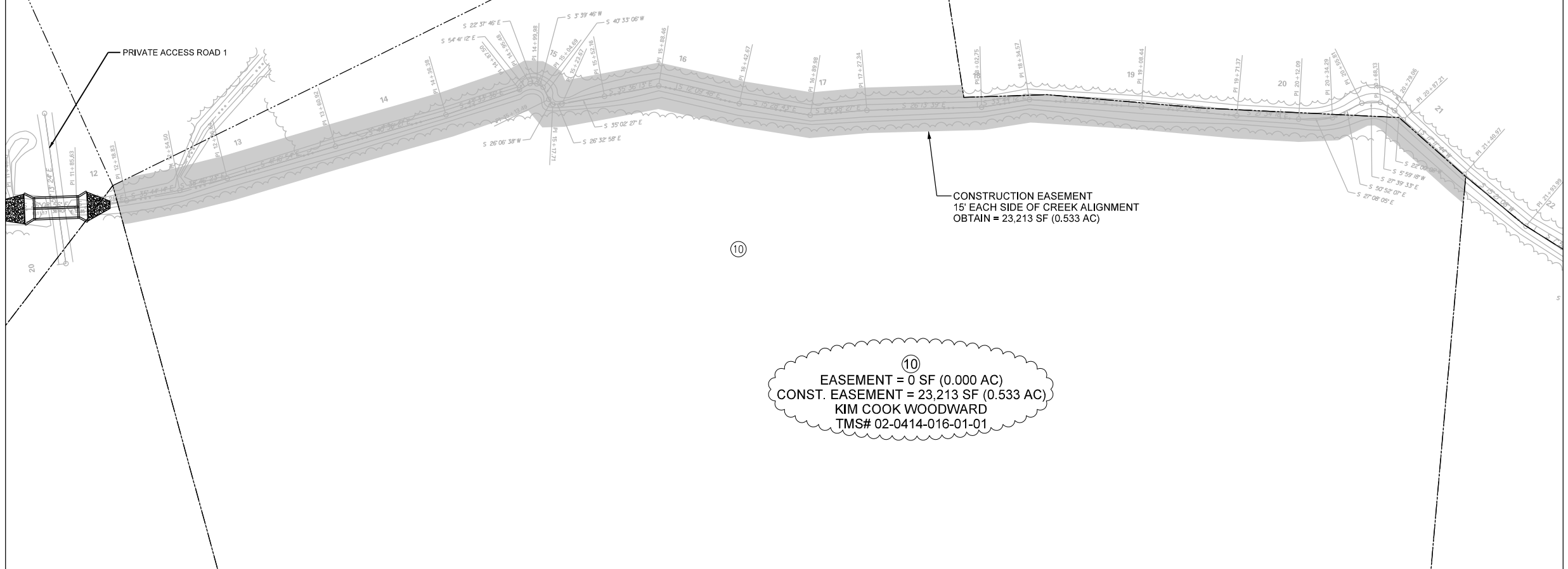
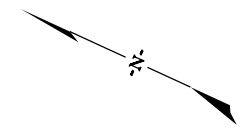
DAVIS & FLOYD
SINCE 1954

PLOT DRIVER: C:\Resource\Standards\Bentley\Transportation\DF_STANDARD\SWIS\files\plotting\PDF.plt;g
SCALE: 50:1000, 1/4" = 10'
PLOT TEB: 1/14/2022
FILE: G:\Jobs\02031989-00\Production\Transportation\Sign\Exhibits\Easement Exhibits\TRACT 9.dgn

EXHIBIT A

DRAWING #10

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



10

10
EASEMENT = 0 SF (0.000 AC)
CONST. EASEMENT = 23,213 SF (0.533 AC)
KIM COOK WOODWARD
TMS# 02-0414-016-01-01



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 10 D&F Project No. : 31969.00
Scale: 1" = 80'
Original prepared: 10/10/2022
Revised: NA

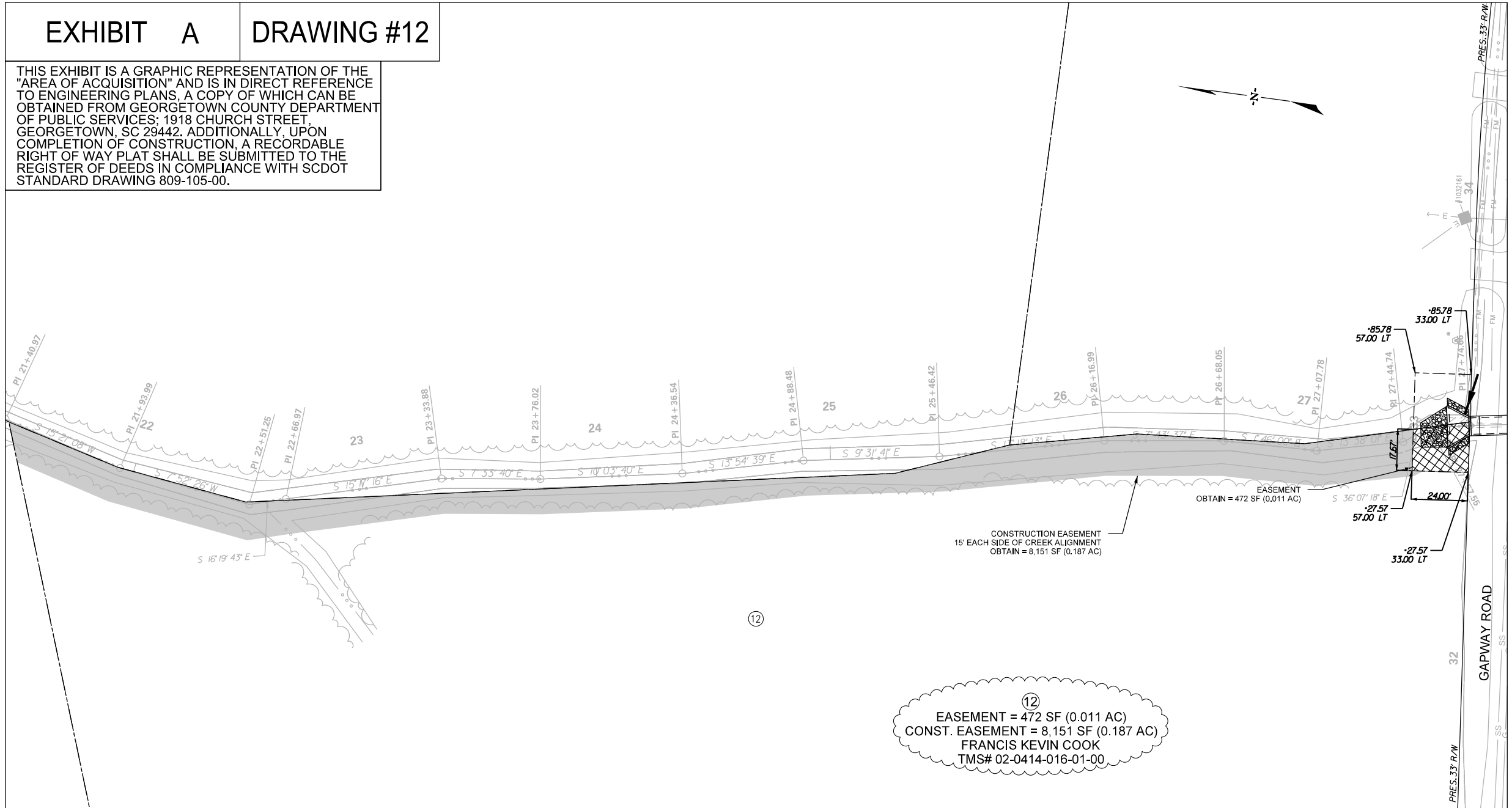
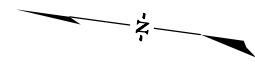
DAVIS & FLOYD
SINCE 1954

