



COLLETON COUNTY
SOUTH CAROLINA

Purchasing Department
113 Mable T. Willis Blvd.
Walterboro, SC 29488
843.782.0504

BID: CPST-15
Venture Park Water & Wastewater Improvements

Due: Thursday, August 19, 2021 at 11:00am

MAIL OR DELIVER RESPONSE TO:

Purchasing Department
Attn: Kaye B. Syfrett
113 Mable T. Willis Blvd.
Walterboro, SC 29488



THOMAS
&
HUTTON

CONTRACT DOCUMENTS
AND
TECHNICAL SPECIFICATIONS
FOR
VENTURE INDUSTRIAL PARK
WATER & WASTEWATER
IMPROVEMENTS

PREPARED FOR:
COLLETON COUNTY, SC
EDA INVESTMENT No. 04-01-07417
J – #28422.0000



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DOCUMENT 00 11 16**INVITATION TO BID****Legal Notice**

1. Sealed proposals for Venture Industrial Park Water and Wastewater Improvements owned by Colleton County, South Carolina will be received by Colleton County, South Carolina at the Colleton County Procurement, 113 Mable T Willis Boulevard, Walterboro, South Carolina until 11:00 A.M. **August 19, 2021** at which time they will be publicly opened.
2. The project consists of the following generally described work: construction of approximately 2,105 linear feet of 12-inch and approximately 1,015 linear feet of 10-inch water main, 6 fire hydrants and appurtenances, construction of approximately 6,600 linear feet of 10-inch gravity sewer and 26 new manholes. This project will be partially funded with federal funds from the US Department of Commerce Economic Development Administration and therefore subject to laws and regulations associated with that program (EDA Investment No. 04-01-07417). The project is also partially funded by the South Carolina Rural Infrastructure Authority (Grant #R-19-2043) and therefore subject to laws and regulations associated with that program.
3. Plans and Specifications are open to inspection at <https://www.colletoncounty.org/bids-and-proposal-requests>.
4. Bids shall be accompanied by a bid bond or certified cashier's check in an amount not less than 10% of the base bid. All bonds shall be by a surety company licensed in South Carolina with an "A" minimum rating of performance and a financial strength of at least five times the contract price as listed in the most current publication of "Best's Key Rating Guide Property Liability." Performance and Payment Bonds, each in an amount equal to 100% of the contract price shall be required of the successful bidder if contract is awarded. Each Bond shall be accompanied by a "Power of Attorney" authorizing the attorney-in-fact to bind the surety and certified to include the date of the bond.
5. Owner reserves the right to reject any or all Bids, including without limitation, the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if Owner believes it would not be in the best interest of the Project to make an award to Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Owner.
6. A non-mandatory Pre-Bid Conference will be held on **Monday, August 2, 2021** at 2:00 **P.M. at** Colleton County Economic Development, 403 East Washington Street, Walterboro, South Carolina. All prospective bidders are encouraged to attend.

END OF INVITATION TO BID

DOCUMENT 00 21 13

INSTRUCTIONS TO BIDDERS

INTENTION: It is intended that the Instructions to Bidders, General Conditions, Supplementary Conditions, Technical Specifications and Construction Drawings shall cover the complete work to which they relate. This project will be partially funded with federal funds from the US Department of Commerce Economic Development Administration and therefore subject to laws and regulations associated with that program (EDA Investment No. 04-01-07417). The project is also partially funded by the South Carolina Rural Infrastructure Authority (Grant #R-19-2043) and therefore subject to laws and regulations associated with that program.

ARTICLE 1 **DEFINED TERMS:** In addition to the terms defined in the General Conditions, Section 00 72 00, (EJCDC C-700)(2007), additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof.

- 1.1. **Bidder** – One who submits a Bid directly to Owner as distinct from a sub-bidder, who submits a bid to a Bidder.
- 1.2. **Successful Bidder** – The lowest, responsible, and responsive Bidder to whom Owner (based on Owner's evaluation as hereinafter provided) makes an award.
- 1.3. **Bid** – A complete and properly signed offer to execute work for the prices stipulated in Bid Form and submitted in accordance with the Bidding Documents.
- 1.4. **Addenda** – Graphic or written documents issued by Colleton County prior to the opening of Bids issued to clarify, revise, add to, or delete information in the original bidding documents or in previous addenda.

ARTICLE 2 **BID FORM:** All Bids must be made upon the Bid Forms hereto annexed, and shall state the amount bid for each item shown, and all bids must be for materials and work called for in the specifications.

- 2.1 The Bid Form is included with the Bidding Documents.
- 2.2 All blanks on the Bid Form must be completed by printing in black ink or by typewriter.
- 2.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.
- 2.4 All names must be typed or printed in black ink below the signature.
- 2.5 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form.)

- 2.6 The address and telephone number for communications regarding the Bid must be shown.

ARTICLE 3 QUALIFICATIONS OF BIDDERS:

- 3.1 To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five days after Bid opening upon Owner's request detailed written evidence such as financial data, previous experience, present commitments, and other such data as may be necessary to assist Owner in determining Contractor's qualifications.
- 3.2 Each Bid must contain evidence of Contractor's authority to conduct business in the state where the Work is to be performed. State Contractor license number, if applicable, must also be shown on the Bid Form.

ARTICLE 4 COPIES OF BIDDING DOCUMENTS:

- 4.1 Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

ARTICLE 5 EXAMINATION OF BIDDING DOCUMENTS, OTHER DATA, AND SITE:

- 5.1 It is the responsibility of each Bidder before submitting a bid:
- 5.1.1 To examine and study thoroughly the Bidding Documents and other related data identified in the Bidding Documents;
- 5.1.2 To visit the work site to ascertain by inspection pertinent local conditions such as location, character and accessibility of the site including existing surface and subsurface conditions in the work area; availability of facilities, location and character of existing work within or adjacent thereto, labor conditions, etc.
- 5.1.3 To become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;
- 5.1.4 To obtain and carefully study (or assume responsibility for doing so) all addition or supplementary examination investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, an Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance or the Work or which relate any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required of the bidding documents, and safety precautions and programs incident thereto;

- 5.1.5 To study and carefully correlate Bidder's knowledge and observations with the Bidding Documents and such other related data; and
 - 5.1.6 To promptly notify Owner of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Bidding Documents and such other related documents;
 - 5.1.7 to agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
 - 5.1.8 To become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;
 - 5.1.9 To determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.
- 5.2 The Owner shall make available to all prospective bidders, previous to receipt of bids, information that it may have as to sub-soil conditions and surface topography at the work site. Such information shall be given as the best factual information available without being considered as a representation of the Owner.
- 5.3 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 5, that without exception, the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given the Owner written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by the Owner are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 6

PRE-BID CONFERENCE: A non-mandatory Pre-Bid Conference will be held at 2:00 P.M. on Monday, August 2, 2021 at Colleton County Economic Development, 403 East Washington Street, Walterboro, South Carolina. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are not required to attend the conference. The Owner will transmit to all prospective Bidders of record such Addenda as the Owner considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 INTERPRETATIONS AND ADDENDA:

- 7.1 All questions about the meaning or intent of the Bidding Documents are to be directed to the Owner. Questions will be received up to fourteen (14) days prior to the bid opening date. The person submitting the request shall do so in writing and be responsible for its prompt delivery. Interpretations or clarifications considered necessary by the Owner in response to such questions will be issued by Addenda and posted at <https://www.colletoncounty.org/bids-and-proposal-requests>. Questions received less than fourteen (14) days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 BID SECURITY:

- 8.1 Each Bid must be accompanied by Bid security made payable to Owner in an amount of ten percent of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond (on form attached, if a form is prescribed) issued by a surety company licensed in **South Carolina** with an "A" minimum rating of performance and a financial strength of at least five times the contract price as listed in the most current publication of "Best's Key Rating Guide Property Liability."
- 8.2 The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security within fifteen days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the Agreement or the ninety-first day after the Bid opening, whereupon Bid security furnished by such bidders will be returned. Bid security with Bids that are not competitive will be returned within seven days after the Bid opening.

ARTICLE 9 CONTRACT COMPLETION TIME: The number of days within which, or by which the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Agreement. Provisions for liquidated damages, if any, are set forth in the Agreement.

The Work will be substantially completed within 210 days after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within 240 days after the date when the Contract Times commence to run. Included in the contract times are 10 days for rain delay. Time delays due to rain in excess of the above days shall be

reported by the Contractor to the Engineer in writing, within 30 days of each event.

ARTICLE 10 SUBSTITUTE AND "OR-EQUAL" ITEMS:

- 10.1 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and may be supplemented in the General Requirements.

ARTICLE 11 SUBCONTRACTORS, SUPPLIERS, AND OTHERS:

- 11.1 Each bid must be accompanied by a list of Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER or ENGINEER may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.
- 11.2 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contact to the next lowest Bidder proposing to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.
- 11.3 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

- ARTICLE 12 SUBMITTAL OF BIDS:** Bids shall be submitted at the time and place indicated in the Invitation to Bid and shall be enclosed in a sealed opaque envelope, marked with the project title, and name and address of Bidder, and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. Contractor license number(s) shall be written on the face of the bid envelope.

Each Bidder is responsible for seeing their Bid is received by the Owner not later than the advertised time set for the opening of Bids.

ARTICLE 13 MODIFICATION AND WITHDRAWAL OF BIDS:

- 13.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of bids.
- 13.2 If, within twenty-four hours after Bids are opened, any Bidder files a duly signed, written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner there was a material and substantial mistake in the preparation of its Bid, Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, Bidder will be disqualified from further bidding on the Work to be provided.

ARTICLE 14 OPENING OF BIDS: Bids will be opened and (unless obviously non-responsive) read aloud publicly at the place where Bids are to be submitted. An abstract of the amount of the base Bids and major alternates (if any) will be made available to Bidders at <https://www.colletoncounty.org> after the opening of Bids.

ARTICLE 15 ACCEPTANCE OF BIDS: Bids may not be withdrawn (except as noted in Paragraph 13) after the time set for the opening of Bids. Bids will remain subject to acceptance for 90 days after the day of the Bid opening, but the Owner may, in its sole discretion, release any Bid and return the Bid security prior to expiration of the acceptance period.

ARTICLE 16 AWARD OF CONTRACT:

- 16.1 Owner reserves the right to reject any or all Bids, including without limitation, the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if Owner believes it would not be in the best interest of the Project to make an award to a Bidder, whether because the Bid is not responsive, or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Owner.
- 16.2 Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- 16.3 In evaluating Bids, Owner will consider the qualification of Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

The Owner will also consider whether the Bidder involved:

- a) Maintains a permanent place of business;
- b) Has adequate plant and equipment to do the work properly and expeditiously;
- c) Has suitable financial status to meet obligations incidental to the work;
- d) Has appropriate technical experience.

16.4. Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

16.5. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

16.6. If the contract is to be awarded, it will be awarded to the Bidder whose evaluation by Owner indicates the award will be in the best interest of the Project.

16.7. If the contract is to be awarded, Owner will give Successful Bidder a Notice of Award within 90 days after the day of the Bid opening.

ARTICLE 17 MODIFICATIONS OF QUANTITIES: If the lowest bona fide Bid exceeds the money available for the Work, the Owner reserves the right to delete enough of the Work to bring the cost within the available funds. The Owner also reserves the right to delete whichever items or portions of items considered to be in the best interest of the Owner.

ARTICLE 18 CONTRACT SECURITY: The General Conditions and Supplementary Conditions set forth Owner's requirements as to performance and payment bonds. When the Successful Bidder delivers the executed Agreement to the Owner, it must be accompanied by the required performance and payment bonds.

ARTICLE 19 SIGNING THE AGREEMENT: When the Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within 15 days thereafter, Contractor shall sign and deliver the required counterparts of the Agreement and attached documents to Owner with the required Bonds. Within 10 days thereafter, Owner shall deliver one fully signed counterpart to Contractor.

ARTICLE 20 LAWS AND REGULATIONS: The Contractor shall comply with local, District, County, State, and Federal laws applicable to the work.

The Contractor shall comply with the Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 as amended through January 1, 2004 (PL 91-596) and under Section 107 of the Contract Work and Safety Standards Act (PL) 91-54). The regulations are administered by the Department of Labor and the Contractor shall allow access to the project to personnel from this Department.

ARTICLE 21 CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE: Contractor shall not commence work under this contract until obtaining all the insurance required by the Supplementary Conditions.

ARTICLE 22 TERMINATION OF CONTRACT: If the Owner is made to stop construction of the work because of an order from a Court or State Department, the contract shall be terminated. Payment will be made for work completed and a proration of the work underway, materials stored, and for the overhead and profit of the completed work and work underway. Payment will not be made for anticipated profit and overhead on work not completed or underway.

DOCUMENT 00 41 43

BID FORM

PROJECT IDENTIFICATION: Venture Industrial Park Water and Wastewater Improvements

CONTRACT IDENTIFICATION AND NUMBER: J-#28422.0000

THIS BID IS SUBMITTED TO: Colleton County, South Carolina

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the day of Bid opening, or for such longer period of time BIDDER may agree to in writing upon request of OWNER.
3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:
 - a. BIDDER has examined and carefully studied the Plans and Specifications for the work and contractual documents relative thereto, and has read all Technical Provisions, Supplementary Conditions, and General Conditions, furnished prior to the opening of Bids and can fulfill the requirements of the work to be performed.
 - b. BIDDER further acknowledges hereby receipt of the following Addenda:

ADDENDUM NO.	DATE

- c. BIDDER has visited the site and become familiar with and is satisfied as to the general, local and site conditions possibly affecting cost, progress, performance and furnishing of the Work;
 - d. BIDDER is familiar with and is satisfied as to all federal, state, and local Laws and Regulations possibly affecting cost, progress, performance and furnishing of the Work.

- e. BIDDER has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structure at or contiguous to the site (except underground Facilities) have been identified in the Supplementary Conditions. BIDDER acknowledges such reports and drawings are not Contract Documents and may not be complete for BIDDER's purposes. BIDDER acknowledges OWNER and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to Underground Facilities at or contiguous to the site. BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost progress, performance or furnishing of the work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto. BIDDER does not consider any additional examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Bidding Documents.
 - f. BIDDER is aware of the general nature of Work to be performed by Owner and others at the site relating to Work for which this Bid is submitted as indicated in the Bidding Documents.
 - g. BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Bidding Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
 - h. BIDDER has given OWNER written notice of all conflicts, errors, ambiguities, or discrepancies BIDDER has discovered in the Bidding Documents and the written resolution thereof by OWNER is acceptable to BIDDER. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.
 - i. This bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.
4. BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

TOTAL BID FOR ALL ESTIMATED PRICES _____ <i>(Use words)</i>
_____ (\$ _____) <i>(Figures)</i>

Unit Prices have been computed in accordance with paragraph 11.03.C of the General Conditions.

BIDDER acknowledges estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities determined as provided, determined as provided in the Contract Documents.

5. BIDDER agrees the Work will be substantially complete within 210 calendar days after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within 240 calendar days after the date when the Contract Times commence to run.
6. BIDDER accepts provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within times specified in the Agreement.
7. The following documents are attached to and made a condition of this Bid:
 - a. Required Bid Security in the form of 10 percent of the Bid Total Price.
 - b. Required BIDDER's Qualification Statement with supporting data.
8. The undersigned further agrees in case of failure on his/her part to execute the said contract and the Bond within 15 consecutive calendar days after written notice being given of the award of the contract, the check or bid bond accompanying this bid, and the monies payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure, otherwise, the check or bid bond accompanying this proposal shall be returned to the undersigned.
9. Communications concerning this Bid shall be addressed to:

Colleton County
31 Klein Street
Room 209 Walterboro, SC 29488

Attn: John Stieglitz
jstieglitz@colletoncounty.org
10. Terms used in this Bid which are defined in the General Conditions or Instructions will have the meanings indicated in the General Conditions of Instructions.

SUBMITTED on _____, 2021.

CONTRACTOR'S NAME

ADDRESS:

BY: _____

State Contractor License No. _____

State Bidder License No. _____

State Utility Contractor License No. _____

BID PROPOSAL

PART A - MISCELLANEOUS WORK

Item	Description	Quantity	Units	Unit Price	Total
1	Mobilization	1	LS		
2	Maintenance and Protection of Traffic	1	LS		
3	Construction Staking	1	LS		
4	Clearing and Grubbing	1	LS		
5	Erosion and Sedimentation Control (Installation & Maintenance)	1	LS		
6	Decommission Pump Station #1	1	LS		
7	Decommission Pump Station #2	1	LS		
8	Remove and Replace Asphalt Pavement	355	SY		
9	Remove and Reset Existing Chain Link Fence to Easement Line	1,100	LF		
10	Remove Existing Chainlink Fence	14	LF		
11	10'x30'x6" Concrete Apron	1	EA		
12	Grassing	5	AC		
13	Remove and Replace Unsuitable Material	50	CY		

Subtotal PART A - MISCELLANEOUS WORK:

PART B - SANITARY SEWER SYSTEM

Item	Description	Quantity	Units	Unit Price	Total
1	6" PVC (0'-8')	57	LF		
2	6" DIP (0'-8')	77	LF		
3	8" PVC C-900 DR-18 Gravity Sewer (0-8')	567	LF		
4	8" PVC C-900 DR-18 Gravity Sewer (8.1'-12')	30	LF		
5	10" PVC C-900 DR-18 Gravity Sewer (0-8')	524	LF		
6	10" PVC C-900 DR-18 Gravity Sewer (8.1'-12')	2189	LF		
7	10" PVC C-900 DR-18 Gravity Sewer (12.1'-16')	1661	LF		
8	10" PVC C-900 DR-18 Gravity Sewer (16.1'-20')	924	LF		
9	10" D.I.P CL 350 Gravity Sewer (0-8')	52	LF		
10	8" D.I.P CL 350 Gravity Sewer (0-8')	70	LF		
12	Jack & Bore 24" Steel Casing Min. Wall Thickness 0.375"	90	LF		
13	Jack & Bore 18" Steel Casing Min. Wall Thickness 0.375"	100	LF		
15	8" Cleanout	1	EA		

Item	Description	Quantity	Units	Unit Price	Total
16	Standard Manhole (0-8')	5	EA		
17	Doghouse Manhole (0'-8')	1	EA		
18	Standard Manhole (8.1'-12')	4	EA		
19	Doghouse Manhole (8.1'-12')	3	EA		
20	Standard Manhole (12.1'-16)	8	EA		
21	Standard Manhole (16.1'-20')	4	EA		
22	Drop Manhole (16.1'-20')	1	EA		
23	Connect 8" Gravity to Existing Manhole	1	EA		
24	Cap & Abandon Existing 8" Gravity Main	1	LS		
Subtotal PART B - SANITARY SEWER SYSTEM:					
PART C - WATER DISTRIBUTION SYSTEM					
1	12" PVC C-900 DR-18 Water Main - Including all Necessary Appurenaces & Fittings.	1,010	LF		
2	10" PVC C-900 DR-18 Water Main - Including all Necessary Appurenaces & Fittings.	2,104	LF		
3	Jack & Bore 24" Steel Casing Min. Wall Thickness 0.375"	57	LF		
4	10" Gate Valve and Box	8	EA		
5	12" Gate Valve and Box	2	EA		
6	Fire Hydrant Assembly	6	EA		
7	Connect New 10" Water Main to Existing 16" Water Main with Tapping Sleeve & Valve	1	EA		
8	Cap & Abandon Existing 12" Water Main	1	LS		
Subtotal PART C - WATER DISTRIBUTION SYSTEM:					
TOTAL BID:					

SECTION 00 41 50

BIDDER'S QUALIFICATIONS

Please answer all questions and have your statement notarized. If necessary, you may answer questions on separate sheets of paper and attach them to this statement. Other additional information your firm deems useful in the evaluation of your capabilities may also be included.

1. ORGANIZATION

Date of Response: _____

Legal Name of Bidder: _____

Street Address: _____

City, State, Zip Code: _____

Website: _____

Contact: _____ Phone: _____ Mobile: _____

Email Address: _____

Is the address of the business listed above a: (Please circle one listed below)

Main Office Regional Office Branch Office

When Organized: _____

When and Where Incorporated: _____

Licensed or Registered To Do Business in State of South Carolina: ___Yes _____No

If No, In What (State) _____ Municipality does your Company Have A Business License? _

Business License Number for Said (State) _____ Municipality: _____

Federal Employer I.D. Number: _____

If Partnership, list all partners and their addresses:

If there is no South Carolina Partner, give name and address of agent for service of process in South Carolina.

If an individual owner is not a South Carolina resident, give name and address of agent for service of process in South Carolina.

Is your company: (Please circle one listed below)

MBE WBE DBE MBE/WBE/DBE Certified by:_____

Has your company or any of its principals ever petitioned for bankruptcy, failed in business, defaulted or been terminated on a contract awarded to you?

_____ Yes _____ No

Has your company ever been banned or otherwise precluded from pursuing public work or have ever been found to be non-responsive by a public agency?

_____ Yes _____ No

Has your company ever had a claim made against it for improper, delayed, or non-compliant work or failure to meet warranty obligations?

_____ Yes _____ No

Is your company or any of its owners, officers, or major shareholders currently involved in any arbitration or litigation?

_____ Yes _____ No

Does your company have any outstanding judgments or claims against it?

_____ Yes _____ No

Is your company currently involved or has been involved in the last 3 years with any litigation?

_____ Yes _____ No

Has your organization ever failed to complete any work awarded to it?

_____ Yes _____ No

If yes to any of the above questions, please explain: _____

Please list any litigation brought against your company in the past five (5) years asserting that you failed to make payments to anyone.

Has your company ever had a contract terminated for any reason?

_____ Yes _____ No

If Yes, please explain: _____

List the geographical areas in which you work: _____

List the areas of work that you normally perform with your own forces: _____

What percentage of the Company's work is normally subcontracted? _____%

What is the largest contract your company has completed?

Amount \$ _____ Year _____

Project Name / Scope / Contact Information _____

Should the work require compliance with the South Carolina State Construction Licensing Board Rules and Regulations, the Contractor and any Subcontractor shall list the appropriate License number(s):

Main Contractor's License Number: _____

Subcontractor #1 License Number: _____

Subcontractor #1 Name: _____

Subcontractor #2 License Number: _____

Subcontractor #2 Name: _____

Subcontractor #3 License Number: _____

Subcontractor #3 Name: _____

(List additional if appropriate)

Year Firm Established: _____

2. EXPERIENCE

How many years have you been engaged in the contracting business under your present firm or trade name? _____

List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

Current Employment (Numbers of Employees): Total: _____

Management: _____ Clerical: _____ Professional: _____

Technical: _____ Skilled Labor: _____ Common Labor: _____

Total Value of Projects Completed (last five years): \$ _____

A. Contracts On Hand

Project Name and Location	Owner Name Address Phone No.	Project Description	Bid \$	Actual \$	Anticipated Completion Date

B. Selected Similar Construction Project Examples

At Least Five (5) Projects Similar in Nature:

Project Name and Location	Owner Name Address Phone No.	Project Description	Bid \$	Actual \$	Completion Date

C. Safety Issues Disclosure:

Contractor's Experience Modification Rate (EMR):
 List Safety Issues for Last Five Years:

List Major Equipment Proposed To Be Used For This Project:

Description	Make/Model	Owned by Bidder or Sub?	Year Purchased
_____	_____	Yes ___ No ___	_____
_____	_____	Yes ___ No ___	_____
_____	_____	Yes ___ No ___	_____
_____	_____	Yes ___ No ___	_____
_____	_____	Yes ___ No ___	_____
_____	_____	Yes ___ No ___	_____
_____	_____	Yes ___ No ___	_____
_____	_____	Yes ___ No ___	_____
_____	_____	Yes ___ No ___	_____

D. Proposed Superintendent for this Project:

Name: _____

Address: _____

E. Select Project Experience of the Superintendent:

Project Name and Location	Owner Name Address Phone No.	Project Description	Bid \$	Actual \$	Completion Date

3. REFERENCES

Name of your Bank: _____

Address: _____

Phone: _____ Contact Person: _____

Amount of line of credit: _____ Amount Available: _____

Bonding Company: _____

Address: _____

Contact Person: _____ Phone: _____

Bonding Company's Rating: _____

Bonding Capacity: Per Job \$_____ Aggregate \$_____

Date of Last Bond: _____ Bond Amount \$_____

Bond Rate: _____ Remaining Bonding Capacity \$_____

Please list the persons or entities that provide indemnification to your Surety: _____

List three of your major suppliers:

- A. Company: _____
 Address: _____
 Phone: _____ Fax: _____
 Contact: _____

- B. Company: _____
 Address: _____
 Phone: _____ Fax: _____
 Contact: _____

- C. Company: _____
 Address: _____
 Phone: _____ Fax: _____
 Contact: _____

List three Contractors/Owners you do business with:

- A. Company: _____
 Address: _____
 Phone: _____ Fax: _____
 Contact: _____

- B. Company: _____
 Address: _____
 Phone: _____ Fax: _____
 Contact: _____

- C. Company: _____
 Address: _____
 Phone: _____ Fax: _____
 Contact: _____

DEBARMENT

The Contractor is certifying that they are not currently debarred from responding to any request for bids by any agency or subdivision of the State of South Carolina or the United States Federal Government, nor are they an agent of any person or entity that is currently debarred from submitting bids on contracts by any agency or subdivision of the State of South Carolina or the United States Federal Government.

A registered Contractor with SAM'S _____ Yes _____ No

Cage Code. _____

DUN's No. _____

4. SIGNATURE

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading. The undersigned also recognizes that the Owner is relying on the accuracy of the information and the responses in deciding the demonstrated competence and qualifications for the type of required work.

The foregoing statement of qualifications is submitted under oath:

Respectfully submitted:

Company Name:_____

Street Address:_____

City, State, Zip:_____

By (Signed):_____

By (Typed):_____

Title:_____

Attach satisfactory evidence of the authority of the officer, or officers, signing on behalf of a corporation.

SWORN to before me this

_____ Day of _____, 20____

_____(SEAL)

Notary Public for _____

My Commission Expires: _____

DOCUMENT 00 43 13

BID SECURITY FORM

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Colleton County, South Carolina
109 Benson Street
Walterboro, SC 29488

BID

BID DUE DATE: _____

PROJECT (Brief Description Including Location):

BOND

BOND NUMBER: _____ DATE: _____

(Not later than Bid Due Date)

PENAL SUM: _____

(10% of Bid Sum)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature and Title

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

- Note: (1) Above addresses are to be used for giving required notice.
- (2) Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

PENAL SUM FORM

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Document, or
 - 3.2 All bids are rejected by Owner, or
 - 3.3 Owner fails to issue a notice of award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof.)
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of and any and all defenses based on arising out of any time extension to issue notice of award agreed to in writing by Owner and Bidder, provided that the time for issuing notice of award including extensions shall not in the aggregate exceed 120 days from Bid Due Date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety, and in no case later than one year after Bid Due Date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notice required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "bid" as used herein includes a bid, offer or proposal as applicable.

SECTION 00 51 00
NOTICE OF AWARD

Dated _____

TO: _____
(Bidder)

ADDRESS: _____

JOB NO.: J-#28422.0000

PROJECT: Venture Industrial Park Water and Wastewater Improvements

CONTRACT

FOR: Installation of Approximately 6,600 LF of 8" Sewer Main, 2,105 LF of 12" Water Main and 1,015 LF of 10" Water Main.

You are notified your Bid dated _____, 2021, for the above Contract has been considered. You are the apparent successful bidder and have been awarded a contract for:

(Indicate total Work, alternates or sections of Work awarded)

The Contract Price of your contract is _____
_____. Dollars (\$_____).

_____ copies of each of the proposed Contract Documents (except drawings) accompany

this Notice of Award.

_____ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within 15 days of this Notice of Award, which is by _____, 2021.

1. You must deliver to the OWNER 6 fully executed counterparts of the Agreement including all the Contract Documents. Each of the Contract Documents must bear your signature on the page 7.
2. You must deliver with the executed Agreement the Contract Security (Bonds) as specified in the Instructions to Bidders (Article 8), General Conditions (paragraph 5.01) and Supplementary Conditions.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid in default, to annul this Notice of Award and to declare your Bid Security forfeited.

Within ten days after you comply with the above conditions, OWNER will return to you one fully signed counterpart of the Agreement with the Contract Documents attached.

OWNER

By: _____

(Title)

ACCEPTANCE OF AWARD

CONTRACTOR

By: _____
(Authorized Signature)

(Title)

(Date)

DOCUMENT 00 52 43**AGREEMENT FORM**

THIS AGREEMENT is dated as of the _____ day of _____ in the year 2021 by and between Colleton County, South Carolina (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Installation of Approximately 6,600 LF of 8" Sewer Main 2,105 LF of 12" Water Main and 1,015 LF of 10" Water Main

ARTICLE 2 ENGINEER

The Project has been designed by Thomas & Hutton Engineering Co. who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 3 CONTRACT TIMES

All time limits for Substantial Completion and completion and readiness for final payment as stated in the Contract Documents are of essence to the Contract.

- 3.1 The Work will be substantially completed within 210 days after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within 240 days after the date when the Contract Times commence to run. Included in the contract times are 10 days for rain delay. Time delays due to rain in excess of the above days shall be reported by the Contractor to the Engineer in writing, within 30 days of each event.
- 3.2 *Liquidated Damages.* OWNER and CONTRACTOR recognize time is of the essence for this Agreement and OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree to liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay OWNER Five Hundred dollars (\$500.00) for each day expiring after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete. After Substantial completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in paragraph 3.1 for

completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR, shall pay OWNER Five Hundred dollars (\$500.00) for each day expiring after the time specified in paragraph 3.1 for completion and readiness for final payment.

ARTICLE 4 CONTRACT PRICE

4.1 UNIT PRICE WORK

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds of the amounts determined for all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of item as indicated in the CONTRACTOR'S UNIT PRICE BID (attached hereto as an exhibit), said amount being:

_____ (dollars), \$ _____
(use words) (figures)

As provided in paragraph 11.03 of the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by ENGINEER as provided in paragraph 9.07 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03C of the General Conditions.

ARTICLE 5 PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1 *Progress Payments; Retainage.* OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, on or about the **25th** day of each month during performance of the Work as provided in paragraphs 5.1.1., 5.1.1.2. and 5.2. below. All such payments will be measured by the schedule of values established in paragraph 2.07 of the General Conditions (and in the case of Unit Price Work based on the number of units completed) as provided in the General Requirements.

5.1.1 *For Cost of Work:* Progress payments on account of the Cost of the Work will be made:

5.1.1.1 Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with paragraph 14.02 of the General Conditions.

90% of the Work completed (with the balance being retainage). If Work has been 50% completed as determined by ENGINEER, and if

the character and progress of the Work have been satisfactory to OWNER and ENGINEER, OWNER, on recommendation of ENGINEER, may determine as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage on account of Work completed, in which case the remaining progress payments prior to Substantial Completion will be in an amount equal to 100% of the Work completed.

90% of Cost of the Work (with the balance being retainage) applicable to materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in paragraph 14.02.A.1 of the General Conditions).

5.1.1.2 Upon Substantial Completion, in an amount sufficient to increase the total payments to CONTRACTOR to **95%** of the Cost of the Work, (with the balance being retainage), less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with paragraph 14.02 of the General Conditions.

5.2 *Final Payment.* Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.

ARTICLE 6 INTEREST

All moneys not paid within thirty (30) days of the due date as provided in Article 14 of the General Conditions, shall bear interest at the rate of 6 percent annually or the minimum required by law at the place of the Project, whichever is greater. Subject to approval of Payment Application.

ARTICLE 7 CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

- 7.1 CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda indicated in Article 8 hereinafter) and the other related data identified in the Bidding Documents.
- 7.2 CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local and site conditions possibly affecting cost, progress, performance or furnishing of the Work.
- 7.3 CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations possibly affecting cost, progress, performance and furnishing of the Work.
- 7.4 CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the

Supplementary Conditions as provided in the General Conditions. CONTRACTOR acknowledges such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

- 7.5 CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site relating to the Work as indicated in the Contract Documents.
- 7.6 CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- 7.7 CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 8 CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 8.1 Invitation to Bid (Pages 00 11 16-1 to 00 11 16-2, inclusive)
- 8.2 Instructions to Bidders (pages 00 21 13-1 to 00 21 13-__, inclusive)
- 8.3 Bid Form (pages 00 41 43-1 to 00 41 43-__, inclusive)
- 8.4 Bid Security(pages 00 43 13-1 to 00 43 13-__, inclusive)
- 8.5 Notice of Award (pages 00 51 00-1 to pages 00 51 00-__, inclusive)
- 8.6 Agreement Form – Unit Price (Single – Prime Contract) (pages 00 52 43-1 to 00 52 43-__, inclusive)

- 8.7 Notice to Proceed (pages 00 55 00-1 to 00 55 00-__, inclusive)
- 8.8 Performance Bond (pages 00 61 13.13-1 to 00 61 13.13-__. Inclusive)
- 8.9 Payment Bond (pages 00 61 13.16-1 to 00 61 13.16-__, inclusive)
- 8.10 General Conditions (pages 00 72 43-1 to 00 72 43-62, inclusive)
- 8.11 Supplementary Conditions (pages 00 73 00-1 to 00 73 00-__, inclusive)
- 8.12 Special Conditions (pages 00 80 00-1 to 00 80 00-__, inclusive)
- 8.13 Summary of Work (pages 01 11 00-1 to 01 11 00-__, inclusive)
- 8.14 Unit Prices (pages 01 22 00-1 to 01 22 00-__, inclusive)
- 8.15 Submittal Procedures (pages 01 33 00-1 to 01 33 00-__, inclusive)
- 8.16 Quality Control (pages 01 45 00-1 to 01 45 00-__, inclusive)
- 8.17 Testing and Inspecting Services (pages 01 45 23-1 to 01 45 23-__, inclusive)
- 8.18 Closeout Procedures (pages 01 77 00-1 to 01 77 00-__, inclusive)
- 8.19 Operation and Maintenance Data (pages 01 78 23-1 to 01 78 23-__, inclusive)
- 8.20 Bonds (pages 01 78 33-1 to 01 78 33-__, inclusive)
- 8.21 Warranties (pages 01 78 36-1 to 01 78 36-__, inclusive)
- 8.22 Technical Specifications consisting of [____] sections, as listed in the Table of Contents.
- 8.23 Drawings consisting of sheets C0 through C4.3 with each sheet bearing the following general title:

Sheet	Description	Job No.	P.E. Signature Date
C0	Cover Sheet	28422.0000	7/27/2020
GN-01	General Notes and Index	28422.0000	7/27/2020
EC0.1	SWPP - Notes	28422.0000	7/27/2020
EC1.1	SWPP - Charts	28422.0000	7/27/2020
EC1.2	SWPP - Details	28422.0000	7/27/2020
EC1.3	SWPP - Details	28422.0000	7/27/2020
C2.1	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.2	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.3	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.4	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.5	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.6	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.7	Sewer Main Plan & Profile	28422.0000	7/27/2020

Sheet	Description	Job No.	P.E. Signature Date
C2.8	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.9	Sewer Main Plan & Profile	28422.0000	7/27/2020
C3.1	Water Main Plan & Profile	28422.0000	7/27/2020
C3.2	Water Main Plan & Profile	28422.0000	7/27/2020
C3.3	Water Main Plan & Profile	28422.0000	7/27/2020
C4.1	Water Main Details	28422.0000	7/27/2020
C4.2	Water Main Details	28422.0000	7/27/2020
C4.3	Sewer Main Details	28422.0000	7/27/2020

8.24 Addenda numbers ___ to ___, inclusive.

Exhibits to this Agreement:

- a. CONTRACTOR's Bid (page _____ through page _____ inclusive) marked "Exhibit _____."
- b. Documentation submitted by CONTRACTOR prior to Notice of Award (pages ___ to ___, inclusive).
- c. Any modification, including Change Orders, duly delivered after execution of Agreement.
- d. [_____]

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified, or supplemented as provided in paragraph 3.04 of the General Conditions.

ARTICLE 9 MISCELLANEOUS

- 9.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.
- 9.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys becoming due and moneys due, may not be assigned without such consent (except to the extent the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
- 9.3 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

9.4 Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision coming as close as possible to expressing the intention of the stricken provision.

ARTICLE 10 OTHER PROVISIONS

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in five counterparts. Two counterparts each have been delivered to OWNER and CONTRACTOR and one counterpart to ENGINEER. All portions of the Contract Documents have been signed, initialed or identified by Owner and Contractor or identified by ENGINEER on their behalf.

This Agreement will be effective on _____, 2021 (which is the Effective Date of the Agreement).

OWNER Colleton County, South Carolina

CONTRACTOR _____

BY (typed) _____

BY (typed) _____

BY _____

BY _____

ATTEST _____

ATTEST _____

Address for giving notices

Address for giving notices

License No. _____

Agent for service of process: _____

CORPORATE SEAL

CORPORATE SEAL

Section 00 55 00
NOTICE TO PROCEED

Dated: _____

TO: _____
(Bidder)

ADDRESS: _____

JOB NO.: J- #28422.0000

PROJECT: Venture Industrial Park Water and Wastewater Improvements

CONTRACT
FOR: _____

You are notified the Contract Times under the above contract will commence to run on _____, 20____. By such date, you are to start performing your obligations under the Contract Documents. In accordance with Article 3 of the Agreement the dates of Substantial Completion and completion and readiness for final payment are _____, 2021 and _____, 2021, respectively.

Before you may start any Work at the site, paragraph 2.01 of the General Conditions provides you and OWNER must each deliver to the other (with copies to ENGINEER and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Before you may start any Work at the site, you must have submitted the following: Certificate of Insurance, Performance Bond, and Payment Bond.

Colleton County, South Carolina _____
OWNER

By: _____

(Title)

ACCEPTANCE OF NOTICE TO PROCEED

CONTRACTOR

By: _____
(Authorized Signature)

(Title)

(Date)

DOCUMENT 00 61 13.13

PERFORMANCE BOND FORM

KNOW ALL MEN BY THESE PRESENTS, _____,
(Name & Address of Contractor)

hereinafter called "Principal" and _____,
(Name & Address of Surety)

_____ of _____

State of _____, hereinafter called the "Surety" are held and

firmly bound unto _____

hereinafter called the "Owner" in the penal sum of _____

_____ Dollars (\$ _____)
(Contract Sum)

lawful money of the United States of America, to be paid to OWNER, for the payment whereof well and truly to be made we do bind ourselves, our respective executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above bounden Principal has entered into a certain contract with the Owner dated the _____ day of _____, 20____ for the construction of:

(Name of Contract/Project)

which said contract is incorporated hereby by reference and made a part hereof, and is hereinafter referred to as the Construction Contract.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such, if the Principal shall promptly and faithfully perform and comply with the terms and conditions of said contract; and shall indemnify and save harmless the Owner against and from all costs, expenses, damages, injury or loss to which said Owner may be subjected by reason of any wrongdoing, including patent infringement, misconduct, want of care or skill, default, or failure of performance on the part of said Principal, its agents, subcontractors or employees, in the execution or performance of said Construction Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.
3. If there is no Owner Default, the Surety's obligations under this Bond shall arise after:
 - 3.1 The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below, the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and
 - 3.2 The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and
 - 3.3 The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a Contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.
4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense, take one of the following actions:
 - 4.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or
 - 4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent Contractors; or
 - 4.3 Obtain bids or negotiated proposals from qualified Contractors acceptable to the Owner in a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the Contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or
 - 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new Contractor and with reasonable promptness under the circumstances:

- 4.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or
 - 4.4.2 Deny liability in whole or in part and notify the Owner citing reasons therefor.
- 5. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.
- 6. After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:
 - 6.1 The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract:
 - 6.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and
 - 6.3 Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 7. The Surety shall not be liable to the Owner or others for obligations of the Contractor unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.
- 8. The Surety hereby waives notice of any changes, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
- 9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum

period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is this Bond shall be construed as a statutory bond and not as a common law bond.
12. DEFINITIONS:
 - 12.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 12.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto;
 - 12.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.
 - 12.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

IN WITNESS WHEREOF, this instrument is executed in six counterparts, each one of which shall be deemed an original, on this the ____ day of _____, 20__.

CONTRACTOR AS PRINCIPAL:

Principal

(Principal) Secretary

By: _____
(Signature & Title)

(SEAL)

Address

Witness as to Principal

Address

SURETY:

Surety (Company)

(Surety) Secretary

By: _____
Attorney-in-Fact

(SEAL)

Witness as to Surety

Address

Notes:

1. Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute bond.
2. Bond must be countersigned by a South Carolina resident agent.
3. Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

DOCUMENT 00 61 13.16
PAYMENT BOND FORM

KNOW ALL MEN BY THESE PRESENTS, _____,
(Name & Address of Contractor)

hereinafter called "Principal" and _____,
(Name & Address of Surety)

_____ of _____

State of _____, hereinafter called the "Surety" are held and
firmly bound unto _____

hereinafter called the "Owner" in the penal sum of _____

_____ Dollars (\$ _____)
(Contract Sum)

lawful money of the United States of America, to be paid to OWNER, for the payment whereof well and truly to be made we do bind ourselves, our respective executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above bounden Principal has entered into a certain contract with the Owner dated the _____ day of _____, 20____ for the construction of:

(Name of Contract/Project)

which said contract is incorporated hereby by reference and made a part hereof, and is hereinafter referred to as the Construction Contract.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such, if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and materials supplied in the prosecution of the work provided for in said Construction Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. With respect to the Owner, this obligation shall be null and void if the Contractor:

- 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants; and
 - 2.2 Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
 4. The Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating a claim is being made under this Bond and, with substantial accuracy, the amount of claim.
 - 4.2 Claimants who do not have a direct contract with the Contractor:
 - 4.2.1 Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was performed; and
 - 4.2.2 Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice, any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
 - 4.2.3 Not having been paid within 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.
 5. Compliance shall be considered sufficient if a notice required by paragraph 4 is given by the Owner to the Contractor or to the Surety.
 6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:

- 6.1 Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim stating the amounts undisputed and basis for challenging any amounts disputed.
 - 6.2 Pay or arrange for payment of any undisputed amounts.
7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
8. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
9. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor unrelated to the Construction Contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Subparagraph 4.1 or Clause 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to Sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, Owner or Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by the Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in the Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is this Bond shall be construed as a statutory bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
15. DEFINITIONS:
 - 15.1 Claimant: An individual or entity having a direct contract with the Contractor or with a Subcontractor of the Contractor to furnish labor, material, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment," that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.
 - 15.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
 - 15.3 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

IN WITNESS WHEREOF, this instrument is executed in six counterparts, each one of which shall be deemed an original, on this the ____ day of _____, 20__.