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FILE: G:\Jobs\02031939-00\Production\Transportation\Sign\Exhibits\Easement Exhibits TRACT 10.dgn
SCALE: 80' = 1" = 80'
PLOT TEB: 11/4/2022

EXHIBIT A

DRAWING #12

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



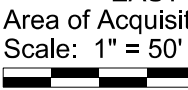
⑫
 EASEMENT = 472 SF (0.011 AC)
 CONST. EASEMENT = 8,151 SF (0.187 AC)
 FRANCIS KEVIN COOK
 TMS# 02-0414-016-01-00



Easement



Construction Easement



GEORGETOWN COUNTY
 EAST ANDREWS DRAINAGE IMPROVEMENTS
 Area of Acquisition From Tract No. 12 D&F Project No. : 31969.00
 Scale: 1" = 50'
 Original prepared: 10/10/2022
 Revised: NA

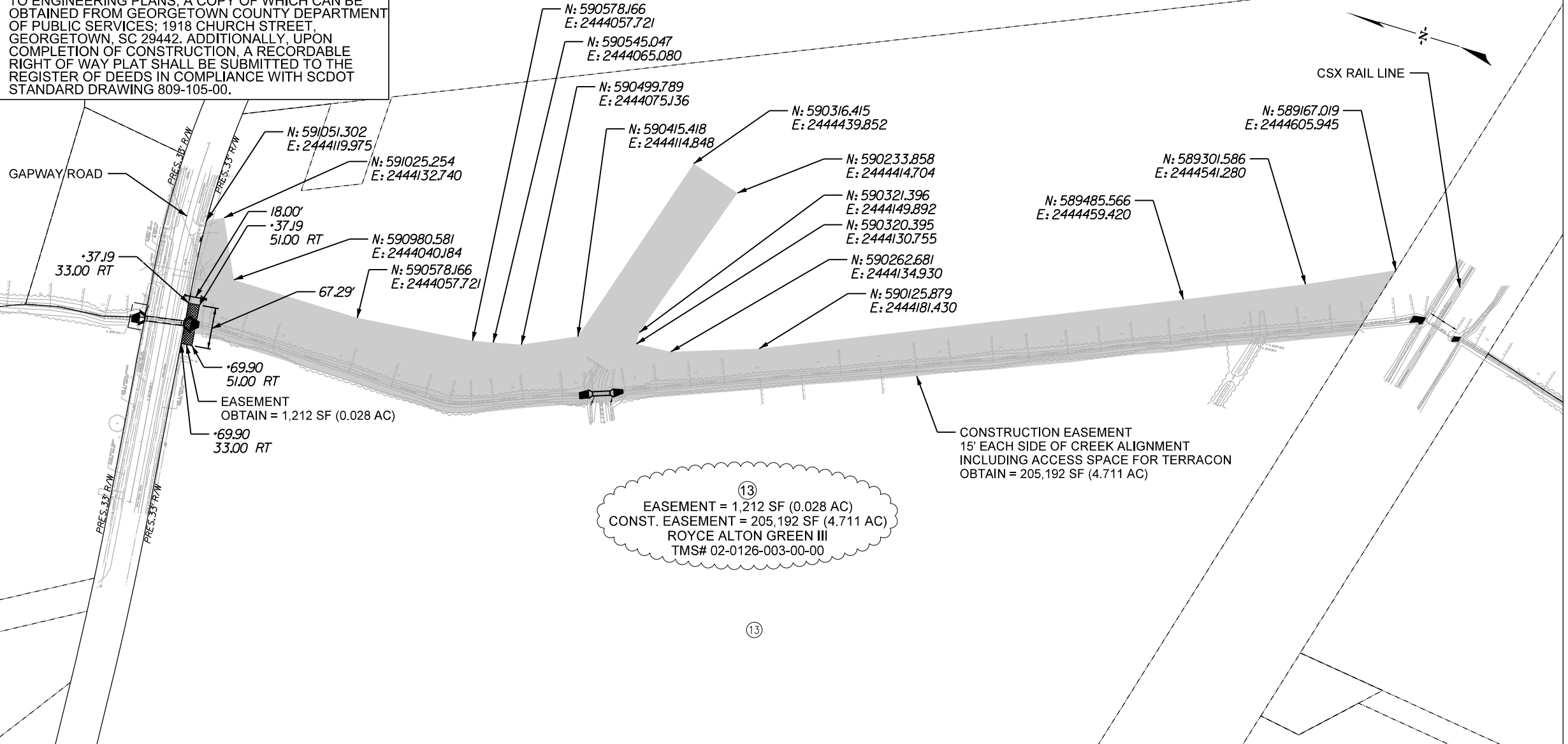
DAVIS & FLOYD
 SINCE 1954

PLOT DRIVER: C:\Resource\Standards\Bentley\Transportation\DF_STANDARD\SWI\files\plotting\PDF.plt;g
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EXHIBIT A


DRAWING #13

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



PLOT DRIVER: C:\Resources\Standards\Bentley\Transportation\DF_STANDARD\SWIS\files\plotting\PDF.plt;dg
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 Easement
 Construction Easement

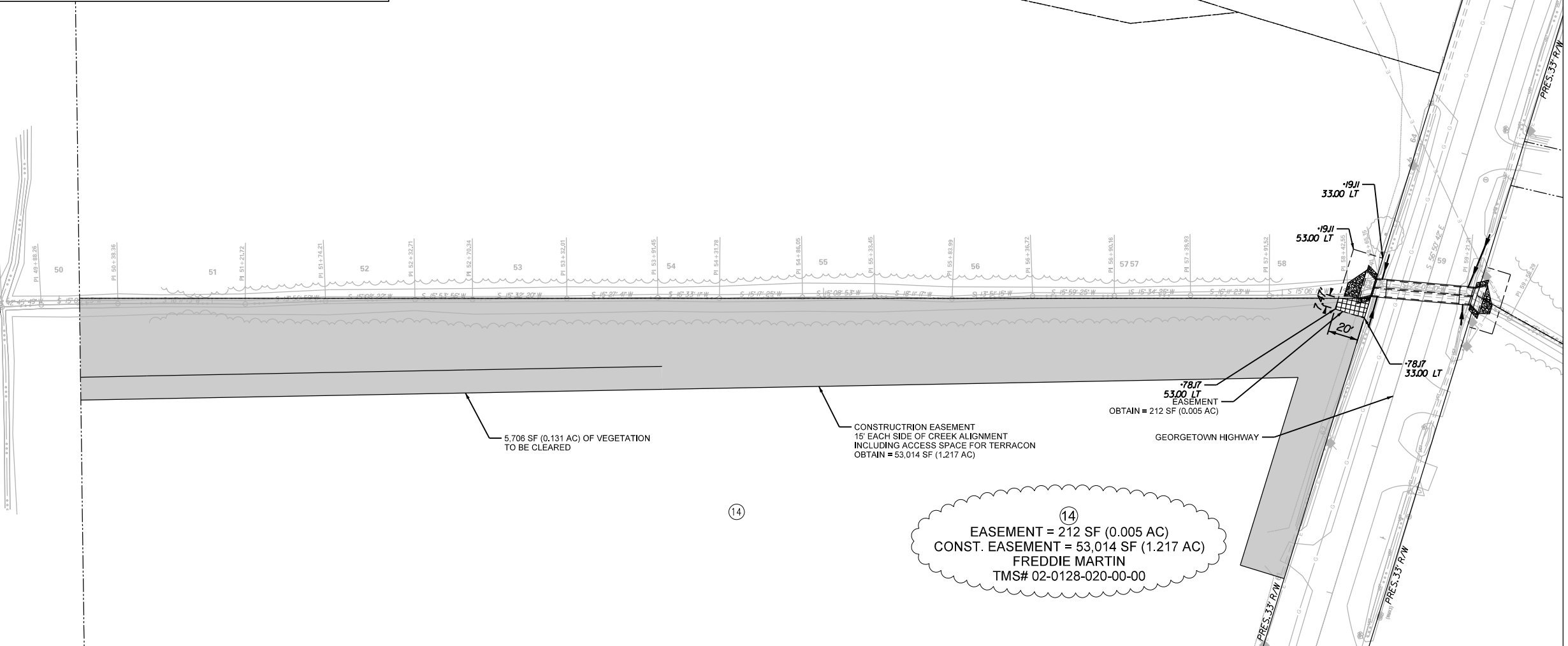
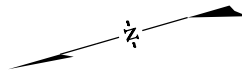
GEORGETOWN COUNTY
 EAST ANDREWS DRAINAGE IMPROVEMENTS
 Area of Acquisition From Tract No. 13 D&F Project No. : 31969.00
 Scale: 1" = 200'


DAVIS & FLOYD
 SINCE 1954
 Original prepared: 10/10/2022
 Revised: NA

EXHIBIT A

DRAWING #14

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



5,706 SF (0.131 AC) OF VEGETATION TO BE CLEARED

CONSTRUCTION EASEMENT 15' EACH SIDE OF CREEK ALIGNMENT INCLUDING ACCESS SPACE FOR TERRACON OBTAIN = 53,014 SF (1.217 AC)

78.17 EASEMENT OBTAIN = 212 SF (0.005 AC)

⑭
EASEMENT = 212 SF (0.005 AC)
CONST. EASEMENT = 53,014 SF (1.217 AC)
FREDDIE MARTIN
TMS# 02-0128-020-00-00



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 14 D&F Project No. : 31969.00
Scale: 1" = 80'
Original prepared: 10/10/2022
Revised: NA

DAVIS & FLOYD
SINCE 1954

PLOT DRIVER: C:\Resource\Standards\Bentley\Transportation\DF_STANDARD\SWIS\files\plotting\PDF.plt;c
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EXHIBIT A

DRAWING #15

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.

15

15
EASEMENT = 608 SF (0.014 AC)
CONST. EASEMENT = 12,147 SF (0.279 AC)
CHARLIE H BODIFORD JR
TMS# 02-028-021-00-00

CONSTRUCTION EASEMENT
15' EACH SIDE OF CREEK ALIGNMENT
OBTAIN = 12,147 SF (0.279 AC)

EASEMENT
OBTAIN = 608 SF (0.014 AC)

GEORGETOWN HIGHWAY



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 15 D&F Project No. : 31969.00
Scale: 1" = 80'
Original prepared: 10/10/2022
Revised: NA