CONTRACTOR AS PRINCIPAL:

Principal

(Principal) Secretary

By: _____
(Signature & Title)

(SEAL)

Address

Witness as to Principal

Address

SURETY:

Surety (Company)

(Surety) Secretary

By: _____
Attorney-in-Fact

(SEAL)

Witness as to Surety

Address

Notes:

1. Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute bond.
2. Bond must be countersigned by a South Carolina resident agent.
3. Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

**Engineers Joint Documents Committee
Design and Construction Related Documents
Instructions and License Agreement**

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General:

You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement. Any attempt otherwise to sublicense, assign, or transfer any of the rights, duties, or obligations hereunder is void.

This Agreement shall be governed by the laws of the State of Virginia. Should you have any questions concerning this Agreement, you may contact EJCDC by writing to:

Arthur Schwartz, Esq.
General Counsel

National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314

Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the agreement between us which supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this agreement.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



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CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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**STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *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.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *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.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
2. a preliminary Schedule of Submittals; and
3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
 2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

**ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;
HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner’s furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner’s interest therein as necessary for giving notice of or filing a mechanic’s or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “technical data,” Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor’s purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:
1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
 2. is of such a nature as to require a change in the Contract Documents; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, 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 a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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 a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
 - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *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 which 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 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 Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors 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 specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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 such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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 claim or action, legal or equitable, brought

by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and

shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is

required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

- a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1. observations by Engineer;
 - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. use or occupancy of the Work or any part thereof by Owner;
 - 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
 - 6. any inspection, test, or approval by others; or
 - 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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 the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 Related Work at Site

- A. Owner may perform other work related to the Project at the Site with Owner’s employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner’s employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor’s Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor’s Work. Contractor’s failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor’s Work except for latent defects and deficiencies in such other work.

7.02 Coordination

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.

- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise

or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of

said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
 1. Contractor agrees that:
 - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance:*
 1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
 - 1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

- C. If it is found that the uncovered Work is defective, Contractor shall pay 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 such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay 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 such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
 2. correct such defective Work; or
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. 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 such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay 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) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. 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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments:

- 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an

Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

- b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before

final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying

documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when

so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 - 3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 - 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days

to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

DOCUMENT 00 73 00

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, Section 00 72 43, (EJCDC C-700, 2007 Edition) and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

SC-1 The terms used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract, Section 00 72 43, (EJCDC C-700, 2007 Edition) have the meanings assigned to them in the General Conditions.

SC-2.05.A.4 Add the following new paragraph to the General Conditions after paragraph 2.05.A.3:

4. "A schedule of anticipated shipping dates for materials and equipment. It is intended that equipment and materials be so scheduled as to arrive at the job site just prior to time for installation to prevent excessive materials on hand for inventory and necessity for extensive storage facilities at the job site."

SC-5.04.B.7 Add the following new paragraph to the General Conditions after paragraph 5.04.B.6:

7. Bonding surety shall be located in the state in which the work is being performed.

The Contractor shall not commence work under this contract until it has obtained all the insurance required under this paragraph and such insurance has been accepted by the Owner, nor shall the Contractor allow any Subcontractor to commence work on its subcontract until the insurance required of the Subcontractor has been so obtained and accepted.

a. Compensation and Employer's Liability Insurance: The Contractor shall take out and maintain during the life of the contract, the statutory Worker's Compensation and Employer's Liability Insurance for all of its employees to be engaged in work on the project under the contract and, in case such work is sublet, the Contractor should require the Subcontractor similarly to provide Worker's Compensation and Employer's Liability Insurance for all the latter's employees to be engaged in such work.

b. Bodily Injury Liability and Property Damage Liability Insurance: The Contractor shall take out and maintain during the life of the contract, Bodily Injury Liability and Property Damage Liability Insurance. The policy shall protect Contractor and any Subcontractor performing work covered by the contract from claims for damages or personal injury, including accidental death, a well as from claims for property damage, which may arise from

operations under the contract, whether such operations be by Contractor, Subcontractor, or by anyone directly or indirectly employed by either of them and the amount of such insurance should be not less than:

- (1) Bodily Injury Liability Insurance, in an amount not less than \$1,000,000.00 for injuries, including wrongful death to any one person and subject to the same limit for each person in an amount not less than \$2,000,000.00 on account of one accident. Contractual liability should be endorsed on the policy.
- (2) Property Damage Insurance in an amount not less than \$1,000,000.00 for damages on account of any one accident, and in an amount not less than \$2,000,000.00 for damages on account of all accidents.
- (3) Other Insurance Requirements:
 Workers' Compensation - \$100,000 each accident
 Statutory Coverage and Employer's - \$100,000 for each employee
 Liability - \$500,000 – policy limit
 Products-Completed Operations - \$1,000,000 – aggregate
 Business Auto Liability – Same as Comprehensive General Liability
 Excess or Umbrella Liability - \$1,000,000

Colleton County will be named as an "additional insured" party

- c. Builder's Risk Insurance (Fire and Extended Coverage): The Contractor shall have adequate fire and standard extended coverage, with a company or companies acceptable to the Owner, in force on the project.

The provisions with respect to Builder's Risk Insurance shall in no way relieve the Contractor of its obligation of completing the work covered by the Contract.

- d. Proof of Carriage of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations, effective dates, and date of expiration of policies. Such certificates shall contain substantially the following statement: "The insurance covered by this certification shall not be canceled or materially altered, except after 10 days written notice has been received by the Owner."

SC-6.02.B Add the following:

The Contractor shall provide in writing any requests to work on weekends. Requests shall be submitted to the Owner and Engineer for consideration a minimum of 48 hours prior to the requested weekend.

SC–6.08 Add the following:

The Contractor shall not proceed until all encroachment permits, curb cut permits, highway crossing permits, and railroad crossing permits have been secured. Contact Owner to ascertain status of permits.

SC–6.09.D Add a new paragraph after paragraph 6.09.C of the General Conditions that reads as follows:

“D. The Contractor shall comply with the Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 as amended through January 1, 2004 (PL 91–596) and under Section 107 of the Contract Work and Safety Standards Act (PL 91–54). The regulations are administered by the Department of Labor and the Contractor shall allow access to the project to personnel from that Department.

The Bidder's attention is directed to the fact all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout and they will be deemed to be included in the contract the same as though herein written in full.

The Contractor shall keep fully informed of all laws, ordinances and regulations of Federal, State, City and County, in any manner affecting those engaged or employed in the work, or the materials used in the work, or in any way affecting the conduct of the work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over same. Contractor shall at all times, observe and comply with all such existing and future laws, ordinances, and regulations.”

SC–6.12.B Add a new paragraph after paragraph 6.12.A of the General Conditions that is to read as follows:

“B. Record Data Drawings:

1. The Contractor shall keep accurate, legible records of the elevations, locations, types, and sizes of sanitary sewage lines, service laterals, manholes, cleanouts, water lines, fittings, valves, hydrants, drainage pipes, drainage structures, and other related work performed under this project. Where proposed and existing utilities cross, the Contractor shall measure and record the horizontal location and vertical separation between each crossing. Separation shall be measured between exteriors of pipes. On a set of project prints provided by the Owner, the Contractor shall prepare a set of “record” drawings from the data stated above. The horizontal locations of all portions of items installed on this project shall be accurately tied down to the State Plane Coordinate System. Invert and frame elevations of all manholes, storm sewers and structures, sanitary sewers and lift stations shall be clearly indicated. These “record” drawings shall be kept clean and dry and maintained in a current state with the progress of

the work. If at any time, a copy of this plan or portion of it is requested by the Owner, such copy shall be made available within 24 hours after the request is made.

2. Before final acceptance of the completed installation and before final payment by the Owner, the Contractor shall deliver to the Engineer a completed set of "record" drawings accurately depicting the data described above. The horizontal and vertical locations as shown on the "record" drawings for the items installed on this project shall be certified by a licensed surveyor, other than Thomas & Hutton, registered in the State in which the project is located. "Record" Drawings shall be submitted on a marked up set of project construction prints or electronically. Thomas & Hutton shall prepare original "record" drawings from the submitted data. When completed, Thomas & Hutton shall have the licensed surveyor stamp and sign the original "record" drawings before making copies available to the Owner or other appropriate agencies."

SC-6.13.A.3 Add the following:

"Safely guard the Owner's property from damages, injury, or loss in connection with this contract. Contractor shall at all times guard and protect its own work and all materials of every description both before and after being used in the work.

Contractor shall provide any enclosing or special protection from weather deemed necessary by Engineer without additional cost to the Owner. Partial payments under the contract will not relieve the Contractor from responsibility for protection of material, work, and property."

SC-9.02.C Add a new paragraph after paragraph 9.02.B of the General Conditions that is to read as follows:

"C. If at any time before the commencement or during the progress of the work, tools, plant or equipment appear to the Engineer to be insufficient, inefficient, or inappropriate to secure the quality of the work required or the proper rate of progress, the Engineer may order the Contractor to increase their efficiency, to improve their character, to augment their number, or to substitute new tools, plant or equipment as the case may be, and the Contractor must conform to such order; but a failure of the Engineer to demand such increase or efficiency, number, or improvements, shall not relieve the Contractor's obligation to secure the quality of work and the rate of progress necessary to complete the work within the time required by this contract to the satisfaction of the Owner."

SC-9.05 Add the following sentence at the end of paragraph 9.05 of the General Conditions:

"Owner and Engineer have the right to reject defective materials. Defective materials shall not be used in the work."

SC-13.03.A Add the following sentences to paragraph 13.03.A of the General Conditions:

“The Contractor will be required to maintain all work in a condition acceptable to the Engineer for a 30 day operating period after the same has been completed as a whole, and the Engineer has notified the Contractor in writing that the work has been finished. The Contractor shall give the Project Engineer or Project Representative a minimum of 48 hours notice for all required observations and tests.”

END OF SUPPLEMENTARY CONDITIONS

**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) Workmen's 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.

**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
	30.7 %	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	<u>South Carolina</u>
County of	<u>Colleton</u>
City of	<u>Walterboro</u>

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

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.

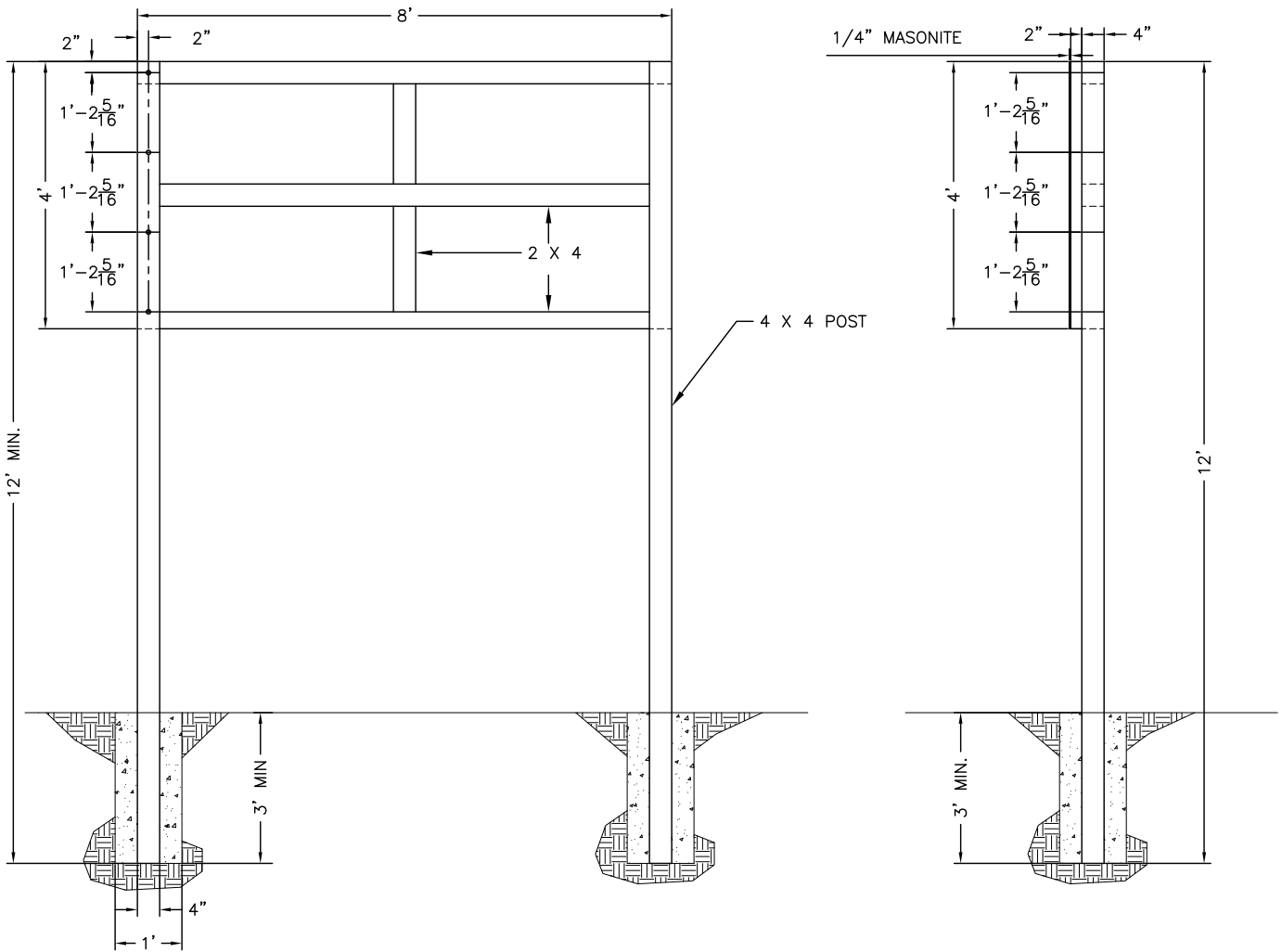
“U. S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT
ADMINISTRATION” use Bank Gothic Medium - **BANK GOTHIC MED**

“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



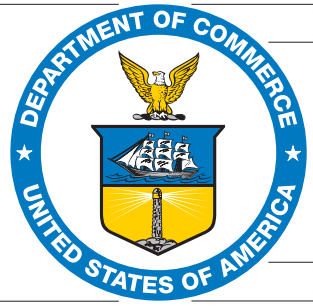
EDA

U.S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION

In partnership with

<EDA Grant Recipient Name>

Black
Blue= PMS300
Gold= PMS7406



EDA

U.S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION

In partnership with

<EDA Grant Recipient Name>

2.25"
13.5"

1.75"
1.75"

10"

2.0"
1.5"
4.0"
3.0"
3.0"
3.75"

15.0"

Bricklayer.....	\$ 7.25
Carpenter.....	\$ 7.42
Cement mason/concrete finisher.....	\$ 7.25
Ironworker.....	\$ 10.98
Laborers:	
Chain saw.....	\$ 7.25
General.....	\$ 7.25
Pipelayer.....	\$ 7.25
Pipefitter.....	\$ 9.09
Power equipment operators:	
Backhoe.....	\$ 7.25
Bulldozer.....	\$ 7.25
Crane.....	\$ 7.98
Dragline.....	\$ 7.25
Front End Loader.....	\$ 7.25
Mechanic.....	\$ 7.25
Motor grader.....	\$ 7.25
Pan Scraper.....	\$ 7.25

Line Construction: line
technician.....\$ 10.08

MANHOLE BUILDER.....\$ 7.25

TRUCK DRIVER.....\$ 7.25

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

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

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

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

Union Rate Identifiers

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

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

Survey Rate Identifiers

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

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

Union Average Rate Identifiers

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

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

based.

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

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

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

=====
END OF GENERAL DECISION
"

DOCUMENT 00 80 00**SPECIAL CONDITIONS**

SC-1 DESCRIPTION OF THE WORK: The work consists of installation of approximately 6,100 LF of 8" sewer main and 3,000 LF of 10" water main and incidental construction in accordance with the plans and specifications.

SC-2 COMMENCEMENT AND COMPLETION OF WORK: The Contractor shall commence work within 210 days after Notice to Proceed is issued. Work shall be completed within 240 calendar days.

If the Contractor fails to prosecute the work with such diligence as will insure the completion of each portion of the work within the time shown on the above schedule, plus any extensions made in accordance with Article 12 of the General Conditions; and, if the Owner does not exercise reservations as set forth in Article 13 of the General Conditions, the Contractor shall continue the work in which event liquidated damages for the delay will be impossible to determine. In lieu thereof, liquidated damages in the amount of \$500.00 per each day of delay of the work until the work is completed.

SC-3 DRAWINGS: The work shall conform to the following drawings, all of which form a part of, and are included in, these specifications and are available in the office of Thomas & Hutton Engineering Co., 1501 Main Street, Suite 760, Columbia, SC 29201.

Sheet	Description	Job No.	Date
C0	Cover Sheet	28422.0000	7/27/2020
GN-01	General Notes and Index	28422.0000	7/27/2020
EC0.1	SWPP - Notes	28422.0000	7/27/2020
EC1.1	SWPP - Charts	28422.0000	7/27/2020
EC1.2	SWPP - Details	28422.0000	7/27/2020
EC1.3	SWPP - Details	28422.0000	7/27/2020
C2.1	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.2	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.3	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.4	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.5	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.6	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.7	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.8	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.9	Sewer Main Plan & Profile	28422.0000	7/27/2020
C3.1	Water Main Plan & Profile	28422.0000	7/27/2020
C3.2	Water Main Plan & Profile	28422.0000	7/27/2020
C3.3	Water Main Plan & Profile	28422.0000	7/27/2020
C4.1	Water Main Details	28422.0000	7/27/2020
C4.2	Water Main Details	28422.0000	7/27/2020
C4.3	Sewer Main Details	28422.0000	7/27/2020

- SC-4 LAYOUT OF WORK:** Control lines and master benchmarks will be furnished by the Owner. The Contractor will lay out work and will be responsible for all measurements in connection therewith.
- SC-5 OBSERVATIONS AND TESTS:** Before acceptance of the whole or any part of the work, it shall be subjected to observation and tests to determine it is in accordance with the plans and specifications. The Contractor will be required to maintain all work in a first class condition for a 30 day operating period after the same has been completed as a whole and the Engineer has notified the Contractor in writing the work has been finished. The Contractor shall pay for all testing and shall engage a mutually acceptable laboratory or qualified individual to conduct the tests in accordance with these specifications. No portion of the work will be accepted until tests prove it has been satisfactorily completed. The Contractor shall give the Project Engineer or Project Representative a minimum of 48 hours notice for all required observations or tests.
- SC-6 BONDS:** The Performance Bonds in the amount of 100% of the contract amount and Payment Bonds in the amount of 100% of the contract amounts shall be furnished in accordance with Article 5 of the General Conditions.
- SC-7 CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE:** The Contractor shall not commence work under this contract until obtaining all the insurance required under this paragraph and such insurance has been accepted by the Owner, nor shall the Contractor allow any Subcontractor to commence work on a subcontract until the insurance required of the Subcontractor has been so obtained and accepted.
- a. Compensation and Employer's Liability Insurance: The Contractor shall take out and maintain during the life of the contract the statutory Worker's Compensation and Employer's Liability Insurance for all of its employees to be engaged in work on the project under the contract and, in case and such work is sublet, the Contractor should require the Subcontractor similarly to provide Worker's Compensation and Employer's Liability Insurance for all the latter's employees to be engaged in such work.
 - b. Bodily Injury Liability and Property Damage Liability Insurance: The Contractor shall take out and maintain during the life of the contract Bodily Injury Liability and Property Damage Liability Insurance to protect itself and any Subcontractor performing work covered by the contract from claims for damages or personal injury, including accidental death, as well as from claims for property damage, which may arise from operations under the contract, whether such operations be by the Contractor, Subcontractor, or anyone directly or indirectly employed by either of them and the amount of such insurance should be not less than:
 - (1) Bodily Injury Liability Insurance, in an amount not less than \$1,000,000.00 for injuries, including wrongful death to any one person and subject to the same limit for each person in an amount not less than \$2,000,000.00 on account of one accident. Contractual liability should be endorsed on the policy.
 - (2) Property Damage Insurance in an amount not less than \$1,000,000.00 for damages on account of any one accident, and in an amount not less than \$2,000,000.00 for damages on account of all accidents.

- (3) Other Insurance Requirements:
 Workers' Compensation - \$100,000 each accident
 Statutory Coverage and Employer's - \$100,000 for each employee
 Liability - \$500,000 – policy limit
 Products-Completed Operations - \$1,000,000 – aggregate
 Business Auto Liability – Same as Comprehensive General Liability
 Excess or Umbrella Liability - \$1,000,000

Colleton County will be named as an "additional insured" party

- c. Builder's Risk Insurance (Fire and Extended Coverage): The Contractor shall have adequate fire and standard extended coverage, with a company or companies acceptable to the Owner, in force on the project.

The provisions with respect to Builder's Risk Insurance shall in no way relieve the Contractor of its obligation of completing the work covered by the Contract.

- d. Proof of Carriage of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations, effective dates, and date of expiration of policies. Such certificates shall contain substantially the following statement: "The insurance covered by this certification shall not be cancelled or materially altered, except after ten (10) days written notice has been received by the Owner."

SC-8 HOLD HARMLESS CLAUSE: The Contractor agrees to hold harmless, indemnify and defend the Owner and its agents, architects, engineers and employees from and against any and all claims, losses, damages, demands, causes of action and any an all related costs and expenses, of every kind and character, growing out of, incidental to, or resulting directly or indirectly from the Contractor's performance of the work described herein, whether such loss, damage, injury, or liability is contributed to by the negligence of the Owner, its agents, architects, engineers, or employees, except the Contractor shall have no liability for damages or the costs incidental thereto caused by the sole negligence of the Owner, its agents, architects, engineers, or employees. The Contractor will require any and all subcontractors to conform with the provisions of this clause prior to commencing any work and agrees to ensure this clause is in conformity with the insurance provisions of the contract.

SC-9 CONTRACTOR'S STATUS: It is agreed the Contractor shall occupy the status of an Independent Contractor and the Contractor's employees are not employees of the Owner.

SC-10 CONTRACTOR'S AFFIDAVIT: Upon completion of the work and prior to final payment and settlement of all sums due hereunder, Contractor will furnish to Owner a Contractor's Affidavit in the usual form submitted by Contractor under the laws of the State of South Carolina to the effect all bills for labor, materials and services in connection with said contract have been paid in full, acknowledging receipt of the contract price and averring there are no outstanding claims under said contract which could become a lien on the real estate arising out of said contract.

- SC-11 RESIDENT PROJECT ENGINEER:** The Owner reserves the right to furnish a Resident Project Engineer as deemed necessary to insure the Project quality control and conformance to Plans and Specifications, who will act as the Owner's Representative on the Project and will have the authority of the Engineer as set forth in the Contract Documents.
- SC-12 BARRICADES, DANGER AND WARNING SIGNS:** The Contractor shall install and maintain barricades, suitable and sufficient lights, danger signals, signs, and other traffic control devices and shall take all necessary precautions for the protection of the work and safety of the public. Lanes closed to traffic shall be protected by effective barricades, lighted during hours of darkness. Suitable warning signs shall be provided to control, direct traffic, and warn pedestrians. Upon completion all barricades, signs and the like shall be removed.
- SC-13 TOOLS, PLANT AND EQUIPMENT:** If at any time before the commencement or during the progress of the work, tools, plant or equipment appear to the Engineer to be insufficient, inefficient or inappropriate to secure the quality of the work required or the proper rate of progress, the Engineer may order the Contractor to increase their efficiency, to improve their character, to augment their number, or to substitute new tools, plant, or equipment, as the case may be, and the Contractor must conform to such order; but a failure of the Engineer to demand such increase of efficiency, number, or improvement shall not relieve the Contractor of its obligation to secure the quality of work and the rate of progress necessary to complete the work within the time required by the contract to the satisfaction of the Owner.
- SC-14 ACCIDENTS:** The Contractor shall provide, at the site, such equipment and medical facilities as are necessary to supply first-aid service to anyone who may be injured in connection with the work. The Contractor must report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work, whether on or adjacent to the site, which causes death, personal injury or property damages, giving full details and statement of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Contractor and any subcontractor on account of any accident, the Contractor shall promptly report the facts to the Engineer, giving full details in writing of the claim. The Contractor shall advise its superintendent and foreman, who are on the site of the work, the name of the hospital and phone number and the name and phone number of the doctor to use in case of an accident.
- SC-15 SANITARY PROVISIONS:** The Contractor shall provide temporary sanitary facilities for the use of the workmen during the progress of the work. The sanitary facilities shall conform to the requirements of the County health Engineer. All facilities shall be removed at the completion of the contract.
- SC-16 MODIFICATION OF QUANTITIES:** The itemized quantities shall be considered by the Contractor as the quantities required to complete the work for the purpose of bidding. Should actual quantities required in the construction of the work be greater or less than the quantities shown on the items, an amount equal to the difference in quantities at the unit prices for the item will be added to or deducted from the contract price.

When itemized quantities are not given in the Proposal, the work shown on the plans or specified shall be considered by the Contractor to be included in the contract for the lump sum prices bid.

- SC-17 RESPONSIBILITY REGARDING EXISTING UTILITIES AND STRUCTURES:** The existence and location of underground utilities will be investigated and verified in the field by the Contractor before starting work. The Contractor shall call for underground utility locations. Underground utilities location service can be contacted at 1-888-721-7877 (SC) or 811. The location of all known interferences based on the best information available has been shown on the drawings, but this information may not be complete. Excavation in the vicinity of existing structures and utilities shall be carefully done by hand. The Contractor shall be held responsible for any damage to and for maintenance and protection of existing utilities and structures. The Contractor is responsible for coordinating with the utility companies any relocation, adjustment, or replacement of utility facilities.
- SC-18 INTERRUPTION OF UTILITY SERVICE:** The Contractor's operations shall be conducted to interfere as little as possible with utility services. Any proposed interruption by the Contractor must be accepted in advance by the Engineer.
- SC-19 OMISSION:** The drawings and specifications shall both be considered as a part of the contract. Any work and material shown in the one and omitted in the other, or described in the one and not shown in the other, or which may fairly be implied by both or either, shall be furnished and performed as though shown in both, in order to give a complete and first class job.
- SC-20 MEASUREMENT AND PAYMENT:** Measurement and payment shall be made for the units and at the lump sum contract prices shown on the Bid Schedule. Direct payment shall only be made for those items or work specifically listed in the proposal and the cost of any other work must be included in the contract price for the applicable items to which it relates.
- SC-21 "OR EQUIVALENT," CLAUSE:** Although the plans and specifications make reference to particular manufacturers and model numbers for various products, such reference is made only to establish function and quality of such products. If it is desired to use materials or equipment of trade names or of manufacturer's names that are different from those mentioned in the contract documents, information pertaining to such items must reach the hands of the Engineer at least 10 days prior to the date set for the opening of bids. The burden of proving equality of a proposed substitute to an item designated by trade name or by manufacturer's name in the contract document rests on the party submitting the request for acceptance. The written application for review of a proposed substitute must be accompanied by technical data that the party requesting review desires to submit in support of its application. The Engineer will give consideration to reports from reputable independent testing laboratories, verified experience records showing the reputation of the proposed product with previous users or any other written information that is reasonable in the circumstances. The application to the Engineer for review of a proposed substitute must be accompanied by a schedule setting forth in what respects the material or equipment submitted for consideration differs from the materials or equipment designated in the contract documents. The degree of proof required for acceptance of a proposed substitute as equivalent to a named product is the amount of proof necessary to convince the Engineer beyond all doubt. To be acceptable, a proposed substitute must, in addition, meet or exceed all express requirements of the contract documents.

If submittal is accepted by the Engineer, an addendum will be issued to all prospective bidders at least five days prior to the date set for the opening of bids.

The Engineer shall be the final judge on questions of similarity and equality.

SC-22 SAFETY AND HEALTH REGULATIONS: The Contractor shall comply with the Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 as amended through January 1, 2004 (PL 91-596) and under Section 107 of the Contract Work and Safety Standards Act (PL 91-54). The regulations are administered by the Department of Labor and the Contractor shall allow access to the project to personnel from that Department.

SC-23 RECORD DATA AND DRAWINGS: The Contractor shall keep accurate, legible records of the locations, types, and sizes of sanitary lines, service laterals, manholes, cleanouts, water lines, fittings, valves, hydrants, drainage pipes, drainage structures, and other related work performed under this project. Where proposed and existing utilities cross, the Contractor shall measure and record the horizontal location and vertical separation between each crossing. Separation shall be measured between exteriors of pipes. On a set of project prints provided by the Owner, the Contractor shall prepare a set of "record" drawings from the data stated above. The horizontal locations of all portions of items installed on this project shall be accurately tied down to features that are physical and visible, such as property corner markers and/or permanent type structures. Invert elevations of all manholes, storm sewers and structures, sanitary sewers and lift stations shall be clearly indicated. These "record" drawings shall be kept clean and dry and maintained in a current state with the progress of the work. If at any time, a copy of this plan or portion of it is requested by the Owner, such copy shall be made available within 24 hours after the request is made.

Before final acceptance of the completed installation and final payment by the Owner, the Contractor shall deliver to the Engineer, four sets of "Record" Drawings accurately depicting the horizontal and vertical as-built data described in the above paragraph. "Record" drawings for the items installed on this project shall be certified by a licensed surveyor, other than Thomas & Hutton, registered in South Carolina. The size of the drawings shall be 24" x 36". The "Record" drawings shall have a coordinate system based on the South Carolina State Plane Coordinate System, East Zone, North American Datum of 1983 (NAD83). Elevations shall be based on the North American Vertical Datum of 1988 (NAVD 88). All measurements and coordinates shown shall use the U.S. Survey flood definition. Coordinates shall be shown on all drainage structures, sanitary sewer manholes, storm manholes/boxes, valve boxes/vaults, valve manholes, valves, fire hydrants, fittings, and all other related work performed under this contract. Vertical data including but not limited to, structure and manhole frame and inverts, pipe inverts, lift station frame, inverts, control levels, bottom, site grading, and as-built grading shall be shown. In addition to the "Record" drawings, Contractor shall deliver to Engineer electronic AutoCAD (v. 14 or later) files of all the data described above on a CD-ROM.

SC-24 PROPERTY CORNERS: The Contractor shall be responsible for restoring any property corners or monuments disturbed during construction. They shall be restored by a professional surveyor registered in the State of South Carolina.

SC-25 HISTORICAL AND ARCHAEOLOGIC DATA PRESERVATION: If archeological materials are encountered during construction work shall immediately cease. The procedures codified at 36 CFR 800.13(b) will apply and EDA, the South Carolina State Historic Preservation Office, and the Catawba Indian Nation shall be contacted immediately. Archeological Materials consist of any items, fifty years 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 remains.

SC-26 Waiver or Forbearance

- A. Any delay or failure of Owner to insist upon strict performance of any obligation under this Agreement or to exercise any right or remedy provided under this Agreement shall not be a waiver of Owners right to demand strict compliance, irrespective of the number or duration of any delay(s) or failure(s). No term or condition imposed on Contractor under this Agreement shall be waived and no breach by Contractor shall be excused unless that waiver or excuse of a breach has been put in writing and signed by both parties. No waiver in any instance of any right or remedy shall constitute waiver of any other right or remedy under this Agreement. No consent to or forbearance of any breach or substandard performance of any obligation under this Agreement shall constitute consent to modification or reduction of the other obligations or forbearance of any other breach.
- B. Subject to the provisions below, the contract may be terminated by Owner upon fifteen (15) days advance written notice to the other party; but if any work or service hereunder is in progress, but not completed as of the date of termination, then this contract may be extended upon written approval of the Owner until said work or services are completed and accepted.
- Termination for Convenience
If this contract is terminated or canceled upon request and for the convenience of the Owner, without the required fifteen (15) days advance written notice, then the Owner shall negotiate reasonable termination costs, if applicable.
 - Termination for Cause
Termination by the Owner for cause, default, or negligence on the part of the contractor shall be excluded from the foregoing provision; termination costs, if any, shall not apply. The fifteen (15) days advance notice requirement is waived in the event of Termination for Cause.
 - Non-Appropriation:
It is understood and agreed by the parties that in the event funds are not appropriated in the current fiscal year or any subsequent fiscal years, this contract will become null and void and the Owner will only be required to pay for services completed to the satisfaction of the Owner.

INDEX TO
SECTION 01 11 00
SUMMARY OF WORK

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1.1	Section Includes	01 11 00 – 1
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1.3	Work Required	01 11 00 – 1
1.4	Contract Drawings	01 11 00 – 2
1.5	Contract Technical Specifications	01 11 00 – 2

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

SECTION 01 11 00
SUMMARY OF WORK

PART 1 – GENERAL**1.1 SECTION INCLUDES**

- A. Contract Description.
- B. Work required by Contract.
- C. Contract Drawings.
- D. Contract Technical Specifications.

1.2 CONTRACT DESCRIPTION

- A. Contract Type: 00 52 43 – Agreement Form – Unit Price (Single – Prime Contract)

1.3 WORK REQUIRED

- A. Consists of Contractor furnishing all labor, materials, tools, equipment and incidentals to complete the Work generally described below:
 - 1. Installation of approximately 6,400 LF of 8" sewer main.
 - 2. Installation of approximately 3,000 LF of 10" water main.
- B. All work shall be performed as shown on the Drawings and as described in the Contract Documents and Technical Specifications.
- C. All work shall comply with standards described by the Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1926, Subpart P, latest revision.

1.4 CONTRACT DRAWINGS

SHEET NO.	TITLE	DATE	FILE NUMBER
C0	Cover Sheet	28422.0000	7/27/2020
GN-01	General Notes and Index	28422.0000	7/27/2020
EC0.1	SWPP - Notes	28422.0000	7/27/2020
EC1.1	SWPP - Charts	28422.0000	7/27/2020
EC1.2	SWPP - Details	28422.0000	7/27/2020
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C2.3	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.4	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.5	Sewer Main Plan & Profile	28422.0000	7/27/2020
C2.6	Sewer Main Plan & Profile	28422.0000	7/27/2020

C2.7	Sewer Main Plan & Profile	28422.0000	7/27/2020
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C3.1	Water Main Plan & Profile	28422.0000	7/27/2020
C3.2	Water Main Plan & Profile	28422.0000	7/27/2020
C3.3	Water Main Plan & Profile	28422.0000	7/27/2020
C4.1	Water Main Details	28422.0000	7/27/2020
C4.2	Water Main Details	28422.0000	7/27/2020
C4.3	Sewer Main Details	28422.0000	7/27/2020

1.5 CONTRACT TECHNICAL SPECIFICATIONS

SECTION NO.	TITLE
03 00 00	Concrete
31 00 00	Earthwork
31 10 00	Site Clearing
31 25 00	Erosion and Sedimentation Controls
31 37 00	Rip-Rap
32 11 23	Aggregate Base Courses
32 12 16SC	Asphalt Paving
32 92 00	Turf and Grasses
33 10 00SC	Water Utilities
33 30 00	Sanitary Sewerage Utilities

PART 2 – PRODUCTS

Not used

PART 3 – EXECUTION

Not used

END OF SECTION

INDEX TO
SECTION 01 22 00
UNIT PRICES

Paragraph	Title	Page
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1.3	Unit Quantities Specified	01 22 00-1
1.4	Measurement of Quantities	01 22 00-1
1.5	Payment	01 22 00-2

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

SECTION 01 22 00**UNIT PRICES****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Criteria applicable to the Work performed under a unit price payment method.

1.2 AUTHORITY

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Take all measurements and compute quantities. The Engineer will verify measurements and quantities.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.

1.3 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer determine payment.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.

1.4 MEASUREMENT OF QUANTITIES

- A. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- B. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- C. Measurement by Area: Measured by square dimension using mean length and width or radius.
- D. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.
- E. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.5 PAYMENT

- A. Payment Includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services, and incidentals; erection, application or installation of an item of the Work including overhead and profit.
- B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Engineer multiplied by the unit sum/price for Work which is incorporated in or made necessary by the Work.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

INDEX TO
DIVISION I – GENERAL REQUIREMENTS
SECTION 01 33 00
SUBMITTAL PROCEDURES

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1.5	Product Data	01 33 00–3
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1.11	Manufacturer's Instructions	01 33 00–5
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PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

DIVISION I – GENERAL REQUIREMENTS**SECTION 01 33 00****SUBMITTAL PROCEDURES****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Product Data.
- D. Shop Drawings.
- E. Samples.
- F. Design data.
- G. Test reports.
- H. Certificates.
- I. Manufacturer's instructions.
- J. Manufacturer's field reports.
- K. Erection drawings.

1.2 RELATED SECTIONS

- A. Section 01 45 00 – Quality Control: Manufacturers' field services and reports.
- B. Section 01 77 00 – Closeout Procedures: Contract warranties, bonds, manufacturers' certificates, and closeout submittals.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Engineer accepted form.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix. Resubmit as specified for initial submittal. Indicate on revised drawings all changes that have been made other than those requested by the Engineer.
- C. Identify Project, Contractor, Subcontractor, or supplier; pertinent drawing and detail number, and specification section number, as appropriate.

- D. Apply Contractor's stamp, signed or initialed verifying review, approval, products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents. Submittal without the Contractor's stamp will be returned to Contractor without Engineer's review.
- E. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery. In scheduling, allow sufficient time for the Engineer's review following the receipt of the submittal. Coordinate submission of related items. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
- F. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Architect/Engineer review stamps.
- H. When revised for resubmission, identify all changes made since previous submission.
- I. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedule in duplicate within 15 days after date of Owner-Contractor Agreement.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- E. Indicate estimated percentage of completion for each item of Work at each submission.
- F. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and required by allowances.

1.5 PRODUCT DATA

- A. Product Data For Review:
 - 1. Submitted to Engineer for review and conformance with information given in specifications and the design concept expressed in contract documents.

2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article above.
- B. Submit the number of copies Contractor and Owner require, plus two copies retained by Engineer.
 - C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
 - D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
 - E. After review, distribute in accordance with the Submittal Procedures article above.

1.6 SHOP DRAWINGS

- A. Contractor shall submit a minimum 6 copies of each shop drawing to the Engineer for review.
- B. Submitted to Engineer for review and conformance with information given in specifications and design concept expressed in contract documents. Review of shop drawings by Engineer shall not relieve Contractor of its responsibility for accuracy of shop drawings nor for furnishing of all materials and equipment required by the contract even though such items may not be indicated on shop drawings reviewed by Engineer.
- C. Shop drawings shall include applicable technical information, drawings, diagrams, performance curves, schedules, templates, calculations, instructions, measurements, and similar information as applicable to the specific item for which shop drawing is prepared.
- D. Do not use Engineer's Drawings for shop or erection purposes.
- E. Each shop drawing copy shall bear a Contractor's stamp showing they have been checked. Shop drawings submitted to the Engineer without Contractor's stamp will be returned to Contractor without review.

No review will be given to partial submittals of shop drawings for items which interconnect and/or are interdependent. It is the Contractor's responsibility to assemble shop drawings for all such interconnecting and/or interdependent items, check them and then make one submittal to Engineer.

Schedule of Submittals: Within 30 days of Contract award and prior to any shop drawing submittal, Contractor shall submit a schedule showing the estimated submittal date and desired acceptance date for each shop drawing anticipated. Time lost due to unacceptable submittals shall be the Contractor's responsibility.

1.7 SAMPLES

- A. Samples For Review:
 - 1. Submitted to Engineer for review and conformance with information given in specifications and design concept expressed in contract documents.
 - 2. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above.
- B. Samples For Information:
 - 1. Submitted for Engineer's knowledge as contract administrator or for the Owner.
- C. Include identification on each sample, with full product information.
- D. Submit the number of samples specified in individual specification sections; one of which will be retained by Engineer.
- E. Reviewed samples which may be used in the Work are indicated in individual specification sections.
- F. Samples will not be used for testing purposes unless specifically stated in the specification section.

1.8 DESIGN DATA

- A. Submit for Engineer's knowledge as contract administrator or for the Owner.
- B. Submit for information and conformance with information given in specifications and design concept expressed in contract documents.

1.9 TEST REPORTS

- A. Submit for Engineer's knowledge as contract administrator or for the Owner.
- B. Submit test reports for information and assessing conformance with information given in specifications and design concept expressed in contract documents.

1.10 CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or the Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product, but must be acceptable to Engineer.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- C. Refer to Section 01 45 00 – Quality Control, Manufacturers' Field Services article.

1.12 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for Engineer's benefit as contract administrator or for the Owner.
- B. Submit report in duplicate within 30 days of observation to Engineer for information.
- C. Submit for information and assessing conformance with information given in specifications and design concept expressed in contract documents.

1.13 ERECTION DRAWINGS

- A. Submit drawings for Engineer's benefit as contract administrator or for the Owner.
- B. Submit for information and assessing conformance with information given in specifications and design concept expressed in contract documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by the Engineer or Owner.

1.14 REVIEWED SHOP DRAWINGS

- A. Engineer Review.
 - 1. Acceptable submittals will be marked "No Exceptions Taken." A minimum of three copies will be retained by the Engineer for Engineer's and Owner's use and remaining copies will be returned to Contractor.
 - 2. Submittals requiring minor corrections before the product is acceptable will be marked "Furnish as Corrected." Contractor may order, fabricate, and ship items included in submittals, provided the indicated corrections are made.
 - 3. Submittals marked "Revise and Resubmit" must be revised to reflect required changes and the initial review procedure repeated.
 - 4. The "Rejected" notation is used to indicate products not acceptable. Upon return of a submittal so marked, Contractor shall repeat the initial review procedure utilizing acceptable products.

5. Only two copies of items marked "Revise and Resubmit" and "Rejected" will be reviewed and marked. One copy will be retained by Engineer and the other copy with all remaining unmarked copies will be returned to Contractor for resubmittal.
- B. No Work or products shall be installed without a drawing or submittal bearing the "No Exceptions Taken" or "Furnish as Corrected" notation. Contractor shall maintain at the job site a complete set of shop drawings bearing Engineer's stamp.
- C. Substitutions: In the event Contractor obtains Engineer's acceptance for use of products other than those listed first in Contract Documents, Contractor shall, at Contractor's own expense and using methods accepted by Engineer, make any changes to structures, piping and electrical work necessary to accommodate these products.
- D. Use of "No Exceptions Taken" or "Furnish as Corrected" notation on shop drawings or other submittals is general and shall not relieve Contractor of the responsibility of furnishing products of proper dimension, size, quality, quantity, materials, all performance characteristics, and to efficiently perform requirements and intent of Contract Documents. Engineer's review shall not relieve Contractor of the responsibility of errors of any kind on shop drawings. Review is intended only to assure conformance with design concept of the project and compliance with information given in Contract Documents.