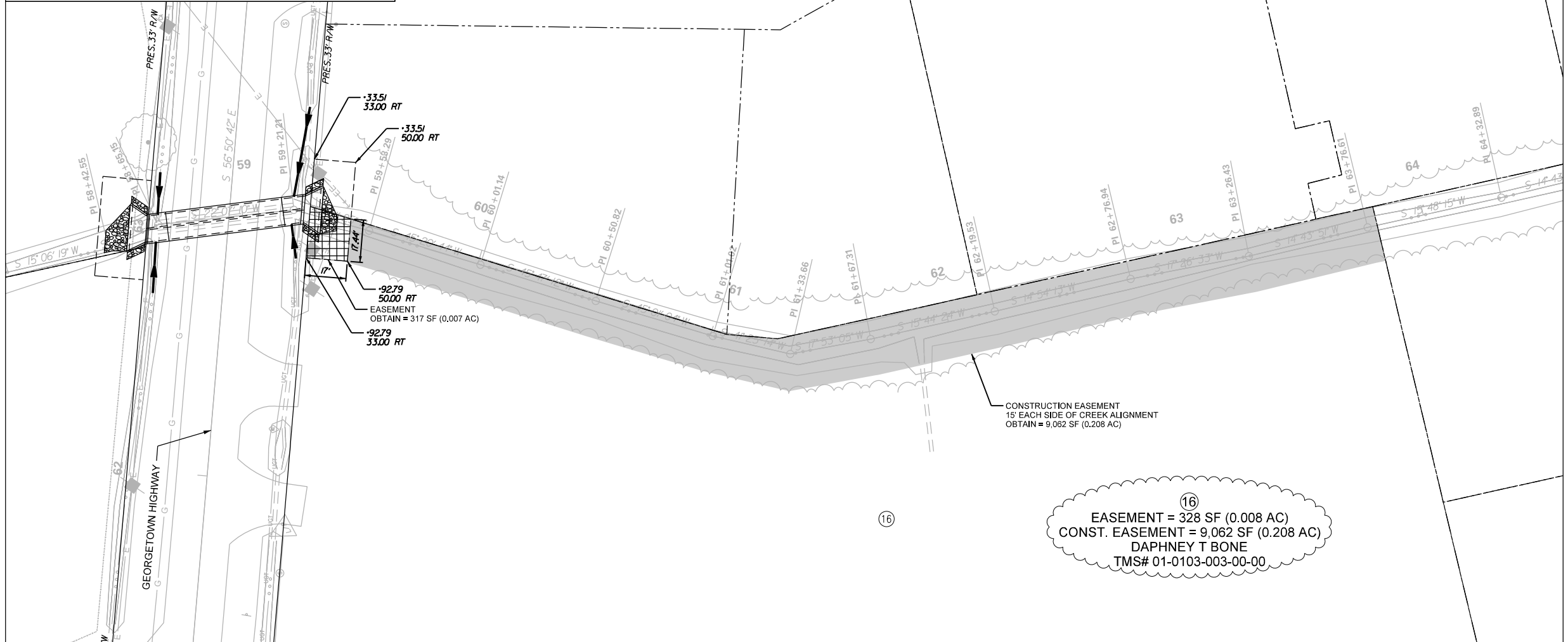
DAVIS & FLOYD
SINCE 1954

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PLOTTEB: 11/4/2022
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EXHIBIT A


DRAWING #16

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES; 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



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 Easement

 Construction Easement

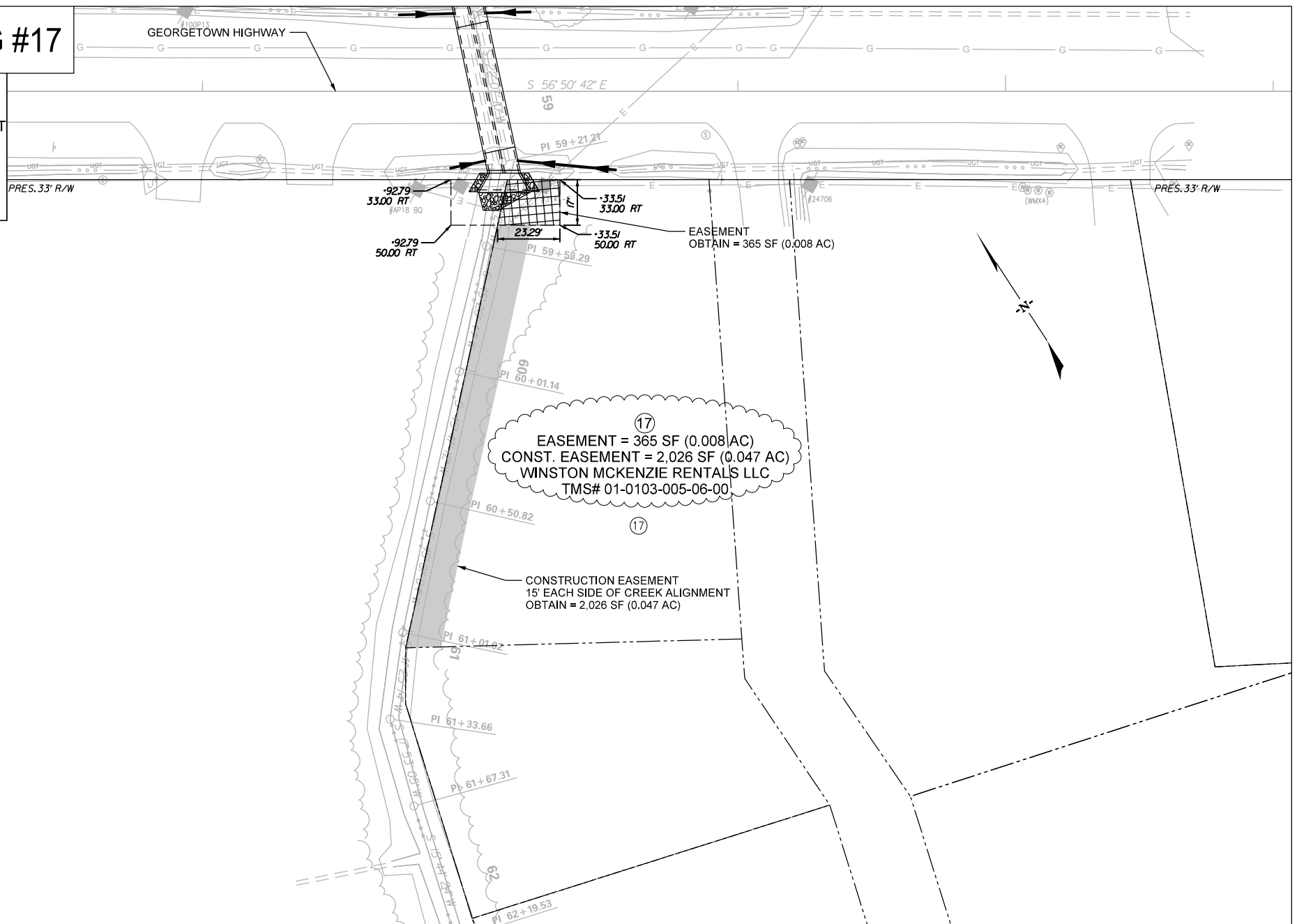
GEORGETOWN COUNTY
 EAST ANDREWS DRAINAGE IMPROVEMENTS
 Area of Acquisition From Tract No. 16 D&F Project No. : 31969.00
 Scale: 1" = 50'
 Original prepared: 10/10/2022
 Revised: NA

DAVIS & FLOYD
 SINCE 1954

EXHIBIT A

DRAWING #17

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



⑰
EASEMENT = 365 SF (0.008 AC)
CONST. EASEMENT = 2,026 SF (0.047 AC)
WINSTON MCKENZIE RENTALS LLC
TMS# 01-0103-005-06-00

CONSTRUCTION EASEMENT
15' EACH SIDE OF CREEK ALIGNMENT
OBTAIN = 2,026 SF (0.047 AC)



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 17 D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

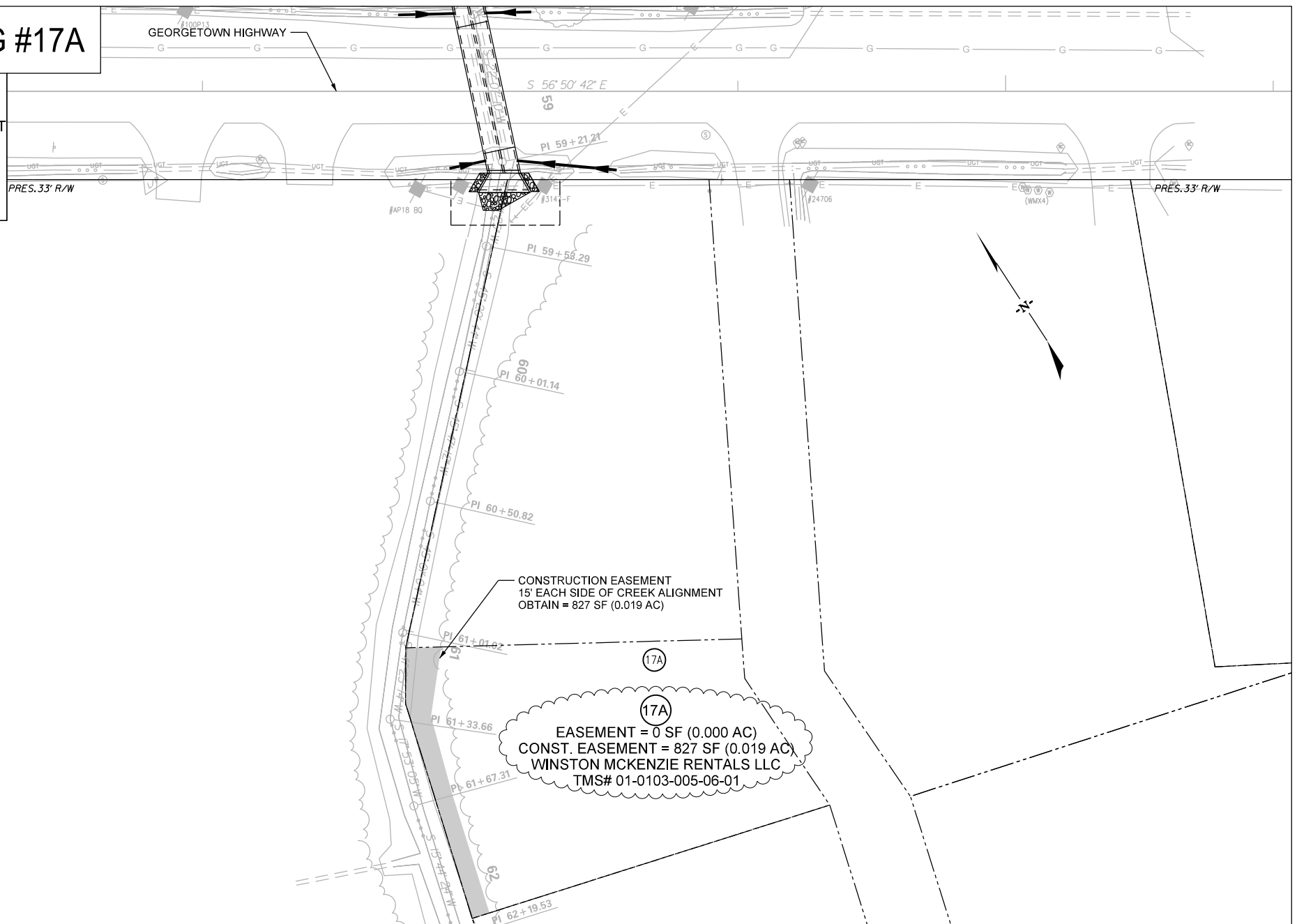
DAVIS & FLOYD
SINCE 1954

PLOT DRIVER: C:\ResourceStandards\Bentley\Transportation\DF_STANDARD\SWI\files\plotting\PDF.plt;g
SCALE: 50.00000000
PLOT TEB: 11/4/2022
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EXHIBIT A

DRAWING #17A

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



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PLOT DATE: 11/14/2022
FILE: G:\Jobs\0031989-00\Production\Transportation\Sign\Exhibits\Easement Exhibit TRACT 17A.dgn



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 17A D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

DAVIS & FLOYD
SINCE 1954

EXHIBIT A

DRAWING #18

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.

GAMBEL LANE

18
EASEMENT = 0 SF (0.000 AC)
CONST. EASEMENT = 983 SF (0.023 AC)
LAMBERT ERVIN WAYNE SR TRUSTEE
TMS# 01-0103-005-07-00

CONSTRUCTION EASEMENT
15' EACH SIDE OF CREEK ALIGNMENT
OBTAIN = 983 SF (0.023 AC)



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 18 D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

DAVIS & FLOYD
SINCE 1954

PLOT DRIVER: C:\Resource\Standards\Bentley\Transportation\DF_STANDARD\SWIS\files\plotting\PDF.plt;g
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EXHIBIT A

DRAWING #19

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.