1.15 SUBMITTAL CHECKLIST

- A. This checklist is not necessarily complete. Contractor is responsible to submit all items and materials as specified in each section.

Section	Submittal	Date Received by T & H	Accepted Submittal Returned to Owner/ Contractor	Submittal Rejected & Returned	Comments
31 25 00 – Soil Erosion Control					
	Silt Fence				
31 37 00 – Rip-Rap					
	Stone				
	Sand-Cement Bag				
	Filter Fabric				
32 12 16 – Asphalt Paving					
	Tack Coat				

Section	Submittal	Date Received by T & H	Accepted Submittal Returned to Owner/ Contractor	Submittal Rejected & Returned	Comments
	Asphalt Cement				
	Anti-Stripping Agent				
	Mix Designs				
32 92 00 – Turf and Grasses					
	Seed Mix – Temporary				
	Seed Mix – Permanent				
	Fertilizer				
	Lime				
33 10 00 – Water Utilities [03 10 00SC – Water Utilities] [03 10 00BC – Water Utilities]					
	PVC Pipe – 4"Ø and Larger				
	D.I. Pipe				
	Tubing for Service Lateral				
	Fittings – PVC				
	Fittings – Compact D.I.				
	Gate Valve				
	2" Ball Valves				
	Magnetic Marking Tape				
	Valve Boxes				
	Valve Box Collar				
	Hydrant Tees				

Section	Submittal	Date Received by T & H	Accepted Submittal Returned to Owner/ Contractor	Submittal Rejected & Returned	Comments
	Fire Hydrants				
	Restrained Joint Fittings				
	Service Saddles				
	Tapping Sleeves/Crosses				
	Tapping Valves				
	Tracing Wire				
	Service Pipe/Tubing				
	Casing Pipe				
33 30 00 – Sanitary Sewage Utilities					
	Manholes & Interior Coating				
	Boots and S.S. Straps				
	Joint Wrap				
	Joint Sealant				
	Steps				
	Piping – PVC – Gravity				
	Fittings – PVC – Gravity				
	Frames & Covers				

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

INDEX TO
SECTION 01 45 00 – QUALITY CONTROL

Paragraph	Title	Page
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1.3	Quality Assurance – Control of Installation	01 45 00 –1
1.4	Tolerance	01 45 00 –1
1.5	References and Standards	01 45 00 –2
1.6	Testing Services	01 45 00 –2
1.7	Manufacturer's Field Services	01 45 00 –3
PART 2 – PRODUCTS		
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PART 3 – EXECUTION		
3.1	Examination	01 45 00 –3
3.2	Preparation	01 45 00 –3

SECTION 01 45 00**QUALITY CONTROL****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Quality assurance – control of installation.
- B. Tolerances
- C. References and standards.
- D. Testing laboratory services.
- E. Manufacturer's field services.

1.2 RELATED SECTIONS

- A. Section 01 33 00 – Submittal Procedures: Submission of manufacturer's instructions and certificates.
- B. Section 01 45 23 – Testing and Inspecting Services.

1.3 QUALITY ASSURANCE – CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturer's instructions, including each step in sequence.
- C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.4 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

- B. Comply with manufacturer's tolerances. Should manufacturer's tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust products to appropriate dimensions and position before securing in place.
- D. Accessible routes shall not exceed maximum ADA allowable slopes.

1.5 REFERENCES AND STANDARDS

- A. For products or workmanship specified by association, trade, or other consensus standards, complies with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current with date specified in the individual specification sections, except where a specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. Neither the contractual relationships, duties, nor responsibilities of the parties in Contract or those of the Architect/Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.6 TESTING SERVICES

- A. Contractor will appoint and employ services of an independent firm to perform testing. Contractor shall pay for testing services required by the specifications
- B. The independent firm will perform tests and other services specified in individual specification sections and as required by the Owner.
- C. Testing and source quality control may occur on or off the project site. Perform off-site testing as required by the Owner.
- D. Reports will be submitted by the independent firm to the Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Architect/Engineer and independent firm 48 hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- F. Testing does not relieve Contractor to perform Work to contract requirements.

- G. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer. Payment for re-testing will be made by the Contractor.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify utility services are available, of the correct characteristics, and in the correct locations.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION

INDEX TO
SECTION 01 45 23
TESTING AND INSPECTING SERVICES

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1.1	Section Includes	01 45 23-1
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1.6	Contractor Submittal	01 45 23-2
1.7	Testing Agency Responsibilities	01 45 23-2
1.8	Testing Agency Reports	01 45 23-3
1.9	Limits on Testing Authority	01 45 23-3
1.10	Contractor Responsibilities	01 45 23-3
1.11	Schedule of Tests	01 45 23-4

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

SECTION 01 45 23**TESTING AND INSPECTING SERVICES****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Selection and payment.
- B. Contractor submittals.
- C. Testing agency responsibilities.
- D. Testing agency reports.
- E. Limits on testing authority.
- F. Contractor responsibilities.
- G. Schedule of tests.

1.2 RELATED SECTIONS

- A. Testing and acceptance required by public authorities.
- B. Section 01 33 00 – Submittal Procedures: Manufacturer's certificates.
- C. Section 01 77 00 – Closeout Procedures: Project record documents.

1.3 REFERENCES (LATEST REVISION)

- A. ASTM C 802 – Practice for Conducting an Interlaboratory Test Program to Determine the Precision of Test Methods for Construction Materials.
- B. ASTM C 1077 – Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
- C. ASTM C 1093 – Practice for Accreditation of Testing Agencies for Masonry.
- D. ASTM D 3740 – Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- E. ASTM D 4561 – Practice for Quality Control Systems for Organizations Producing and Applying Bituminous Paving Materials.
- F. ASTM E 329 – Specification for Agencies Engaged in Construction Inspection and/or Testing.
- G. ASTM E 543 – Practice for Agencies Performing Nondestructive Testing.

- H. ASTM E 548 – Guide for General Criteria Used for Evaluating Laboratory Competence.
- I. ASTM E699 – Practice for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating of Building Components.

1.4 SELECTION AND PAYMENT

- A. Employment and payment by Contractor for services of an independent testing agency or laboratory to perform specified testing.
- B. Employment of testing agency or laboratory in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

1.5 QUALITY ASSURANCE

- A. Comply with requirements of practices listed in paragraph 1.3.
- B. Laboratory: Authorized to operate in State in which project is located.
- C. Laboratory Staff: Maintain a full-time registered Engineer on staff to review services.
- D. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

1.6 CONTRACTOR SUBMITTALS

- A. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full-time registered Engineer and responsible officer.
- B. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.7 TESTING AGENCY RESPONSIBILITIES

- A. Test samples of mixes submitted by Contractor.
- B. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
- C. Perform specified sampling and testing of products in accordance with specified standards.
- D. Ascertain compliance of materials and mixes with requirements of Contract Documents.
- E. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
- F. Perform additional tests required by Engineer.

- G. Attend preconstruction meetings and progress meetings.

1.8 TESTING AGENCY REPORTS

- A. After each test, promptly submit two copies of report to Engineer and to Contractor.
- B. Include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and specifications section.
 - 6. Location in the Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance with Contract Documents.
- C. When requested by Engineer, provide interpretation of test results.

1.9 LIMITS ON TESTING AUTHORITY

- A. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Agency or laboratory may not approve or accept any portion of the Work.
- C. Agency or laboratory may not assume any duties of Contractor.
- D. Agency or laboratory has no authority to stop the Work.

1.10 CONTRACTOR RESPONSIBILITIES

- A. Deliver to agency or laboratory at designated location, adequate samples of materials proposed to be used requiring testing, along with proposed mix designs.
- B. Cooperate with laboratory personnel, and provide access to the Work.
- C. Provide incidental labor and facilities:
 - 1. To provide access to Work to be tested.
 - 2. To obtain and handle samples at the site or at source of products to be tested.
 - 3. To facilitate tests.
 - 4. To provide storage and curing of test samples.
- D. Notify Engineer and laboratory 48 hours prior to expected time for operations requiring testing services.

1.11 SCHEDULE OF TESTS

Section	Test	Frequency	Date	Performed By	Notes
33 10 00 – Water Utilities					
	Hydrostatic & Leakage	1.5 times the working pressure (no less than 150 psi). Conducted for 2 hours with maintained pressure of 150 psi (200 psi on fire main)			
	Bacteriological Samples	2 taken 24 hours apart after disinfection			
	Compaction				
	Traffic Areas	1 per 100 lf or less for each 4 ft. of depth			
	Non-Traffic Areas	1 per 500 lf or less for each 4 ft. of depth			
	Fire Flow	1 per permit			
33 30 00 – Sanitary Sewage Utilities					
	Compaction				
	Traffic Areas	1 per 100 lf or less for each 4 ft. of depth			
	Non-Traffic Areas	1 per 500 lf or less for each 6 ft. of depth			
	Gravity – Air	[All lines]			
	Deflection	10% of system			

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

INDEX TO
SECTION 01 55 26 – TRAFFIC CONTROL

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3.1	Erection	01 55 26-2
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3.3	Temporary Traffic Lanes	01 55 26-2
3.4	Signs and Barricades	01 55 26-2

SECTION 01 55 26

TRAFFIC CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This section covers furnishing, installation, and maintenance of all traffic control devices, portable signal equipment, warning signs, and temporary traffic lanes used during construction of the project.

1.2 RELATED WORK

- A. Section 33 10 00 SC – Water Utilities
- B. Section 33 30 00 – Sanitary Sewerage Utilities

1.3 RESPONSIBILITY

- A. The Contractor shall furnish, install, and maintain all necessary automated signals, barricades, concrete traffic barriers, warning signs, traffic barriers, traffic lanes, and other protective devices. Ownership of these temporary warning devices shall remain with the Contractor provided devices are removed promptly after completion and acceptance of work to which devices pertain. If such warning devices are left in place for more than 30 days after specified time for removal, Owner shall have the right to remove such devices and to claim possession thereof.

1.4 MEASUREMENT AND PAYMENT

- A. There will be no measurement for this item. Payment shall be for the unit (LS) price included on the bid proposal.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. All barricades signs, and traffic control signal devices shall conform to requirements of the current South Carolina Manual on Uniform Traffic Control Devices except as may be modified in these project specifications.
- B. Portable traffic control signal devices, barricades, signs and other Control Devices shall be either new or in acceptable condition when first erected on Project and shall remain in acceptable condition throughout the construction period.
- B. All signs shall have a black legend and border on an orange reflectorized background and will be a minimum of engineering grade reflective.

PART 3 – EXECUTION

3.1 ERECTION

- A. Prior to commencement of any actual construction on the project, Contractor shall erect appropriate advance warning signs and place concrete traffic barriers where necessary. Subsequently, as construction progresses and shifts from one side of road to the other, temporary lanes must be installed to provide continuous two way traffic and bike thoroughfare. All appropriate signs and traffic control devices pertinent to the work shall be erected ahead of construction site to advise and warn travelling public of activity and any necessary detours.

3.2 DELAYS TO TRAFFIC

- A. Except in rare and unusual circumstances, two-way traffic shall be maintained at all times by temporary and/or permanent roads. There are to be no traffic delays during the hours between 7 AM – 10 AM and 4 PM – 10 PM. Between the hours of 10 AM and 4 PM the maximum delay is to be 15-minutes.
- B. When traffic is halted temporarily due to transition procedures including the ingress and egress of construction vehicles, Contractor shall provide necessary flagging personnel with proper equipment and clothing to hold such traffic.
- C. If Contractor's proposed traffic control plan involves more than occasional disruption to alternating one way traffic through the work, then temporary, signalized control equipment will be required.

3.3 TEMPORARY TRAFFIC LANES

- A. Two-lane traffic shall be maintained at all times unless prior written permission has been given and all necessary flagging personnel and/or signage has been installed. Temporary lane line stripes shall be applied to the detour paving, as agreed to by Engineer and Owner's representative. The no-passing double center-line stripes shall be yellow. Such stripes shall be a temporary, degradable, reflectorized tape strip. All temporary striping shall be maintained throughout the period traffic control is needed.
- B. Contractor is responsible for installation and removal of all temporary roads and trails throughout the construction process. These detour roads are to be in accordance with the Pavement Specifications herein.

3.4 SIGNS AND BARRICADES

- A. Contractor shall provide a detailed map showing location and verbiage of all traffic control signs and methods for the project. All critical warning signs for the project will be a minimum of engineering grade reflective material and include appropriate flashing lights.
- B. Appropriate Safety Barricades shall be installed between bicycle trails, sidewalks, and the temporary traffic lanes. These barricades shall be impact resistant for passenger vehicles with a travelling speed of 40 mph.
 - 1. Advance warning signs: These signs shall be placed approximately 500 feet in advance of the construction site and detour on each approach to the construction area with subsequent warning signs every 250 feet, until

construction site is met.

2. Road Construction Signs: Before and during construction of the detour, advance road construction signs shall be located as already stated above. The construction site detour lanes will have reflective trestle type barricade with flashing lights spaced a maximum of 25 feet apart to delineate each side of any temporary roadway. Additional signage shall be placed to indicate a reduced speed limit of 10 mph for the entire construction area. Other signs as appropriate to a particular activity in the work area shall be erected in advance of that activity.
3. Barricades: While detour is open to traffic, a line of concrete traffic barricades shall be placed across the closed roadway to channelize traffic onto detour. They shall be spaced across the blocked roadway end to end so no vehicle will be able to pass between any two adjacent barricades.
4. Barriers: Shall be wooden having a minimum of three horizontal 6 inch rails spaced 20 inches on center. Markings for barrier rails shall be 6 inches wide alternate orange and white reflectorized stripes sloping downward at 45 degrees in the direction traffic is to pass.

During hours of darkness, the Contractor shall place and maintain flashing warning lights on tops of all barriers.

5. Direction Arrow Signs: At each change in traffic direction along the detour, Contractor shall install a sign with an arrow indicating change in traffic direction. This sign is to be located across the pavement from and facing on-coming traffic.
6. End Construction Sign: This sign shall be 60 inches x 24 inches and erected approximately 200 feet beyond end of construction area on the right-hand side.

END OF SECTION

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SECTION 01 77 00 – CLOSEOUT PROCEDURES

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PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Project record documents.
- C. Operation and maintenance data.
- D. Warranties and bonds.
- E. Maintenance service.

1.2 RELATED SECTIONS

- A. Section 01 33 00 – Submittal Procedures.
- B. Operation and Maintenance Data.
- C. Warranties.
- D. Bonds.

1.3 CLOSEOUT PROCEDURES

- A. Submit written verification Contract Documents being reviewed, Work has been observed at appropriate times, and Work is complete in accordance with Contract Documents and ready for Engineer's review.
- B. Provide submittals to Engineer required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.4 FINAL CLEANING

- A. Execute final cleanup prior to final project assessment.
- B. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.5 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

1.6 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Equipment Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Project Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 3. Where proposed and existing utilities cross, the Contractor shall measure and record the horizontal location and vertical separation between each crossing. Separation shall be measured between exteriors and pipes.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract drawings.
 - 6. Piling data locations, tip and cut-off elevations, and driving records.
- G. Submit documents to Engineer with claim for final Application for Payment.

1.7 WARRANTIES AND BONDS

- A. Provide [duplicate] notarized copies.
- B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
- D. Submit prior to final Application for Payment.

- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

INDEX TO
SECTION 01 78 23
OPERATION AND MAINTENANCE DATA

Paragraph	Title	Page
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1.1	Section Includes	01 78 23-1
1.2	Related Sections	01 78 23-1
1.3	Quality Assurance	01 78 23-1
1.4	Format	01 78 23-1
1.5	Contents of Each Volume	01 78 23-2
1.6	Manual for Materials and Finishes	01 78 23-2
1.7	Manual for Equipment and Systems	01 78 23-3
1.8	Instruction of Owner Personnel	01 78 23-4
1.9	Submittals	01 78 23-4
1.10	Schedule of Submittals	01 78 23-4

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

SECTION 01 78 23**OPERATION AND MAINTENANCE DATA****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Format and content of manuals.
- B. Instruction of Owner's personnel.
- C. Schedule of submittals.

1.2 RELATED SECTIONS

- A. Section 01 33 00 – Submittal Procedures
- B. Section 01 45 00 – Quality Control.
- C. Section 01 77 00 – Closeout Procedures
- D. Section 01 78 33 – Bonds.
- E. Section 01 78 36 – Warranties.
- F. Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.4 FORMAT

- A. Prepare data in the form of an instructional manual.
- B. Binders: Commercial quality, 8-1/2 x 11
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- D. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
- E. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.
- F. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.5 CONTENTS OF EACH VOLUME

- A. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer, Subconsultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- E. Bonds: Bind in original of each.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

INDEX TO
SECTION 01 78 33
BONDS

Paragraph	Title	Page
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1.4	Preparation of Submittals	01 78 33 – 1
1.5	Time of Submittals	01 78 33 – 2
1.6	Schedule of Submittals	01 78 33 – 2

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

SECTION 01 78 33

BONDS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Preparation and submittal of bonds.
- B. Time and schedule of submittals.

1.2 RELATED SECTIONS

Document 00 11 16 – Invitation to Bid:

- A. Document General Conditions – EJCDC: Performance bond and labor and material payment bonds.
- B. Section 01 77 00 –Closeout Procedures: Contract closeout procedures.
- C. Section 01 78 23 – Operation and Maintenance Data.]
- D. Individual Specifications Sections: Bonds required for specific Products or Work.

1.3 FORM OF SUBMITTALS

- A. Bind in commercial quality 8–1/2 x 11 binders with durable plastic covers.
- B. Cover: Identify each binder with typed or printed title BONDS with title of Project; name, address and telephone number of Contractor; and name of responsible company principal.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of Product or work item.
- D. Separate each bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

1.4 PREPARATION OF SUBMITTALS

- A. Obtain bonds executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of bond until the Date of Substantial completion is determined.
- B. Verify documents are in proper form, contain full information, and are notarized.

- C. Co-execute submittals when required.
- D. Retain bonds until time specified for submittal.

1.5 TIME OF SUBMITTALS

- A. Make submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
- B. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the bond period.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

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SECTION 01 78 36
WARRANTIES

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1.3	Form of Submittals	01 78 36-1
1.4	Preparation of Submittals	01 78 36-1
1.5	Time of Submittals	01 78 36-2
1.6	Schedule of Submittals	01 78 36-2

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

SECTION 01 78 36

WARRANTIES

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Preparation and submittal of warranties.
- B. Time and schedule of submittals.

1.2 RELATED SECTIONS

- A. General Conditions – EJCDC: Warranties and correction of work.
- B. Section 01 77 00 – Closeout Procedures: Contract closeout procedures.
- C. Section 01 78 23 – Operation and Maintenance Data.
- D. Individual Specifications Sections: Warranties required for specific Products or Work.

1.3 FORM OF SUBMITTALS

- A. Bind in commercial quality 8–1/2 x 11 binders with durable plastic covers.
- B. Cover: Identify each binder with typed or printed title WARRANTIES with title of Project; name, address and telephone number of Contractor; and name of responsible company principal.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of Product or work item.
- D. Separate each warranty with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

1.4 PREPARATION OF SUBMITTALS

- A. Obtain warranties executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- B. Verify documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.

- D. Retain warranties until time specified for submittal.

1.5 TIME OF SUBMITTALS

- A. Make submittals within [ten] days after Date of Substantial Completion, prior to final Application for Payment.
- B. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

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SECTION 03 00 00 – CONCRETE

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3.11	Tolerances	03 00 00–10
3.12	Curb and Gutter Sections	03 00 00–10
3.13	Concrete Curing	03 00 00–11
3.14	Field Quality Control	03 00 00–11
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SECTION 03 00 00**CONCRETE****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Concrete sidewalks, curbs, gutters, parking areas, and roads.

1.2 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork.
- B. Section 32 11 23 – Aggregate Base Courses.
- C. Section 32 12 16 SC – Asphaltic Paving.

1.3 MEASUREMENT AND PAYMENT

- A. Concrete pavement and sidewalk, regardless of thickness, will be measured by the square yard of finished surface complete in place and accepted.
- B. Curb and Gutter – Payment for concrete curb and gutter sections will be made at the unit price per linear foot for amount actually installed and accepted. Measurement will be along the centerline of completed and accepted curb.
- C. Payment shall constitute full compensation for furnishing all materials, plant, equipment, tools, forms, inserts, and for all labor and incidentals necessary to complete the work required by these specifications. No payment will be made for any material wasted, used for convenience of the Contractor, unused or rejected.

1.4 REFERENCES (LATEST REVISION)

- A. ACI 211.1 – Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
- B. ACI 211.2 – Selecting Proportions for Structural Lightweight Concrete.
- C. ACI 301 – Specifications for Structural Concrete.
- D. ACI 302.1R – Guide for Concrete Floor and Slab Construction.
- E. ACI 304R – Guide for Measuring, Mixing, Transporting and Placing Concrete.
- F. ACI 305R – Hot Weather Concreting.
- G. ACI 306R – Cold Weather Concreting.
- H. ACI 308R – Guide to Curing Concrete.

- I. ACI 318 – Building Code Requirements for Structural Concrete.
- J. ACI 347 – Guide to Formwork for Concrete.
- K. ASTM A185 – Steel Welded Wire Reinforcement, Plain, for Concrete.
- L. ASTM A615 – Deformed and Plain Carbon – Steel Bars for Concrete Reinforcement.
- M. ASTM A 775/A 775M – Epoxy Coated Steel Reinforcing Bars.
- N. ASTM B 221 – Aluminum and Aluminum–Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- O. ASTM C 33 – Concrete Aggregates.
- P. ASTM C 39 – Compressive Strength of Cylindrical Concrete Specimens.
- Q. ASTM C 42 – Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- R. ASTM C 94 – Ready–Mixed Concrete.
- S. ASTM C 150 – Portland Cement.
- T. ASTM C 172 – Practice for Sampling Freshly Mixed Concrete.
- U. ASTM C 231 – Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
- V. ASTM C 260 – Air–Entraining Admixtures for Concrete.
- W. ASTM C 309 – Liquid Membrane–Forming Compounds for Curing Concrete.
- X. ASTM C 330 – Light Weight Aggregates for Structural Concrete.
- Y. ASTM C 494 – Chemical Admixtures for Concrete.
- Z. ASTM C 618 – Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
- AA. ASTM C 920 – Elastomeric Joint Sealants.
- BB. ASTM C 1116 – Fiber – Reinforced Concrete.
- CC. ASTM D 994 – Preformed Expansion Joint Filler for Concrete (Bituminous Type).
- DD. ASTM D 1751 – Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non–extruding and Resilient Bituminous Types).
- EE. ASTM D 2103 – Polyethylene Film and Sheeting.

- FF. ASTM D 3740 – Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- GG. ASTM E 329 – Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

1.6 SUBMITTALS FOR REVIEW

- A. Section 01 33 00 – Procedures for Submittals.
- B. Product Data: Provide data on joint filler, admixtures, and curing compounds.
- C. Concrete Design Mix.

1.7 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301, ACI 318, and ACI 330R.
- B. Obtain cementitious materials from same source throughout.
- C. Conform to ACI 117 – Specifications for Tolerances for Concrete Construction and Materials.
- D. Contractor to measure for accessible route with a 24" digital smart-level will be used to measure points along the accessible route. Line of measurement shall be parallel to the long edge of ramp or accessible route, whether straight or curved. Longitudinal measurement lines shall be spaced 3 feet apart, but in no case, shall fewer than two lines be used. The horizontal measurement [cross-slope] will be measured every [6] feet. Engineer may request additional measurements if further investigation is necessary. The 24" Smart-level slope readings greater than specified tolerance within contract documents will be identified as non-compliant and not accepted.
- E. Engineer reserves the right to mark and reject portions of concrete not within tolerance as specified.

1.8 REGULATORY REQUIREMENTS

- A. Conform to County, SCDOT, and standards for paving work on public property.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

1.10 GUARANTEE

- A. Contractor shall guarantee the quality of materials and workmanship for a period of 12 months after acceptance. Defects discovered during this period shall be repaired by Contractor at no cost to the Owner.

1.11 TESTING

- A. Testing laboratory shall operate in accordance with ASTM D 3740 and E 329 and be acceptable to the Engineer.
- B. Testing laboratory and Project Engineer/Project Representative shall be given a minimum of 48 hours notice prior to taking any tests.
- C. Testing shall be the Contractor's responsibility and shall be performed at Contractor's expense by a commercial testing laboratory operating in accordance with subparagraph A above.
- D. Test results shall be furnished to the Engineer prior to continuing with associated or subsequent work.

PART 2 – PRODUCTS**2.1 FORM MATERIALS**

- A. Wood or steel form material profiled to suit conditions.
- B. Joint Filler: ASTM D1751 type; 1/2 inch thick.

2.2 REINFORCEMENT

- A. Reinforcing Steel: ASTM A 615, Grade 60 billet steel deformed bars; uncoated finish.
- B. Welded Steel Wire Fabric: Plain type, ASTM A 185; uncoated finish.
- C. Fiber reinforcement: Shall conform to ASTM C 1116 as manufactured by Fibermesh Company or equivalent. Concrete mix design shall utilize between 0.5% and 1.0% fiber content.

2.3 CONCRETE MATERIALS

- A. Cement: ASTM C 150, Type I – Normal.
- B. Fine and Coarse Mix Aggregates: ASTM C 33. Coarse aggregate shall consist of granite stone.
- C. Water: Potable, not detrimental to concrete.
- D. Air Entrainment: ASTM C 260.
- E. Chemical Admixture: ASTM C 494, Type A – Water Reducing.

2.4 ACCESSORIES

- A. Curing Compound: ASTM C309, clear with fugitive dye.

- B. Sealant: Joints shall be sealed per detail on project drawings, conforming to ASTM C 920, Type S or M, Grade P or NS, Class 25.

2.5 CONCRETE MIX – BY PERFORMANCE CRITERIA

- A. Provide concrete to the following criteria:
 - 1. Flexible Strength: 700 psi.
 - 2. Compressive Strength: 3,000 psi @ 28 days.
 - 3. Slump: 4 to 5 inches.
- B. Use accelerating admixtures in cold weather only when acceptable to Engineer. Use of admixtures will not relax cold weather placement requirements.
- C. Use calcium chloride only when accepted by Engineer.
- D. Use set retarding admixtures during hot weather only when accepted by Engineer.

2.6 SOURCE QUALITY CONTROL AND TESTS

- A. All sampling and testing services shall be performed, at Contractor's expense, by a testing agency operating in accordance to ASTM D 3740 and E 329 latest edition and acceptable to the Engineer.
- B. Contractor shall submit to the Engineer a design mix on each class of concrete proposed for use. The mix shall be prepared by an acceptable testing laboratory. Compressive strength of at least four specimens of the design mix shall indicate 15% higher than 28 days strengths specified. During the work, Contractor shall make three test cylinders for each 50 cubic yards, or fraction thereof, of concrete placed each day. One cylinder shall be tested at 7 days and the other two at 28 days in accordance with ASTM C 39. Copies of all test reports shall be furnished to the Engineer.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify subgrade conditions under provisions of Section 31 00 00 – Earthwork.
- B. Verify compacted subgrade is acceptable and ready to support concrete and imposed loads.
- C. Verify slopes and elevations of subgrade are correct.

3.2 CONSTRUCTION OBSERVATION

- A. Engineer or Project Representative will have the right to require any portion of work be completed in their presence and if work is covered up after such instruction, it shall be exposed by Contractor for observation. However, if

Contractor notifies the Engineer such work is scheduled, and Engineer fails to appear within 48 hours, Contractor may proceed. All work completed, and materials furnished shall be subject to review by the Engineer or Project Representative. Improper work shall be reconstructed. All materials, which do not conform to requirements of specifications, shall be removed from the work upon notice being received from Engineer for rejection of such materials. Engineer shall have the right to mark rejected materials to distinguish them as such.

3.3 SUBGRADE

- A. Prepare subgrade in accordance with Section 31 00 00 – Earthwork.

3.4 PREPARATION FOR PLACING

- A. Water shall be removed from excavations before concrete is deposited. Hardened concrete debris and other foreign materials shall be removed from the interior of forms and inside of mixing and conveying equipment. The reinforcement shall be made secure in position and shall be subject to examination and acceptance.
- B. Moisten subgrade to minimize absorption of water from fresh concrete.
- C. Coat surfaces of manhole, inlet, and catch basin frames with oil to prevent bond with concrete pavement.
- D. Notify Engineer minimum 48 hours prior to commencement of concreting operations.

3.5 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler in position, in straight lines. Secure to formwork during concrete placement.
- D. Forms shall be constructed to the shape, line, and grade required and shall be maintained sufficiently rigid to prevent deformation under load. Form work and details of construction joints shall conform to ACI-318, Chapter 6.

3.6 REINFORCEMENT

- A. Place reinforcement as indicated.
- B. Interrupt reinforcement at expansion joints.

3.7 PLACING CONCRETE

- A. Placing of concrete shall conform to Chapter 5 of the American Concrete Institute Standard A.C.I. 318. Concrete having attained initial set or having contained water for more than 45 minutes shall not be used in the work. Concrete shall not be dropped freely more than 5 feet. Concrete shall be mixed and placed only when the temperature is at least 40 degrees F and rising. Concrete shall be placed only upon surfaces free from frost, ice, mud and other detrimental substances or conditions. When placed on dry soil or pervious material, waterproof paper or polyethylene sheeting shall be laid over surfaces to receive the concrete.
- B. Ensure reinforcement, inserts, embedded parts, formed joints and forms are not disturbed during concrete placement.
- C. Place concrete continuously over the full width of panel and between predetermined construction joints. Do not break or interrupt successive pours so cold joints will not occur.
- D. Place concrete to elevations indicated on the contract drawings.

3.8 JOINTS

- A. Place expansion joints at 50-foot intervals and radius points.
- B. Place contraction joints at 10-foot intervals. Align curb, gutter, and sidewalk joints.
- C. Place joint filler between paving components and building or other appurtenances. Recess top of filler 1/8 inch.
- D. Saw cut contraction joints 3/16-inch wide at an optimum time after finishing. Cut 1/3 into depth of slab.

3.9 FINISHING

- A. Paving: Light broom.
- B. Sidewalk Paving: Light broom, and trowel joint edges.
- C. Curbs and Gutters: Light broom parallel to gutter.
- D. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.10 JOINT SEALING

- A. Separate pavement from vertical surfaces with 1/2-inch thick joint filler.
- B. Place joint filler in pavement pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

- C. Extend joint filler from bottom of pavement to within 1/8 inch of finished surface.

3.11 TOLERANCES

- A. Section 01 45 00 – Quality Control: Tolerances.
- B. General Site Concrete:
 - 1. Maximum Variation of Surface Flatness: 1/4 inch in 10 feet.
 - 2. Maximum Variation from True Position: 1/4 inch.
- C. Accessible Routes: Variation from design elevation shall not exceed 1/4 inch; however, accessible routes shall not exceed maximum ADA allowable slopes. Contractor shall remove and replace any and all portions of the accessible route exceeding maximum ADA allowable slopes.

3.12 CURB AND GUTTER SECTIONS

- A. Shall be constructed as shown on the drawings and in accordance with applicable details. Subgrade below the curb and gutter sections shall be compacted to 98% density. Curb and gutter sections shall be constructed in sections of uniform length and shall not exceed 10 feet or be less than 5 feet in length. Straight edging along the edge of gutter and top of curb shall conform to those requirements for adjacent pavement but with no irregularities to exceed 1/4 inch in 10 feet.
- B. If slip-form or extruded construction is used, contraction joints shall be located at intervals no greater than 10 feet by sawing hardened concrete at the proper time. Joints shall be sawed between 4 to 8 hours after placing of concrete. Depth of saw-cut shall be one-fourth thickness of the curb and gutter section. The maximum width of cut shall be 1/4 inch. All joints shall be sawed in succession.
- C. Half inch thick premolded expansion joints shall be installed completely through the joints at spaces not to exceed 50 feet and at all structures and walks.
- D. When curb forms are removed, backfill shall be immediately placed, tamped, and graded behind the new curb to help protect line and grade. Machine methods of placing and forming may be used provided finished product is satisfactory to the Engineer.
- E. Contractor shall place a concrete depressed curb at all driveways shown on the drawings or where a driveway is in use.
- F. Cracked curb and gutter will not be accepted.

3.13 CONCRETE CURING

- A. Immediately after placement and finishing, concrete shall be protected from moisture loss for not less than 7 days. For surfaces not in contact with forms, curing compound shall be uniformly applied after water sheen disappears from the

concrete. Formed surfaces shall receive an application of curing compound if forms are removed during the 7-day curing period. Curing compound shall not be applied during rainfall.

- B. Curing compound shall be applied under pressure at the rate of 1 gallon per 150 square feet by mechanical sprayers. The spraying equipment shall be of the fully atomizing type. At time of use, curing compound shall be thoroughly mixed with a fugitive dye uniformly dispersed throughout the sprayer. Care shall be taken to prevent application to joints where concrete bond is required, to reinforcement steel and to joints where joint sealer is to be placed. The compound shall form a uniform continuous coherent film which will not crack or peel and shall be free from pinholes and other imperfections. Concrete surfaces subjected to heavy rainfall within 3 hours after curing compound has been applied shall be resprayed by above method and at above coverage at no additional expense to the Owner.
- C. No pedestrian or vehicular traffic shall be allowed over the surface for seven days unless surface is protected by planks, plywood, or sand. Protection shall not be placed until at least 12 hours after application of the curing compound.
- D. Protect concrete by suitable methods to prevent damage by mechanical injury or excessively hot or cold temperatures.

3.15 PROTECTION

- A. Immediately after placement, protect pavement from premature moisture loss, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit vehicular traffic over pavement or curb for seven days minimum after finishing. Do not permit pedestrian traffic over concrete for three days.

END OF SECTION

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SECTION 31 00 00 – EARTHWORK

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SECTION 31 00 00**EARTHWORK****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Grading
- B. Excavation
- C. Backfilling
- D. Compaction
- E. Remove and Replace Topsoil
- F. Dressing of Shoulders and Banks
- G. Stone Drainage Filter
- H. Water Control
- I. Testing

1.2 RELATED SECTIONS

- A. Section 01 45 00 – Quality Control
- B. Section 01 45 23 – Testing and Inspecting Services
- C. Section 31 10 00 – Site Clearing

1.3 MEASUREMENT AND PAYMENT

- A. Grading to subgrades, construction of ditches, dressing of disturbed areas, removing and replacing topsoil, excavating, backfilling and compacting to required elevations, testing, staking, and construction supervision shall be included in the bid proposal prices incidental to the installation of water and sewer mains.
- B. Unsuitable Material – Payment will be made on a contract unit price for each cubic yard removed. Payment will include excavation and disposal of unsuitable material.
- C. Borrow – Payment will be made on a contract unit price for each cubic yard in place. Payment will include furnishing materials required in excess of suitable materials available on site.

- D. Earthwork – All earthwork associated with the installation of bulkheads, headwalls, wingwalls, weir structures, drainage filters, rip-rap, etc. shall not be measured for direct payment. Payment for the earthwork shall be included in the item to which it pertains.
- E. Dewatering – No direct payment shall be made for dewatering. Dewatering shall be included in the item to which it pertains.
- F. Proof Rolling – Payment will be made at the contract unit price. Payment will include furnishing a loaded truck, truck driver, fuel and rolling the designated areas.

1.4 REFERENCES (LATEST REVISION)

- A. ASTM D 448 – Sizes of Aggregate for Road and Bridge Construction.
- B. ASTM D 1557 – Laboratory Compaction Characteristics of Soil Using Modified Effort.
- C. ASTM D 2487 – Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- D. ASTM D 3740 – Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- E. ASTM D 6938 – In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- F. ASTM E 329 – Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

1.5 SUBMITTALS

- A. Section 01 33 00 – Submittal Procedures: Procedures for submittals.
- B. Materials Source: Submit gradation analysis, proctor results, and soil classification for all borrow material.

1.6 QUALITY ASSURANCE

- A. Perform work in accordance with, State of South Carolina, County of Colleton, standards.

1.7 TESTING

- A. Laboratory tests for moisture density relationship for fill materials shall be in accordance with ASTM D 1557, (Modified Proctor).
- B. In place density tests in accordance with ASTM D 6938.
- C. Testing laboratory shall operate in accordance with ASTM D 3740 and E 329 and be acceptable to the Engineer.

- D. The testing laboratory and Project Engineer/Project Representative shall be given a minimum of 48 hours notice prior to taking any of the tests.
- E. Testing shall be Contractor's responsibility and performed at Contractor's expense by a commercial testing laboratory operating in accordance with subparagraph C above.
- F. Test results shall be furnished to the Engineer prior to continuing with associated or subsequent work.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Borrow shall consist of sand or sand-clay soils capable of being readily shaped and compacted to the required densities, and shall be reasonably free of roots, trash, rock larger than 2 inches, and other deleterious material.
- B. All soils used for structural fills shall have a PI (plastic index) of less than 10, and a LL (liquid limit) of less than 30. Fill soils shall be dried or wetted to appropriate moisture contents prior to compaction. Additionally, fill soils used for the top 2 feet of fill beneath roads and parking lots shall have no more than 15% passing the # 200 sieve. Fill soils used for house lots shall have no more than 25% passing the # 200 sieve.
- C. Contractor shall furnish all borrow material.
- D. Contractor shall be responsible for and bear all expenses in developing borrow sources including securing necessary permits, drying the material, haul roads, clearing, grubbing, excavating the pits, placing, compaction and restoration of pits and haul roads to a condition satisfactory to property owners and in compliance with applicable federal, state, and local laws and regulations.

2.2 SOURCE QUALITY CONTROL

- A. If tests indicate materials do not meet specified requirements, change material and retest.
- B. Provide materials of each type from same source throughout the Work.

PART 3 – EXECUTION

3.1 TOPSOIL

- A. Contractor shall strip topsoil and stockpile on site at a location determined by the Owner at the Contractor's expense.
- B. Topsoil shall be placed to a depth of 4 inches over all disturbed or proposed landscaped areas.

- C. Topsoil shall be provided at Contractor's expense if it is not available from site.
- D. Any remaining topsoil will be hauled off site at the Contractors expense.
- E. Do not excavate wet topsoil.

3.2 EXCAVATION

- A. Excavation is unclassified and includes excavation to subgrade elevations indicated, regardless of character of materials or obstructions encountered.
- B. Suitable excavation material shall be transported to and placed in fill areas within limits of the work.
- C. Unsuitable material encountered in areas to be paved and under building pads, shall be excavated 2 feet below final grade and replaced with suitable material from site or borrow excavations. Contractor shall notify Engineer if more than 2 feet of excavation is needed to replace unsuitable material.
- D. Unsuitable and surplus excavation material not required for fill shall be disposed of off site.
- E. Proper drainage, including sediment and erosion control, shall be maintained at all times. Methods shall be in accordance with the National Pollutant Discharge Elimination System standards and other local, state, and federal regulations.
- F. Unsuitable materials as stated herein are defined as highly plastic clay soils, of the CH and MH designation, border line soils of the SC-CH description, and organic soils of the OL and OH description based on the Unified Soils Classification System. Further, any soils for the top two feet of pavement subbase shall have no more than 15% passing the # 200 sieve.

3.3 GROUND SURFACE PREPARATION FOR FILL

- A. All vegetation, roots, brush, heavy sods, heavy growth of grass, decayed vegetable matter, rubbish, and other unsuitable material within the areas to be filled shall be stripped and removed prior to beginning the fill operation.
- B. Sloped ground surfaces steeper than 1 vertical to 4 horizontal, on which fill is to be placed shall be plowed, stepped, or benched, or broken up as directed, in such a manner where fill material will bond with the existing surface.
- C. Surfaces on which fill is to be placed and compacted shall be wetted or dried as may be required to obtain the specified compaction.

3.4 FILL

- A. Shall be placed in successive horizontal layers 8 inches to 12 inches in loose depth for the full width of the cross-section and compacted as required.

3.5 FINISHED GRADING

- A. All areas covered by the project including excavated and filled sections and adjacent transition areas shall be smooth graded and free from irregular surface changes.
- B. Degree of finish shall be that ordinarily obtainable from either blade-grader or scraper operations, supplemented with hand raking and finishing, except as otherwise specified.
- C. Unpaved areas to within 0.1 feet of elevations shown on the drawings provided such deviation does not create low spots that do not drain.
- D. Paved Areas – Subgrade to within 0.05 feet of the drawing elevations less the compacted thickness of the base and paving.
- E. Ditches shall be finished graded, dressed, and seeded within 14 calendar days of work to reduce erosion and permit adequate drainage.

3.6 DISPOSAL OF WASTE MATERIAL

- A. All vegetation, roots, brush, sod, broken pavements, curb and gutter, rubbish, and other unsuitable or surplus material stripped or removed from limits of construction shall be disposed of by the Contractor.

3.7 PROTECTION

- A. Graded areas shall be protected from traffic, erosion, settlement, or any washing away occurring from any cause prior to acceptance.
- B. Contractor shall be responsible for protection of below grade utilities shown on the drawings or indicated by the Owner at all times during earthwork operations.
- C. Repair or re-establishment of graded areas prior to final acceptance shall be at the Contractors expense.
- D. Site drainage shall be provided and maintained by Contractor during construction until final acceptance of the project. Drainage may be by supplemental ditching, or pumping if necessary, prior to completion of permanent site drainage.

3.8 DRAINAGE

- A. Contractor shall be responsible for providing surface drainage away from all construction areas. This shall include maintenance of any existing ditches or those constructed in the immediate vicinity of the work. Contractor shall provide proper and effective measures to prevent siltation of wetlands, streams, and ditches on both the Owner's property, and those properties downstream.

3.9 FIELD QUALITY CONTROL

- A. Compaction testing shall be performed in accordance with ASTM D 6938. Where tests indicate the backfill does not meet specified requirements, the backfill shall be reworked or removed and replaced, and then retested at the Contractor's expense.
- B. Unpaved areas – at least 90% of maximum laboratory density within 2% optimum moisture content unless otherwise approved by the Engineer.
- C. Paved Areas and Under Structures – top 6 inch layer of subbase to at least 98% of maximum laboratory density within 2% optimum moisture content. Layers below top 6 inches shall be compacted to 95% of maximum laboratory density within 2% optimum moisture content.
- D. Rolling and compaction equipment and methods shall be subject to acceptance by the Engineer. Acceptance in no way relieves Contractor of the responsibility to perform in correct and timely means.

Number of Tests – Under paved areas, no less than one density test per horizontal layer per 5,000 square feet of subbase shall be made. In unpaved areas, no less than one density test per horizontal layer per 10,000 square feet of fill area shall be made. Under curb and gutter, no less than one density test per every 300 linear feet.

3.10 PROOF ROLLING

- A. Shall be required on the subbase of all curb and gutter and paved areas and on the base of all paved areas where designated by the Engineer. Proof rolling shall take place after all underground utilities are installed and backfilled. The operation shall consist of rolling the subbase or base with a fully loaded 10-wheeled dump truck. A full load shall consist of 10 to 12 cubic yards of soil or rock. The dump truck shall be capable of traveling at a speed of two to five miles per hour and be in sound mechanical shape with no exhaust leaks or smoking from burning oil. The Engineer shall determine number of passes and areas rolled.

END OF SECTION

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SECTION 31 10 00

SITE CLEARING

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Removal of surface debris.
- B. Removal of trees, shrubs, and other plant life.
- C. Topsoil excavation.

1.2 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork.

1.3 MEASUREMENT AND PAYMENT

- A. Site Clearing: Clearing, grubbing and other items to be removed will be included in the unit price in the proposal for clearing work. Includes clearing site, removing stumps, loading and removing waste materials from site.

1.4 REGULATORY REQUIREMENTS

- A. Conform to applicable code for environmental requirements, disposal of debris, burning debris on site, use of herbicides, and
- B. Coordinate clearing Work with utility companies.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Provide tree protection materials as detailed on the construction drawings.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Verify existing plant life designated to remain is tagged or identified.
- B. Identify a waste area for placing removed materials.

3.2 PROTECTION

- A. All trees on site will be saved except those marked specifically by the Owner's representative for removal during construction. No trees, including those marked

for removal on site or any other tree, may be removed prior to the preconstruction conference. All trees not to be removed will be protected from injury to their roots and to their top to a distance three feet beyond the drip-line and no grading, trenching, pruning, or storage of materials may go in this area except as provided by an Owner's representative stakeout. Contractor will pay a penalty for any tree removed from the site that has not been marked specifically for removal. Contractor also will pay for any tree that dies due to damage during construction. This applies to all trees on site whether or not they are shown on the plans.

- B. Contractor shall not be held accountable for damages to trees resulting from placement of fill or removal of soils where such action is required by the contract documents. Any tree, the trunk of which is within 10 feet of any footing or trench, shall be exempt from these penalties except Contractor shall exercise all reasonable precautions to preserve even these trees. Contractor agrees to pay fines as established below in the event he or any of his subcontractors causes loss or removal of trees designated to be saved under provisions of this contract.

The fines are as follows:

<u>Caliper</u>	<u>Fine</u>
1" – 2"	\$ 150.00
2" – 3"	200.00
3" – 4"	250.00
4" – 5"	400.00
5" – 6"	500.00
6" – 7"	600.00
7" – 8"	750.00
8" – 11"	1,500.00
12" – 20"	2,000.00
21" & larger	\$ 2,500.00

- C. Trees shall be graded by Owner's representative as to variety, condition, and site importance, with above figures acting as a maximum fine. Lowest assessment amount shall be no less than one-half of the above fine figures.
- D. Protect benchmarks, survey control points, and existing structures from damage or displacement.
- E. Protect all remaining utilities.
- F. Clearing operations shall be conducted to prevent damage by falling trees to trees left standing, to existing structures and installations, and to those under construction, and to provide for the safety of employees and others.

3.3 CLEARING

- A. Clear areas required for access to site and execution of work. Clearing shall consist of felling and cutting trees into sections, and satisfactory disposal of trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within area to be cleared. Trees, stumps, roots,

brush, and other vegetation in areas to be cleared shall be removed completely from the site, except such trees and vegetation as may be indicated or directed to be left standing. Trees designated to be left standing within cleared areas shall be trimmed of dead branches 1-1/2 inch or more in diameter. Limbs and branches to be trimmed shall be neatly cut close to the trunk of the tree or main branches. Cuts more than 1-1/2 inches in diameter shall be painted with an accepted treewound paint. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations, by the erection of timber barriers or by such other means as circumstances require. Such barriers must be placed and be checked by the OWNER before construction observations can proceed (See 3.2). Clearing shall also include removal and disposal of structures obtruding, encroaching upon, or otherwise obstructing the work.

3.4 REMOVAL

- A. Where indicated or directed, trees and stumps shall be removed from areas outside those areas designated for clearing and grubbing. Work shall include felling of such trees and removal of their stumps and roots. Trees shall be disposed of as hereinafter specified.
- B. Remove debris, rock, and other extracted plant life from site.
- C. Partially remove paving and curbs. Neatly saw cut edges at right angle to surface.

3.5 DISPOSAL

- A. Disposal of trees, branches, snags, brush, stumps, etc., resulting from clearing and grubbing shall be the Contractor's responsibility and shall be disposed of by burning, removal from site, or a combination of both. All costs in connection with disposing of materials will be at the Contractor's expense. Material disposed of by burning shall be burned in a manner avoiding all hazards, such as damage to existing structures, construction in progress, trees, and vegetation. Contractor shall be responsible for compliance with all local and State laws and regulations relative to the building of fires. Disposal by burning shall be kept under constant attendance until fires have burned out or extinguished. All liability of any nature resulting from disposal of cleared and grubbed material shall become the Contractor's responsibility. Disposal of all materials cleared and grubbed will be in accordance with rules and regulations of the State of South Carolina. No material will be burned unless directed to do so by the OWNER. Contractor shall obtain a permit to burn on site from local fire department, before beginning the work.

3.6 GRUBBING

- A. Grubbing shall consist of removal and disposal of stumps, roots larger than one inch in diameter, and matted roots from designated grubbing areas. This material, together with logs and other organic or metallic debris not suitable for building of pavement subgrade or building pads, shall be excavated and removed to a depth of not less than 18 inches below original surface level of the ground in embankment areas and not less than 2 feet below finished earth surface in excavated areas. Depressions

made by grubbing shall be filled with suitable material and compacted to make the surface conform to original adjacent ground.

END OF SECTION

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SECTION 31 25 00 – EROSION AND SEDIMENTATION CONTROLS

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SECTION 31 25 00**EROSION AND SEDIMENTATION CONTROLS****PART 1 – GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions apply to this section.

1.2 DESCRIPTION OF WORK

- A. Extent of soil erosion control work includes all measures necessary to meet the requirements of this section.

Erosion and sediment control measures shall be installed prior to any construction activity.

Soil erosion and sediment control measures shall include all temporary and permanent means of protection and trapping soils of the construction site during land disturbing activity. Activity covered in this contract shall meet standards of NPDES General Permit for the state where work is performed.

1.3 PURPOSES

- A. Contractor is to achieve the following goals:
1. Minimize soil exposure by proper timing of grading and construction.
 2. Retain existing vegetation whenever feasible.
 3. Vegetate and mulch denuded areas as soon as possible.
 4. Divert runoff away from denuded areas.
 5. Minimize length and steepness of slopes when it is practical.
 6. Reduce runoff velocities with sediment barriers or by increasing roughness with stone.
 7. Trap sediment on site.
 8. Inspect and maintain erosion control measures.

1.4 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in the manufacture of soil erosion control systems products of types and sizes required, whose materials have been in satisfactory use for not less than 5 years.

- B. Codes and Standards: Comply with all applicable Local, State, and Federal Standards pertaining to soil erosion control.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instruction for soil erosion control materials and products.

1.6 MEASUREMENT AND PAYMENT

- A. No unit measurements will be made for soil erosion control. Payment will be made at the lump sum price as shown on the bid proposal. The cost of soil erosion control shall include all equipment, labor and materials necessary to comply with the State of South Carolina Erosion and Sediment Control Program.

PART 2 – PRODUCTS

2.1 GRASSING MATERIALS

- A. Refer to Section 32 92 00 – Turf and Grasses.
 1. General: All grass seed shall be free from noxious weeds, grade A recent crop, re-cleaned and treated with appropriate fungicide at time of mixture. Deliver to site in original sealed containers with dealer's guarantee as to year grown, percentage of purity, percentage of germination and date of the test by which percentages of purity and germination were determined. All seed sown shall have a date of test within six months of the date of sowing.
 2. Type of Seed: Either Annual Rye or Common Bermuda Grass seed will be used depending on time of year in which seeding is to occur.
 3. Mulch: Straw.
 4. Fertilizer: Commercial balanced 4-12-12 fertilizer.

2.2 HAY BALES

- A. Standard size, densely baled straw or hay, wrapped with synthetic or wire bands (two minimum per bale).

2.3 SILT FENCE

- A. Silt fence shall be a woven geotextile fabric sheet. Fabric shall be a synthetic polymer composed of at least 85% by weight propylene, ethylene, amide, ester, or vinylidene chloride, and shall contain stabilizer and/or inhibitors added to the base plastic to make filaments resistant to deterioration due to ultra-violet and/or heat exposure. Fabric should be finished so the filaments will retain their relative position with respect to each other. Fabric shall be free of defects, rips, holes, or flaws.

Fabric shall meet the following requirements:

Woven Fabrics	
Grab Strength	90 lbs.
Burst Strength	175 PSI
UV Resistance	80%

2.4 CHEMICALS FOR DUST CONTROL

- A. Calcium Chloride, Anionic Asphalt Emulsion, latex Emulsion or Resin-in-Water Emulsion may be used for dust control.

2.5 RIP-RAP

- A. Shall be hard quarry or field stone of such quality the pieces will not disintegrate on exposure to water, sunlight, or weather. Stone shall range in weight from a minimum of 25 pounds to a maximum of 125 pounds. At least 50 percent of the stone shall weigh more than 60 pounds. The stone shall have a minimum dimension of 12 inches.

2.6 PRODUCT REVIEW

- A. Contractor shall provide the Engineer with a complete description of all products before ordering. Engineer will review all products before they are ordered.

PART 3 – EXECUTION

3.1 GENERAL

- A. All disturbed soil areas except those to support paving shall be graded and protected from erosion by grassing. Disturbed areas must be grassed within 14 days of work ending unless work is to begin again before 21 days. Storm water conveyance systems shall have sediment barriers installed at all entrances, intersections, change in direction and discharge points.

3.2 GRASSING

- A. Refer to Section 32 92 00 – Turf and Grasses.

3.3 SEDIMENT BARRIERS

- A. Hay Bales for Sheet Flow Applications:
1. Excavate a 4 inch deep trench the width of a bale and length of proposed barrier. Barrier should be parallel to the slope. Place barrier 5 to 6 feet away from toe of slope, unless otherwise instructed.
 2. Place bales in the trench with their ends tightly abutting. Corner abutment is not acceptable. A tight fit is important to prevent sediment from escaping through spaces between the bales.

3. Backfill the trench with previously excavated soil and compact it. Backfill soil should conform to ground level on downhill side of barrier and should be built up to 4 inches above ground on uphill side of bales.
4. Inspect and repair or replace damaged bales promptly. Remove hay bales when uphill sloped areas have been permanently stabilized.

B. Rock Ditch Check

1. Excavate a 6 inch deep trench the width and length of proposed barrier. Install a non-woven geotextile fabric in the trench before placing rock for the ditch check.
2. The body of the ditch check shall be constructed of 12 inch rip-rap. The upstream face may be covered with 1-inch washed stone.
3. Ditch checks shall not exceed a height of 2 feet at centerline of the channel and have a minimum top flow length of 2 feet.
4. Rip-rap shall be placed over the channel banks to prevent water from flowing around ditch check. Rock must be installed by hand or mechanical placement (no dumping of rock) to achieve complete coverage of the ditch and ensure the center of the check is lower than the edges.
5. The maximum spacing between ditch checks shall be where the toe of the upstream check is at the same elevation as the top of the downstream check.
6. Contractor shall maintain ditch checks as required by State regulations.

3.4 SILT FENCE

- A. Silt fence shall be placed at approximate location shown and installed in accordance with the detail on the construction drawings. Contractor shall maintain silt fence as required by state regulations.

3.5 DUST CONTROL

- A. Dust raised from vehicular traffic will be controlled by wetting down access road with water or by the use of a deliquescent chemical, such as calcium chloride, if relative humidity is over 30%. Chemicals shall be applied in accordance with manufacturer's recommendations.
- B. Contractor shall use all means necessary to control dust on and near the work, or off-site borrow areas when dust is caused by operations during performance of work or if resulting from the condition in which any subcontractor leaves the site. Contractor shall thoroughly treat all surfaces required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of work on site.

3.6 SEDIMENT BASIN

- A. A sediment basin equal in volume to 3,600 cubic feet per disturbed acre is required. The sediment basin/lagoon adjacent to the outfall for the site shall be constructed and stabilized prior to any additional land disturbed activity.

3.7 RIP-RAP

- A. Rip-Rap shall be placed at the locations shown and installed in accordance with the detail on the construction drawings.

3.8 CONSTRUCTION EXIT

- A. Construct exit at the location shown per detail on the construction drawings. Contractor shall maintain construction exit as required by state regulations.

3.9 INLET PROTECTION

- A. Install inlet protection per detail on the construction drawings. Contractor shall maintain inlet protection as required by state regulations until all disturbed surfaces are stabilized.

END OF SECTION



South Carolina

NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

In compliance with the provisions of the SC Pollution Control Act (S.C. Code Sections 48-1-10 *et seq.*, 1976) and with the provisions of the Clean Water Act, 33 U.S.C. §1251 *et seq.*, (hereafter CWA or the Act), as amended by the Water Quality Act of 1987, P.L. 100-4, Operators of large and small construction activities that are described in Section 1.3 of this National Pollutant Discharge Elimination System (NPDES) general permit, except for those activities excluded from authorization of discharge in Section 1.3.3 of this permit, are authorized to discharge stormwater to Surface Waters of the State in accordance with the conditions and requirements set forth herein. Permit coverage is required from the “commencement of construction activities” until “final stabilization” as defined in Appendix A.

Ann R. Clark, Director
Stormwater, Construction, Agricultural, and Dams Permitting Division
Bureau of Water

Permit No.: SCR100000

Issued: October 15, 2012

Effective: January 1, 2013

Expires: December 31, 2017

**NPDES General Permit for
Stormwater Discharges From Construction Activities**

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**NPDES General Permit for
Stormwater Discharges From Construction Activities**

ACRONYMS & ABBREVIATIONS

As used in this permit, the following acronyms and abbreviations shall have the meanings indicated below:

AB-NOI - Annual Blanket Notice of Intent
BMPs - Best Management Practices
CFR - Code of Federal Regulations
CGP - Construction General Permit
CRW - Coastal Receiving Water
CWA - Clean Water Act
C-SWPPP - Comprehensive Stormwater Pollution Prevention Plan
CZC - Coastal Zone Consistency
DHEC or SCDHEC –South Carolina Department of Health and Environmental Control
EIN - Employer Identification Number
EPA - United States Environmental Protection Agency
EQC - Environmental Quality Control
GEP - Good Engineering Practices
GCZC - General Coastal Zone Consistency
IL-NOI - Individual Lot Notice of Intent
LCP - Larger Common Plan
LOD – Limit of Disturbance
LID - Low Impact Development
MS4 - Municipal Separate Storm Sewer System
NOI - Notice of Intent
NOT - Notice of Termination
NPDES - National Pollutant Discharge Elimination System
OCRM – Ocean and Coastal Resource Management
ODSA - Operator of Day-to-Day Site Activity
ONRW - Outstanding National Resource Waters
OS-SWPPP - On-Site Stormwater Pollution Prevention Plan
PCA - South Carolina Pollution Control Act
POTW - Publicly Owned Treatment Works
RWB - Receiving Waters or Receiving Water Bodies
SCNW – South Carolina Navigable Waters
SMSCP - Stormwater Management and Sediment Control Plan
SWPPP - Stormwater Pollution Prevention Plan
TMDL - Total Maximum Daily Load
USACOE – United States Army Corps of Engineers
WLA - Waste Load Allocation
WoS - Waters of the State
WQS - Water Quality Standards

Section 1: COVERAGE UNDER THIS PERMIT

1.1 INTRODUCTION

This Construction General Permit (CGP) authorizes Stormwater discharges from large and small construction activities where those discharges enter Surface Waters of the State or a Municipal Separate Storm Sewer System (MS4) leading to Surface Waters of the State subject to the conditions set forth in this permit. This permit also authorizes Stormwater discharges from any other construction activity designated by DHEC where DHEC makes that designation based on the potential for contribution to a violation of a Water Quality Standard (WQS) or for significant contribution of pollutants to Surface Waters of the State. This permit replaces the Stormwater Construction General Permit (NPDES # SCR100000) issued September 1, 2006. Any references to the 2006 CGP in this permit refer to that permit.

This permit also addresses post-construction discharges, both water quality and quantity, through the regulations listed under SC Regulations 72-307, Specific Design Criteria, Minimum Standards and Specifications.

This permit is presented in a reader-friendly, plain language format. This permit uses the terms “you” and “your” to identify the person(s) who owns or operates a “facility” or “activity” as defined in Appendix A and who must comply with the conditions of this permit. This format should allow you, the Applicant and Operator of a large or small construction activity, to easily locate and understand applicable requirements. The goal of this permit is to reduce or eliminate stormwater pollution from construction activity by requiring that you plan and implement appropriate pollution control practices to protect water quality.

1.2 PERMIT AREA

This permit covers all areas of South Carolina including Indian lands. The permit does not cover construction activities where the South Carolina Department of Transportation is the operator of the construction activity. Discharges on those construction sites are covered under the NPDES General Permit for Stormwater Discharges from South Carolina Department of Transportation Construction Activities (SCR160000).

1.3 ELIGIBILITY

Permit eligibility is limited to discharges from “large” and “small” construction activities as defined in Appendix A. This general permit contains eligibility restrictions, as well as permit conditions and requirements. You may have to take certain actions to be eligible for coverage under this permit. In such cases, you must continue to satisfy those eligibility provisions to maintain permit authorization. If you

do not meet the requirements that are a pre-condition to eligibility, then resulting discharges constitute un-permitted discharges. By contrast, if you do not comply with the requirements of the general permit, you may be in violation of the general permit for your otherwise eligible discharges.

1.3.1 **Allowable Stormwater Discharges**

Subject to compliance with the terms and conditions of this permit, you are authorized to discharge pollutants in:

- A. Stormwater discharges from construction activities including clearing, grading, filling, demolition that results in soil exposure, excavating and other land disturbing activities of one acre or more. In addition, stormwater discharges from projects or developments of less than one acre of land disturbance are required to obtain authorization under this permit if the construction activities at the site are part of a larger common plan of development or sale that comprise of at least one acre of land disturbance. One or more site operators must maintain coverage under this permit for all portions of a site that have not reached final stabilization as defined in Appendix A.
- B. In the State's Coastal Zone (Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry and Jasper Counties), this permit also authorizes stormwater discharges from construction activities including clearing, grading, filling, demolition that results in soil exposure, excavating and other land disturbing activities of less than one acre located within one-half mile of a coastal receiving water which is a receiving water body as defined in the Policies and Procedures of the South Carolina Coastal Zone Management Program, updated July 1995. Projects or developments located in the Coastal Zone that are not part of a larger common plan of development or sale, that disturb one-half acre or less, and are located within one-half mile of a coastal receiving water are automatically granted coverage under this general permit without submitting an NOI to the Department provided the appropriate Best Management Practices are being used during construction activities. These construction activities require a coastal zone consistency determination, which is issued by DHEC's Office of Ocean and Coastal Resource Management. A comprehensive list of General CZC Certifications is available at <http://www.scdhec.gov/environment/ocrm/czc.htm>. Construction activities not listed require a CZC submittal and review by OCRM staff.
- C. Stormwater discharges designated by DHEC as needing a Stormwater permit under §122.26(a)(1)(v) or §122.26(b)(15)(ii) of SC Regulation 61-9 (Water Pollution Control Permits-NPDES and Land Application Permits Regulation):

<http://www.scdhec.gov/environment/water/regs/r61-9.pdf>;

- D. Discharges from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:
 - I. The support activity is directly related to the construction site required to have NPDES permit coverage for discharges of Stormwater associated with construction activity;
 - II. The support activity is not a commercial operation serving multiple unrelated construction projects by different Operators;
 - III. The support activity does not operate beyond the completion of the construction activity at the last construction Project it supports; and
 - IV. The appropriate erosion prevention and sediment controls and measures applicable to the support activity, including any measures or monitoring required under the current NPDES General Permit for Stormwater Discharges from Industrial Activities, are described in the Comprehensive Stormwater Pollution Prevention Plan (SWPPP) covering the discharges from the support activity areas.

- E. Discharges composed of allowable discharges listed in Sections 1.3.1 and 1.3.2 commingled with a discharge authorized by a different NPDES permit and/or a discharge that does not require NPDES permit authorization.

1.3.2 Allowable Non-Stormwater Discharges

- A. The following non-Stormwater discharges are authorized by this permit, provided the non-Stormwater component of the discharge is in compliance with and managed according to Section 3.2.11 (Management of Non-Stormwater Discharges):
 - I. Discharges from fire-fighting activities;
 - II. Fire hydrant flushings;
 - III. Waters used to wash vehicles where detergents are not used;
 - IV. Water used to control dust in accordance with Section 3.2.2 (Stormwater Management and Sediment Control);
 - V. Potable water including uncontaminated water line flushings;
 - VI. Routine external building wash down that does not use detergents;
 - VII. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
 - VIII. Uncontaminated air conditioning or compressor condensate;
 - IX. Uncontaminated ground water or spring water;
 - X. Foundation or footing drains where flows are not contaminated with process materials such as solvents;
 - XI. Uncontaminated excavation dewatering;
 - XII. Landscape irrigation; and
 - XIII. Dechlorinated swimming pool discharges.

- B. All non-Stormwater discharges authorized by this permit shall not cause erosion of soil or the stream bank and shall not cause or contribute to violations of water quality standards.

1.3.3 Limitations On Coverage

- A. This permit does not authorize post-construction discharges that originate from the construction site after land-disturbing activities have been completed and the construction site has achieved final stabilization, including any temporary support activity. Post-construction Stormwater discharges from industrial sites may need to be covered by a separate NPDES permit.
- B. This permit does not authorize Stormwater discharges associated with construction activity that have been covered under an individual permit or required to obtain coverage under an alternative general permit in accordance with Section 6.2.
 - I. This permit does not authorize stormwater discharges from mining activities. Mining discharges are covered under a separate NPDES permit.
 - II. This permit does not authorize stormwater discharges from a landfill after the landfill becomes operational. Discharges from an operational landfill and landfill expansions are covered under a separate NPDES permit.
- C. This permit does not authorize discharges that DHEC, prior to authorization under this permit, determines will cause, have the reasonable potential to cause, or contribute to a violation of any applicable Water Quality Standard. Where such a determination is made prior to authorization, DHEC may notify you that an individual permit application is necessary in accordance with Section 6.2. However, DHEC may authorize your coverage under this permit after you have included appropriate controls and implementation procedures in your C-SWPPP designed to bring your discharge into compliance with water quality standards.
- D. **Discharging into Receiving Waters with an Approved Total Maximum Daily Load Analysis.** The following is a list of limitations on coverage under this permit for discharges into receiving waters with an approved TMDL. See Section 3.2.12 for guidance on C-SWPPP documentation with regards to TMDL eligibility.
 - I. You are not eligible for coverage under this permit for stormwater construction discharges of pollutants of concern to waters for which there is an EPA approved or established Total Maximum Daily Load (TMDL) for the same pollutant unless you incorporate into your SWPPP measures or controls that are consistent with the assumptions and requirements of such TMDL.

- II. You are not eligible for coverage under this permit in the situation where an EPA approved or established TMDL has specified a general Waste Load Allocation (WLA) applicable to construction Stormwater discharges and where no specific requirements for construction sites have been identified in the TMDL, unless you consult with the Department to confirm that adherence to a SWPPP that meets the requirements of the CGP will be consistent with the TMDL.

- III. You are not eligible for coverage under this permit in a situation where an EPA approved or established TMDL has not specified a Waste Load Allocation applicable to construction Stormwater discharges, but has also not specifically excluded these discharges, unless adherence to a SWPPP that meets the requirements of the CGP is assumed to be consistent with the approved TMDL.

- IV. You are not eligible for coverage under this permit in a situation where an EPA approved or established TMDL specifically precludes stormwater construction discharges to the receiving waters.

1.4 Waivers For Certain Small Construction Activities

- A. Three scenarios (Rainfall Erosivity Waiver, TMDL Waiver, and Equivalent Analysis Waiver) exist under which small construction activities (see definition in Appendix A) may be waived from the NPDES permitting requirements detailed in this CGP. These waivers are applicable only to small construction activities and are predicated on certain criteria being met and proper notification procedures being followed, including submittal and approval of waiver certifications prior to commencement of construction activities.

- B. Details of the waiver options and procedures for requesting a waiver are provided in Appendix B (Small Construction Activity Waivers and Instructions).

Section 2: AUTHORIZATION FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITY

2.1 REQUIREMENTS OF OPERATORS

Construction Site Operators must complete and submit, if required, the appropriate NOI form as specified below. “Operator” for the purpose of this permit and in the context of stormwater associated with construction activity means any person associated with a construction project who meets one of the following two criteria:

- A. The person has operational control over construction plans, SWPPPs, and specifications, including the ability to request modifications to those plans, SWPPPs, and specifications by a qualified individual identified in Section 3.1.2.B of this permit. This person is typically the owner or developer of the project or a portion of the project (subsequent builders), and is considered the Primary Permittee; or
- B. The person has day-to-day operational control of those activities at a construction site, which are necessary to ensure compliance with a SWPPP for the construction site or other permit conditions. This person is often referred to as the Operator of Day-to-Day Site Activities (OSDA) and is typically a contractor or a residential builder who is hired by the Primary Permittee. This person is considered a Secondary Permittee for a residential development.

2.2 CATEGORIES OF OPERATORS

2.2.1 Primary Permittee

- A. An owner, developer(s) or operator of a project is a primary permittee. This person meets one or both of the definitions of Operator above. This person may include, but is not limited to a developer, landowner, realtor, builder, utility provider, public or private entity, etc. The Primary Permittee’s responsibility to comply with requirements of this permit extends until permit coverage is terminated in accordance with requirements of Section 5. The Primary Permittee must submit a complete and accurate NOI as described in Section 2.3. The Primary Permittee may rely on, or require, Secondary Permittees and/or contractors to assist with project activities necessary to ensure compliance with this permit and implementation of the OS-SWPPP
- B. The Primary Permittee on any construction site subject to this permit is responsible for preparation of the site-specific C-SWPPP as described in Section 3 of this permit.
- C. The Primary Permittee on any construction site shall either enforce compliance

with the approved, site-specific OS-SWPPP or report activities, which are not in compliance with the OS-SWPPP or this permit, to the appropriated Regulatory Agency when a Secondary Permittee fails to implement the appropriate BMPs or other measures as outlined by the OS-SWPPP or this permit.

2.2.2 **Secondary Permittees**

An individual lot owner or residential builder that conducts land-disturbing activity at a construction site, that is limited to an individual lot or a group of lots that are part of a LCP previously approved by the Department, is a Secondary Permittee.

A. Residential Subdivisions – Individual and/or Multiple Lots

Individual lots or a collection of individual lots within a residential subdivision that are part of a Larger Common Plan (LCP) are regulated regardless of lot size or ownership. If the Primary Permittee obtains coverage under this permit for the development and then sells lots within the development, then coverage under this permit may either continue with the Primary Permittee or the Primary Permittee may require that the new lot owner (or new lot owner may choose to) obtain their own coverage under this permit as a Secondary Permittee. The Primary Permittee must inform the new owner of the Individual Lot Notice of Intent requirements and make the OS-SWPPP and a copy of the CGP available to the new owner who would be seeking individual lot(s) coverage under this permit. When a Secondary Permittee elects to not follow the drainage provisions in the Primary Permittee's approved OS-SWPPP, the Department may require the Secondary Permittee to request coverage under this permit as a Primary Permittee.

Each individual lot(s) owner or residential builder obtaining their own coverage under this permit will be issued a new NPDES permit coverage number and assigned a state file number linked to the LCP by the Department.

For projects covered under the 2006 CGP and where an individual lot owner or residential builder has signed a Co-permittee Agreement, those individual lot owners or residential builders may continue to work under that agreement as a Co-permittee as long as the project's coverage remains active and under the control of the operator to whom coverage was originally granted.

Lot owners obtaining their own coverage under this permit shall:

- I. Complete and submit an Individual Lot Notice of Intent (IL-NOI) meeting the requirements set forth in Section 2.3.2 (NOI for Secondary Permittees) at least seven (7) business days prior to the commencement of construction activities by the Secondary Permittee at the site unless your project must comply with condition III below.

II. Indicate on the NOI that the new lot owner will follow the approved OS-SWPPP and individual lot controls developed for the LCP or develop a sediment and erosion control plan meeting the requirements set forth for a Comprehensive SWPPP in Section 3.1.1.G.

III. For construction sites located in the Coastal Zone, an individual Coastal Zone Consistency (CZC) certification may be required from DHEC's Office of Ocean and Coastal Resource Management. The General CZC certification issued on September 4, 2012 (GCZC-12-001) certifies many residential lots consistent with the Coastal Zone Management Program that are part of an LCP that has been reviewed previously and deemed consistent. Some exclusions do apply for residential lots that would affect coastal resources. (See the GCZC at <http://www.scdhec.gov/environment/ocrm/czc.htm>.)

For residential lots not covered by the General CZC, a 10-calendar day public notice of the CZC application may be required as part of the CZC review.

IV. Individual lot owners and residential builders with multiple lots within a LCP may submit only one (1) Individual Lot NOI for coverage under this permit.

2.2.3 **Contractors**

Contractors employed by the Primary or Secondary Permittee, whose work at a construction site may disturb soils or whose work may otherwise be necessary to implement the approved On-Site SWPPP (OS-SWPPP), must complete a project-specific Contractor Certification Form meeting the requirements set forth in Section 2.3.2. Each contractor must also attend and document attendance at a Pre-Construction Conference as defined in Sections 2.2.3.B and 4.1 of this permit. This form is to be submitted to the Primary Permittee or Secondary Permittee (as applicable) prior to commencement of construction activities and is to be retained with the approved, OS-SWPPP at the site. Contractors are responsible for ensuring that their activity is in compliance with the approved OS-SWPPP and other permit conditions.

An alternate certification process for contractors that are utility providers is outlined below.

A. Utility Providers and Utility Contractors

Utility providers and utility contractors that are responsible, either directly or indirectly, for the construction, installation, and maintenance of conduits, pipes, pipelines, cables, wires, trenches, vaults, manholes, and similar structures or devices for the conveyance of natural gas (or other types of gas), liquid petroleum products, electricity, telecommunications (telephone, data, television, etc.), water or sewage are required to complete a Contractor Certification Form or as an

alternative, may submit an Annual Blanket Notice of Intent (AB-NOI) to the Department.

An approved Annual Blanket NOI provides statewide coverage within all construction activities performed by the utility provider/contractor within common developments or LCPs for a period of one (1) calendar year. Each Annual Blanket NOI must be submitted on or before January 1 of the year in which coverage is desired, except for calendar year 2012 in which case the Blanket NOI shall be submitted within sixty (60) days of the effective date of this permit. The Annual Blanket NOI will contain all applicable information contained in Section 2.3.2 of this permit, and must be retained within the On-Site SWPPP.

The Utility Provider/Contractor at each site shall provide a copy of the approved Annual Blanket NOI or equivalent registration information provided by the Department to the Primary Permittee or Secondary Permittee (as applicable) prior to performing land-disturbing activities at a construction site.

In order for a utility provider/contractor to be eligible to perform land-disturbing activities under an approved Annual Blanket NOI, the land-disturbing activities and location of utilities must have also been accounted for and approved, in terms of wetlands impacts, stormwater management, sediment control and erosion prevention, and coastal resource impacts (coastal zone only), within the approved C-SWPPP of each construction site. In instances where the utility work was not incorporated within the approved C-SWPPP, the utility provider/contractor may prepare a C-SWPPP and submit the NOI as a Primary Permittee based on the provisions in this permit. As an additional option, the original Primary/Secondary Permittee may submit a modification to the existing permit coverage to include the proposed utility work, if applicable or appropriate, as defined in section 3.1.7, or the Primary/Secondary Permittee may submit a new C-SWPPP and NOI, linked as an LCP to the previous approved construction project or site, to obtain coverage for the proposed utility work.

For projects covered under the 2006 CGP and where a contractor has signed a Co-permittee Agreement as required by that permit, those Contractors may continue to work under that agreement as a co-permittee as long as that project's coverage remains active and under the control of the to whom coverage was originally granted.

B. Pre-Construction Conference

All contractors and builders, including blanket utility providers or utility contractors, employed by a Primary or Secondary Permittee to work at a construction site with an approved OS-SWPPP must attend and document attendance at a pre-construction conference for each specific project or construction site prior to performing construction activities at that site. This

documentation must be retained with the On-Site SWPPP. See Section 4.1 for additional details.

2.2.4 **Lending or Other Institutions**

If a lending institution, government entity, etc. takes operational control of a construction site due to foreclosure, permittee filing for bankruptcy, abandonment, etc., then that entity is responsible for the construction site's stormwater discharges. Coverage is required under this permit prior to the entity initiating construction activity at the site. The entity shall contact DHEC within fourteen (14) business days of taking title to the property. If stabilization of the inherited construction site is required, DHEC may issue a compliance agreement.

2.3 **NOTICE OF INTENT AND OTHER REQUIRED INFORMATION**

Applicants seeking coverage under this permit must use the NOI forms provided by the Department. Forms will be made available at:

www.scdhec.gov/stormwater

Other forms (Regulated MS4, review authority acceptable to DHEC) may be used as long as they contain the information specified in Section 2.3.1 and 2.3.2 below.

2.3.1 **NOI Requirements for Primary Permittees**

Applicants seeking coverage under this permit as a Primary Permittee, as outlined in Section 2.2.1, must provide the following information on the NOI form:

- A. Owner/Operator name, address, telephone number, and Employer Identification Number (EIN) as established by the U.S. Internal Revenue Service;
- B. Project/Site name, address, county or similar governmental subdivision, tax map number, and latitude/longitude of your construction Project or Site;
- C. Property owner name, address, and telephone number if property owner is different from Owner/Operator;
- D. Whether your site is located on Indian Land and if so, the name of the Reservation, if applicable;
- E. Whether the SWPPP has been prepared in accordance with this CGP;
- F. Name and classification of the Water(s) of the State into which your Site discharges and identification of proposed impacts, if any, to jurisdictional and non-jurisdictional waters, including impacts of construction activities to SC Navigable Waters (SCNW);
- G. Coastal Zone Only: Identification of proposed impacts, if any, to direct Critical Area.
- H. Indication whether your discharge is consistent with the assumptions and requirements of applicable TMDLs;

- I. Estimated dates of commencement of construction activity and final stabilization (i.e., Project start and completion dates);
- J. Total acreage of the construction site and total acreage (to the nearest tenth acre) to be disturbed for which you are requesting permit coverage;
- K. A certification statement, signed and dated by an authorized representative as defined in §122.22 of SC Regulation 61-9 (see Appendix C of this permit), and the name and title of that authorized representative. The signature on the submitted NOI must be original; and
- L. Any other information, pertinent to this permit, the Department requires on the NOI form.

2.3.2 **Requirements for NOIs for Secondary Permittees, Annual Blanket Utility Providers, and Contractor Certifications**

Secondary Permittees seeking coverage under this permit, as outlined in Section 2.2.2 for an individual lot owner or residential builder, must provide the following information on the NOI Form. Contractor Certifications Forms must contain items A, B, H, and I at a minimum, and the Annual Blanket Notice of Intent must contain items A, H, and I at a minimum.

- A. Secondary Permittee or Contractor name, address, telephone number, and Employer Identification Number (EIN) as established by the U.S. Internal Revenue Service;
- B. Project/Site name, subdivision name and lot number(s) (if applicable), NPDES coverage number for Primary Permittee;
- C. Property owner name, address, and telephone number if property owner is different from Owner/Operator;
- D. The name, address, and telephone number of the individual to whom the Secondary Permittee has assigned the responsibility for the daily operational control of the site;
- E. Estimated dates of commencement of construction activity and final stabilization (i.e., Project start and completion dates);
- F. Total acreage of the construction site and total acreage (to the nearest tenth acre) to be disturbed for which you are requesting permit coverage;
- G. An indication that the provisions of the Primary Permittee's approved OS-SWPPP will be adhered to by the Secondary Permittee while conducting any construction activity at the site, or an indication that the Secondary Permittee will develop a C-SWPPP for their discharges consistent with the provisions of Section 3 of this permit. C-SWPPPs developed by the Secondary Permittee to address their discharges only should be provided to the Primary Permittee for inclusion in the Comprehensive SWPPP when the Secondary Permittee's SWPPP is not consistent with the design provided by the Primary Permittee;
- H. A certification statement, signed and dated by an authorized representative as defined in §122.22 of SC Regulation 61-9 (see Appendix C of this permit), and the name and title of that authorized representative. The signature on the

- submitted NOI must be original; and
- I. Any other information, pertinent to this permit, the Department requires on the NOI form.

2.3.3 **Other Required Information**

The following information and fees must also be submitted with the NOI form for the NOI application to be complete:

- A. The fee for coverage under this CGP. A check made payable to SC DHEC or indication that the permittee wishes to pay via credit card. SC Regulation 61-30, Environmental Protection Fees, governs this fee. At the time of issuance of this CGP the fee was \$125. This fee applies to each request for coverage under this CGP.
- B. If DHEC reviews your C-SWPPP prior to granting coverage under this CGP, the NPDES plan review fee of \$100 per disturbed acre not to exceed \$2000. This fee is in addition to the fee for coverage under this CGP.
- C. If DHEC reviews a major modification, per section 3.1.7.C, to a SWPPP, the NPDES plan review fee is \$100 for the modification and \$100 per disturbed acre increase from what was approved under the original NOI, not to exceed \$2000 for the entire Project/Site.
- D. Written approval from the Regulated MS4 or entity, other than DHEC, if such a review is required under either an MS4 Program or SC Regulation 72-300. These approvals may not be required when submitting an Individual Lot Notice of Intent.
- E. A copy of the Comprehensive SWPPP with the supporting documents and calculations.
 - I. The Comprehensive SWPPP is not required to be submitted to DHEC if the construction site is located within a Regulated MS4 or entity delegated under Regulation 72-300 unless requested by the Department.
- F. In the Coastal Zone, submission must include an application for Coastal Zone Consistency (CZC). An individual CZC certification provided by DHEC's Office of Coastal Resource Management (DHEC-OCRM) is required for your proposed construction activities as part of your Notice of Intent unless your proposed activities are covered under a General Zone Consistency (GCZC) Certification issued by DHEC-OCRM. A comprehensive list of GCZC Certifications and CZC application information can be found at:
<http://www.scdhec.gov/environment/ocrm/czc.htm>

A 10-calendar day public notice CZC application is required as part of the CZC review for construction activities not covered under the GCZC.
- G. For Secondary Permittees applying for coverage using the Individual Lot(s) NOI, a plat, plan or map must be submitted outlining and identifying each lot included in their request for permit coverage.

2.4 SUBMISSION DEADLINES

Deadlines for submission of an initial or a modified Notice of Intent application and other required information are defined below for “New” and “Ongoing” projects.” Appendix A defines a “New Project” as one that commenced construction after the effective date of this general permit. An “Ongoing Project” is one that commenced construction before the effective date of this permit.

2.4.1 New Projects

A. To obtain coverage under this CGP, you must submit a complete and accurate NOI and other information required in Section 2.3.3 prior to commencement of construction activities. Land disturbing activities may not commence until written approval is granted by the Department in accordance with Section 2.6.

2.4.2 Permitted Ongoing Projects

A. If you previously received authorization to discharge for the current phase of your Project under the 2006 CGP, you shall be granted coverage under this general permit as long as your construction site complies with Section 3.1.1.F of this permit. There will be no additional fees associated with an extension of coverage for existing sites under the new general permit. However, the Department may, at its discretion, require an Applicant to confirm their intent to be covered under this new permit following its effective date. Should confirmation be requested and not provided within 30 calendar days from the date of the written request, coverage under the new general permit will be terminated. Should a site with terminated coverage be determined not to be finally stabilized or construction continues; the Owner/Operator must submit a new NOI, Comprehensive SWPPP, and all other required information, under Section 2.3 of this permit, along with appropriate fees. All construction activities must cease, except for those required to stabilize the site, until authorization to discharge may be granted.

B. All projects that received permit coverage under the 2006 CGP must modify their current SWPPP, as required by Section 3.1.1.F, and any SWPPP changes must be implemented no later than six (6) months following the effective date of the new permit.

C. For projects covered under the 2006 CGP, any individual or group that has signed a Co-permittee Agreement may continue to conduct work as a Co-permittee as long as the project’s coverage remains active and under the control of the operator to whom coverage was originally granted.

2.4.3 New Owner/Operator of Ongoing Projects

A. Where the Operator changes (new Owner), after the initial NOI and

Comprehensive SWPPP (C-SWPPP) have been approved, the Department must be notified in writing within fourteen (14) calendar days. Accompanying this notification, the new Operator must submit one of the following:

- I. A New NOI and C-SWPPP, when the new Operator does not agree to comply with the approved C-SWPPP and/or elects to modify the approved C-SWPPP; or
- II. A New NOI and Compliance Statement, when the new Operator agrees to comply with the approved C-SWPPP. Note that the C-SWPPP must still be updated, if not already completed, in compliance with section 3.1.1.F.1.

The New Operator may not commence work at the construction site until approved by the Department. The new NOI and C-SWPPP must reference the project's name and tracking number assigned to the initial Operator's NOI and C-SWPPP. If the construction site is located in an MS4 area, the MS4 Operator must also receive notification of the change in Operator (new Owner).