GAMBEL LANE

①9
EASEMENT = 0 SF (0.000 AC)
CONST. EASEMENT = 802 SF (0.018 AC)
GLENDA J LONG
TMS# 01-0103-005-08-00

CONSTRUCTION EASEMENT
15' EACH SIDE OF CREEK ALIGNMENT
OBTAIN = 802 SF (0.018 AC)

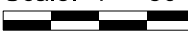
OLD CEMETERY ROAD



Easement



Construction Easement



GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 19 D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

DAVIS & FLOYD
SINCE 1954

PLOT DRIVER: C:\Resource\Standards\Bentley\Transportation\DF_STANDARD\SWIS\files\plotting\PDF.plt;g
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EXHIBIT A

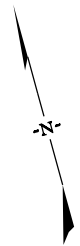
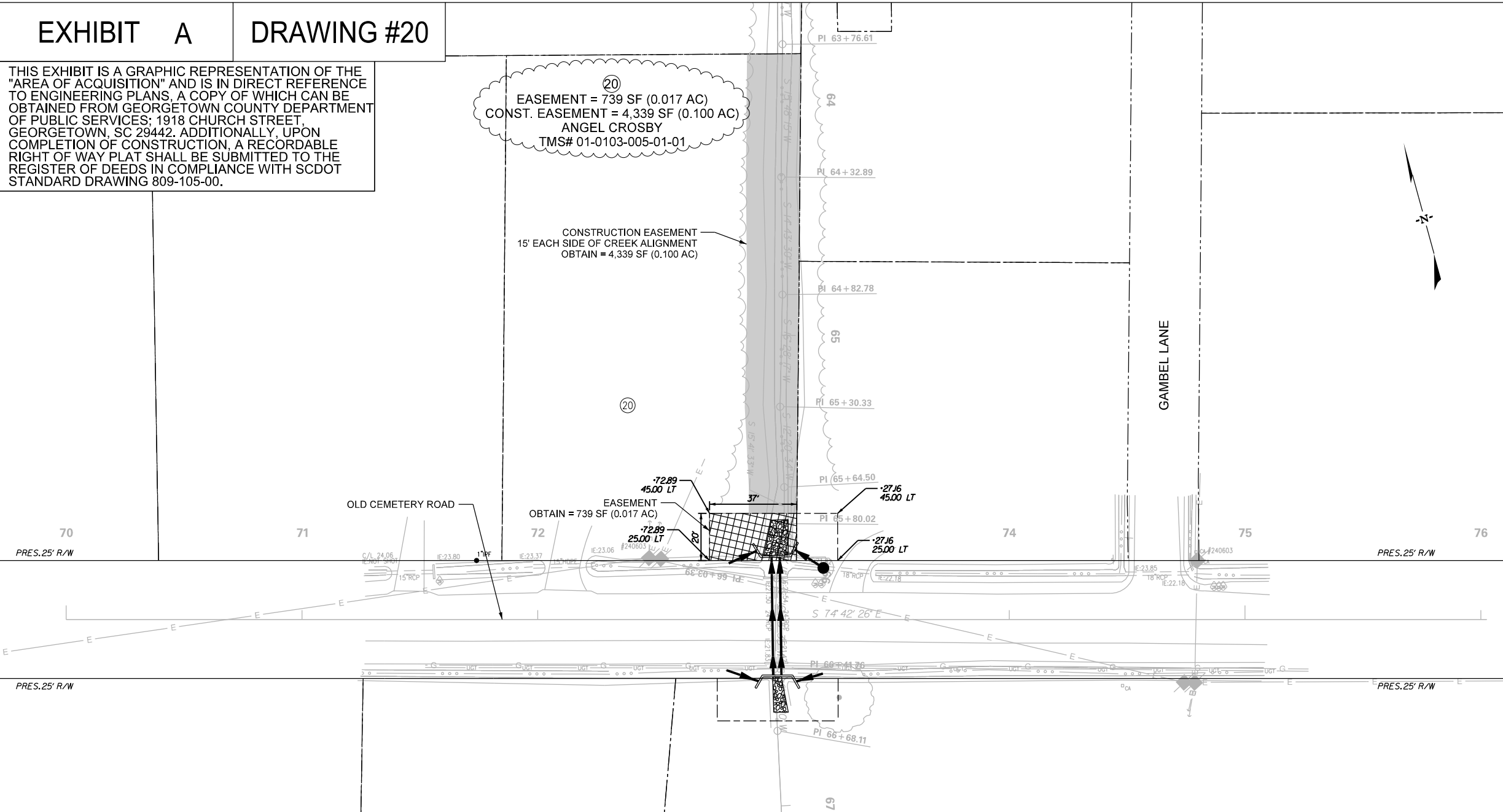
DRAWING #20

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.

②0
EASEMENT = 739 SF (0.017 AC)
CONST. EASEMENT = 4,339 SF (0.100 AC)
ANGEL CROSBY
TMS# 01-0103-005-01-01

CONSTRUCTION EASEMENT
15' EACH SIDE OF CREEK ALIGNMENT
OBTAIN = 4,339 SF (0.100 AC)

EASEMENT
OBTAIN = 739 SF (0.017 AC)



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 20 D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