- B. If the construction site under the control of the new Owner is inactive and all areas disturbed have reached stabilization, the NOI may not need to be submitted immediately. Written notification to the Department should:
 - I. Identify both the previous Owner and new Owner that will obtain operational control at a construction site,
 - II. Identify the construction site as inactive,
 - III. Identify each project area and the stabilization status (either as temporary stabilization or final stabilization),
 - IV. Provide a detailed explanation for delayed commencement of construction at the construction site under the direction of the new Owner and proposed plans, schedule, dates, etc. for recommencement under the new Owner, and;
 - V. A NOI will need to be submitted before any additional construction activities are to be implemented at the construction site.
- C. If the site under the control of the new Owner is inactive and all areas disturbed have not reached stabilization, the new Owner must obtain permit coverage and provide stabilization as defined in this permit. Stabilization measures may be implemented prior to issuance of new permit coverage.
- D. If the new Owner or Operator has elected to modify the layout of the construction site, there-by altering the approved, Comprehensive SWPPP, then the new Owner or Operator must apply for new coverage under this permit, per Section 2 of this permit.
- E. If upon the sale or transfer of the construction site's ownership does not change the signatory requirements for the NOI, but the site's owner or developer's company name has changed, an updated NOI should be submitted to the

Department along with written notification defining the proposed sale or transfer of ownership. If the new Operator agrees to comply with an existing Comprehensive SWPPP already implemented at the site, a SWPPP acceptance and compliance statement should be included in the notification to the Department. If the new Operator does not agree to comply with an existing C-SWPPP, a new C-SWPPP must be submitted with the NOI to apply for new coverage under this permit.

- F. Each new Owner/Operator will be subject to the standard NPDES permit coverage fee of \$125 for construction sites. There will be no additional review fees associated with the sale or transfer of ownership for existing permitted construction sites when no major modifications to a SWPPP occurs.
- G. If the transfer of ownership is due to foreclosure or a permittee filing for bankruptcy proceedings, see 2.2.4.

2.4.4 Un-Permitted Ongoing Projects

- A. If construction activity is implemented at any location without obtaining coverage under this permit or without previous authorization to discharge under the 2006 CGP, the Owner or Operator must:
 - I. Submit an NOI with the required other information within 90 days of the issuance date of this permit; and
 - II. Until you are authorized under this permit consistent with *Section 2.6*, all construction activities must cease, except for those required to stabilize the site, until authorization to discharge may be granted.
- B. If you meet the termination of coverage requirements in accordance with Section 5.1 within 90 days of the effective date of this permit (e.g., construction will be finished and final stabilization achieved) you must comply with a SWPPP consistent with this permit until permit coverage is no longer required. This provision is only applicable for 90 days from the effective date of this permit.
- C. DHEC may take enforcement for any un-permitted discharge or violations of laws or regulations that occur between the time construction commenced and discharge authorization.

2.4.5 Late Notifications

- A. NOIs submitted after initiating clearing, grading, filling and excavation activities (including borrow pits and stockpile material storage areas), or other similar construction activities for projects or sites required to obtain authorization under this permit are considered late. When a late NOI is submitted, authorization for discharges occurs consistent with Section 2.6. DHEC may take enforcement for

any un-permitted discharge or violations of laws or regulations that occur between the time construction commenced and discharge authorization.

2.5 WHERE TO SUBMIT

You must send a complete and accurate NOI application, consistent with Section 2.3, to the appropriate DHEC office based on the location of the construction activity:

Non-Coastal Sites

S.C. DHEC - Bureau of Water
Stormwater Permitting Section
2600 Bull Street
Columbia, SC 29201-1708

Coastal Zone

S.C. DHEC- Bureau of Water
Coastal Stormwater Permitting Section
1362 McMillan Ave., Suite 400
Charleston, S.C. 29405

If the Department provides an alternate means of permitting, for instance via a website, then the NOI must be submitted as directed by the Department.

2.6 AUTHORIZATION TO DISCHARGE

2.6.1 **Authorization to discharge is granted based on the timeframes specified in Table 2-1 below. For project sites located in the Coastal Zone, the timeframes provided below do not commence until a Coastal Zone Consistency determination has been issued for the site.**

Table 2-1: DHEC's Review Time Table

Review Type	Allotted Review Time Frame
Regulated MS4 or entity implementing Regulation 72-300	7 business days of DHEC receipt of a complete NOI and fee payment.
DHEC (when construction site is subject to State C-SWPPP reviews)	20 business days of DHEC receipt of a complete NOI and fee payment.
Secondary Permittees (when individual lot coverage is requested/required)	7 business days of DHEC receipt of a complete individual lot NOI.

If DHEC does not send a letter authorizing coverage, denying coverage, providing review comments, or advising that a review of the C-SWPPP will take place, the authorization to discharge will be automatically granted.

- 2.6.2 If a US Army Corps of Engineers' 404 Permit or DHEC 401 Water Quality Certification is required by Section 404 or 401 of the CWA for permanent or temporary Stormwater control structures, DHEC may not grant you coverage under this CGP until the 404 and 401 permits have been issued and are effective.
- A. In situations where the 404 Permit decision will not affect the implementation of a SWPPP, the Department will issue approval of the SWPPP and grant coverage under this permit before the 404 Permit decision is effective.
 - B. In situations where the 404 Permit decision will affect only a portion of the "Project Area", the Department may grant the unaffected portion of the "Project Area" coverage under this permit. The remaining portion of the "Project Area" will be considered after the 404 Permit is issued and effective.
 - C. In situations where the entire "Project Area" is affected by the 404 Permit decision, the Department will not grant coverage under this general permit until the 404 Permit decision is issued and effective.
- 2.6.3 In the Coastal Zone, if a DHEC Critical Area Permit is required by SC Regulation 30-10 et. seq. for permanent or temporary Stormwater control structures, DHEC may not grant you coverage under this CGP until the Critical Area permit has been issued and is effective.
- A. In situations where the Critical Area Permit decision will not affect the implementation of the SWPPP, the Department will issue approval of the SWPPP and grant coverage under this permit before the Critical Area Permit decision is effective.
 - B. In situations where the Critical Area Permit decision will affect only a portion of the "Project Area", the Department may grant the unaffected portion of the "Project Area" coverage under this permit. The remaining portion of the "Project Area" will be considered after the Critical Area Permit is issued and effective.
 - C. In situations where the entire "Project Area" is affected by the Critical Area Permit decision, the Department will not grant coverage under this general permit until the Critical Area Permit decision is issued and effective.
- 2.6.4 When permanent or temporary structures will be placed in South Carolina Navigable Waters, the Department will address any issues related to South Carolina Navigable Waters' Program under SC Regulation 19-450 during the review of the C-SWPPP rather than requiring a separate South Carolina Navigable Waters Permit. This provision will only apply to activities that will not require a 404 permit or a 401 certification.

2.6.5 DHEC may deny or delay your coverage based on eligibility considerations of Section 1.3 (e.g., TMDL concerns)

Section 3: STORMWATER POLLUTION PREVENTION PLANS

3.1 OVERVIEW

3.1.1 General Information

- A. A Stormwater Pollution Prevention Plan (SWPPP) is a fundamental requirement for coverage under this permit. To adequately meet this requirement, the Department requires development and submission of a SWPPP document. While under review, this document must be labeled as the Comprehensive SWPPP (C-SWPPP) as defined by Section 3.1.1.G of this permit. After C-SWPPP approval, a condensed version of the C-SWPPP labeled as the On-Site SWPPP (OS-SWPPP), as defined by Section 3.1.1.H of this permit, must be kept at the construction site until final stabilization is reached and coverage under this permit has been terminated.
- B. The Comprehensive SWPPP (C-SWPPP) must be prepared prior to submission of an NOI as required in Section 2 of this permit. At least one C-SWPPP must be developed for each construction site seeking coverage under this permit and a qualified individual, when applicable, as defined by Section 3.1.2.B, in accordance with Good Engineering Practices (GEP) must prepare the C-SWPPP.
- C. The C-SWPPP is to be consistent, at a minimum, to the standards listed in SC Regulation 72-300, unless specifically exempted by SC Regulation 72-302.A.
- D. The Comprehensive Stormwater Pollution Prevention Plan (C-SWPPP) must:
 - I. Be site-specific;
 - II. Identify all potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges from the construction site;
 - III. Describe practices to be used to reduce pollutants in stormwater discharges from the construction site,
 - IV. Assure compliance with the terms and conditions of this permit when properly implemented; and
 - V. If the C-SWPPP must be prepared by an individual identified in *Section 3.1.2.B*, the C-SWPPP must contain the following certification:
 - (a). “I have placed my signature and seal on the design documents submitted signifying that I accept responsibility for the design of the system. Further, I certify to the best of my knowledge and belief that the design is consistent with the requirements of *Title 48, Chapter 14 of the Code of Laws of SC, 1976* as amended, pursuant to *Regulation 72-300 et seq.* (if applicable), and in accordance with the terms and conditions of *SCR100000*.”

- E. The Permittee must implement the approved C-SWPPP at the construction site as written from commencement of construction activities until final stabilization has been reached. The approved, C-SWPPP to be implemented will be a condensed version, as defined in Section 3.1.1.H, and will be labeled as the On-site SWPPP (OS-SWPPP).
- F. All SWPPPs associated with coverage approvals under the 2006 CGP, where coverage has not been terminated, will have to be updated in accordance with Section 3.1.1.F.I. Upon request, the Permittee shall make the updated SWPPP available for review by DHEC, MS4, or other local review entities. **Any SWPPP changes must be implemented no later than six (6) months following the effective date of the new permit.**
- I. The SWPPP approved for coverage under the 2006 CGP, will have to be revised to meet the following requirements in order to come into compliance with this permit:
- (a). **3.1.1.H.V.(h) – Record Keeping.** An appendix must be added to the SWPPP to track the progress, compliance, modifications, and those associated with the construction site.
 - (b). **3.2.10 – Non-Numeric Effluent Limits.** Site-specific procedures and information must be included within the C-SWPPP that addresses all applicable Non-Numeric Effluent Limits, which would not significantly impact the approved design (i.e., would not be considered a Major Modification per Section 3.1.7.C of this permit). This would include, but is not limited to, any addition/relocation of erosion control BMPs, changes to internal drainage patterns, limiting the amount of disturbed area allowed at any given time, minimizing steep slopes, enhancing the stabilization of steep slopes, preserving topsoil, minimization of exposed construction debris, and restricting the use of the additional prohibited discharges listed in Section 3.2.10.E of this permit.
 - (c). **4.2.B – Frequency of Site Inspections.** All references to construction site inspection frequencies that are greater than once every calendar week must be revised to meet this weekly inspection requirement.
 - (d). **4.2.D - Rain Gauge.** A rain log must be added as an appendix of the SWPPP.
 - (e). **4.2.H - Inspection Records.** An inspection log must be added as an appendix of the SWPPP.
- II. The SWPPP approved for coverage under the 2006 CGP, will not have to meet the following requirements to come into compliance with this permit:
- (a). **3.1.1.A – Development of a Comprehensive and On-site SWPPP.** For inspection, maintenance, and construction purposes, the SWPPP to be referred to and implemented shall be the SWPPP approved at the time when initial coverage under the 2006 CGP was granted, and would

include any revisions or modifications made to this approved SWPPP since the time when coverage was granted under the 2006 CGP.

- (b). **3.2.6.A.II.(c).(v) – Porous Baffles.**
- (c). **3.2.6.A.II.(e) - Water Surface Outlets.**
- (d). **3.2.4.C – Buffer Zone Preservation.**
- (e). **3.2.9.B – Phased Plan Requirement.**
- (f). **3.2.10.A.III.(a) – Non-Numeric Effluent Limit's Phased Plan Requirement.**
- (g). **3.2.10.A.VI - Non-Numeric Effluent Limit's Buffer Zone Requirement.**

- III. All SWPPPs associated with coverage approvals under the 1998 CGP, where coverage has not been terminated, will have to be updated to meet the requirements of this permit as identified in Section 3.1.1.F.I and the Permittee must remain in compliance with SC Regulation 72-308.B through the continued maintenance of temporary and permanent BMPs.

G. Comprehensive SWPPPs

- I. Each Comprehensive SWPPP (C-SWPPP) must be designed, approved, and implemented to meet all applicable requirements outlined by this permit. A C-SWPPP is to accompany the Notice of Intent when the Permittee is seeking coverage under this permit. The C-SWPPP is to include all applicable items outlined in Section 3.2 of this permit.

Once approved, the C-SWPPP will be condensed into the On-Site SWPPP, as outlined in Section 3.1.1.H, before undergoing implementation.

The Construction Site Plans are referenced as part of the contents of a C-SWPPP but do not have to be bound to the C-SWPPP. The Construction Site Plans should be submitted as a separate document.

- II. For non-linear construction sites disturbing more than 5 acres, the Comprehensive SWPPP must be submitted with a phased erosion prevention and sediment control plan in accordance with Section 3.2.9.B of this permit.
- III. For any Comprehensive SWPPPs associated with a Larger Common Plan (LCP), specifically associated with residential development, the C-SWPPP must be designed in a manner that the entire project site, during construction and through final build out, is in compliance with this permit. A Comprehensive SWPPP designed to the above conditions will allow Secondary Permittees to apply for individual lot coverage under this general permit by referencing and implementing the approved OS-SWPPP.

H. On-Site SWPPPs

- I. An On-Site SWPPP is a derivative of the Comprehensive SWPPP and is created after the C-SWPPP has been submitted to and approved by DHEC, a regulated MS4, a tribal or an entity delegated under Regulation 72-300. Once the On-Site SWPPP is created from the approved C-SWPPP, it is to be stored at the construction site as required by Section 3.1.6.
- II. The On-Site SWPPP must include the same stormwater management and sediment control plan, and the same construction site plans included in the Comprehensive SWPPP approved for the site.
- III. Each On-Site SWPPP will act as the construction site's living documentation that will be followed as the stormwater pollution prevention plan is implemented, updated as modifications are made, and used as a record log as stages of the approved OS-SWPPP are completed until the construction site has reached final stabilization and coverage under this permit has been terminated.
- IV. The contents of the On-Site SWPPP include all items required for the review and approval of the C-SWPPP under Section 3.2 **except** for the following:
 - (a). **Engineering Reports.** Section 3.2.8.
- V. The contents of the On-Site SWPPP must also include the following additional documents which may not be required to be a part of the C-SWPPP prior to approval:
 - (a). **SC DHEC Construction General Permit.** One copy of this permit, excluding the appendices. Provisions may be made for the copy of general permit to be accessed electronically as long as a hard copy can be made available by the end of the working day when required.
 - (b). **Notice of Intent.** A stamped and approved copy of the NOI.
 - (c). **NPDES Coverage Approval Letter.** The letter generated once the C-SWPPP is determined to be in compliance with this permit.
 - (d). **Local Approvals.** Any additional letters, approvals, or certifications necessary to implement the OS-SWPPP, when necessary.
 - (e). **USACOE Approvals.** Certifications necessary to allow impacts to Waters of the State or Jurisdictional wetlands, when necessary.
 - (f). **Critical Area Permit.** (Coastal Zone Only) – Authorizations necessary to allow impacts to Critical Area when necessary.
 - (g). **Contractor Certifications.** Certifications necessary to allow contractors to conduct construction activities within the construction site.

- (h). **Record Keeping.** Any logs necessary to track the progress, compliance, modifications and those associated with the construction site. These logs may include, but are not limited to, a pre-construction conference log, an inspection log, a stabilization log, a rain log, a contractor log and/or any additional record keeping as deemed necessary by the Permittee, Contractor, DHEC, MS4 or an entity delegated under Regulation 72-300.
- (i). **CZC Certification.** For projects located in the Coastal Zone, the acquired Coastal Zone Consistency (CZC) certification must be kept in the On-site SWPPP.

3.1.2 Design And Development

- A. Each C-SWPPP must be designed and developed to specifically address the unique situations found on each construction site seeking coverage under this permit. Each C-SWPPP must include a Stormwater Management and Sediment Control Section as outlined in Section 3.2.2 of this permit.
- B. For construction sites that disturb more than 2 acres, each C-SWPPP must be prepared, amended when necessary, certified, and stamped as allowed by their respective act and regulations by a qualified individual who is licensed as follows:
 - I. **Registered professional engineers** as described in *Title 40, Chapter 22*;
 - II. **Registered landscape architects** as described in *Title 40, Chapter 28, Section 10, item (b)*;
 - III. **Tier B land surveyors** as described in *Title 40, Chapter 22*; or
 - IV. **Federal government employees** as described by *Title 40, Chapter 22, Section 280(A)(3)*.
- C. In the Coastal Zone, for construction sites that are less than 2 acres and located within one-half mile of a coastal receiving water, each C-SWPPP must be prepared according to Section 3.1.2.B when storm water runoff storage is required for the construction site for water quality treatment.

3.1.3 Signatory Requirements

- A. The C-SWPPP must be signed and certified by SWPPP preparer who meets the requirements in Section 3.1.2.B.

3.1.4 Applicable State, Tribal, or Local Programs

- A. Each C-SWPPP must be consistent with all applicable federal, state, tribal, or local requirements for soil and erosion control and stormwater management, including updates to each C-SWPPP as necessary to reflect any revisions to applicable federal, state, tribal, or local requirements for erosion prevention and sediment control through the management of stormwater runoff.

3.1.5 Reviews and Approvals

- A. The C-SWPPP is required to be **submitted for review** and approved by DHEC, a regulated MS4, or an entity delegated under Regulation 72-300 before construction activities may commence.
- B. Any Major Modification, as referenced in Section 3.1.7.C of this permit, to any SWPPP is required to be submitted to and approved by DHEC, a regulated MS4, or a or an entity delegated under Regulation 72-300 before implementation of any major modifications may commence.
- C. Minor Modifications, as referenced in Section 3.1.7.D of this permit, may be made to any SWPPP by the Permittee without approval. However, these modifications must be recorded in the On-Site SWPPP and be made available upon request by DHEC, a regulated MS4, or an entity delegated under Regulation 72-300.

3.1.6 Availability

- A. A copy of the OS-SWPPP, as defined by Section 3.1.1.H, must be retained at the construction site or a nearby location easily accessible during normal business hours, from the date of commencement of construction activities to the date that final stabilization is reached.
- B. If a location within the construction site is unavailable to store the On-Site SWPPP when no personnel are present, notice of the plan's location, along with any updated contact information, must be posted near the main entrance at the construction site.
- C. Contractors and/or Builders, who have day-to-day operational control over OS-SWPPP implementation, must have a copy of this SWPPP available at a central location within the construction site for the use by all those identified as having responsibilities under the OS-SWPPP.
- D. For linear construction of roads and utilities (i.e., electrical power lines, gas lines, main sewer trunk lines, and water distribution lines), which are not part of a LCP, where it is not practical to have the OS-SWPPP on location, the Permittee and/or Operator must upon request make the OS-SWPPP available by the end of normal business hours, or by the following business day under extenuating circumstances.
- E. On-Site SWPPPs must be made available upon request and at the time of a construction site inspection by EPA; DHEC; a tribal or an entity delegated under Regulation 72-300; local government officials; and the Operator of a Municipal Separate Storm Sewer System (MS4) receiving discharges from the construction

site to the requestor.

3.1.7 Modifications

- A. Each SWPPP must be modified if during inspections or investigations by local, state, tribal or federal officials, it is determined that any SWPPP is ineffective in either eliminating, when reasonably possible, or significantly minimizing pollutants in stormwater discharges from the construction site.

- B. Each SWPPP must be modified as necessary to include additional or modified BMPs, which are designed to correct problems identified during the construction site inspection by any qualified inspector, as identified in Section 4.2.E, or by local, state, tribal or federal officials. Revisions to each SWPPP must be completed within seven (7) calendar days following the inspection. Implementation of these additional or modified BMPs must be accomplished as described in Section 3.2.6.

- C. **Major Modifications.** Each SWPPP must be modified and submitted for review and approval by DHEC, a regulated MS4, or an entity delegated under Regulation 72-300 if any of the following conditions are met (*Regulated MS4s, tribal or local agencies with Permitting Authority, may require to be notified of additional conditions not listed below*):
 - I. Whenever there is a significant change in design, construction, operation, or maintenance at the construction site resulting in discharges that will cause, have the reasonable potential to cause, or contribute to violations to SC's Water Quality Standards.

 - II. Whenever a change in the design, construction, operation, or maintenance calls for a revision of any approved SWPPP based on the following list of modifications:
 - (a). Modifications that will affect the hydrology or trapping efficiency calculations including:
 - (i). Resizing Sediment or Detention Basins that either reduces the stormwater volume capacity and/or is resized to handle increase/decrease incoming peak flows or runoff volumes due to revised site development plans.
 - (ii). Deletion of Sediment or Detention Basin or Sediment Trap.
 - (iii). Relocation of Sediment or Detention Basins resulting in increases/decreases in receiving drainage area and/or resulting in a new/relocated basin outlet location, which is directed towards an outfall that was not approved within the C-SWPPP.
 - (iv). Addition/Removal of Sediment or Detention Basin.

- (v). Modification of Sediment or Detention Basin Outlet Structure.
 - (vi). Changes in grading that alter drainage patterns that may result in increased or decreased flow to a sediment or detention basin
 - (vii). Amending Construction Sequence in a fashion that the Detention Basin is not installed before Grubbing Operations begin.
- (b). Point Discharge or Outfall location changes.
 - (c). Any modification to regulated water quality structural control measures.
 - (d). Adding a new point discharge.
 - (e). Addition of Impervious Area due to revised site development plans.
 - (f). Addition of Disturbed Area.
 - (g). Changes to Navigable Water Crossing.
 - (h). Addition of Sediment Trap(s) when required to obtain 80% Trapping Efficiencies for disturbed areas not previously permitted or redirected away from an approved water quality BMP.
 - (i). Site layout changes that require redesigning the stormwater management system.
 - (j). Any additional modifications as determined by DHEC, a regulated MS4, a tribal or an entity delegated under Regulation 72-300.
- III. For projects located in the Coastal Zone, major modifications may require a new CZC determination to be submitted along with the revised C-SWPPP.
- D. **Minor Modifications.** The Permittee must modify the On-site SWPPP and keep a record of each modification within the On-Site SWPPP if any of the following conditions are met (*Regulated MS4s, State, tribal or local agencies with Permitting Authority, may require additional conditions not listed below*):
- I. **Addition of BMPs.** Addition of Silt Fence, Slope Drains, Inlet Protection, Outlet Protection that does not involve additional wetland impacts, or Check Dams to improve the overall stormwater management and sediment control at the construction site.
 - II. **BMP Relocations.** Relocation of Construction Entrance, pond inlet pipes (within a pond), and any other proposed BMP to improve the overall stormwater management and sediment control at the construction site.
 - III. **Removal of Disturbed Areas.** As long as the removal of the disturbed area does not also remove any BMPs (ponds, traps, etc.) that are required to meet SC's Water Quality or Quantity Standards. Removal of disturbed area only qualifies for disturbed area that was included in the initial coverage approval and that was never disturbed (i.e., cleared, grubbed or graded).
 - IV. **Modifying Individual Lot Drainage.** Unless the changes affect the inflow to a Detention Structure or Analysis Point, to which the lot drains, that was not previously approved.

3.2 CONTENTS

3.2.1 Narrative

- A. Each C-SWPPP must include a project narrative that accurately addresses the following requirements for each construction site:
- I. Scope of project outlined, including a detailed description of pre- and post-development conditions.
 - II. Description of existing and potential flooding problems at the site due to pre-construction drainage conditions, and any potential flooding problems within the surrounding area that may be a direct result of current site conditions or the proposed site development. Identify if the site is located within a floodplain.
 - III. The function of the Project (e.g., low density residential, shopping mall, highway, etc.).
 - IV. Estimates of the total area expected to be disturbed by excavation, grading, or other construction activities, including dedicated off-site borrow and fill areas.
 - V. Information regarding the required on-site support activities (e.g. concrete and asphalt batch plants, etc).
 - VI. Identification of prior uses of the construction site or potential sources of pollution that may reasonably be expected to cause or contribute to a violation of any applicable water quality standard based upon the existing condition of the construction site.

3.2.2 Stormwater Management and Sediment Control

- A. Each C-SWPPP must include a Stormwater Management and Sediment Control section that accurately addresses the following requirements for each construction site:
- I. **Industrial Stormwater Discharges.** Identify and describe the location of any Stormwater discharge associated with industrial activity other than construction activities at the construction site. This includes Stormwater discharges from dedicated asphalt plants and dedicated concrete plants, which are covered by this permit.
 - II. **Water Quality BMPs.** Identify and describe all pollution control measures (i.e., BMPs) that will be implemented as part of the construction activities to control pollutants in Stormwater discharges.
 - III. **Erosion Prevention BMPs.** Identify and describe all temporary and final stabilization practices for the construction site, including a schedule of when the practices will be implemented. Use of impervious surfaces for stabilization should be avoided.
 - IV. **Structural Control Measures and Floodplain Placement.** Identify and

describe all structural practices used to divert flows from exposed soils; to retain/detain flows; or to otherwise limit runoff and the discharge of pollutants from exposed areas of the construction site. Placement of structural practices in floodplains must be in accordance with applicable regulations.

- V. **Post-Construction Water Quality BMPs.** Identify and describe all post-construction Stormwater management measures (LIDs, BMPs, etc.) that will be installed during the construction process to control pollutants in Stormwater discharges after construction operations have been completed.
- VI. **Construction Debris Management.** Identify and describe all measures to prevent the discharge of building or other similar materials to Surface Waters of the State, except as authorized by a permit issued under section 404 of the CWA. In the coastal zone, this type of discharge may also require a Critical Area permit issued pursuant to SC Regulation 30-10 et seq.
- VII. **Construction Entrances and Dust Control.** Identify and describe all measures to minimize off-site vehicle tracking of sediments onto paved surfaces and the generation of dust.
- VIII. **Stock Pile Management.** Identify and describe potential construction and waste materials expected to be stored on-site. The controls, including storage practices such as roll off containers, spill prevention, and response practices used to minimize exposure of these waste materials to Stormwater discharges must also be identified and described.
- IX. **Additional Onsite and Offsite Pollution Identification.** Identify and describe potential pollutant sources from areas other than construction (including Stormwater discharges from dedicated asphalt plants and dedicated concrete plants), and controls and measures that will be implemented at those Sites to minimize pollutant discharges.

3.2.3 Sequence of Construction

- A. The C-SWPPP must include a Sequence of Construction that accurately describes the nature of the construction activity for each construction site. The Sequence of Construction must include, at a minimum, the following:
 - I. The intended sequence and timing of all planned major construction activities that disturb soils such as clearing and grubbing, installing sediment basins prior to remaining land disturbance, initial and final grading, and cut and fill activities at the construction site.
- B. When phased erosion prevention and sediment control plans are required, pursuant to Section 3.2.9.B, each phase must include a phase-specific sequence of construction that accurately describes the nature of all construction activity for each phase at the construction site.

- C. The Sequence of Construction must be included within the Construction Site Plans, per Section 3.2.9. The Sequence of Construction should begin with the installation of any construction entrances and installation of perimeter controls, and should end with the removal of all temporary sediment and erosion control measures and the conversion of any BMPs required to be converted into permanent control measures, once the site has been finally stabilized. The level of detail will vary based on the nature and complexity of the construction project

3.2.4 Site Features and Sensitive Areas

- A. The C-SWPPP must identify and delineate all Waters of the State (WoS), including wetlands, located within the disturbed area and/or the total area associated with the construction site. The C-SWPPP must also identify all WoS, including wetlands, which are located immediately adjacent to or within the surrounding area of the construction site. The C-SWPPP must also identify receiving waters, including wetlands and South Carolina Navigable Waters. The following must be addressed when a WoS is required to be identified.
 - I. An additional, separate plan sheet, provided within the construction site plans when necessary that delineates all WoS within the construction site's Limits of Disturbance, and that identifies all WoS within the surrounding or adjacent areas. This plan sheet must identify all impacted areas with a description of the activities, whether permanent or temporary, and any other relevant information.
 - II. If impacts to WoS, outlined areas of impacts and labeled that no work can begin in this area until all necessary USACOE permits and SCDHEC 401 certifications have been obtained.
 - III. If Structural BMPs are proposed to be installed within a WoS, the C-SWPPP must specifically address the requirements listed in Section 3.2.6.A.V of this permit.
- B. **Critical Areas (Coastal Zone Only)** - The C-SWPPP must identify and delineate all Critical Areas located within and/or directly adjacent to the proposed disturbed area and construction site. Any impacts to Critical Areas must be identified on the C-SWPPP with a description of the proposed activities and the amount and type of impact(s).
 - I. Identified areas of Critical Area impact(s) must be labeled on the C-SWPPP that no work can begin in these areas until all necessary Critical Area authorizations have been obtained for the work.
 - II. If a Structural BMP is proposed to be installed within a Critical Area, the C-SWPPP must specifically address the requirements listed in Section 3.2.6.A.VI of this permit.

- C. **Buffer Zone Management.** In order to minimize sediment discharges, **during construction**, if surface waters are located on or immediately adjacent to the construction site, the C-SWPPP must address any stormwater discharges from the construction site to such waters so that these discharges are treated by an undisturbed buffer zone that is capable of achieving maximum pollutant removal.
- I. **Requirements.** The C-SWPPP must identify an undisturbed buffer zone that meets the following criteria when surface waters are located on or immediately adjacent to the construction site:
- (a). **30-Foot, Natural Buffer.** Provide and maintain, at a minimum, a 30-foot undisturbed buffer zone **during construction**. This Natural Buffer should be located between the surface waters and the outermost sediment and erosion controls at the construction site;
 - (b). **45-Foot, Extended Natural Buffer around Sensitive Waters.** Provide and maintain, at a minimum, a 45-foot undisturbed buffer **during construction** where the surface waters are classified as **Sensitive Waters** as defined by this permit. This Extended Natural Buffer should be located between the surface waters and the outermost sediment and erosion controls at the construction site;
 - (c). **Velocity Dissipation Requirements.** All discharges into a buffer zone should be non-channelized and non-concentrated to prevent erosion, and must first be treated by the construction site's sediment and erosion controls. Velocity dissipation measures may be implemented within a buffer zone via Section 3.2.4.C.III.(d) of this permit; and
 - (d). **Additional Local Requirements, where applicable.** The provided buffer zone should meet any local requirements, if more restrictive. Local Requirements may allow for mechanisms that would affect the width or other parameters of a buffer zone given that, in the event that the buffer zone width is less than the required 30 ft or 45 ft widths, the requirements in Compliance Option B or C, Section 3.2.4.C.II.(b) or 3.2.4.C.II.(c) respectively, are met.
- II. **Compliance Options.** The C-SWPPP must identify and address each applicable **Buffer Zone Management** requirements through one of the following Compliance Options.
- (a). **Option A – Provide the Entire Buffer Width.** Provide and maintain, at a minimum, the required buffer zone in addition to the required erosion prevention and sediment control BMPs for the construction site. C-

SWPPPs pursuing this option must also include the following:

- (i). **Narrative.** A narrative detailing that a buffer zone is to be maintained at a length of the required buffer width; and
 - (ii). **Maintenance Notes.** A list of standard notes addressing the maintenance of the buffer zone and supporting BMPs. These notes may be located within the construction site plans.
- (b). **Option B – Reduction of the Buffer Width.** Provide and maintain an undisturbed buffer that is less than the required buffer width in addition to the required erosion prevention and sediment control BMPs for the construction site. **Situations qualifying for this option are listed in Section 3.2.4.C.III - Exceptions. Other situations may be approved for this option on a site-to-site basis.** C-SWPPPs pursuing this option must also include the following:
- (i). **Narrative.** A narrative detailing that a buffer zone is to be maintained at a length less than the required buffer width;
 - (ii). **Surface Water Protection Plan.** A detailed sequence of the procedures and/or controls (including the installation of BMPs, maintenance of BMPs, and removal of BMPs) to be implemented to protect the immediately adjacent or on-site surface waters;
 - (iii). **Maintenance Notes.** A list of standard notes addressing the maintenance of the buffer zone and supporting BMPs. These notes may be located within the construction site plans.
- (c). **Option C – Elimination of the Buffer Zone.** Provide and maintain the required erosion prevention and sediment control BMPs for the construction site when circumstances restrict the capability of providing a buffer zone. **Situations qualifying for this option are listed in Section 3.2.4.C.III - Exceptions. Other situations may be approved for this option on a site-to-site basis.** C-SWPPPs pursuing this option must also include the following:
- (i). **Narrative/Justification.** A narrative **justifying** why an undisturbed buffer, of any length, will not be provided due to site-specific conditions;
 - (ii). **Surface Water Protection Plan.** A detailed sequence of the procedures and/or controls (including the installation of BMPs, maintenance of BMPs, and removal of BMPs) to be implemented to protect the immediately adjacent or on-site surface waters;
 - (iii). **Supporting Calculations.** Calculations which support that the proposed sediment control BMPs are capable of meeting the design criteria identified in State Regulation 72-307.C.(5).(a)-(c),

Sedimentology, regardless of the disturbed area discharging to the surface water; and

- (iv). **Maintenance Notes.** A list of standard notes addressing the maintenance of all BMPs discharging into surface waters. These notes may be located within the construction site plans.

III. **Exceptions.** . All or portions of the construction site may not be required to meet the entire **30-foot** (45-foot if discharging to Sensitive Waters) buffer widths, if at all, when any of the following circumstances is applicable at the construction site prior to implementation of land-disturbing activities and all items in either Compliance Option B or C are provided.

- (a). **Discharges Away from Surface Waters.** Circumstance where construction stormwater runoff will not be discharged into on-site or immediately adjacent surface waters.
- (b). **Pre-Existing Development.** Areas within the required buffer zone that have been developed prior to the issuance of this permit.
- (c). **Non-jurisdictional Waters.** This includes, but is not limited to, surface waters to be impacted and treatment works.
- (d). **Special Circumstances.** Under special circumstances, work may be allowed within the designated buffer zones, but only when any of the following apply:
 - (i). Final stabilization measures have been implemented on all disturbed areas discharging to the buffer zone;
 - (ii). Implementation of velocity dissipation measures within the buffer zone; and
 - (iii). Work in the buffer zone will not allow stormwater discharges to cause or contribute to violations of water quality standards.

IV. **Exemptions.** Disturbances at the construction site are not required to meet the **Buffer Zone Management** requirements when the C-SWPPP limits the area of disturbance to the minimum needed to complete the construction and to access the site, that all appropriate CWA 404 permits and/or authorizations are obtained, that the C-SWPPP retains the vegetation outside of the cited disturbed areas, **and** where the construction activity consists solely of any of the following circumstances:

- (a). **Linear Projects.** This includes any linear construction projects, that consists solely of either roadways and/or utilities (such as roads that are not part of a development and utility construction including electrical power lines, gas lines, main sewer trunk lines, and water distribution lines that are not part of a development);
- (b). **Construction of Water Dependent Structures and Water Access Areas.** This includes, but is not limited to, piers, boat ramps, and trails

- (c). **Habitat Restoration Projects.** This includes, but is not limited to, mitigation requirements;
- (d). **Routine Maintenance.** This includes, but is not limited to, the maintenance of existing structures located within the required buffer width; and
- (e). **2006 Permit Coverage.** Construction sites covered under the 2006 CGP, per section 3.1.1.F of this permit.

- V. **Buffer Maintenance.** The selected compliance option, from Section 3.2.4.C.II, must be maintained throughout the duration of all land-disturbing activities until final stabilization has been reached on all areas discharging to the provided buffer zone.

Each erosion prevention, sediment control, and velocity dissipating BMP discharging to a buffer zone must be maintained to ensure that each BMP is capable of achieving maximum pollutant removal.

3.2.5 Sources of Pollution

- A. The C-SWPPP must identify potential sources of pollution, including sediment and fertilizers, which are likely to affect the quality of stormwater discharges from the construction site. Identified sources of pollution must be addressed in the C-SWPPP, a few examples of sources of pollution are listed in Section 3.2.2 of this permit.
- B. Litter, construction debris, oils, fuels, and building products with significant potential for impact (such as stockpiles of freshly treated lumber) and construction chemicals that could be exposed to Stormwater must be prevented from becoming a pollutant source in Stormwater discharges, per *Section 3.2.2.A.VI and 3.2.2.A.VIII* of this permit.

3.2.6 Best Management Practices (BMPs)

- A. The C-SWPPP must include a Best Management Practices (BMPs) section that accurately and descriptively addresses the use, installation, maintenance and inspection for each of the following types of pollution control measures (i.e., BMPs) as outlined in the Stormwater Management and Sediment Control, per Section 3.2.2 of this permit:
 - I. **Erosion Prevention BMPs.** Each erosion prevention BMP must be designed, installed and maintained to achieve maximum pollutant removal, to the extent that the Permittee's discharges shall not cause or contribute to violations of water quality standards, as outlined below and by the design criteria identified in *State Regulation 72-307 - Specific Design Criteria, Minimum Standards and Specifications*, unless specifically exempted by *SC Regulation 72-302.A*.

- (a). **Stabilization.** Except as provided below, initiate soil stabilization measures as soon as practicable whenever land-disturbing activities have been temporarily or permanently ceased, but in no case more than 14 days after land-disturbing activity in that portion of the construction site has temporarily or permanently ceased.
 - (i). Where snow cover or frozen ground conditions preclude stabilization by the 14th day, stabilization measures must be initiated as soon as practicable.
 - (ii). Where construction activity on a portion of the construction site is temporarily ceased, and earth-disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the construction site.

II. **Sediment Control BMPs.** Each sediment control BMP must be designed, installed and maintained to achieve maximum pollutant removal, to the extent that the permittee's discharges shall not cause or contribute to violations of water quality standards, as outlined below and by the design criteria identified in *State Regulation 72-307.C.(5).(a)*, *72-307.C.(5).(b)* and *72-307.C.(5).(c)*, unless specifically exempted by *SC Regulation 72-302.A*.

- (a). **Inlet Protection.** Inlet protection must be provided at all existing and newly installed inlets that receive Stormwater runoff from the disturbed areas.
- (b). **Outlet Protection.** Outlet protection must be provided at all existing and newly installed outlets, within the construction site's boundary, that discharge stormwater runoff from the disturbed areas. Silt fence may not be used as outlet protection.
- (c). **Sediment Basins.** For common drainage outfalls that serve an area with 10 or more disturbed acres, a sediment basin, or equivalent sediment control BMPs, which meets the criteria identified in *State Regulations 72-307.C.(5)*, must be provided where attainable until final stabilization of the construction site is achieved. For common drainage outfalls serving an area of less than 10 acres, sediment basins are still recommended where applicable. In addition the sediment basin must be designed to meet the following requirements:
 - (i). When computing the number of acres draining into a common drainage outfall, it is not necessary to include flows from off-site areas and flows from on-site areas that are undisturbed or

have undergone final stabilization, and have been diverted around both the disturbed area and the sediment basin.

- (ii). In determining whether installing a sediment basin is attainable, the SWPPP Preparer may consider factors such as soils, slope, available area on-site, etc. If a sediment basin is determined to be not attainable, sediment traps or equivalent sediment control BMPs should be used (e.g., silt fences, vegetative buffer strips, rock check dams, rock sediment dikes, or a combination of these).
 - (iii). In any event, the SWPPP Preparer must consider public safety as a design factor for the sediment basin, and alternative sediment controls must be used where construction site limitations would preclude a safe design.
 - (iv). The Department may on a case-by-case or watershed-by-watershed basis require the use of a larger storm event and/or a larger storage volume when designing sediment basins or equivalent sediment control BMPs.
 - (v). Unless infeasible, properly design, install and maintain porous baffles, or similar control measures capable of enhancing settling capabilities and restricting the accumulation of sediment around the outlet structure, in all temporary sediment traps and sediment basins to reduce velocity, turbulence, and improve sediment trapping efficiency.
 - (vi). Unless infeasible, sediment forebays, or similar control measures capable of providing sediment trapping at inlets of sediment basins, should be installed as practicable based on sediment storage requirements of each sediment basin.
 - (vii). Unless infeasible, each sediment basin must be equipped with a cleanout stake indicating when the basin is to be cleaned.
- (d). **Sediment Traps.** For drainage outfalls serving greater than 2 acres but less than 5 acres, sediment traps, or equivalent sediment control BMPs, which meets the criteria identified in State Regulations 72-307.C, when applicable, must be provided where attainable until final stabilization of the construction site is achieved.
 - (e). **Water Surface Dewatering.** When discharging from sediment basins and similar impoundments, utilize outlet structures that only withdraw water from near the surface of the basin or impoundment,

unless infeasible. This outlet structure should be capable of conveying the flow for the 10-year, 24 storm event.

III. **Runoff Control and Conveyance Measures BMPs.** Each runoff control and conveyance measure BMP must be designed, installed and maintained to achieve maximum pollutant removal, to the extent that the permittee's discharges that shall not cause or contribute to violations of water quality standards, as outlined below and by the design criteria identified in State Regulation 72-307 - Specific Design Criteria, Minimum Standards and Specifications, unless specifically exempted by SC Regulation 72-302.A.

- (a). **Permanent Conveyance Measures.** Each conveyance measure must be stabilized and capable of handling the 10-year 24-hour storm event with non-erosive flow conditions during construction and post-construction. If the velocity exceeds 5 ft/s, then permanent velocity dissipation measures, devices, and/or erosion prevention BMPs must be installed to provide non-erosive flow conditions.
- (b). **Temporary Conveyance Channels.** Design channels to avoid disturbed areas and to reduce erosion. Divert concentrated flows of Stormwater running onto the site and within the construction site to avoid contact with soils exposed during construction, unless infeasible. Prevent erosion of channel embankments, outlets, adjacent streambanks, slopes and downstream waters during discharge conditions through the use of velocity dissipation devices (e.g., check dams, sediment traps, riprap, or grouted riprap at outlets) within and along the length of any constructed stormwater conveyance channel, and at any outlets to provide a non-erosive flow velocity.
- (c). **Stabilization of Conveyance Channels.** Complete stabilization of stormwater conveyance channels (within 7 days of channel construction). Examples of vegetative and non-vegetative stabilization techniques include channel liners, rolled erosion control products (e.g., erosion control blankets and turf reinforcement mats), riprap, geotextiles, or other armoring materials that are suitable for use in areas with concentrated or channelized flow. Application of mulch, hydromulch, tackifier, or similar erosion prevention practices that are erodible, conveyable, or that obstruct flow when used in areas with concentrated or channelized flow in stormwater conveyance channels is prohibited.
- (d). **Storm Drainage Systems.** No new point discharges onto adjacent property where there was not a point discharge previously, unless written permission from the adjacent property owner is provided. A twenty (20) foot minimum buffer should be provided, where feasible,

between the property line and the discharge point. Level spreaders, plunge pools, etc. shall be provided when the proposed outlet is near the property line and not directed to an existing outfall, such as a creek or ditch. All outlets from a storm sewer system shall not discharge on fill slopes.

- (e). **Velocity Dissipation Devices.** Appropriate Velocity Dissipation devices and/or erosion prevention BMPs must be placed at discharge locations and along the length of any outfall channel to provide non-erosive flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected. Silt fence may not be used as an energy dissipater.

IV. **Post Construction Water Quality Control BMPs.** Each post-construction water quality control BMP, including structural and non-structural BMPs, as mentioned below, must be designed, installed and maintained to achieve maximum pollutant removal, to the extent that the permittee's discharges that shall not cause or contribute to violations of water quality standards, as outlined below and by the design criteria identified in *State Regulation 72-307.C.(5).(d)*, *72-307.C.(5).(e)*, *72.307.C.(5).(f)*, *72-307.C(5)(g)* and *72-307.C.(11)*, as applicable, unless specifically exempted by *SC Regulation 72-302.A*. Design Criteria may be modified for a specific project or type of project.

V. **Structural BMPs.** All Structural BMPs should be placed on upland soils to the best degree practicable. Such control measures must be designed and installed in compliance with applicable federal, local, state or tribal requirements. The following requirements for structural BMPs proposed to be installed in jurisdictional Waters of the State:

- (a). **Permanent Structural BMPs** can only be placed in jurisdictional Waters of the United States if the US Army Corps of Engineers issues a permit for the activity under Section 404 of the CWA. When South Carolina Navigable Waters may be affected, the C-SWPPP must include appropriate requirements applicable to South Carolina Navigable Waters under SC Regulation 19-450.
- (b). **Temporary Structural BMPs** can only be placed in jurisdictional Waters of the United States if the US Army Corps of Engineers issues a permit for the activity under Section 404 of the CWA. When South Carolina Navigable Waters may be affected, the C-SWPPP must include appropriate requirements applicable to South Carolina Navigable Waters under SC Regulation 19-450. All temporary structural BMPs placed in perennial streams must be removed after final stabilization has been accomplished.

- (c). **Temporary Structural BMPs** may only be placed in Waters of the State when there is no other feasible alternative. All temporary structural BMPs placed in ephemeral and intermittent streams must be removed after final stabilization has been accomplished. After removal of the temporary structural BMPs, the ephemeral or intermittent stream must be restored to its original condition.
- (d). **Detention/Retention Ponds.** When the C-SWPPP requires the use of Detention/Retention Ponds, the ponds should be designed, constructed and maintained in accordance to *SC Reg. 72.307*.

- VI. **Permanent/ Temporary Structural BMPs in the Coastal Zone.** All US Army Corps of Engineers Permits for the construction of permanent or temporary BMPs must have an accompanying Coastal Zone Consistency certification for the impacts. Placement of temporary structural BMPs into wetlands may require a Coastal Zone Consistency certification. Structural BMPs, whether temporary or permanent, can only be placed in the Critical Area if DHEC-OCRM issues a permit for the activity under SC Regulation 30-10 et. seq. All temporary structural BMPs placed in wetlands or Critical Area must be removed after final stabilization has been accomplished.
- VII. **Non-structural BMPs.** All non-structural BMPs must be designed, installed and maintained to achieve maximum pollutant removal, to the extent that the permittee's discharges that shall not cause or contribute to violations of water quality standards, as outlined by the design criteria identified in *State Regulation 72-307 - Specific Design Criteria, Minimum Standards and Specifications*, unless specifically exempted by *SC Regulation 72-302.A*.
- VIII. **Low Impact Development BMPs.** The C-SWPPP should identify all Low Impact Development (LIDs) when these measures are proposed to treat post-development runoff in order to meet permanent water quality and/or post-development quantity requirements. LIDs and other infiltration practices for post-construction stormwater management should be constructed only after the drainage area to these practices has been stabilized.
- IX. **Additional BMPs.** Any additional BMPs, not listed above, BMP must be designed, installed and maintained to achieve maximum pollutant removal, to the extent that the permittee's discharges that shall not cause or contribute to violations of water quality standards, as outlined by the design criteria identified in *State Regulation 72-307 - Specific Design Criteria, Minimum Standards and Specifications*, unless specifically exempted by *SC Regulation 72-302.A*.

- B. The design, inspection and maintenance of Best Management Practices (BMPs) described in the C-SWPPP must be prepared in accordance with good engineering practices and at a minimum should be consistent with the requirements and recommendations contained in the current edition of the SC DHEC Stormwater BMP handbook, or an acceptable MS4, or local agency, handbook. The SC DHEC Stormwater BMP handbook is designed to provide guidance to planners, developers, engineers, and contractors on the proper selection, installation, and maintenance of BMPs.

3.2.7 Maps

- A. The C-SWPPP must include the following Maps for the Site:
 - I. **Topographic Map.** Must contain the project boundary outline, route of stormwater runoff towards the nearest receiving waterbody, overlaying contours of the site and the surrounding areas, and names of all roadways adjacent to the construction site.
 - II. **Soils Map.** Must contain the project boundary outline, the outlines of the predominate soil types found at the construction site, and the names of each soil type.
 - III. **Floodway Map.** Must contain the project boundary outlined and the boundaries of any floodplains or floodways on or adjacent to the construction site. Each floodplain must be clearly identified.
 - IV. **Vicinity Map.** Must contain the project boundary outline, north arrow, names of all roadways, towns and landmarks on or adjacent to the construction site.
- B. The C-SWPPP must include Drainage Maps, for both the pre-development and post-development conditions, including the entire construction site, identifying:
 - I. Direction(s) of Stormwater runoff and the approximate slopes anticipated after major grading activities;
 - II. Existing and/or Proposed Contours within the project boundary outline and into the surrounding area;
 - III. Drainage basins and subbasins in which Stormwater runoff collects and drains towards a common outfall location including offsite areas draining onto the site (must be consistent with *Section 3.2.8, Engineering Reports.*);
 - IV. Location of all outfall points where Stormwater runoff discharges off the construction site;
 - V. Location of all receiving waters, including wetlands and South Carolina Navigable Waters;
 - VI. Areas of soil disturbance and areas that will not be disturbed; and
 - VII. Each drainage map must be consistent with the information provided in all calculations provided within the Engineering Report, per Section 3.2.8.

- C. The C-SWPPP must include additional Drainage Maps (the pre- and post-development maps per Section 3.2.7.B may be referenced to achieve this requirement) for each BMP used to meet water quantity and water quality requirements, or as determined by DHEC, a regulated MS4, or an entity delegated under Regulation 72-300, identifying:
 - I. An outlined drainage basin of the proposed BMP;
 - II. Existing and Proposed contours within and adjacent to the drainage basin;
 - III. The location of the proposed BMP; and
 - IV. The area, in acres, associated with the drainage basin.

3.2.8 **Engineering Reports**

- A. For sites subject to SC Regulation 72-300, the Comprehensive SWPPP must include a detailed Engineering Report that contains, but is not limited to, the following calculations (The construction site may be subject to additional calculation requirements, when the C-SWPPP is under review by a MS4 or an entity delegated under Regulation 72-300, through local design requirements which may not listed below.):

- I. **Curve Number Analysis.** Each C-SWPPP must identify all curve numbers used within the Engineering Report for each condition of the construction site (pre-development, post-development, during construction, etc.) Information on how the curve numbers were obtained, including soil types, land cover and area, must be included. Any weighted curve number calculations must also be included.
- II. **Pre-/Post-Development Hydrologic Analysis.** Each C-SWPPP must use rainfall data from [South Carolina DHEC Stormwater Management BMP Handbook](#) (BMP Handbook) or another appropriate source may be used in the hydrologic calculations.

All outfalls for comparing runoff rates must be analyzed in a manner that the total area draining to these outfalls does not change from pre- to post-development conditions, although any subbasin drainage areas contributing to these outfalls may change between pre- and post-development conditions.

- III. **Detention Analysis.** Each C-SWPPP, when applicable, must provide a full pond routing for each proposed pond/basin. For each pond/basin the following, at a minimum, must be reported:
 - (a). A summary table of the peak inflows, peak outflows, and discharge velocities at each construction site outfall for each storm event analyzed.
 - (b). A summary table of the maximum water surface elevations (WSE) in

- each detention structure during each storm event analyzed.
- (c). A stage-storage-discharge relationship for the outlet structure of each detention structure analyzed.
- (d). If a rating curve for the outlet structure must be generated externally from the analysis program, the data and equations used to obtain the rating curve of the outlet structure must be included.

IV. **Permanent Water Quality Analysis.** Each C-SWPPP, when applicable, must provide detailed calculations for any structural BMP used to meet the water quality requirements listed in SC Regulation 72.307.C.(5), specifically (d), (e), (f), and (g). Infiltration practices, when applicable, must meet the design requirements provided in 72.307.C.(11).

V. **Sedimentology (Trapping Efficiency Analysis).** Each C-SWPPP, when applicable, must provide detailed calculations for any BMPs used to meet the water quality requirements during construction listed in SC Regulation 72.307.C.(5), specifically (a), (b) and (c).

VI. **As-Built Surveys.** Each C-SWPPP, when proposing to direct construction site runoff into a previously approved detention pond or another structural BMP designed to control water quality or quantity, must include an as-built survey of the existing structure prepared by a qualified individual, per Section 3.1.2.B, unless an as-built survey has been previously provided and accepted by the Department and/or by the MS4 Operator. In cases where a qualified individual certified that the previously approved structural BMP was built according to plan and DHEC staff conducted a final stormwater inspection, then the as-built survey may not be required in be included in the C-SWPPP.

The As-built Survey must provide, at a minimum, the following information:

- (a). All existing grades/contours/depths of the structure.
- (b). All elevations and dimensions of all outlet structures, including:
 - (i). Pipe and orifice inverts and diameters.
 - (ii). Weir elevations and dimensions.
 - (iii). Riser dimensions and elevations.
 - (iv). Emergency spillway dimensions and elevations.
 - (v). Locations and inverts for all pipes discharging into the pond.
- (c). Spot elevations along the top of the structural BMP's embankment.
- (d). Contours, dimension, and locations of all structural components (e.g., forebays, level spreaders, riprap aprons, inlets structures) of the structural BMPs.

VII. **Stable Channel Analysis.** Each C-SWPPP, when applicable, must submit

detailed calculations for proposed drainage channels, temporary or permanent, to ensure non-erosive flow conditions. Velocity dissipation BMPs and/or erosion prevention BMPs must be added to channels where erosive velocities are achieved

VIII. **Storm Sewer Analysis.** Each C-SWPPP, when applicable, must submit detailed calculations for any proposed storm sewer systems.

IX. **Riprap Apron Analysis.** Each C-SWPPP, when applicable, must submit detailed calculations for any proposed riprap aprons. These calculations must be based off of the most current edition of the SC DHEC BMP Handbook or other appropriate design criteria.

3.2.9 Construction Site Plans

A. The C-SWPPP must include a set of Construction Site Plans that are consistent with the requirements listed in State Regulations 72-307.A.3 and include, but are not limited to, the following requirements:

- I. The Limits of Disturbed (LOD) area must be outlined on all plan sheets.
- II. BMPs must be identified on the construction site plans using the symbols identified in the current edition of the SC DHEC Stormwater BMP Handbook or from a unique legend of symbols provided on the construction site plans. Symbols used for BMPs not identified in the Handbook must be included in the legend on each sediment and erosion control plan sheet.
- III. A construction sequence per Section 3.2.3.
- IV. Detailed Plan sheets, including grading and drainage plans, and BMP Detail sheets.

B. **Phased Plan Requirement.** For non-linear construction sites disturbing more than 5 acres, the Construction Site Plans must include a phased stormwater management plan. This phased plan identifies all BMPs and grading work implemented during a specific portion of a site's construction sequence (e.g., initial grading and perimeter controls, interim land disturbances through final grading, post-construction and final stabilization). Each phase must be addressed and identified on at least one separate plan sheet as indicated in the requirements listed in Sections 3.2.9.B.I and 3.2.9.B.II. One sheet showing all BMPs and grading work for the entire course of the construction project will not be considered a complete phased plan.

- I. For site disturbances less than 10 acres, at least two (2) separate plan phases shall be developed. Each plan phase shall be identified and must be addressed separately on at least one single plan sheet, with each sheet reflecting the conditions and the BMPs necessary to manage Stormwater runoff, erosion and sediment during the phases, at a minimum, listed below:

- (a). **Initial Land Disturbance Phase.** This includes but is not limited to the perimeter BMPs, the necessary sediment and erosion control BMPs to be installed prior to initial/mass grading, and any additional BMPs necessary to keep the construction site in compliance with this permit.
- (b). **Stabilization Phase.** This includes but is not limited to all BMPs required to be installed, maintained, and retrofitted during the time required to begin the majority of all construction and grading activities, and the time required to bring the construction site into compliance with permanent water quality requirements and into final stabilization.

The scope of the land-disturbing activities and BMPs to be included in each of the phases identified in this section should be evaluated on a site-to-site basis and selected based on what the SWPPP preparer and reviewer deems to be the most appropriate for each construction site.

- II. For site disturbances greater than or equal to 10 acres, at least three (3) separate plan phases shall be developed. Each plan phase shall be identified and must be addressed separately on at least one single plan sheet, with each sheet reflecting the conditions and the BMPs necessary to manage Stormwater runoff, erosion and sediment during the phases, at a minimum, listed below:
 - (a). **Initial Land Disturbance Phase.** This includes but is not limited to the perimeter BMPs, the necessary sediment and erosion control BMPs to be installed prior to initial/mass grading, and any additional BMPs necessary to keep the construction site in compliance with this permit.
 - (b). **Construction Phase.** This includes but is not limited to all sediment and erosion control BMPs necessary to be installed, maintained and designed to prevent sediment-laden stormwater from discharging off-site during construction. Examples of such BMP control measures to include in this phase are all temporary BMPs used to convey, manage, and treat stormwater runoff including additional sediment traps and sediments basins, rock check dams, silt fence, sediment tubes, inlet protection, temporary conveyance channels and any other sediment control measure.
 - (c). **Stabilization Phase.** This includes but is not limited to all BMP control measures required to be installed, maintained, and retrofitted during the time required to bring a construction site into compliance with permanent water quality requirements and into final stabilization.

The scope of the land-disturbing activities and BMPs to be included in each of the phases identified in this section should be evaluated on a site-

to-site basis and chosen based on what the SWPPP preparer and reviewer deems to be the most appropriate for each construction site.

3.2.10 Non-Numeric Effluent Limits

A. The C-SWPPP must be developed so that the design, installation and maintenance of all sediment control and erosion prevention BMPs are implemented in a manner to minimize the discharge of pollutants. At a minimum, such BMPs must be designed, installed and maintained to:

I. **Control Stormwater volume and velocity within the site to minimize soil erosion during construction activity.**

(a). **Stormwater volume control** must be accomplished during construction activities to minimize erosion within the boundaries of the construction site. This can be accomplished through the use of various BMPs and techniques including, but not limited to, the following:

- Limiting of the amount of disturbed area not stabilized at a time;
- Staging and/or phasing of the construction sequence;
- Sediment Basins and Sediment Traps;
- Diverting off-site flow around the construction site; and
- Controlling the drainage patterns within the construction site.

(b). **Stormwater velocity control** must be accomplished during construction activities to minimize erosion within the boundaries of the construction site. This can be accomplished through the use of various BMPs and techniques including, but not limited to, the following:

- Surface roughening along slopes;
- Sediment basins and traps;
- Level Spreaders;
- Erosion control blankets;
- Turf reinforcement mats;
- Riprap; and
- Staging and/or phasing of the construction sequence.

II. **Control Stormwater discharges, including both peak flow rates and total Stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion during construction activity.**

(a). **Stormwater Volume Discharge Control** must be accomplished

during construction activities to minimize erosion at outlets and to minimize downstream channel and stream bank erosion. This can be accomplished through the use of various BMPs and techniques including, but not limited to, the following:

- Surface outlets; and
- Water quantity storage within impoundments.

(b). **Peak Flow Rate Discharge Control** must be accomplished during construction activities to minimize erosion at outlets and to minimize downstream channel and stream bank erosion. This can be accomplished through the use of various BMPs and techniques including, but not limited to, the following:

- Energy dissipaters;
- Level spreaders;
- Riprap aprons;
- Erosion control blankets; and
- Turf reinforcement mats.

III. **Minimize the amount of soil exposed during construction activity.**

- (a). Implement a phased stormwater management plan that limits the amount of exposed soil during construction by outlining the Limits of Disturbance for each phase and by labeling areas that are not to be disturbed throughout the course of construction activities or until a later phase of construction activities.
- (b). Outline the Limits of Disturbance on the construction plans and label areas within the construction site that are not to be disturbed.
- (c). Stabilize exposed areas as soon as practical to limit the duration of large areas of exposed soil.
- (d). Implement temporary seeding techniques.

IV. **Minimize the disturbance of existing steep slopes (i.e., slopes of 30% (~3H:1V) or greater), unless infeasible. If steep slopes must be disturbed, or are created through grading activities, the C-SWPPP must:**

- (a). **Divert flows around steep slope disturbances.** Divert concentrated or channelized flows of Stormwater away from and around areas of disturbance having steep slopes;

(b). **Use BMP Controls.** Use appropriate erosion prevention and sediment control BMPs such as permanent seeding with soil binders, erosion control blankets, surface roughening, continuous slope length reduction through terracing or diversions, gradient terraces, interceptor dikes and swales, grass-lined channels, pipe slope drains, subsurface drains, level spreaders, rock ditch checks, seep berms, and sediment dikes; and

1. **Stabilize Promptly.** Initiate stabilization measures on any exposed steep slope area where land-disturbing activities have permanently or temporarily ceased, and will not resume for a period of 7 calendar days.

V. **Minimize sediment discharges from the site during construction activity.** The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of the resulting Stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the construction site, while minimizing sediment discharges to the maximum extent practical;

VI. **Provide and maintain natural buffers around surface waters and, after stormwater runoff is treated by the construction site's BMPs, direct the construction site discharges into these vegetated areas to increase sediment removal and maximize Stormwater infiltration, unless infeasible (see Section 3.2.4.C of this permit) during construction activity; and**

VII. **Minimize soil compaction and, unless infeasible, preserve topsoil.**

B. **Soil Stabilization.** Permittees are required to initiate stabilization measures as soon as practicable whenever any clearing, grading, excavating or other earth disturbing activities have permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization must be completed as soon as practicable. For areas where initiating stabilization measures is infeasible (e.g., where snow cover, frozen ground, or drought conditions preclude stabilization), initiate vegetative or non-vegetative stabilization measures as soon as practicable.

C. **Trenches and Excavations Dewatering.** Permittees are required to minimize the discharge of pollutants from dewatering trenches and excavations. Per Section 1.3.2 of this permit, discharges are prohibited unless managed by appropriate BMPs for stormwater and non-stormwater discharges.

D. **Pollutant Discharge Minimization During Construction Activity.** Permittees

are required to design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants during construction activity. At a minimum, such measures must be designed, installed, implemented and maintained to:

- I. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
 - II. Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and
 - III. Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.
- E. **Prohibited Discharges.** The following discharges from sites are prohibited:
- I. Wastewater from washout of concrete, unless managed by an appropriate control;
 - II. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
 - III. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
 - IV. Soaps or solvents used in vehicle and equipment washing.

3.2.11 Management of Non-Stormwater Discharges

- A. The C-SWPPP must identify all allowable sources of non-Stormwater discharges listed in Section 1.3.2 of this permit, except for flows from fire fighting activities that are combined with Stormwater discharges associated with construction activity at the Site. Non-Stormwater discharges should be eliminated or reduced to the extent where these discharges shall not cause or contribute to violations of water quality standards.
- B. The C-SWPPP must identify and ensure the implementation of appropriate pollution prevention measures for the non-Stormwater component(s) of the discharge allowed under Section 1.3.2.

3.2.12 - Documentation of Permit Eligibility Related to Total Maximum Daily Loads (TMDLs) - For construction sites with stormwater discharges to a receiving water that is identified as being impaired or has an EPA established or approved TMDL the following requirements must be addressed by the C-SWPPP.

- A. **Receiving Water with TMDLs.** If a TMDL, that is applicable to Stormwater construction discharges, has been established and is in effect for any receiving waters downstream of a construction site, then the C-SWPPP must address the following:
- I. Include documentation supporting a determination of permit eligibility with regard to waters that have a TMDL that is effective and applicable to Stormwater construction discharges (See Section 1.3.3.D for further information on determining permit eligibility related to TMDLs);
 - II. Include documentation of whether the construction site's Stormwater discharge is identified, either specifically or generally, in a TMDL and if there is any associated allocations, requirements, and assumptions identified for the construction site's discharge;
 - III. Identify if a specific Waste Load Allocation (WLA) has been established that would apply to the construction site's stormwater discharges, and incorporate that allocation into the stormwater management plan by implementing any necessary steps and/or BMPs to meet that allocation; and
 - IV. Identify measures to be taken by the Operator so that the construction site's discharge of pollutants is consistent with the allocations, assumptions, and requirements contained in the TMDL, only the pollutants applicable to Stormwater discharges, including any specific WLA that has been established.
- B. **Receiving Waters with Impairments.** If the receiving water is listed on the most current South Carolina 303(d) List of Impaired Waters, the C-SWPPP must be developed so that any stormwater discharges from the construction site do not cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard. For receiving waters listed for a sediment or a sediment-related parameter (i.e., BIO (macroinvertebrate), turbidity, Total Phosphorous, Total Nitrogen, Chlorophyll-a, and Fecal Coliform in Shellfish Harvesting Waters in the Coastal Zone) the C-SWPPP must address the following:
- I. Carefully evaluate all selected BMPs and their performance such that the construction site's stormwater discharges will not cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard.
 - II. For construction sites that disturb 25 acres or more and which have stormwater discharges draining directly to an impaired water body via structures or ditches, the C-SWPPP must contain a written quantitative and

qualitative assessment that the BMPs selected will control the construction site's stormwater discharges so that they will not cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard.

For more information on this subject, please see the DHEC publication entitled "Antidegradation for Activities Contributing to NonPoint Source Pollution to Impaired Waters." This publication can be downloaded at the following DHEC WEB site:

<http://www.scdhec.gov/environment/water/docs/storm303.pdf>

A copy of the most current 303(d) List of Impaired Waters can be obtained from:

Water Quality Division
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

or it can be downloaded at the following DHEC WEB site:

<http://www.scdhec.gov/environment/water/tmdl/>

Section 4: IMPLEMENTATION, INSPECTION AND MAINTENANCE OF BMPs

4.1 PRE-CONSTRUCTION CONFERENCES

A. A pre-construction conference must be held for each construction project or site with an approved On-Site Stormwater Pollution Prevention Plan (OS-SWPPP). Each contractor, subcontractor, blanket utility provider, etc., who will work at a site must attend this conference in person. The primary purpose of this conference is for:

- I. The **preparer of the SWPPP** or someone with a registration equivalent to that of the preparer of the SWPPP; and/or
- II. The **person with operational control** of the plans and specifications (the Primary or Secondary Permittee) or their duly authorized representative (as defined in Section 122.22(b) of SC Regulation 61-9))

to review and explain the On-Site SWPPP (OS-SWPPP) so that all are aware of the requirements before they start performing construction-related (land disturbing) activities that may affect the implementation of the approved OS-SWPPP. This conference may be held simultaneously with all contractors and builders present or may be conducted separately with one or more contractors, subcontractors, etc. present.

B. Linear construction of roads or utilities (such as roads and utility construction including electrical power lines, gas lines, main sewer trunk lines, and water distribution lines) that are not part of a Larger Common Plan (i.e., subdivision or other type of development) are considered to be linear construction projects or linear construction sites under this permit. Linear construction performed as a part of or within a LCP project or site, is considered to be linear construction activities under this permit and not linear construction projects or sites. (See Appendix A, Definitions.)

C. Pre-construction conference location requirements are defined below.

- I. For non-linear construction projects/sites that disturb 10 acres or more, the pre-construction conference must be held on-site unless it is justified in the SWPPP and approved by the Department to conduct the conference off-site.
- II. For non-linear construction projects/sites that disturb less than 10 acres, conferences may be held off-site unless specifically required in writing or as a condition of the approved OS-SWPPP by the Department or the respective MS4 to be conducted on-site.
- III. For linear construction projects/sites that are not part of a Larger Common Plan (LCP), subdivision or other type of development, conferences may be held off-site unless specifically required in writing or as a condition of the approved OS-SWPPP by the Department or the respective MS4 to be conducted on-site.

- IV. For linear construction activities (within a LCP), conferences must be held in accordance with disturbed area (<10 acres or \geq 10 acres) criterion established for non-linear projects/sites in Items C.I and C.II above.
 - V. In addition, person(s) conducting the conference (Owner/Operator) may choose, at their discretion, to hold a conference normally held off-site, on-site.
- D. Each pre-construction conference must also specifically address Section 3.1.7, Modifications, detailing how each type of modification, Major and Minor, will be addressed and processed at the construction site to maintain compliance with this permit.
 - E. Persons conducting this conference must document each contractor, subcontractor, blanket utility, etc., attending the conference. This documentation must be maintained with the On-Site SWPPP (OS-SWPPP), and include dates, locations, times, as well as, identification of those in attendance.

4.2 **INSPECTIONS**

- A. **Scope.** Construction Site Inspections are to be conducted on a routine basis, as outlined in Section 4.2.B, and must include all areas disturbed by construction activity, including perimeter BMPs and areas used for storage of materials that are exposed to precipitation.

Each Inspection must look for the evidence of, or the potential for, inefficiencies within the implemented OS-SWPPP, whether the inefficiencies are a direct result of improper design, installation or maintenance, by inspecting, at a minimum, the following:

- I. All areas of the site disturbed by construction activity and areas used for storage of materials that are exposed to precipitation;
- II. All stormwater conveyance systems for any evidence of, or the potential for, pollutants entering these systems;
- III. All BMPs identified in the OS-SWPPP;
- IV. All discharge locations to ascertain whether the implemented BMPs are effective in preventing the discharge of sediment from the site. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable; and
- V. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.

If inspection responsibilities are not shared between the Primary and Secondary Permittees, each secondary permittee must provide their own inspections for the portions of the site for which their coverage includes.

- B. **Frequency.** After construction activities begin, inspections must be conducted at a minimum of at least once every calendar week and must be conducted until final

stabilization is reached on all areas of the construction site. An inspection is recommended within 24 hours of the end of a storm event of 0.5 inches or greater.

The Department on a case-by-case basis may require any permittee who has coverage under this CGP to conduct inspections on a more frequent basis than prescribed in this CGP. Examples include, but are not limited to, permittees who have compliance problems and permittees whose construction site's Stormwater discharges to **Sensitive Waters** (such as waters classified as Trout Waters, Outstanding Resource Waters, Shellfish Harvesting Waters, etc.).

Inspection frequencies for portions of the construction site that have reached temporary or final stabilization may be reduced to at least once every month, as long as the stabilization is maintained and there is no additional disturbance in these areas. Once a definable area has reached final stabilization, you may mark this on your On-Site SWPPP and no further inspection requirements apply to that portion of the Site (e.g., land-disturbing activities around one of three buildings in a complex are completed and the disturbed area has reached final stabilization, one mile of a roadway or pipeline Project is completed and the disturbed area has reached final stabilization, etc). Inspection of common BMPs, such as sediment basins, sediment traps, may be required to resume if areas that drain to them become disturbed during future construction.

- C. **Linear Site Inspection Frequency.** Utility line installation, pipeline construction, and other examples of long, narrow, linear construction activities may limit the access of inspection personnel to the areas described in Section 4.2.A above. Inspection of these areas could require that vehicles compromise temporarily or even permanently stabilized areas, cause additional disturbance of soils, and increase the potential for erosion.

In these circumstances, controls must be inspected on the same frequencies as other construction Projects, but representative inspections may be performed. For representative inspections, personnel must inspect controls along the construction Site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction Site and allows access to the areas described above.

The conditions of the controls along each inspected 0.25 mile segment may be considered as representative of the condition of controls along that reach extending from the end of the 0.25 mile segments to either the end of the next 0.25 mile inspected segment, or to the end of the construction site, whichever occurs first. Representative inspections must include any areas where Stormwater discharges to **Sensitive Waters** (such as waters classified as Trout Waters, Outstanding Resource Waters, Shellfish Harvesting Waters, etc.).

- D. **Rain Gauge.** Permittees shall either maintain an on-site rain gauge or use data

from a certified weather record (such as a personal weather station or an airport) located within a reasonable proximity of the construction site, to record rainfall records from any significant rainfall event, 0.5 inches or greater. These recorded rainfall amounts must be maintained in a Rain Log located in the on-site SWPPP. Rainfall records for the day of an inspection and any significant rainfall events since the last inspection must be reported on each weekly inspection report.

E. **Inspector Qualifications.** Inspections must be conducted by qualified personnel (provided by the Permittee) as outlined by the following:

- I. For Projects that disturb more than 2 acres, “Qualified personnel” means a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact Stormwater quality and to assess the effectiveness of any BMPs selected to control the quality of Stormwater discharges from the construction site.

This person must be either the preparer of the C-SWPPP or an individual who is under the direct supervision of the preparer of the approved C-SWPPP and who meets the requirements in this paragraph or an individual who has been certified through a Construction Site Inspector Certification Course that has been approved by DHEC.

Inspections may also be conducted by a person with a registration equivalent to the registration of the preparer of the C-SWPPP and who meets the qualifications of this paragraph or an individual who is under the direct supervision of the person with an equivalent registration and who meets the requirements in this paragraph.

- II. For Projects that disturb 2 acres or less, and that are not part of a Larger Common Plan, the Permittee or his designee may perform these inspections provided the preparer of the C-SWPPP or someone with a registration equivalent to that of the preparer of the C-SWPPP explains the OS-SWPPP including implementation along with the inspection requirements to the person who will be conducting the inspections.

- III. The Department and Regulated MS4s reserves the right to require that inspections be performed by an inspector meeting the requirements of 4.2.E.I for construction sites less than two acres in size that drain to **Sensitive Waters**, when deemed necessary.

F. **Inspection Reports.** For each inspection required above, you must complete an inspection report. At a minimum, the inspection report must include:

- I. The inspection date;

- II. Names, titles, and, if not previously given in an inspection report, the qualifications of personnel making the inspection, unless those qualifications change;
- III. Weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether you know if any discharges occurred. At the very least, the total rainfall (in inches) since the time of the last inspection must be recorded;
- IV. Weather information and a description of any discharges occurring at the time of the inspection;
- V. Location(s) of discharges of sediment or other pollutants from the Site;
- VI. Location(s) of BMPs that need maintenance;
- VII. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- VIII. Location(s) where additional BMPs are needed that did not exist at the time of inspection;
- IX. Corrective action required including any changes to the OS-SWPPP necessary and implementation dates;
- X. Site Name, Operator Name and permit number; and
- XI. Verification that all BMPs and stormwater controls identified in the OS-SWPPP have been installed and are operating as designed.

G. **Monthly Reports.** DHEC may require on a case-by-case basis that the Permittee submit a monthly report summarizing the inspections at the site and any associated maintenance activity.

H. **Inspection Records.** A record of each inspection and of any actions taken in accordance with this Section must be retained as part of the On-site SWPPP for at least three years from the date that permit coverage expires or is terminated. The qualified inspector, as identified in section 4.2.E, must sign the inspection report.

I. **Primary Permittees.** Inspectors employed by the Primary Permittee retain the authority to inspect, report, and document areas of the construction site that are under direct control of the Secondary Permittee, but only when a lack of compliance by the Secondary Permittee inhibits the Primary Permittee's ability to maintain compliance with the overall OS-SWPPP or this permit.

4.3 MAINTENANCE

A. **Construction Maintenance.** All BMPs and other protective measures identified in the OS-SWPPP must be maintained in effective operating condition. If site inspections required by Section 4.2 identify BMPs that are not operating effectively, maintenance must be performed within seven (7) calendar days, before the next inspection, or as reasonably possible, and before the next storm

event whenever practicable to maintain the continued effectiveness of Stormwater controls.

If periodic inspection or other information indicates that a BMP has been used inappropriately, or incorrectly, the Permittee must address the necessary replacement or modification required to correct the BMP within a time frame of 48 hours of identification.

If existing BMPs need to be modified or if additional BMPs are necessary to comply with the requirements of this permit and/or SC's Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the OS-SWPPP and alternative BMPs must be implemented as soon as reasonably possible.

Sediment from sediment traps or sedimentation basins must be removed as indicated in the OS-SWPPP or when the design capacity has been reduced by 50 percent, whichever occurs first.

Sediment collected by Silt Fence, or another sediment control measure, must be removed when the deposited sediment reaches 1/3 of the height of the above-ground portion of these BMPs, or before it reaches a lower height based on the manufacturer's specifications.

- B. **Permanent Maintenance.** Permanent Stormwater management structures must be routinely maintained to operate per design. The Department requires inclusion of a Permanent Stormwater Management Maintenance Agreement and a Maintenance Plan to ensure proper operation. Provide a detailed proposed maintenance plan for permanent stormwater management structures proposed for your project in the Narrative. The maintenance agreement and maintenance plan, when required, must be identified and located in the C-SWPPP.
- C. **Maintenance Agreements.** Permanent Stormwater Management Maintenance Agreement must meet the following information as a minimum:
 - I. Signed **notarized** agreement from the responsible party(ies) or individual(s) accepting ownership and maintenance of each permanent stormwater control device/structure, including any permanent LID and/or proprietary control devices (oil-water separators, etc.), underground detention structures, exfiltration systems and non-traditional stormwater controls (constructed wetlands, bioretention, etc.) incorporated into the construction process.
 - II. A generic template of a maintenance agreement may be found at http://www.scdhec.gov/environment/ocrm/docs/SW/pond_maint.pdf. This template may be modified to identify each permanent structure(s) for your

project.

III. The Department and/or local permitting authority must be notified in writing of any changes in maintenance responsibility for the stormwater devices at the site (include this statement in agreement).

D. **Maintenance Plans.** All Maintenance Plans must meet the following information as a minimum:

I. Description of maintenance plan to be used.

II. Make sure that detailed or manufacturer-specific maintenance procedures are included for any permanent LID and/or proprietary control devices (oil-water separators, etc.), underground detention structures, exfiltration systems and non-traditional stormwater controls (constructed wetlands, bioretention, etc.) incorporated into the construction process.

III. Identify each maintenance activity (e.g., inspection, mowing, removing debris, etc.) to be completed. Typical maintenance items to be addressed include but not limited to:

- (a). Grass to be mowed;
- (b). Trees to be removed from within the pond and on the embankment;
- (c). Trash and sediment to be removed from inside of and around the pond outlet structure;
- (d). Orifices to be cleaned and unclogged;
- (e). Outlet pipe to be cleaned, inspected, and repaired;
- (f). Sediment accumulation to be removed from pond;
- (g). Pond bottom to be regraded to provide proper drainage towards the outlet discharge point;
- (h). Energy dissipator to be cleaned and repaired;
- (i). Emergency spillway, if applicable, to be inspected and repaired; and
- (j). Erosion on side slopes, if present, to be addressed

IV. Schedule or frequency for completing each maintenance activity of maintenance procedures (e.g., every 6 months).

E. **Secondary Permittee Common BMP Maintenance Requirement.** It shall be the responsibility of the Secondary Permittee to either maintain or coordinate the maintenance of any common stormwater BMPs, accepting stormwater discharges from any area associated with their work, with the primary permittee or the party responsible for permanent maintenance.

Section 5: TERMINATION OF COVERAGE

5.1 REQUIREMENTS

- A. You may only submit a Notice of Termination (NOT) after one or more of the following conditions have been met:
 - I. Final stabilization has been achieved on all portions of the construction site for which you are responsible (see definition of final stabilization in Appendix A);
 - II. Another Operator has assumed control, according to §122.41(1)(3) of SC Regulation 61-9 (see Appendix C of this permit), over all areas of the construction site that have not reached final stabilization;
 - III. Coverage under an individual or alternative general NPDES permit has been obtained;
 - IV. For residential lots only, either (1) final stabilization has been achieved on all portions of a residential lot(s), or (2) temporary stabilization including perimeter controls for a residential lot(s) have been achieved prior to occupation of the home by the homeowner and that the homeowner has been informed, by the Primary/Secondary Permittee, about the need for, and benefits of, final stabilization;
 - V. For construction activities on land used for agricultural purposes (e.g., pipelines across crop or range land, staging areas for highway construction, etc.), either (1) final stabilization has been accomplished by returning the disturbed land to its preconstruction agricultural use, and (2) for any areas disturbed that were not previously used for agricultural activities and areas which are not being returned to their preconstruction agricultural use have achieved final stabilization, as defined by this permit; or
 - VI. Land disturbance activities were never initiated on the construction site and the construction site remains permanently stabilized.
- B. The NOT must be submitted within 30 days of one of the above conditions being met. Authorization to discharge terminates at midnight of the day the NOT is signed.
- C. If an NOT has been submitted and the construction site does not meet the criteria for termination, then the construction site remains subject to the provisions of this permit.
- D. A revised maintenance agreement, consistent with Section 4.3.C must be submitted along with the NOT, when the responsible party(ies) or individual(s) accepting ownership or maintenance of permanent stormwater control devices have changed from what was originally approved.

- E. For residential subdivisions, Primary Permittees do not need to terminate permit coverage in areas where Secondary Permittees have received permit coverage to perform work under this permit. Primary Permittees can request to terminate coverage when Secondary Permittees are authorized to conduct construction activities, independent of the Primary Permittee, for the remaining disturbed areas on the construction site and final stabilization has been achieved on all other areas of the construction site.

5.2 SUBMITTING A NOTICE OF TERMINATION

- A. It is your responsibility to submit a complete and accurate Notice of Termination (NOT), using the form (or a photocopy thereof) provided by the Department. The NOT will be made available at our WEB site at:

<http://www.scdhec.gov/environment/water/swater/applications.htm>

- B. If DHEC notifies dischargers (either directly, by public notice, or by making information available on the Internet) of other NOT form options (e.g., electronic submission), you may take advantage of those options to satisfy the requirements of Section 5.
- C. The Notice of Termination must include the following information:
 - I. Your CGP NPDES coverage number for the Stormwater discharge;
 - II. The basis for submission of the NOT as outlined in Section 5.1;
 - III. Operator's name, address, telephone number and your organization's Employer Identification Number (EIN) as established by the U.S. Internal Revenue Service;
 - IV. The name of the Project and address (or a description of location if no street address is available) of the construction Site for which the notification is submitted; and
 - V. A certification statement, signed and dated by an authorized representative as defined in §122.22 of SC Regulation 61-9 (see Appendix C of this permit) and the name and title of that authorized representative.
 - VI. For Projects disturbing more than 2 acres, a certification statement, signed and dated by the preparer of the C-SWPPP or other person with a registration equivalent to that of the preparer of the C-SWPPP, that to the best of his or her knowledge and belief all work was conducted and completed in accordance with the approved OS-SWPPP and this CGP. This

certification must be based on the inspections performed in accordance with this Section 4.2 of this CGP and must state that any deficiencies that were noted have been corrected.

- VII. For projects located within an MS4, a letter or other statement from the MS4 that the site meets the MS4 requirements for project completion.

5.3 WHERE TO SUBMIT

- A. All original NOTs must be submitted to DHEC at the appropriate address as identified below:

Non-Coastal Sites

S.C. DHEC - Bureau of Water
Stormwater Permitting Section
2600 Bull Street
Columbia, SC 29201-1708

Coastal Zone

S.C. DHEC- Bureau of Water
Coastal Stormwater Section
1362 McMillan Ave., Suite 400
Charleston, S.C. 29405

Section 6: SPECIAL CONDITIONS, MANAGEMENT PRACTICES AND OTHER NON-NUMERIC LIMITATIONS

6.1 CONTINUATION OF THE EXPIRED GENERAL PERMIT

- A. If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the SC Administrative Procedures Act and SC Regulation 61-9 and remain in force and effect. If you were granted permit coverage prior to the expiration date, you will automatically remain covered by the continued permit until the earliest of:
- I. Reissuance or replacement of this permit, at which time you must comply with the conditions of the new permit to maintain authorization to discharge; or
 - II. Your submittal of a Notice of Termination; or
 - III. Issuance of an individual permit for the Project's discharges; or
 - IV. A formal permit decision by DHEC to not reissue this general permit, at which time you must seek coverage under an alternative general permit or an individual permit.

6.2 REQUIRING AN INDIVIDUAL PERMIT OR AN ALTERNATIVE GENERAL PERMIT

- A. In accordance with Section 122.28(b)(3) of SC Regulation 61-9, DHEC may require you to apply for and/or obtain an individual NPDES permit. Any interested person may petition DHEC to take action under this paragraph. If DHEC requires you to apply for an individual NPDES permit, DHEC will notify you in writing that a permit application is required. This notification will include a brief statement of the reasons for this decision and an application form. In addition, if you are an existing permittee covered under this permit, the notice will set a deadline to file the application, and will include a statement that on the effective date of issuance or denial of the individual NPDES permit or the alternative general permit as it applies to you, coverage under this general permit will automatically terminate. Applications must be submitted to DHEC at the address given in Section 2.5. DHEC may grant additional time to submit the application upon your request. If you are covered under this permit and you fail to submit in a timely manner an individual NPDES permit application as required by DHEC, then the applicability of this permit to you is automatically terminated at the end of the day specified by DHEC as the deadline for application submittal.
- B. If an alternate general permit that is more appropriate for your construction activity is available, DHEC may grant you coverage under the alternate general permit in lieu of granting you coverage under this general permit. In accordance with applicable state law and regulation, you have a right to appeal the

Department's decision.

- C. You may request to be excluded from the coverage of this general permit by applying for an individual permit. In such a case, you must submit an individual application in accordance with the requirements of §122.26(c)(1)(ii) of SC Regulation 61-9, with reasons supporting the request, to:

Stormwater Permitting Section
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

The request may be granted by issuance of an individual permit or an alternative general permit if your reasons are adequate to support the request.

- D. When an individual NPDES permit is issued to you, who are otherwise subject to this permit, or you are authorized to discharge under an alternative NPDES general permit, the applicability of this permit to you is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. If you, who are otherwise subject to this permit, are denied an individual NPDES permit or an alternative NPDES general permit, the applicability of this permit to you is automatically terminated on the date of such denial, unless otherwise specified by DHEC.

6.3 RELEASES IN EXCESS OF REPORTABLE QUANTITIES

- A. You must prevent or minimize the discharge of hazardous substances or oil in Stormwater discharges from the construction Site in accordance with the C-SWPPP. This permit does not relieve you of the federal reporting requirements of 40 CFR Part 110, 40 CFR Part 117 and 40 CFR Part 302 relating to spills or other releases of oils or hazardous substances.
- B. Where a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302, occurs during a 24-hour period:
 - I. You must notify the Department's Emergency Response Section at (803) 253-6488 and the National Response Center (NRC) (800) 424-8802 in accordance with the requirements of 40 CFR Part 110, 40 CFR Part 117 and 40 CFR Part 302 as soon as Site staff have knowledge of the discharge; and
 - II. You must modify the C-SWPPP as required under Section 3.1.7 within 14 calendar days of knowledge of the release to: provide a description of the

release, the circumstances leading to the release, and the date of the release. In addition, you must review your C-SWPPP to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and you must modify your C-SWPPP where appropriate.