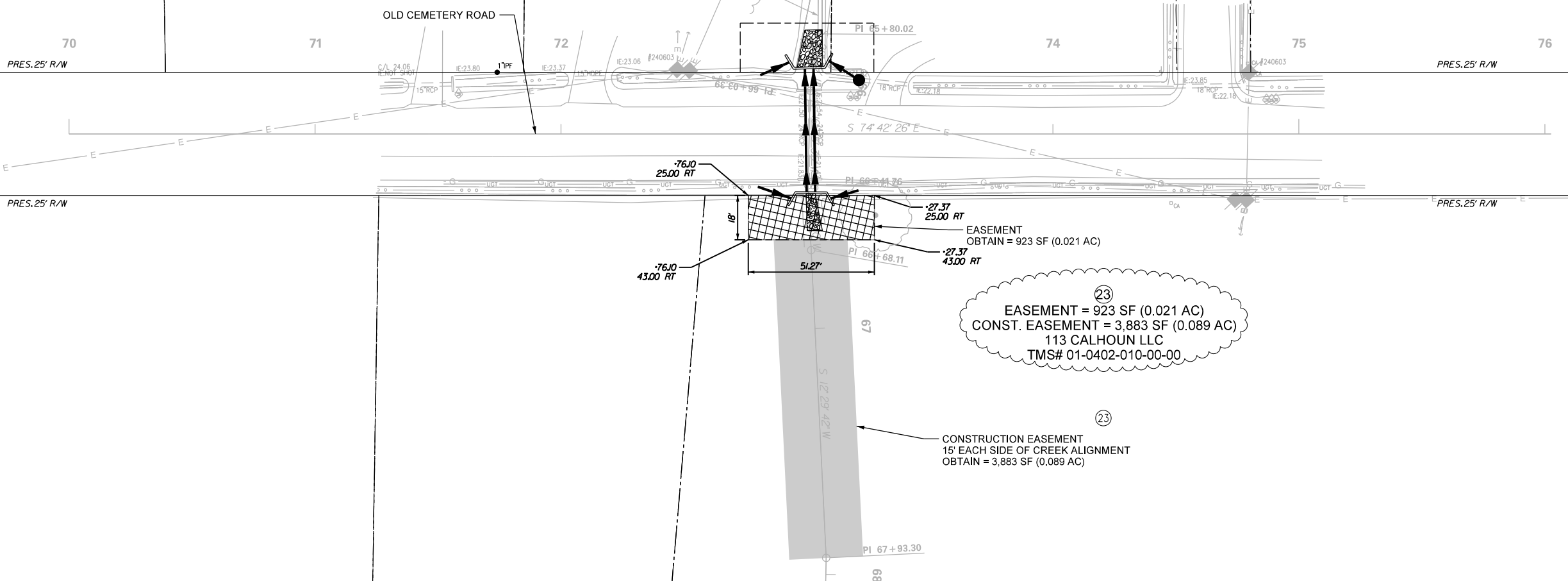
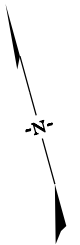
DAVIS & FLOYD
SINCE 1954

PLOT DRIVER: C:\Resource\Standards\Bentley\Transportation\DF_STANDARD\SWI\files\plotting\PDF.plt;g
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SCALE: 30' = 1" (As Shown)
PLOT DATE: 11/14/2022

EXHIBIT A

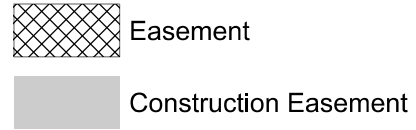
DRAWING #23

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



②③
EASEMENT = 923 SF (0.021 AC)
CONST. EASEMENT = 3,883 SF (0.089 AC)
113 CALHOUN LLC
TMS# 01-0402-010-00-00

②③
CONSTRUCTION EASEMENT
15' EACH SIDE OF CREEK ALIGNMENT
OBTAIN = 3,883 SF (0.089 AC)



GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 23 D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

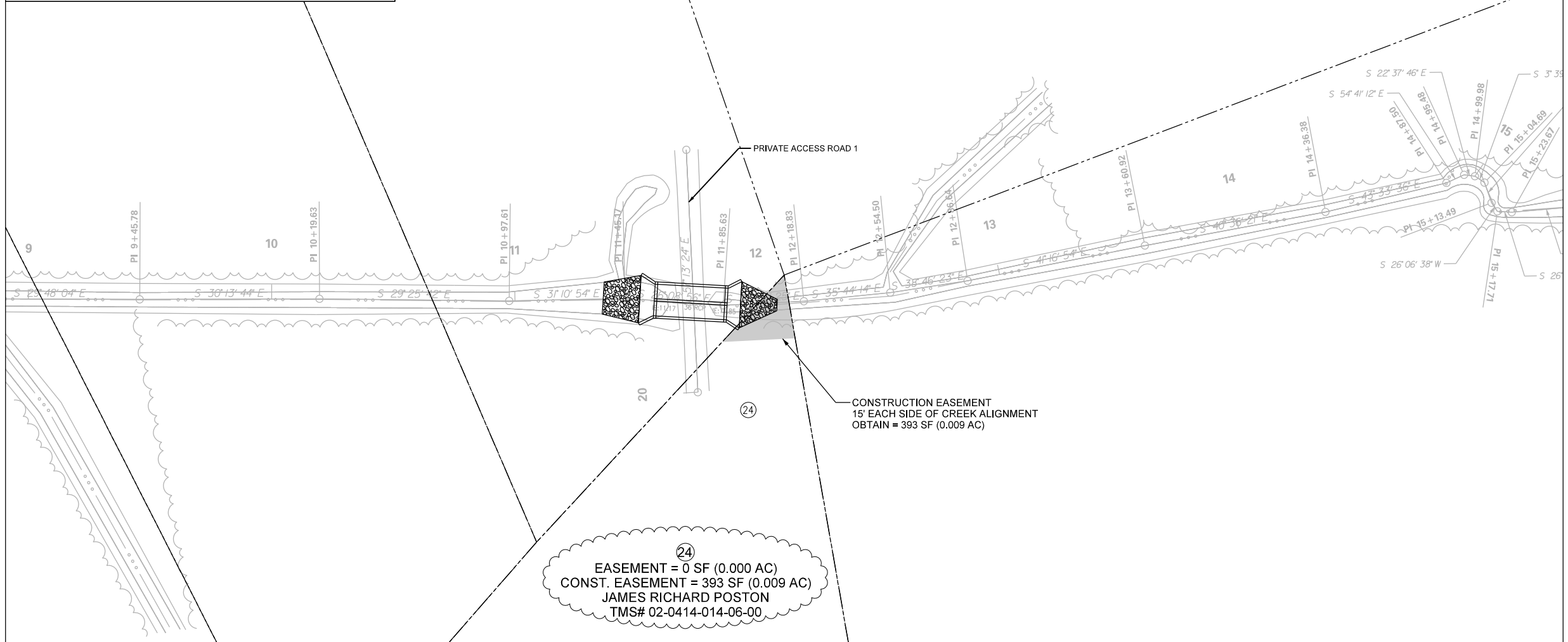
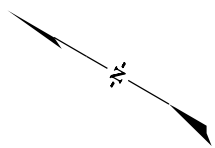
DAVIS & FLOYD
SINCE 1954

PLOT DRIVER: C:\Resource\Standards\Bentley\Transportation\DF_STANDARD\SWI\files\plotting\PDF.plt;g
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PLOT TEB: 11/4/2022
FILE: G:\00000031969-00\Production\Transportation\Sign\Exhibits\Easement Exhibits\TRACT 23.dgn