6.4 ATTAINMENT OF WATER QUALITY STANDARDS AFTER AUTHORIZATION

- A. You must select, install, implement and maintain BMPs at your construction Site that minimize pollutants in the discharge as necessary to meet applicable water quality standards. In general your C-SWPPP developed, implemented, and updated consistent with Section 3 is considered as stringent as necessary to ensure that your discharges do not cause or contribute to a violation of any applicable water quality standard.
- B. All written responses required under this part must include a signed certification consistent with §122.22 of SC Regulation 61-9 (see Appendix C of this permit).

Section 7: RETENTION OF RECORDS

- 7.1 Copies of the C-SWPPP/OS-SWPPP and all documentation required by this permit, including records of all data used to complete the NOI to be covered by this permit, must be retained for at least three years from the date that permit coverage expires or is terminated. This period may be extended by request of DHEC or a Regulated MS4 at any time.

Section 8: REOPENER CLAUSE

8.1 PROCEDURES FOR MODIFICATION OR REVOCATION

- A. Permit modification or revocation will be conducted according to §122.62, §122.63, §122.64, and §124.5 of SC Regulation 61-9.

8.2 WATER QUALITY PROTECTION

- A. If there is evidence indicating that the Stormwater discharges authorized by this permit cause, have the reasonable potential to cause or contribute to a violation of any applicable water quality standard, you may be required to obtain an individual permit in accordance with Section 6.2 of this permit, the permit may be modified in accordance with Section 122.62 of SC Regulation 61-9 to include different limitations and/or requirements as addressed or your coverage may be terminated in accordance with Section 122.64 of SC Regulation 61-9.

8.3 TIMING OF PERMIT MODIFICATION

- A. DHEC may elect to modify the permit prior to its expiration (rather than waiting for the new permit cycle) to comply with any new statutory or regulatory requirements, such as for effluent limitation guidelines that may be promulgated in the course of the current permit cycle.

Section 9: STANDARD PERMIT CONDITIONS

- 9.1 South Carolina regulations require that the Standard Conditions provisioned at §122.41 of SC Regulation 61-9 be applied to all NPDES permits. You are required to comply with those Standard Conditions, details of which are provided in Appendix C of this permit, that are applicable to Stormwater discharges.

APPENDIX A

DEFINITIONS

All definitions contained in Section 402 of the Clean Water Act (CWA) and South Carolina Water Pollution Control Permits Regulation 61-9 122 shall apply to this permit and are incorporated herein by reference. For convenience, simplified explanations of some regulatory/statutory definitions have been provided, but in the event of a conflict, the definition found in the Statute or Regulation takes precedence.

“Administrator” means the Administrator of the Environmental Protection Agency or any employee of the Agency to whom the Administrator may by order delegate the authority to carry out his functions under Section 307(a) of the CWA, or any person who shall by operation of law be authorized to carry out such functions.

“Allowable Discharges” means Stormwater and non-Stormwater discharges allowed to discharge to WoS as authorized by this permit. See Sections 1.3.A and 1.3.B.

“Alternative General Permit” means Stormwater and non-Stormwater discharges allowed to discharge to WoS as authorized by an alternative general permit. See Sections 1.3.A and 1.3.B.

“Antidegradation Policy” means the water quality standards regulation that requires States and Tribes to establish a three-tiered antidegradation program:

1. Tier 1 maintains and protects existing uses and water quality conditions necessary to support such uses. An existing use can be established by demonstrating that fishing, swimming, or other uses have actually occurred since November 28, 1975, or that the water quality is suitable to allow such uses to occur. Where an existing use is established, it must be protected even if it is not listed in the water quality standards as a designated use. Tier 1 requirements are applicable to all surface waters.
2. Tier 2 maintains and protects "high quality" water bodies where existing conditions are better than necessary to support CWA § 101(a)(2) "fishable/swimmable" uses. Water quality can be lowered in such waters. However, State and Tribal Tier 2 programs identify procedures that must be followed and questions that must be answered before a reduction in water quality can be allowed. In no case may water quality be lowered to a level which would interfere with existing or designated uses.
3. Tier 3 maintains and protects water quality in outstanding national resource waters (ONRWs). Except for certain temporary changes, water quality cannot be lowered in such waters. ONRWs generally include the highest quality waters of the United States. However, the ONRW classification also offers special protection for waters of exceptional ecological significance, i.e., those which are important, unique, or sensitive ecologically. Decisions regarding which water bodies qualify to be ONRWs are made by States and authorized Indian Tribes.

“Applicant” means a person, firm, or governmental agency applying to the Department for a State or NPDES permit to obtain approval or a permit for a land disturbing activity and to obtain approval to discharge wastes into the waters of the State or to operate a treatment works.

“Application” means the application form entitled Notice of Intent (NOI) or other specific uniform NPDES application form created or adopted by the State, including subsequent additions, revisions, or modifications.

“Bank” (e.g., **stream bank or river bank**) - the rising ground bordering the channel of a water of the U.S.

“Best Management Practices” (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to Surface Waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control Site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In order to effectively reduce erosion and sedimentation impacts, Best Management Practices (BMPs) must be designed, installed, and maintained during land disturbing activities.

“Best Management Practices (BMP) Handbook” is a tool designed by the Department to provide information to planners, developers, engineers, and contractors on the proper selection, installation, and maintenance of BMPs. The handbook is intended for use during the design and construction of projects that require erosion and sediment controls to protect Waters of the State. It also aids in the development other reports, plans, or specifications required by water quality regulations.

The current link to the handbook may be found at
http://www.scdhec.gov/environment/ocrm/docs/BMP_Handbook/Erosion_prevention.pdf.

“Borrow and Fill Areas” are areas where erodible material (typically soil) is dug for use as fill and the areas where the fill is used, either onsite or off-site. There is no processing or separation of erodible material conducted at the site. Given the nature of activity and pollutants present at such excavation, borrow and fill areas are considered-construction activity for the purpose of this permit.

“Buffer Zone”, an area, strip, or plot of dense undisturbed perennial native vegetation, either original or reestablished, surrounding streams and rivers, ponds and lakes, wetlands, seeps, or other surface waters within which construction activities are restricted, and which are established for the primary purpose of protecting water quality and maintaining a healthy aquatic ecosystem in the receiving surface waters.

“Bypass” means the intentional diversion of waste streams from any portion of a treatment facility).

“CFR” means the Code of Federal Regulations, as amended.

“Clean Water Act” (CWA) means the Clean Water Act or the Federal Water Pollution Control Act, 33 U.S.C. section 1251 et seq.

“Clearing” means the removal of vegetation and disturbance of soil prior to grading or excavation in anticipation of construction and/or non-construction activities. (For instance, clearing forested land in order to convert forestland to pasture for wildlife management purposes would be considered clearing in anticipation of non-construction activities.) In reference to this permit, Clearing does not refer to the removal of vegetation and disturbance of soil along existing or new roadways, highways, dams, power lines for sight distance, other maintenance and/or safety concerns, and cold milling of roadway pavement surfaces.

“Coastal Receiving Water” (CRW) means a receiving water body as defined in the Policies and Procedures of the South Carolina Coastal Zone Management Program, updated July 1995. This

includes all regularly tidally influenced salt and fresh water marsh areas, all lakes or ponds which are used primarily for public recreation or a public drinking water supply, and other water bodies within the coastal zone, excluding wetlands, swamps, ditches and stormwater management ponds which are not contiguous via an outfall or similar structure with a tidal water body.

“Coastal Zone” means all lands and waters in the counties of the State which contain any one or more of the critical areas. The counties included in the coastal zone Beaufort, Berkeley, Charleston, Colleton, Dorchester, Horry, Jasper and Georgetown. The coastal zone also includes all coastal waters and submerged lands seaward to the States jurisdictional limits.

“Coastal Zone Consistency Determination” (CZC) refers to the review of a permit application conducted by DHEC-OCRM where the staff must determine whether or not a new, regulated construction activity proposed in the coastal zone is consistent with the policies of the Coastal Zone Management Program. A Coastal Zone Consistency determination is required for all state and federal permits as per the South Carolina Coastal Tidelands and Wetlands Act of 1977 and the Coastal Zone Management Program established in 1979. The CZC review is triggered by the submission of a permit application and does not occur independently. Specific requirements for certification are contained in the South Carolina Coastal Program Document and associated refinements.

“Coastal Zone Management Program” (CZMP) is a coastal management and certification program that was established in 1979 in accordance with the South Carolina Coastal Tidelands and Wetlands Act of 1977 also known as the South Carolina Coastal Zone Management Act (CZMA). The policies and directives contained in the CZMP are administered by DHEC’s Office of Ocean and Coastal Resource Management (DHEC-OCRM). The CZMP and CZMA task DHEC-OCRM to review any state permit, federal permit, federal license or direct federal activity for consistency with the CZMP. Some main goals of the program are to protect both salt and fresh water wetlands, beach/dune systems, marshlands, tidelands and designated geographic areas of particular concern that include but are not limited to areas of special historic, archeological and cultural significance and threatened or endangered species habitat.

The policies and directives of the CZMP can be found in the South Carolina Coastal Program Document (Program Document), the Coastal Zone Management Program Refinements (1993), and the associated excerpt containing refinements entitled Policies and Procedures of the South Carolina Coastal Management Program, updated July 1995 all located at http://www.scdhec.gov/environment/ocrm/czmp.htm#program_doc.

“Commencement of Construction Activities” means the initial disturbance of soils (or breaking ground) associated with clearing, grading, or excavating activities or other construction-related activities (e.g., installation of perimeter controls, stockpiling of fill material, etc).

“Comprehensive Stormwater Pollution Prevention Plan” (C-SWPPP) as used in this permit means the Stormwater Pollution Prevention Plan (SWPPP) prepared according to requirements outlined in Section 3 of this permit. The comprehensive SWPPP must be submitted with the Notice of Intent (NOI) and must include the Engineering Report (project design calculations). This document must be submitted and approved by the Department, regulated MS4 entity, or an approved entity with Permitting Authority prior to obtaining coverage under this permit.

“Construction Activities” means earth-disturbing activities, such as the clearing, grading, and excavation of land.

“Construction General Permit” (CGP) or “General Permit” means an NPDES permit issued under section 122.28 authorizing a category of discharges or activities under the PCA and CWA within a geographical area.

“Construction Site” means the land or water area where any construction “facility or activity” is physically located or conducted and where stormwater controls will be installed and maintained. The construction site also includes adjacent land used in connection with the facility or activity and support activities, which may be located at a different part of the property where the primary construction activity will take place, or on a different piece of property altogether. The construction site is often a smaller subset of the lot or parcel within which the project is taking place.

“Construction Waste” means discarded material (such as packaging materials, scrap construction materials, masonry products, timber, steel, pipe, and electrical cuttings, plastics, and styrofoam) and contaminated soil generated by construction activities.

“Contractor” means a person, group, company, etc. hired by the Developer to commence and complete construction activities covered by these regulations. See Section 2.2.3 of this general permit for additional information.

“Control Measure” refers to any stormwater control, Best Management Practice (BMP), or other method used to prevent or reduce the discharge of pollutants to “Waters of the United States.”

“Conveyance Channel” means a temporary or permanent waterway designed and installed to safely convey stormwater flow within and out of a construction site.

“Corrective Action” for the purposes of the permit, means any action taken to (1) repair, modify, or replace any stormwater control used at the site; (2) clean up and dispose of spills, releases, or other deposits found on the site; and (3) remedy a permit violation.

“Critical Area” means any of the following: (1) coastal waters; (2) tidelands; (3) beaches; (4) beach/dune system which is the area from the mean high-water mark to the setback line as determined in Section 48-39-280 of the Coastal Zone Management Act.

“Curve Number” means the runoff curve number (also called a curve number or simply CN). The curve number is an empirical parameter used in hydrology for predicting direct runoff or infiltration from rainfall excess. The curve number method was developed by the USDA Natural Resources Conservation Service, which was formerly called the *Soil Conservation Service* or SCS. The number is still popularly known as a "SCS runoff curve number". The runoff curve number was developed from an empirical analysis of runoff from small catchments and hillslope plots monitored by the USDA. It is widely used and is an efficient method for determining the approximate amount of direct runoff from a rainfall event in a particular area.

The runoff curve number is based on the area's hydrologic soil group, land use, treatment and hydrologic condition. References, such as from USDA indicate the runoff curve numbers for characteristic land cover descriptions and a hydrologic soil group. CN has a range from 30 to 100; lower numbers indicate low runoff potential while larger numbers are for increasing runoff potential.

"Delegated Entity" - means a local government (or other governmental entity such as a tribal

government or Conservation District) that has received authority to administer an environmental regulatory program in lieu of the State Agency counterpart. As used in connection with NPDES programs, the term does not connote any transfer of state authority to a local government.

“Delegation” means the acceptance of responsibility by a Local Government or Conservation District for the implementation of one or more elements of the statewide stormwater management and sediment control program.

“Department” means the South Carolina Department of Health and Environmental Control (SCDHEC or DHEC). This includes staff from the Bureau of Water, Office of Ocean and Coastal Resource Management (OCRM), and Regional Offices.

“Detention Structure” means a permanent stormwater management structure whose primary purpose is to temporarily store stormwater runoff and release the stored runoff at controlled rates.

“Developer” means a person undertaking, or for whose benefit, activities covered by these regulations are commenced and/or carried out.

“Dewatering” means the act of draining rainwater and/or groundwater from building foundations, vaults, and trenches.

“Discharge” means any discharge or discharge of any sewage, industrial wastes or other wastes into any of the waters of the State, whether treated or not. When used without qualification, means the “discharge of a pollutant.”

“Discharge of a Pollutant” means any addition of any pollutant or combination of pollutants to waters of the State from any point source or any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This term includes additions of pollutants into waters of the State from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any indirect discharger.

“Discharge of Stormwater Associated with Construction Activity” as used in this permit, refers to a discharge of pollutants in stormwater from areas where land disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck washout, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located.

“Discharge Point” for the purposes of this permit, means the location where collected and concentrated stormwater flows are discharged from the construction site.

“District” means any soil and water conservation district created pursuant to Chapter 9, Title 48, S.C. Code of Laws.

“Drainage Area” means that area contributing runoff to a single point.

“Drainage Area Map” means a map showing areas of a construction site contributing runoff to a single point.

“Easement” means a grant or reservation by the owner of land for the use of such land by others for a specific purpose or purposes, and which must be included in the conveyance of land affected by such easement.

“Effluent Limitation” means any restriction imposed by the Department on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the State, the waters of the contiguous zone, or the ocean.

“Effluent Limitations Guidelines” means a regulation published by the Administrator under section 304(b) of CWA to adopt or revise effluent limitations.

“Effluent Standards and Limitations” means restrictions or prohibitions of chemical, physical, biological, and other constituents which are discharged from point sources into State waters, including but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, pretreatment standards and schedules of compliance. Limits are based on applicable technology-based and water quality-based standards.

“Eligible” means qualified for authorization to discharge stormwater and allowable non-stormwater discharges under this general permit.

“Endangered Species” is defined in the Endangered Species Act at 16 U.S.C. 1531 as any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insects determined by the Secretary to constitute a pest whose protection under the provisions of this Act would present an overwhelming and overriding risk to man.

“Engineering Report” as applied to the permit refers to the report or document submitted to the Department containing the specific Project or Site design calculations and supporting documents. This report includes as a minimum, calculation of parameters and design criteria specified in SC Regulation 72-300 and identified in Section 3.2.8 of this permit. The Engineering Report must be included in the Comprehensive SWPPP.

“Environmental Protection Agency” (EPA) means the United States Environmental Protection Agency.

“Ephemeral Streams” mean streams that generally have defined natural watercourses that flow only in direct response to precipitation (rainfall or snowmelt) in which discrete periods of flow persist no more than 29 consecutive days per event and whose channel is at all times above the water table.

“EQC Regional Office ” for purposes of this permit refers to eight (8) Environmental Quality Control (EQC) regions that provide local support to the Department and the public as described in the [EQC Regional Offices Web page](#).

“Erosion” means the wearing away of land surface by the action of wind, water, gravity, ice, or any combination of those forces.

“Erosion and Sediment Control” means the control of solid material, both mineral and organic, during a land disturbing activity to prevent its transport out of the disturbed area by means of air, water, gravity, or ice.

“Exemption” means those land-disturbing activities that are not subject to the sediment and stormwater requirements contained in these regulations. See Appendix D for additional information.

“Extended Natural Buffer” in reference to this permit, means an area, strip, or plot of undisturbed, natural cover adjacent to surface waters, classified as Sensitive Waters, that may be utilized to provide water quality control of stormwater discharges from adjacent land-disturbing activities. Natural cover includes the vegetation, exposed rock, or barren ground that existed prior to commencement of land-disturbing activities. The minimum width of an Extended Natural Buffer is typically greater than the width required for Natural Buffers.

“Facility” or “Activity” means any “point source” or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

“Final Stabilization” means that all land-disturbing activities at the construction site have been completed and that on all areas not covered by permanent structures, either (1) a uniform (e.g., evenly distributed, without large bare areas) vegetative cover with a density of 70 percent of the natural background vegetative cover has been established excluding areas where no natural background vegetative cover is possible (e.g., on a beach), or (2) equivalent permanent stabilization measures (such as the use of landscaping mulch, riprap, pavement, and gravel) have been implemented to provide effective cover for exposed portions of the construction site not stabilized with vegetation.

“General Coastal Zone Consistency” (GCZC) means a general consistency issued by DHEC OCRM authorizing small project impacts in the eight county Coastal Zone. A comprehensive list of GCZC Certifications and CZC application information is currently available at: <http://www.scdhec.gov/environment/ocrm/czc.htm>.

“General Permit” or “Construction General Permit” (CGP) means an NPDES permit issued under section 122.28 authorizing a category of discharges or activities under the PCA and CWA within a geographical area.

“Good Engineering Practice” (GEP) is a term applied to engineering and technical activities to ensure that a company manufactures products of the required quality as expected by the relevant regulatory authorities. Good engineering practices are to ensure that the engineering development methodology generates deliverables that support the requirements for qualification or validation.

“Grading” means excavating, filling (including hydraulic fill) or stockpiling of earth material, or any combination thereof, including the land in its excavated or filled condition.

“Groundwater” means water below the land surface in a zone of saturation.

“Impaired Waters” means waters identified by a State, Tribe, or EPA pursuant to Section 303(d) of the Clean Water Act as not meeting applicable State water quality standards to support classified uses as promulgated in Regulation 61-68, Water Classifications and Standards and Regulation 61-69, Classified Waters. Impaired waters include both waters with approved or established TMDLs, and

those for which a TMDL has not yet been approved or established. A list of the streams and lakes not meeting water quality standards can be found at <http://www.scdhec.gov/environment/water/tmdl> under 303(d) & TMDLs.

“Impervious Surface” for the purpose of this permit, means any land surface with a low or no capacity for soil infiltration including, but not limited to, pavement, sidewalks, parking areas and driveways, packed gravel or soil, or rooftops.

“Inactive Sites ” means sites or projects in which construction activities have been abandoned or ceased for long periods of time.

“Indian Country ”or “Indian Land” as defined at 40 CFR §122.2 means:

1. All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation;
2. All dependent Indian communities with the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and
3. All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-ways running through the same.

“Indirect Discharge” means the “discharge of a pollutant” from a source indirectly into a receiving water body (i.e., an indirect source may discharge to a POTW, which in turn discharges into the receiving water body).

“Individual Permit” is a permit specifically tailored to an individual facility.

“Infiltration” means the passage or movement of water through the soil profile.

“Inspector” for the purposes of the permit, means a person certified by the State or Department through a Construction Site Inspector Certification Course approved by DHEC. An inspector performs and documents required inspections of stormwater construction activities, paying particular attention to time-sensitive permit requirements such as stabilization and maintenance activities. An inspector typically has the following responsibilities:

- a) Oversee the requirements of other construction-related permits, such as Aquatic Resources Alteration Permit or Corps of Engineers permit for construction activities in or around Waters of the State;
- b) Update the records, logs, and inspection reports within the OS-SWPPP as necessary due to an on-site inspection;
- c) Conduct pre-construction inspection to verify that undisturbed areas have been properly marked and initial measures have been installed; and
- d) Inform the permit holder of activities that may be necessary to gain or remain in compliance with the CGP and other environmental permits.

“Intermittent or Seasonal Streams” means streams that generally have defined natural watercourses

which do not flow year round, but flow at certain times of the year when groundwater provides water for stream flow, as well as during and immediately after some precipitation events or snowmelt.

“Jurisdictional Waters of the State” is defined as water bodies, including wetlands, over which a state may exercise jurisdiction or control. Jurisdiction may overlap and be concurrent with the federal government, or it may be reposed only to the state.

“Jurisdictional Waters of the United States” or “Waters of the U.S.” are defined as waterbodies, including wetlands, under the jurisdiction or control of the United States federal government. Federal jurisdiction may overlap and be concurrent with a state. Section 404 of the Clean Water Act regulates the placement of dredged or fill material into waters of the United States, including wetlands. The Army Corps of Engineers (Corps) is the agency responsible for the processing and issuing of permits for proposed projects that will impact Waters of the United States, including wetlands.

“Land Disturbance” or “Land Disturbing Activity” by definition means any use of the land by any person that results in a change in the natural cover or topography that may cause erosion and contribute to sediment and alter the quality and quantity of stormwater runoff. Such activities include, but are not limited to: clearing, removal of vegetation that disturbs the soil, stripping, grading, grubbing, excavating, filling, logging and storing of materials. Clearing of areas where soils are not exposed and an adequate vegetative structure is left in place is not considered land disturbance, provided that the clearing is not in anticipation of other construction activities such as grubbing and grading.

“Large Construction Activity” is defined at 40 CFR §122.26(b)(14)(x) of SC Regulation 61-9 and incorporated here by reference. A large construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five acres of land or will disturb less than five acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five acres. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the Site.

“Larger Common Plan for Development or Sale” (LCP) is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating construction activities may occur on a specific plot. [63 Federal Register No. 128, July 6, 1998, p. 36491].

A common plan for development or sale identifies a site where multiple separate and distinct construction activities (areas of disturbance) are occurring on contiguous areas. Such sites may have one operator or owner or several operators and owners. Construction activities may take place at different times on different schedules, in separate stages, and/or in separate phases, and/or in combination with other construction activities. Each Developer, Operator or Owner for each Site or Project determined to be a part of a LCP are subject to permitting requirements as defined by this permit.

Projects and sites identified as part of a larger common plan for development or sale are linked thru permitting by the Department as part of one plan, referred to as the larger common plan. LCP projects must ensure that adequate stormwater management facilities are designed into the Project(s) or Site(s) to control pollution and protect water quality during all stages or phases of development.

Projects or Sites added as part of a LCP may be required to expand existing or provide additional stormwater management facilities to control pollution from land disturbance activities from other contiguous areas or proposed additional phases as required by this permit.

LCP projects are typically identified by the documentation that identifies the scope of the project including such things as plats, blueprints, marketing plans, contracts, building permits, public notice or hearing, and zoning requests. If master calculations have been prepared and/or submitted for an entire site, then all phases and parcels at that site would be considered part of a LCP.

“Late Notifications” means NOIs submitted after initiating clearing, grading, filling and excavation activities (including borrow pits and stockpile material storage areas), or other similar construction activities for projects or sites required to obtain authorization under this permit are considered late.

“Level Spreader” - a temporary stormwater control used to spread stormwater flow uniformly over the ground surface as sheet flow to prevent concentrated, erosive flows from occurring.

“Limits of Disturbance” (LOD) means specific areas of a site or individual lot in which construction and other land disturbing activities must be contained.

“Linear Project” or “Linear Construction” is a land disturbing activity that includes the construction of roads, bridges, conduits, substructures, pipelines, sewer lines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities in a long, narrow area as conducted by an underground/overhead utility or highway department, including but not limited to any cable line or wire for the transmission of electrical energy; any conveyance pipeline for transportation of gaseous or liquid substance; any cable line or wire for communications; or any other energy resource transmission ROW or utility infrastructure, e.g., roads and highways. Linear project activities also include the construction of access roads, staging areas, and borrow/spoil sites associated with the linear project. Land disturbance specific to the development of a residential and/or commercial subdivision is not considered a linear project.

“Load Allocation” (LA) means the portions of a receiving water’s TMDL that is allocated to its non-point sources of pollution. See definition of TMDL.

“Local Government” means any county, municipality, or any combination of counties or municipalities, acting through a joint program pursuant to the provisions of this chapter.

“Low Impact Development” (LID) means an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product. There are many practices that have been used to adhere to these principles such as bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. Applied on a broad scale, LID can maintain or restore a watershed’s hydrologic and ecological functions.

“Minimize” means to reduce and/or eliminate to the extent achievable using stormwater controls (including best management practices) that are technologically available and economically

practicable and achievable in light of best industry practices.

“Modification” refers to the requirements defined in Section 3.1.7 for making and documenting major and minor revisions to an approved Stormwater Pollution Prevention Plan (SWPPP). Revisions to an approved SWPPP that present minor changes to design, construction, operation, or maintenance, thus minor changes in potential impacts to WoS are termed **“Minor Modifications.”** Minor modifications require only on-site documentation of the modified construction activity or facility on the On-Site SWPPP. Revisions to an approved SWPPP that present major changes to design, construction, operation, or maintenance, thus major changes in potential impacts to WoS are termed **“Major Modifications”** Major modifications must be reviewed and approved by the Department as outlined in this permit for inclusion in the Comprehensive SWPPP previously approved by the Department .

“Modified SWPPP” means a stormwater pollution prevention plan submitted to the Department to incorporate revisions or modifications to the construction Project or Site in accordance with Section 3.1 of this general permit or as required to meet submission deadlines for ongoing projects as defined in Section 2.4.

“Municipality” means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of CWA.

“Municipal Separate Storm Sewer System” (MS4) means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

1. Owned and operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, Stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to Surface Waters of the United States;
2. Designed or used for collecting or conveying Stormwater;
3. Which is not a combined sewer; and
4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at §122.2 of SC Regulation 61-9.

“National Pollutant Discharge Elimination System” (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of CWA. The term includes an “approved program.”

“Natural Buffer”, in reference to this permit, means an area, strip, or plot of undisturbed, natural cover adjacent to surface waters that may be utilized to provide water quality control of stormwater discharges from adjacent land-disturbing activities. Natural cover includes the vegetation, exposed rock, or barren ground that existed prior to commencement of land-disturbing activities.

“Navigable Waters”, as defined in 33 CFR 329, means those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce while the waterway is in its ordinary condition. Navigable waters are waters that provide a channel for business (commerce) and transportation of people and goods. Jurisdiction over navigable waters belongs to the federal government rather than states or municipalities. The federal government can determine how the waters are used, by whom, and under what conditions. It also has the power to alter the waters, such as by dredging or building dams. Section 10 of the *Rivers and Harbors Act of 1899* (33 U.S.C. 403), approved 3 March 1899, prohibits the unauthorized obstruction of a navigable water of the U.S. This statute also requires a permit from the U.S. Army Corps of Engineers for any construction in or over any navigable water, or the excavation or discharge of material into such water, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters.

“New Owner or New Operator” means an operator or owner that replaces an existing operator or owner on a construction project through transfer of ownership and/or operation.

“New Project” means a construction project that commenced construction activities after the effective date of this general permit.

“New Source” for the purpose of this permit, a construction project that commenced construction activities after February 1, 2010, and that requires NPDES permit coverage for its construction discharges under Section 1.2.

“Non-Numeric Effluent limitations” for purposes of this permit means design of site-specific non-numeric erosion and sediment control methods and practices (i.e., minimizing amount of exposed soil during construction activity, maximizing infiltration, structural Best Management Practices, etc.) and other practices and procedures as defined in Section 3.2.12 of this permit to meet effluent limitations imposed by the Department. Non-numeric effluent limitations will apply to all permitted construction sites, regardless of disturbed area.

“Non-Point Source Pollution” means pollution contained in stormwater runoff from ill-defined, diffuse sources such as runoff from urbanized or agricultural areas. The majority of agricultural facilities are defined as non-point sources and are exempt from NPDES regulation.

“Non-Stormwater Discharges” means discharges that do not originate from storm events. They can include, but are not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

“Notice of Intent” (NOI) means the NPDES application form developed by the Department to request coverage under a general permit. Required information and contents are as defined in Section 2.3 of this permit.

“Notice of Termination” (NOT) means the NPDES application form developed by the Department to terminate land disturbance activities and coverage under a general permit. Required information and contents are as defined in Section 5.2 of this permit.

“NPDES Form” or “Application” means any uniform permit application or any uniform form used by the Department or developed for use in the NPDES program, including a NPDES application, a

Refuse Act permit application and a reporting form.

“NPDES Permit” means a permit issued by the Department to a discharger pursuant to NPDES regulations for all point source discharges into surface waters, and shall constitute a final determination of the Department.

“Ocean and Coastal Resource Management” (OCRM) refers to DHEC’s Office of Ocean and Coastal Resource Management (DHEC-OCRM). OCRM is responsible for protection and enhancement of the state's coastal resources by preserving sensitive and fragile areas while promoting responsible development in the eight coastal counties of South Carolina.

“Ongoing Project” means the “commencement of construction activities” occurs before the effective date of this general permit.

“On-Site Stormwater Pollution Prevention Plan” (OS-SWPPP) as used in this permit means as the Stormwater Pollution Prevention Plan prepared according to requirements outlined in Section 3 of this permit. The On-Site SWPPP is a condensed version of the Comprehensive SWPPP and is stored on site. This SWPPP does not include the Engineering Report (project design calculations). This document does not require submission or approval by the Department, regulated MS4 entity, or an approved entity with Permitting Authority prior to obtaining coverage under this permit.

“Operator” for the purpose of this permit and in the context of Stormwater associated with construction activity, means any party associated with a construction Project that meets one of the following two criteria:

1. The person has operational control over construction plans, SWPPPs, and specifications, including the ability to request modifications to those plans, SWPPPs, and specifications by a qualified individual identified in Section 3.1.2.B of this permit. This person is typically the owner or developer of the project or a portion of the project (subsequent builders), and is considered the Primary Permittee; or
2. The person has day-to-day operational control of those activities at a construction site which are necessary to ensure compliance with a SWPPP for the site or other permit conditions. This person is often referred to as the Operator of Day-to-Day Site Activities (ODSA) and is typically a contractor or a commercial builder who is hired by the Primary Permittee. This person is considered a Secondary Permittee.

See Section 2.0 of this general permit for additional information.

“Outfall” means a point source at the discharge point of a waste stream, sewer, or drain into a receiving body of water. See discharge point.

“Outstanding National Resource Waters” (ONRW) means a classification of waters that is pursuant to South Carolina's Classification & Standards (R.61-68) and Classified Waters (R.61-69) regulations and that is intended to protect unique and special waters having excellent water quality and of exceptional state or national ecological or recreational significance.

“Owner or Operator” means the owner or operator of any “facility or activity” subject to regulation under the NPDES program. For purposes of this permit, when local governments (counties, cities, etc.) construct or improve state roads, the owner of these road construction

projects during the construction is the local government. See definition of Operator and details in Section 2.0 of this general permit for additional information.

“Perennial Stream” or “Perennial River” is a stream or river (channel) that has continuous flow in parts of its bed all year round during years of normal rainfall. Baseflow is maintained by groundwater discharge, as the stream channel is usually below the water table.

“Permit” means an authorization, license, or equivalent control document issued by the Department to implement the requirements of this regulation, **40 CFR Parts 123, and R.61-9.124**. Permit includes an NPDES general permit (**section 122.28**). Permit does not include any permit which has not yet been the subject of final agency action, such as a draft permit or a proposed permit.

“Permitted Ongoing Project” means a construction project that commenced prior to the effective date of this permit, which has been covered by a prior NPDES permit for stormwater discharges associated with construction activities.

“Permitting Authority” means the United States Environmental Protection Agency, EPA, a Regional Administrator of the Environmental Protection Agency, or an authorized representative.

“Person” means any individual, public or private corporation, political subdivision, association, partnership, corporation, municipality, State or Federal agency, industry, copartnership, firm, trust, estate, any other legal entity whatsoever, or an agent or employee thereof.

“Point Source” means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include introduction of pollutants from non point-source agricultural and silvicultural activities, including stormwater runoff from orchards, cultivated crops, pastures, range lands, and forest lands or return flows from irrigated agriculture or agricultural stormwater runoff.

“Point Source Discharge” means a discharge which is released to the waters of the State by a discernible, confined and discrete conveyance, including but not limited to a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel, or other floating craft from which waste is or may be discharged. Typical point source dischargers include discharges from publicly owned treatment works (POTWs), discharges from industrial facilities, and discharges associated with urban runoff.

“Pollutant” is defined at §122.2 of SC Regulation 61-9. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial or municipal waste. Typical construction site pollutants include sediment, oil and grease, pesticides and fertilizers, pollutants from construction wastes, and pollutants from construction materials. Pollutant does not mean sewage from vessels or water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

“Pollution Control Act” (PCA) means the South Carolina Pollution Control Act (PCA), S.C. Code Ann. section 48-1-10 et seq. (1976).

“Pollution Prevention Measures” means stormwater controls designed to reduce or eliminate the addition of pollutants to construction site discharges through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

“Post-Development” or “Post-Construction” means the conditions which exist following the completion of the land disturbing activity in terms of topography, vegetation, land use and rate, volume or direction of stormwater runoff.

“Pre-Development” or “Pre-Construction” means the conditions which existed prior to the initiation of the land disturbing activity in terms of topography, vegetation, land use and rate, volume or direction of stormwater runoff.

“Primary Permittee” means the person that has operational control over construction plans, SWPPPs, and specifications, including the ability to request modifications to those plans, SWPPPs, and specifications by a qualified individual identified in Section 3.1.2.B of this permit. This person is typically the owner or developer of the project or a portion of the project (subsequent builders). See Section 2.2.1 of this general permit for additional information.

“Prohibited Discharges” means discharges that are not allowed under this permit, including:

1. Wastewater from washout of concrete;
2. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
4. Soaps or solvents used in vehicle and equipment washing;
5. Toxic or hazardous substances from a spill or other release; and
6. Waste, garbage, floatable debris, construction debris, and sanitary waste from pollutant-generating activities.

“Project” means an undertaking such as, but not limited to, construction of commercial development, residential development, industrial development, roadways, railways, and utility lines.

“Project Area” means:

1. The areas on the construction Site where Stormwater discharges originate and flow toward the point of discharge into the receiving waters (including areas where excavation, Site development, or other ground disturbance activities occur) and the immediate vicinity. (Example: 1. Where bald eagles nest in a tree that is on or bordering a construction Site and could be disturbed by the construction activity or where grading causes Stormwater to flow into a small wetland or other habitat that is on the Site that contains listed species.)
2. The areas where Stormwater discharges flow from the construction Site to the point of discharge into receiving waters. (Example: Where Stormwater flows into a ditch, swale, or gully that leads to receiving waters and where listed species (such as amphibians) are found in the ditch, swale, or gully.)
3. The areas where Stormwater from construction activities discharge into receiving waters and the areas in the immediate vicinity of the point of discharge. (Example: Where Stormwater from construction activities discharges into a stream segment that is known to harbor listed

- aquatic species.)
4. The areas where Stormwater BMPs will be constructed and operated, including any areas where Stormwater flows to and from BMPs. (Example: Where a Stormwater retention pond would be built.)
 5. The areas upstream and /or downstream from construction activities discharges into a stream segment that may be affected by the said discharges. (Example: Where sediment discharged to a receiving stream settles downstream and impacts a breeding area of a listed aquatic species.)

“Provisionally Covered Under this Permit” for the purposes of this permit, means the Department provides temporary coverage under this permit for emergency-related projects prior to receipt of a complete and accurate NOI. Discharges from earth-disturbing activities associated with the emergency-related projects are subject to the terms and conditions of the permit during the period of temporary coverage.

“Publicly Owned Treatment Works” (POTW) means a treatment works as defined by section 212 of the Clean Water Act, which is owned by a state or municipality (as defined by section 502[4] of the CWA). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality, as defined in section 502(4) of the CWA, which has jurisdiction over the Indirect Discharges to and the discharge from such a treatment works.

“Qualified Personnel” or “Qualified Individual” means a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction Site that could impact Stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of Stormwater discharges from the construction activity.

“Receiving Waters” or “Receiving Water Bodies” (RWB) means the “Waters of the United States” as defined in §122.2 of SC Regulation 61-9 into which the regulated Stormwater discharges. For information on RWBs in respect to Coastal Zone stormwater management requirements, see the definition for Coastal Receiving Waters (CRW).

“Refuse Act Permit application” means an application for a permit issued under authority of Section 13 of the United States Rivers and Harbors Act of March 3, 1899.

“Regional Administrator” means the Regional Administrator of Region IV of the Environmental Protection Agency or the authorized representative of the Regional Administrator.

“Retention Structure” means a permanent structure whose primary purpose is to permanently store a given volume of stormwater runoff. Release of the given volume is by infiltration and/or evaporation.

“Riparian Buffer”, means a permanent area, strip, or plot of undisturbed, naturally vegetated and/or engineered land cover consisting of vegetation (e.g., grass, brush, trees, foliage) adjacent to surface waters that is utilized to provide water quality control for post-construction stormwater discharges. These buffers may be designed to provide many types of water quality benefits including, but not

limited to, water quality protection, wildlife habitat preservation and flood mitigation.

“Runoff Coefficient” means the fraction of total rainfall that will appear at the conveyance as runoff. Runoff coefficient is also defined as the ratio of the amount of water that is NOT absorbed by the surface to the total amount of water that falls during a rainstorm.. The value of the coefficient is determined on the basis of climatic conditions and physiographic characteristics of the drainage area and is expressed as a constant between zero and one and symbol C.

“SCDHEC” or “DHEC” means Department or the South Carolina Department of Health and Environmental Control’s Office of Environmental Quality Control (EQC).

“Secondary Permittee” means the person who has day-to-day operational control of those activities at a residential development that are necessary to ensure compliance with a SWPPP for the site or other permit conditions. This person is typically an individual lot owner or residential builder.

“Section 404 Permit” or “U. S. Army Corps of Engineers 404 Permit” refers to permits issued by the U.S. Army Corps of Engineers for certain activities conducted in wetlands or other U.S. waters as defined in Section 404 of the Clean Water Act. Construction projects affecting wetlands in any state cannot proceed until a §404 permit has been issued.

“Sediment” means solid particulate matter, both mineral and organic, that has been or is being transported by water, air, ice, or gravity from its site of origin.

“Sediment Basin” means a temporary basin consisting of an embankment constructed across a wet weather conveyance, or an excavation that creates a basin or by a combination of both. A sediment basin typically consists of a forebay cell, dam, impoundment, permanent pool, primary spillway, secondary or emergency spillway, and surface dewatering device. The size and shape of the basin depends on the location, size of drainage area, incoming runoff volume and peak flow, soil type and particle size, land cover, and receiving stream classification (i.e., impaired, HQ, or unimpaired).

“Sensitive Waters” means any waters with approved or established TMDLs, any waters included in the most recent SC DHEC Bureau of Water Clean Water Act (CWA) Section 303(d) list, and/or any waters pursuant to South Carolina’s Classification & Standards (R.61-68) and Classified Waters (R.61-69) regulations that are classified as either Outstanding National Resource Waters, Outstanding Resource Waters, Trout Waters, or Shellfish Harvesting Waters.

“Severe Property Damage” means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

“Shellfish” mean bivalve mollusks, specifically clams, mussels, or oysters.

“Silvicultural Point Source” means any discernible, confined and discrete conveyance related to rock crushing, gravel washing, log sorting, or log storage facilities which are operated in connection with silvicultural activities and from which pollutants are discharged into waters of the State. The term does not include non-point source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance from

which there is natural runoff. However, some of these activities (such as stream crossing for roads) may involve point source discharges of dredged or fill material which may require a CWA section 404 permit (See 33 CFR 209.120 and Part 233).

“Small Construction Activity” is defined under the definition of “Stormwater discharge associated with small construction activity” at §122.26(b)(15) of SC Regulation 61-9 as follows: “Stormwater discharge associated with small construction activity means the discharge of stormwater from:

- (i) Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one acre and less than five acres and, in coastal counties within one-half (1/2) mile of a receiving water body (but not for single-family homes which are not part of a subdivision development), that result in any land disturbance less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. The Department may waive the otherwise applicable requirements in a general permit for a Stormwater discharge from construction activities that disturb less than five acres where:
 - (A) The value of the rainfall erosivity factor (“R” in the Revised Universal Soil Loss Equation) is less than five during the period of construction activity. An Operator must certify to the Department that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five; or
 - (B) Stormwater controls are not needed based on a “total maximum daily load” (TMDL) approved or established by EPA that addresses the pollutant(s) of concern or, for non-impaired waters that do not require TMDLs, an equivalent analysis that determines allocations for small construction Sites for the pollutant(s) of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. For the purpose of this paragraph, the pollutant(s) of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The Operator must certify to the Department that the construction activity will take place, and Stormwater discharges will occur, within the drainage area addressed by the TMDL or equivalent analysis.
- (ii) Any other construction activity designated by the Department, or in States with approved NPDES programs either the Department or the EPA Regional Administrator, based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

“Soil” means the unconsolidated mineral and organic material on the immediate surface of the earth that serves as a natural medium for the growth of plants.

“South Carolina Navigable Waters” (SCNW) means those waters which are now navigable, or have been navigable at any time, or are capable of being rendered navigable by the removal of accidental obstructions, by rafts of lumber or timber or by small pleasure or sport fishing boats. Navigability shall be determined by the Department.

“Stabilization” means the installation of vegetative and/or non-vegetative (structural measures) to establish a soil cover to prevent and/or reduce soil erosion and sediment loss in areas exposed during the construction process.

“State” means the State of South Carolina.

“Steep Slope” means slopes of 30% (~3H:1V) or greater in grade.

“Storm Event” means a precipitation event that results in a discharge.

“Stormwater” means rainfall stormwater runoff, snowmelt runoff, and surface runoff and drainage.