EXHIBIT A

DRAWING #24

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



②④
EASEMENT = 0 SF (0.000 AC)
CONST. EASEMENT = 393 SF (0.009 AC)
JAMES RICHARD POSTON
TMS# 02-0414-014-06-00



Easement



Construction Easement

GEORGETOWN COUNTY
EAST ANDREWS DRAINAGE IMPROVEMENTS
Area of Acquisition From Tract No. 24 D&F Project No. : 31969.00
Scale: 1" = 50'
Original prepared: 10/10/2022
Revised: NA

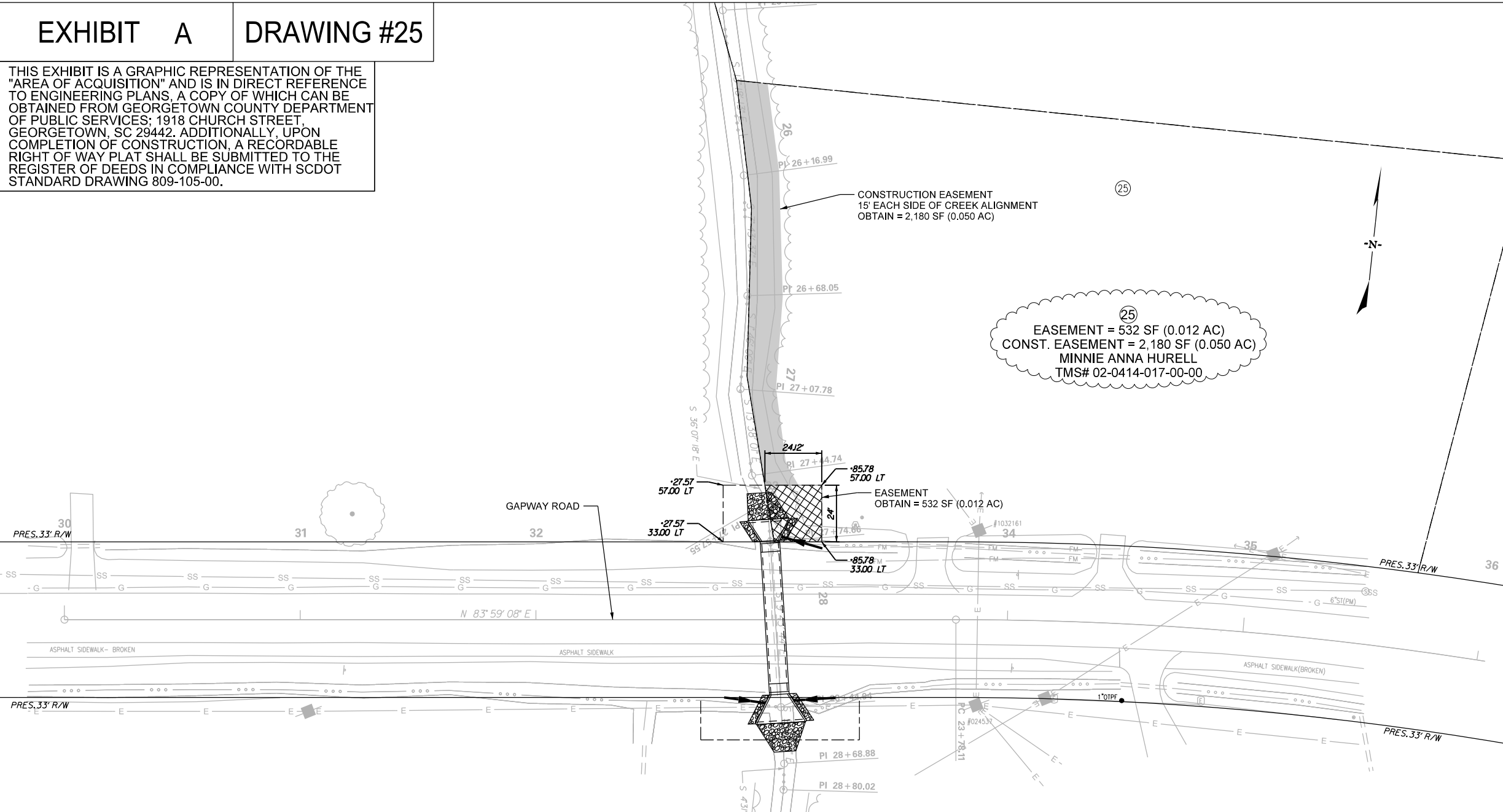
DAVIS & FLOYD
SINCE 1954

PLOT DRIVER: C:\Resource\Standards\Bentley\Transportation\DF_STANDARD\SWIS\files\plotting\PDF.plt;g
SCALE: 50:1000 (1"=50')
PLOTTEB: 1/14/2022
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EXHIBIT A

DRAWING #25

THIS EXHIBIT IS A GRAPHIC REPRESENTATION OF THE "AREA OF ACQUISITION" AND IS IN DIRECT REFERENCE TO ENGINEERING PLANS, A COPY OF WHICH CAN BE OBTAINED FROM GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES, 1918 CHURCH STREET, GEORGETOWN, SC 29442. ADDITIONALLY, UPON COMPLETION OF CONSTRUCTION, A RECORDABLE RIGHT OF WAY PLAT SHALL BE SUBMITTED TO THE REGISTER OF DEEDS IN COMPLIANCE WITH SCDOT STANDARD DRAWING 809-105-00.



②5
 EASEMENT = 532 SF (0.012 AC)
 CONST. EASEMENT = 2,180 SF (0.050 AC)
 MINNIE ANNA HURELL
 TMS# 02-0414-017-00-00

CONSTRUCTION EASEMENT
 15' EACH SIDE OF CREEK ALIGNMENT
 OBTAIN = 2,180 SF (0.050 AC)

EASEMENT
 OBTAIN = 532 SF (0.012 AC)



Easement



Construction Easement

GEORGETOWN COUNTY
 EAST ANDREWS DRAINAGE IMPROVEMENTS
 Area of Acquisition From Tract No. 25 D&F Project No. : 31969.00
 Scale: 1" = 50'
 Original prepared: 10/10/2022
 Revised: NA

DAVIS & FLOYD
 SINCE 1954

PLOT DRIVER: C:\Resource\Standards\Bentley\Transportation\DF_STANDARD\SWIS\files\plotting\PDF.plt;g
 PEN TABLE: C:\data\acad\iso\std\31969-00\Production\Print\Origin\pen.tbl;East Andrews ROW Exhibits.tbl
 FILE: G:\0000031969-00\Production\Transportation\Sign\Exhibits\Easement Exhibits\TRACT 25.dgn