“Stormwater Discharge-Related Activities” as used in this permit, include: activities that cause, contribute to, or result in stormwater point source pollutant discharges, including but not limited to: excavation, site development, grading and other surface disturbance activities; and measures to control stormwater including the citing, construction and operation of BMPs to control, reduce or prevent stormwater pollution.

“Stormwater Management” means, for:

- (a) quantitative control, a system of vegetative or structural measures, or both, that control the increased volume and rate of stormwater runoff caused by manmade changes to the land;
- (b) qualitative control, a system of vegetative, structural, or other measures that reduce or eliminate pollutants that might otherwise be carried by stormwater runoff.

“Stormwater Management and Sediment Control Plan” means a set of drawings, other documents, and supporting calculations submitted as a prerequisite to obtaining a permit to undertake a land disturbing activity. This plan must contain all required information and specifications identified in Section 3.2.2 of this permit. In general, this plan is considered to be a part of the Stormwater Pollution Prevention Plan (SWPPP).

“Stormwater Pollution Prevention Plan” (SWPPP) generally means a site-specific written document that (1) identifies potential sources of stormwater pollution at the construction site; (2) describes stormwater control measures to reduce or eliminate pollutants in stormwater discharges from the construction site; and (3) identifies procedures the operator will implement to comply with the terms and conditions of this general permit. The SWPPP includes site map(s), drawings and plans, other documents, and supporting calculations, and identification of construction/contractor activities that could cause pollutants in the stormwater, and a description of measures or practices to control these pollutants. **“SWPPP”** as used in this permit, generally means Comprehensive Stormwater Pollution Prevention Plan (SWPPP), unless specific reference is given to the On-Site SWPPP.

“Stormwater Runoff” means direct response of a watershed to precipitation and includes the surface and subsurface runoff that enters a ditch, stream, storm sewer or other concentrated flow during and following the precipitation.

“Subdivision” unless otherwise defined in an ordinance adopted by a local government pursuant to Section 6-7-1010, means all divisions of a tract or parcel of land into two or more lots, building sites, or other divisions, for the purpose, whether immediate or future, of sale, legacy, or building

development, or includes all division of land involving a new street or a change in existing streets, and includes resubdivision and, where appropriate, in the context, shall relate to the process of subdividing or to the land or area subdivided.

“Support Activities” means various construction-related activities that occur or facilities provided at a construction site alongside the construction activity that are directly related to and implemented as support to the construction activity or facility. Typical support activities include concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and borrow areas.

“Surface Water” means any waters where the surface of which is exposed to the atmosphere, such as water collecting on the ground or in a stream, river, lake, wetland, or ocean. It is related to water collecting as groundwater or atmospheric water. Surface water is naturally replenished by precipitation and naturally lost through discharge to evaporation and sub-surface seepage into the ground.

“Surface Waters of the State” means “Waters of the State” as defined in §122.2 of SC Regulation 61-9 except for groundwater.

“Swale” means a structural measure with a lining of grass, riprap or other materials, which can function as a detention structure and convey stormwater runoff without causing erosion.

“Temporary Stabilization” means a condition where exposed soils or disturbed areas are provided a temporary vegetative and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place to re-disturb this area. Temporary controls must be installed, maintained, and removed according to specifications in the BMP Manual.

“Ten-Year-Storm” or “Ten-Year Storm Event” means a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in 10 years. It may also be expressed as an exceedence probability with a 10 percent chance of being equaled or exceeded in any given year. Likewise, a ten-year 24-hour storm event means the maximum 24-hour precipitation event with a probable recurrence interval of once in ten years.

“Total Maximum Daily Load” (TMDL) is a calculation of the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards. It is the sum of the allowable loads or allocations of a given pollutant from all contributing point (wasteload allocation (WLA)) and nonpoint (load allocation (LA)) sources. It also incorporates a margin of safety and consideration of seasonal variation. For an impaired waterbody, the TMDL document Specifies the level of pollutant reductions needed for waterbody use attainment. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure.

“Tracking or Permit Number” refers to the permit numbering systems used by the Department to track each Notice of Intent (NOI) application. The permit number is generally formatted as SCR10XXXX.

“Treatment Works”, means any plant, disposal field, lagoon, constructed drainage ditch or surface

water intercepting ditch, incinerator, area devoted to sanitary landfills or other works not specifically mentioned herein, installed for the purpose of treating, neutralizing, stabilizing or disposing of sewage, industrial waste, stormwater runoff, or other wastes.

“Turbidity” is a condition of water quality characterized by cloudiness or haziness of a fluid caused by the presence of individual particles (suspended solids and/or organic material) that are generally invisible to the naked eye, similar to smoke in air.

“Unpermitted Ongoing Project” - a construction project that commenced prior to the effective date of this permit, but the discharges related to this project have not been authorized under an NPDES permit.

“Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Permittee. A upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

“Variance” means the modification of the minimum sediment and stormwater management requirements for specific circumstances where strict adherence of the requirements would result in unnecessary hardship and not fulfill the intent of these regulations.

“Waiver” means the relinquishment from sediment and stormwater management requirements by the appropriate plan approval authority for a specific land disturbing activity on a case-by-case review basis. Rainfall Erosivity Waiver, TMDL Waiver, and Equivalent Analysis Waiver are defined for small construction activities in Appendix B of this permit.

“Waste Load Allocation” (WLA) is the portion of a receiving water’s TMDL that is allocated to one of its existing or future point sources of pollution (EPA-823-B-94-005a). See definition of TMDL.

“Water Quality” means those characteristics of stormwater runoff from a land disturbing activity that relate to the physical, chemical, biological, or radiological integrity of water.

“Water Quality Standards” (WQS) are provisions of State or Federal law which consist of a designated (classified) use or uses for the Waters of the United States, water quality criteria, expressed in numeric or narrative form, for such waters based upon such uses, and an antidegradation policy that protects existing uses and provides a mechanism for maintaining high water quality. Water quality standards are measurable parameters of standards established as criteria to evaluate characteristics of stormwater runoff from a land disturbing activity that relate to the physical, chemical, biological, or radiological integrity of water. Water quality standards are to protect public health or welfare, enhance the quality of water and serve the purposes of the Federal Clean Water Act and the S.C. Pollution Control Act. .

“Water Quantity” means those characteristics of stormwater runoff that relate to the rate and volume of the stormwater runoff to downstream areas resulting from land disturbing activities.

“Watershed” means the drainage area contributing stormwater runoff to a single point.

“Waters of the State” (WoS) means lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic Ocean within the

territorial limits of the State, and all other bodies of surface or underground water, natural or artificial, public or private, inland or coastal, fresh or salt, which are wholly or partially within or bordering the State or within its jurisdiction.

“Waters of the United States” or “Waters of the U.S.” means:

- (1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters, including interstate “wetlands;”
- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, “wetlands,” sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
 - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
 - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;
- (4) All impoundments of waters otherwise defined as waters of the United States under this definition;
- (5) Tributaries of waters identified in paragraphs (1) through (4) of this definition;
- (6) The territorial sea; and
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not Waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in Waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of Waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA. The intent of this definition is to cover all possible waters within federal jurisdiction under the Commerce Clause of the Constitution.

“Wetland” means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

“You” and “Your” as used in this permit is intended to refer to the Applicant (Permittee), the Operator, or the discharger as the context indicates and that party’s responsibilities (e.g., the city, the country, the flood control district, the U.S. Air Force, etc.).

APPENDIX B

SMALL CONSTRUCTION WAIVERS AND INSTRUCTIONS

These waivers are only available to storm water discharges associated with small construction activities (i.e., 1-5 acres). As the Operator of a small construction activity, you may be able to qualify for a waiver in lieu of needing to obtain coverage under this general permit based on: (A) a low rainfall erosivity factor, (B) a TMDL analysis, or (C) an equivalent analysis that determines allocations for small construction Sites are not needed. Each Operator, otherwise needing permit coverage, must notify DHEC of its intention for a waiver. It is the responsibility of those individuals wishing to obtain a waiver from coverage under this general permit to submit a complete and accurate waiver certification as described below. Where the Operator changes or another is added during the construction Project, the new Operator must also submit a waiver certification to be waived.

A. Rainfall Erosivity Waiver

Under this scenario the small construction Project's rainfall erosivity factor calculation ("R" in the Revised Universal Soil Loss Equation) is less than 5 during the period of construction activity. The Operator must certify to the Permitting Authority that construction activity will occur only when the rainfall erosivity factor is less than 5. The period of construction activity begins at initial earth disturbance and ends with final stabilization. Where vegetation will be used for final stabilization, the date of installation of a stabilization practice that will provide interim non-vegetative stabilization can be used for the end of the construction period, provided the Operator commits (as a condition of waiver eligibility) to periodically inspect and properly maintain the area until the criteria for final stabilization as defined in the construction general permit have been met. If use of this interim stabilization eligibility condition was relied on to qualify for the waiver, signature on the waiver with its certification statement constitutes acceptance of and commitment to complete the final stabilization process. The Operator must submit a waiver certification to DHEC prior to commencing construction activities.

Note: The rainfall erosivity factor "R" is determined in accordance with Chapter 2 of Agriculture Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE), pages 21–64, dated January 1997; United States Department of Agriculture (USDA), Agricultural Research Service.

EPA funded a cooperative agreement with Texas A&M University to develop an online rainfall erosivity calculator. You can access the calculator from EPA's website at:
www.epa.gov/npdes/stormwater/cgp

Use of the calculator allows you to determine potential eligibility for the rainfall erosivity waiver. It may also be useful in determining the time periods during which construction activity could be waived from permit coverage. You may find that moving your construction activity by a few weeks or expediting Site stabilization will allow you to qualify for the waiver.

If you are the Operator of the construction activity and eligible for a waiver based on low erosivity potential, you must provide the following information on the waiver certification in order to be waived from permitting requirements:

1. Name, address and telephone number of the construction Site Operators;
2. Name (or other identifier), address, county or similar governmental subdivision, and latitude/longitude of the construction Project or Site;
3. Estimated construction start and completion (i.e., final stabilization) dates, and total acreage (to the nearest quarter acre) to be disturbed;
4. The rainfall erosivity factor calculation that applies to the active construction phase at your Project Site; and
5. A statement, signed and dated by an authorized representative, as provided in §122.22 of SC Regulation 61-9 (see Appendix C of this permit), that certifies that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five.

At the time of publication, a Low Erosivity Waiver Form is not available. If EPA or DHEC does create a form, it will be noticed (either directly, by public notice, or by making information available on the Internet at:

<http://www.epa.gov/npdes/stormwater/cgp> or www.scdhec.gov/water

Note: If the R factor is 5 or greater, you cannot apply for the rainfall erosivity waiver, and must apply for permit coverage as per Subpart 2.1 of the construction general permit, unless you qualify for the Water Quality Waiver as described below.

If your small construction Project continues beyond the projected completion date given on the waiver certification, you must recalculate the rainfall erosivity factor for the new Project duration. If the R factor is below five (5), you must update all applicable information on the waiver certification and retain a copy of the revised waiver as part of the Site SWPPP. The new waiver certification must be submitted prior to the projected completion date listed on the original waiver form to assure your exemption from permitting requirements is uninterrupted. If the new R factor is five (5) or above, you must submit an NOI as per Section 2.3.

B. TMDL Waiver

This waiver is available if a TMDL that addresses the pollutant(s) of concern and has determined that controls on storm water discharges from small construction activity are not needed to protect water quality. The pollutant(s) of concern include sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. Information on TMDLs that have been established is available from EPA online at www.epa.gov/owow/tmdl/ and from DHEC at: www.scdhec.gov/water.

If you are the Operator of the construction activity and eligible for a waiver based on compliance with a TMDL, you must provide the following information on the Waiver Certification form in order to be waived from permitting requirements:

1. Name, address and telephone number of the construction Site Operator(s);
2. Name (or other identifier), address, county or similar governmental subdivision, and latitude/longitude of the construction Project or Site;
3. Estimated construction start and completion (i.e., final stabilization) dates, and total acreage (to the nearest quarter acre) to be disturbed;
4. The name of the water body(s) that would be receiving storm water discharges from your

- construction Project;
5. The name and approval date of the TMDL; and
 6. A statement, signed and dated by an authorized representative, as provided in §122.22 of SC Regulation 61-9 (see Appendix C of this permit), that certifies that the construction activity will take place and that the storm water discharges will occur, within the drainage area addressed by the TMDL.

C. Equivalent Analysis Waiver

This waiver is available for non-impaired waters only. The Operator can develop an equivalent analysis that determines allocations for his small construction Site for the pollutant(s) of concern or determines that such allocations are not needed to protect water quality. This waiver requires a small construction Operator to develop an equivalent analysis based on existing in-stream concentrations, expected growth in pollutant concentrations from all sources, and a margin of safety.

If you are a construction Operator who wants to use this waiver, you must develop your equivalent analysis and provide the following information to be waived from permitting requirements:

1. Name, address and telephone number of the construction Site Operator(s);
2. Name (or other identifier), address, county or similar governmental subdivision, and latitude/longitude of the construction Project or Site;
3. Estimated construction start and completion (i.e., final stabilization) dates, and total acreage (to the nearest quarter acre) to be disturbed;
4. The name of the water bodies that would be receiving storm water discharges from your construction Project;
5. Your equivalent analysis; and
6. A statement, signed and dated by an authorized representative, as provided in §122.22 of SC Regulation 61-9 (see Appendix C of this permit), that certifies that the construction activity will take place and that the storm water discharges will occur, within the drainage area addressed by the equivalent analysis.

D. Waiver Deadlines and Submissions

1. Waiver certifications must be submitted prior to commencement of construction activities.
2. If you submit a TMDL or equivalent analysis waiver request, you are not waived until DHEC approves your request. As such, you may not commence construction activities until receipt of approval from DHEC.
3. Late Notifications: Operators are not prohibited from submitting waiver certifications after initiating clearing, grading, excavation activities, or other construction activities. DHEC may take enforcement for any unpermitted discharge or violations of laws or regulations that occur between the time construction commenced and waiver authorization is granted.

Submittal of a waiver certification is an optional alternative to obtaining permit coverage for discharges of storm water associated with small construction activity, provided you qualify for the waiver. Any discharge of storm water associated with small construction activity not covered by either a permit or a waiver may be considered an unpermitted discharge under the Clean Water Act and the SC Pollution Control Act. As mentioned above, DHEC may take enforcement for any unpermitted discharge or violations of laws or regulations that occur between the time construction commenced and either discharge authorization is granted or a complete and accurate waiver

certification is submitted. DHEC may notify any Operator covered by a waiver that they must apply for a permit. DHEC may notify any Operator who has been in non-compliance with a waiver that they may no longer use the waiver for future Projects. Any member of the public may petition DHEC to take action under this provision by submitting written notice along with supporting justification.

Complete and accurate Rainfall Erosivity waiver certifications must be sent to the following address:

Stormwater Permitting Section
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

Complete and accurate TMDL or equivalent analysis waiver requests must be sent to the following address:

Stormwater Permitting Section
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

APPENDIX C

SECTIONS 122.22 AND 122.41 OF SC REGULATION 61-9

Section 122.22 of SC Regulation 61-9.

122.22. Signatories to permit applications and reports.

(a) Applications. All permit applications shall be signed as follows:

(1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or

(ii) The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency or public facility: By either a principal executive officer, mayor, or other duly authorized employee or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) The chief executive officer of the agency, or

(ii) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator, Region IV, EPA).

(b) All reports required by permits, and other information requested by the Department, shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a) of this section;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an

individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) and,

(3) The written authorization is submitted to the Department.

(c) Changes to authorization. If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

(d) Certification. Any person signing a document under paragraph (a) or (b) of this section shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Section 122.41 of SC Regulation 61-9.

122.41. Conditions applicable to all permits. The following conditions apply to all NPDES permits. Additional conditions applicable to NPDES permits are in section 122.42. All conditions applicable to NPDES permit shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the federal regulations (or the corresponding approved State regulations) must be given in the permit.

(a) **Duty to comply.** The permittee must comply with all conditions of the permit. Any permit noncompliance constitutes a violation of the Clean Water Act and the Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. The Department's approval of wastewater facility Plans and Specifications does not relieve the permittee of responsibility to meet permit limits.

(1) The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

(2) Failure to comply with permit conditions or the provisions of this regulation may subject the permittee to civil penalties under S.C. Code Section 48-1-330 or criminal sanctions under S.C. Code Section 48-1-320. Sanctions for violations of the Federal Clean Water Act may be imposed in accordance with the provisions of 40 CFR Part 122.41(a)(2) and (3).

(3) A person who violates any provision of this regulation, a term, condition or schedule of compliance contained within a valid NPDES permit, or the State law is subject to the actions defined in the State law.

(b) **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. (But see 122.4(g)(2)).

(c) **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(d) **Duty to mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

(e) **(1) Proper operation and maintenance.** The permittee shall at all times properly operate and maintain in good working order and operate as efficiently as possible all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance based on design facility removals, adequate funding, adequate operator staffing and training and also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

(2) The permittee shall develop and maintain at the facility a complete Operations and Maintenance Manual for the waste treatment facilities and/or land application system. The manual shall be made available for on-site review during normal working hours. The manual shall contain operation and maintenance instructions for all equipment and appurtenances associated with the waste treatment facilities and land application system. The manual shall contain a general description of: the treatment process(es), the operational procedures to meet the requirements of (e)(1) above, and the corrective action to be taken should operating difficulties be encountered.

(3)(i) Except as stated in (ii) below, the permittee shall provide for the performance of daily treatment facility inspections by a certified operator of the appropriate grade as defined in the permit for the facility. The inspections shall include, but should not necessarily be limited to, areas which require visual observation to determine efficient operation and for which immediate corrective measures can be taken using the O & M manual as a guide. All inspections shall be recorded and shall include the date, time, and name of the person making the inspection, corrective measures taken, and routine equipment maintenance, repair, or replacement performed. The permittee shall maintain all records of inspections at the permitted facility as required by the permit, and the records shall be made available for on-site review during normal working hours.

(ii) The Department may make exceptions to operating requirements, if stated in the permit, as follows:

(A) Attendance by the certified operator of the appropriate grade ("the operator") is normally required only on days when treatment or discharge occurs.

(B) For performance of daily inspections, permits may allow a reduced grade of operator for limited time periods under specific circumstances when justified by the permittee in a staffing plan and approved by the Department.

(C) Reduced inspection frequency, but in no case less than weekly, may be suitable when specified in the permit, if there is complete telemetry of operating data and there is either a simple treatment system with a low potential for toxicity but requiring pumps or other electrical functions or the ability to stop the discharge for an appropriate period when necessary.

(D) In other circumstances where the permittee demonstrates the capability to evaluate the facility in an alternative manner equivalent to the inspection requirements in subparagraph 3(i).

(E) Any exceptions allowed under (A), (B), (C), and (D) above may be subject to compliance with the permit conditions.

(4) (i) Purpose. This regulation establishes rules for governing the operation and maintenance of wastewater sewer systems, including gravity or pressure interceptor sewers. It is the

purpose of this rule to establish standards for the management of sewer systems to prevent and/or minimize system failures that would lead to public health or environmental impacts.

(ii) Authority and applicability. Under Section 48-1-30 of the Code of Laws of South Carolina (1976 as amended), the Department is authorized to adopt such rules and regulations as may be necessary to implement the Pollution Control Act. This regulation applies to all sewer systems that have been or would be subject to a DHEC construction permit under Regulation 61-67 and whose owner owns or operates the wastewater treatment system to which the sewer discharges and which discharges under NPDES. Nothing in this regulation supersedes a more stringent requirement that may be imposed by sewer system owners that manage wastewater from satellite systems. This regulation (122.41(e)(4)) is effective when published in the State Register.

(iii) General requirements. The requirements to properly operate and maintain sewer systems are the responsibility of the system owner. General Standards. The sewer system owner must:

(A) Properly manage, operate, and maintain at all times all parts of its sewer system(s), to include maintaining contractual operation agreements to provide services, if appropriate;

(B) Provide adequate capacity to convey base flows and peak flows for all parts of the sewer system or, if capital improvements are necessary to meet this standard, develop a schedule of short and long term improvements;

(C) Take all reasonable steps to stop and mitigate the impact of releases of wastewater to the environment; and

(D) Notify the Department within 30 days of a proposed change in ownership of a sewer system.

(f) Permit actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

(g) Property rights. This permit does not convey any property rights of any sort, or any exclusive privilege.

(h) Duty to provide information. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

(i) Inspection and entry. The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act and Pollution Control Act, any substances or parameters at any location.

(j) Monitoring and records.

(1) (i) (A) Samples and measurements taken for the purpose of monitoring shall be

representative of the monitored activity.

(B) Samples shall be reasonably distributed in time, while maintaining representative sampling.

(C) No analysis, which is otherwise valid, shall be terminated for the purpose of preventing the analysis from showing a permit or water quality violation.

(ii) Flow Measurements.

(A) Where primary flow meters are required, appropriate flow measurement devices and methods consistent with accepted scientific practices shall be present and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of not greater than 10 percent from the true discharge rates throughout the range of expected discharge volumes. The primary flow device, where required, must be accessible to the use of a continuous flow recorder.

(B) Where permits require an estimate of flow, the permittee shall maintain at the permitted facility a record of the method(s) used in "estimating" the discharge flow (e.g., pump curves, production charts, water use records) for the outfall(s) designated on limits pages to monitor flow by an estimate.

(C) Records of any necessary calibrations must be kept.

(iii) The Department may designate a single, particular day of the month on which any group of parameters listed in the permit must be sampled. When this requirement is imposed in a permit, the Department may waive or alter compliance with the permit requirement for a specific sampling event for extenuating circumstances.

(iv) The Department may require that a permittee monitor parameters in the stream receiving his permitted discharge as necessary to evaluate the need for and to establish limits and conditions and to insure compliance with water quality standards (i.e., R.61-68).

(2) Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by R.61-9.503 or R.61-9.504); the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

(3) Records of monitoring information shall include:

- (i) The date, exact place, and time of sampling or measurements;
- (ii) The individual(s) who performed the sampling or measurements;
- (iii) The date(s) analyses were performed;
- (iv) The individual(s) who performed the analyses;
- (v) The analytical techniques or methods used; and
- (vi) The results of such analyses.

(4) Analyses for required monitoring must be conducted according to test procedures approved under 40 CFR Part 136 unless other test procedures have been specified in the permit or, in the case of sludge use or disposal, unless otherwise specified in R.61-9.503 or R.61-9.504.

(5) The PCA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$25,000 or by imprisonment for not more than 2

years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment provided by the Clean Water Act is also by imprisonment of not more than 4 years.

(k) Signatory requirement.

(1) All applications, reports, or information submitted to the Department shall be signed and certified (See section 122.22).

(2) The PCA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$25,000 per violation, or by imprisonment for not more than two years per violation, or by both.

(l) Reporting requirements.

(1) Planned changes. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(i) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b); or

(ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under section 122.42(a)(1).

(iii) The alteration or addition results in a significant change in the permittee's sewage sludge or industrial sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan (included in the NPDES permit directly or by reference);

(2) Anticipated noncompliance. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(3) Transfers. This permit is not transferable to any person except after notice to the Department. The Department may require modification or revocation and reissuance of the permit to change the name of permittee and incorporate such other requirements as may be necessary under the Pollution Control Act and the Clean Water Act. (See section 122.61; in some cases, modification or revocation and reissuance is mandatory.)

(4) Monitoring reports. Monitoring results shall be reported at the intervals specified in the permit.

(i) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Department for reporting results of monitoring of sludge use or disposal practices.

(ii) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in R.61-9.503 or R.61-9.504, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Department.

(iii) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Department in the permit.

(5) Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

(6) Twenty-four hour reporting.

(i) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(ii) The following shall be included as information which must be reported within 24 hours under this paragraph.

(A) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See section 122.44(g)).

(B) Any upset which exceeds any effluent limitation in the permit.

(C) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit to be reported within 24 hours (See section 122.44(g)).

(iii) The Department may waive the written report on a case-by-case basis for reports under paragraph (1)(6)(i) of this section if the oral report has been received within 24 hours.

(7) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (1)(4), (5), and (6) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (1)(6) of this section.

(8) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

(m) Bypass.

(1) Definitions.

(i) “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility.

(ii) “Severe property damage” means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

(2) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraph (m)(3) and (m)(4) of this section.

(3) Notice.

(i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass.

(ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph (l)(6) of this section (24-hour notice).

(4) Prohibition of bypass

(i) Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(C) The permittee submitted notices as required under paragraph (m)(3) of this section.

(ii) The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in paragraph (m)(4)(i) of this section.

(n) Upset.

(1) Definition. “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. A upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(2) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of

paragraph (n)(3) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(3) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(i) An upset occurred and that the permittee can identify the cause(s) of the upset;

(ii) The permitted facility was at the time being properly operated; and

(iii) The permittee submitted notice of the upset as required in paragraph (l)(6)(ii)(B) of this section (24 hour notice).

(iv) The permittee complied with any remedial measures required under paragraph (d) of this section.

(4) Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

(o) Misrepresentation of Information.

(1) Any person making application for a NPDES discharge permit or filing any record, report, or other document pursuant to a regulation of the Department, shall certify that all information contained in such document is true. All application facts certified to by the applicant shall be considered valid conditions of the permit issued pursuant to the application.

(2) Any person who knowingly makes any false statement, representation, or certification in any application, record, report, or other documents filed with the Department pursuant to the State law, and the rules and regulations pursuant to that law, shall be deemed to have violated a permit condition and shall be subject to the penalties provided for pursuant to 48-1-320 or 48-1-330.

APPENDIX D

REGULATIONS 72-302 AND 72-307 (OF STANDARDS FOR STORMWATER MANAGEMENT AND SEDIMENT REDUCTION REGULATION 72-300 THRU 72-316)

72-302. Exemptions, Waivers and Variances from Law.

- A. The following activities are exempt from both the sediment control and stormwater management requirements established by these regulations:
- (1) Land disturbing activities on agricultural land for production of plants and animals useful to man, including but not limited to: forages and sod crops, grains and feed crops, tobacco, cotton, and peanuts; dairy animals and dairy products; poultry and poultry products; livestock, including beef cattle, sheep, swine, horses, ponies, mules, or goats, including the breeding and grazing of these animals; bees; fur animals and aquaculture, except that the construction of an agricultural structure of one or more acres, such as broiler houses, machine sheds, repair shops and other major buildings and which require the issuance of a building permit shall require the submittal and approval of a stormwater management and sediment control plan prior to the start of the land disturbing activity.
 - (2) Land disturbing activities undertaken on forest land for the production and harvesting of timber and timber products.
 - (3) Activities undertaken by persons who are otherwise regulated by the provisions of Chapter 20 of Title 48, the South Carolina Mining Act.
 - (4) Construction or improvement of single family residences or their accessory buildings which are separately built and not part of multiple construction in a subdivision development.
 - (5) Land disturbing activities, other than activities identified in R.72-302A(6), that are conducted under another state or federal environmental permitting, licensing, or certification program where the state or federal environmental permit, license, or certification is conditioned on compliance with the minimum standards and criteria developed under this act.
 - (6) Any of the following land disturbing activities undertaken by any person who provides gas, electrification, or communications services, subject to the jurisdiction of the South Carolina Public Service Commission, or corporations organized and operating pursuant to Section 33-49-10 et seq.:
 - (a) land disturbing activities conducted pursuant to a certificate of environmental compatibility and public convenience and necessity issued pursuant to Title 58, Chapter 33, of the South Carolina Code, or land disturbing activities conducted pursuant to any other certification or authorization issued by the Public Service Commission;
 - (b) land disturbing activities conducted pursuant to a federal environmental permit, including Section 404 of the Federal Clean Water Act, and including permits issued by the Federal Energy Regulatory Commission;
 - (c) land disturbing activities associated with emergency maintenance or construction of electric, gas, or communications facilities, when necessary to restore service or when the Governor declares the area to have sustained a disaster and the actions are undertaken to protect the public from a threat to health or safety;
 - (d) land disturbing activities associated with routine maintenance and/or repair of electric,

- gas, or communications lines;
- (e) land disturbing activities associated with the placement of poles for overhead distribution or transmission of electric energy or of communications services;
- (f) land disturbing activities associated with placement of underground lines for distribution or transmission of electric energy or of gas or communications services; or
- (g) land disturbing activities conducted by a person filing environmental reports, assessments or impact statements with the United States Department of Agriculture, Rural Electrification Administration in regard to a project.

Any person, other than a person identified in R.72-302A(6)(g) who undertakes land disturbing activities described in R.72-302A(6)(d,e,f) must file with the South Carolina Public Service Commission, in a Policy and Procedures Manual, the procedures it will follow in conducting such activities. Any person, other than a person identified in R.72-302A(6)(g), who conducts land disturbing activities described in R.72-302A(6)(b), must address the procedures it will follow in conducting the activities in the Policy and Procedures Manual filed with the South Carolina Public Service Commission to the extent that the land disturbing activities are not specifically addressed in the federal permit or permitting process. If any person, other than a person identified in R.72-302A(6)(g), does not have a Policy and Procedures Manual on file with the Public Service Commission, such manual must be filed with the Public Service Commission not later than six months after the effective date of Chapter 14, Title 48 of the 1976 Code of Laws, South Carolina.

Any person who undertakes land disturbing activities described in R.72-302A(6)(g) of this subsection shall give the same written notice to the commission as given to agencies whose permits are required for project approval by the regulations of the United States Department of Agriculture, Rural Electrification Administration.

- (7) Activities relating to the routine maintenance and/or repair or rebuilding of the tracks, rights-of-way, bridges, communication facilities and other related structures and facilities of a railroad company.
 - (8) Activities undertaken on state-owned or managed lands that are otherwise regulated by the provisions of Chapter 18 of this title, the Erosion and Sediment Reduction Act.
 - (9) Activities undertaken by local governments or special purpose or public service districts relating to the repair and maintenance of existing facilities and structures.
- B. Implementing agencies with responsibility for plan review and approval may grant waivers from the stormwater management requirements of these regulations for individual land disturbing activities provided that a written request is submitted by the applicant containing descriptions, drawings, and any other information that is necessary to evaluate the proposed land disturbing activity. A separate written waiver request shall be required if there are subsequent additions, extensions, or modifications which would alter the approved stormwater runoff characteristics to a land disturbing activity receiving a waiver.
- (1) A project may be eligible for a waiver of stormwater management for both quantitative and qualitative control if the applicant can demonstrate that the proposed project will return the disturbed area to a pre-development runoff condition and the pre-development land use is unchanged at the conclusion of the project.
 - (2) A project may be eligible for a waiver or variance of stormwater management for water quantity control if the applicant can demonstrate that:
 - (a) The proposed project will have no significant adverse impact on the receiving natural

- waterway or downstream properties; or
- (b) The imposition of peak control requirements for rates of stormwater runoff would aggravate downstream flooding.

- (3) The implementing agency will conduct its review of the request for waiver within 10 working days. Failure of the implementing agency to act by end of the tenth working day will result in the automatic approval of the waiver.

- C. The implementing agency with responsibility for plan review and approval may grant a written variance from any requirement of these regulations if there are exceptional circumstances applicable to the site such that strict adherence to the provisions of these regulations will result in unnecessary hardship and not fulfill the intent of these regulations. A written request for variance shall be provided to the plan approval agency and shall state the specific variances sought and the reasons with supporting data for their granting. The plan approval agency shall not grant a variance unless and until sufficient specific reasons justifying the variance are provided by the applicant. The implementing agency will conduct its review of the request for variance within 10 working days. Failure of the implementing agency to act by the end of the tenth working day will result in the automatic approval of the variance.

72-307. Specific Design Criteria, Minimum Standards and Specifications.

- A. General submission requirements for all projects requiring stormwater management and sediment control plan approval will include the following information as applicable:

- (1) A standard application form,
- (2) A vicinity map indicating north arrow, scale, and other information necessary to locate the property or tax parcel,
- (3) A plan at an appropriate scale accompanied by a design report and indicating at least:
 - (a) The location of the land disturbing activity shown on a USGS 7.5 minute topographic map or copy.
 - (b) The existing and proposed topography, overlaid on a current plat showing existing and proposed contours as required by the implementing agency. The plat and topographic map should conform to provisions of Article 4, Regulations 400-490.
 - (c) The proposed grading and earth disturbance including:
 - 1. Surface area involved; and
 - 2. Limits of grading including limitation of mass clearing and grading whenever possible.
 - (d) Stormwater management and stormwater drainage computations, including:
 - 1. Pre- and post-development velocities, peak rates of discharge, and inflow and outflow hydrographs of stormwater runoff at all existing and proposed points of discharge from the site,
 - 2. Site conditions around points of all surface water discharge including vegetation and method of flow conveyance from the land disturbing activity, and
 - 3. Design details for structural controls.
 - (e) Erosion and sediment control provisions, including:
 - 1. Provisions to preserve top soil and limit disturbance;
 - 2. Details of site grading; and
 - 3. Design details for structural controls which includes diversions and swales.

- (4) Federal Emergency Management Agency flood maps and federal and State wetland maps, where appropriate.
 - (5) The appropriate plan approval agency shall require that plans and design reports be sealed by a qualified design professional that the plans have been designed in accordance with approved sediment and stormwater ordinances and programs, regulations, standards and criteria.
 - (6) Additional information necessary for a complete project review may be required by the appropriate plan approval agency as deemed appropriate. This additional information may include items such as public sewers, water lines, septic fields, wells, etc.
- B. Specific requirements for the erosion and sediment control portion of the stormwater management and sediment control plan approval process include, but are not limited to, the following items. The appropriate plan approval agency may modify the following items for a specific project or type of project.
- (1) All plans shall include details and descriptions of temporary and permanent erosion and sediment control measures and other protective measures shown on the stormwater and sediment management plan. Procedures in a stormwater and sediment management plan shall provide that all sediment and erosion controls are inspected at least once every seven calendar days and after any storm event of greater than 0.5 inches of precipitation during any 24-hour period.
 - (2) Specifications for a sequence of construction operations shall be contained on all plans describing the relationship between the implementation and maintenance of sediment controls, including permanent and temporary stabilization and the various stages or phases of earth disturbance and construction. The specifications for the sequence of construction shall, at a minimum, include the following activities:
 - (a) Clearing and grubbing for those areas necessary for installation of perimeter controls;
 - (b) Installation of sediment basins and traps;
 - (c) Construction of perimeter controls;
 - (d) Remaining clearing and grubbing;
 - (e) Road grading;
 - (f) Grading for the remainder of the site;
 - (g) Utility installation and whether stormdrains will be used or blocked until after completion of construction;
 - (h) Final grading, landscaping, or stabilization; and
 - (i) Removal of sediment controls.

Changes to the sequence of construction operations may be modified by the person conducting the land disturbing activity or their representative and do not constitute a violation unless measures to control stormwater runoff and sediment are not utilized.

- (3) The plans shall contain a description of the predominant soil types on the site, as described by the appropriate soil survey information available through the Commission or the local Conservation District.
- (4) When work in a live waterway is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction.
- (5) Vehicle tracking of sediments from land disturbing activities onto paved public roads

carrying significant amounts of traffic (ADT of 25 vehicles/day or greater) shall be minimized.

C. Specific requirements for the permanent stormwater management portion of the stormwater management and sediment control plan approval process include, but are not limited to, the following items. The appropriate plan approval agency may modify the following items for a specific project or type or project.

- (1) It is the overall goal of the Commission to address stormwater management on a watershed basis to provide a cost effective water quantity and water quality solution to the specific watershed problems. These regulations will provide general design requirements that must be adhered to in the absence of Designated Watershed specific criteria.
- (2) All hydrologic computations shall be accomplished using a volume based hydrograph method acceptable to the Commission. The storm duration for computational purposes for this method shall be the 24-hour rainfall event, SCS distribution with a 0.1 hour burst duration time increment. The rational and/or modified rational methods are acceptable for sizing individual culverts or stormdrains that are not part of a pipe network or system and do not have a contributing drainage area greater than 20 AC. The storm duration for computational purposes for this method shall be equal to the time of concentration of the contributing drainage area or a minimum of 0.1 hours, whichever is less.
- (3) Stormwater management requirements for a specific project shall be based on the entire area to be developed, or if phased, the initial submittal shall control that area proposed in the initial phase and establish a procedure and obligation for total site control.
- (4) Water quantity control is an integral component of overall stormwater management. The following design criteria for flow control is established for water quantity control purposes, unless a waiver is granted based on a case-by-case basis:
 - (a) Post-development peak discharge rates shall not exceed pre-development discharge rates for the 2-and 10-year frequency 24-hour duration storm event. Implementing agencies may utilize a less frequent storm event (e.g. 25-year, 24-hour) to address existing or future stormwater quantity or quality problems.
 - (b) Discharge velocities shall be reduced to provide a nonerosive velocity flow from a structure, channel, or other control measure or the velocity of the 10-year, 24-hour storm runoff in the receiving waterway prior to the land disturbing activity, whichever is greater.
 - (c) Watersheds, other than Designated Watersheds, that have well documented water quantity problems may have more stringent, or modified, design criteria determined by the local government that is responsive to the specific needs of that watershed.
- (4) Water quality control is also an integral component of stormwater management. The following design criteria is established for water quality protection unless a waiver or variance is granted on a case-by-case basis.
 - (a) When ponds are used for water quality protection, the ponds shall be designed as both quantity and quality control structures. Sediment storage volume shall be calculated considering the clean out and maintenance schedules specified by the designer during the land disturbing activity. Sediment storage volumes may be predicted by the Universal Soil Loss Equation or methods acceptable to the Commission.
 - (b) Stormwater runoff and drain to a single outlet from land disturbing activities which disturb ten acres or more shall be controlled during the land disturbing activity by a sediment basin where sufficient space and other factors allow these controls to be used

until the final inspection. The sediment basin shall be designed and constructed to accommodate the anticipated sediment loading from the land-disturbing activity and meet a removal efficiency of 80 percent suspended solids or 0.5 ML/L peak settable solids concentration, whichever is less. The outfall device or system design shall take into account the total drainage area flowing through the disturbed area to be served by the basin.

- (c) Other practices may be acceptable to the appropriate plan approval agency if they achieve an equivalent removal efficiency of 80 percent for suspended solids or 0.5 ML/L peak settable solids concentration, which ever is less. The efficiency shall be calculated for disturbed conditions for the 10-year 24-hour design event.
 - (d) Permanent water quality ponds having a permanent pool shall be designed to store and release the first 1/2 inch of runoff from the site over a 24-hour period. The storage volume shall be designed to accommodate, at least, 1/2 inch of runoff from the entire site.
 - (e) Permanent water quality ponds, not having a permanent pool, shall be designed to release the first inch of runoff from the site over a 24-hour period.
 - (f) Permanent infiltration practices, when used, shall be designed to accept, at a minimum, the first inch of runoff from all impervious areas.
 - (g) For activities in the eight coastal counties of Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Jasper and Horry, additional water quality requirements may be imposed to comply with the S.C. Coastal Council Stormwater Management Guidelines. If conflicting requirements exist for activities in the eight coastal counties, the S.C. Coastal Council guidelines will apply.
- (6) Where ponds are the proposed method of control, the person responsible for the land disturbing activity shall submit to the approving agency, when required, an analysis of the impacts of stormwater flows downstream in the watershed for the 10-and 100-year frequency storm event. The analysis shall include hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications of the proposed land disturbing activity, with and without the pond. The results of the analysis will determine the need to modify the pond design or to eliminate the pond requirement. Lacking a clearly defined downstream point of constriction, the downstream impacts shall be established, with the concurrence of the implementing agency.
- (7) Where existing wetlands are intended as a component of an overall stormwater management system, the approved stormwater management and sediment control plan shall not be implemented until all necessary federal and state permits have been obtained.
- (8) Designs shall be in accordance with standards developed or approved by the Commission.
- (9) Ease of maintenance must be considered as a site design component. Access to the stormwater management structure must be provided.
- (10) A clear statement of defined maintenance responsibility shall be established during the plan review and approval process.
- (11) Infiltration practices have certain limitations on their use on certain sites. These limitations include the following items:
- (a) Areas draining to these practices must be stabilized and vegetative filters established prior to runoff entering the system. Infiltration practices shall not be used if a suspended solids filter system does not accompany the practice. If vegetation is the intended filter, there shall be, at least a 20 foot length of vegetative filter prior to stormwater runoff entering the infiltration practice;
 - (b) The bottom of the infiltration practice shall be at least 0.5 feet above the seasonal

high water table, whether perched or regional, determined by direct piezometer measurements which can be demonstrated to be representative of the maximum height of the water table on an annual basis during years of normal precipitation, or by the depth in the soil at which mottling first occurs;

- (c) The infiltration practice shall be designed to completely drain of water within 72 hours;
 - (d) Soils must have adequate permeability to allow water to infiltrate. Infiltration practices are limited to soils having an infiltration rate of least 0.30 inches per hour. Initial consideration will be based on a review of the appropriate soil survey, and the survey may serve as a basis for rejection. On-site soil borings and textural classifications must be accomplished to verify the actual site and seasonal high water table conditions when infiltration is to be utilized;
 - (e) Infiltration practices greater than three feet deep shall be located at least 10 feet from basement walls;
 - (f) Infiltration practices designed to handle runoff from impervious parking areas shall be a minimum of 150 feet from any public or private water supply well;
 - (g) The design of an infiltration practice shall provide an overflow system with measures to provide a non-erosive velocity of flow along its length and at the outfall;
 - (h) The slope of the bottom of the infiltration practice shall not exceed five percent. Also, the practice shall not be installed in fill material as piping along the fill/natural ground interface may cause slope failure;
 - (i) An infiltration practice shall not be installed on or atop a slope whose natural angle of incline exceeds 20 percent.
 - (j) Clean outs will be provided at a minimum, every 100 feet along the infiltration practice to allow for access and maintenance.
- (12) A regional approach to stormwater management is an acceptable alternative to site specific requirements and is encouraged.
- D. All stormwater management and sediment control practices shall be designed, constructed and maintained with consideration for the proper control of mosquitoes and other vectors. Practices may include, but are not limited to:
- (1) The bottom of retention and detention ponds should be graded and have a slope not less than 0.5 percent.
 - (2) There should be no depressions in a normally dry detention facility where water might pocket when the water level is receding.
 - (3) Normally dry detention systems and swales should be designed to drain within three (3) days.
 - (4) An aquatic weed control program should be utilized in permanently wet structures to prevent an overgrowth of vegetation in the pond. Manual harvesting is preferred.
 - (5) Fish may be stocked in permanently wet retention and detention ponds.
 - (6) Normally dry swales and detention pond bottoms should be constructed with a gravel blanket or other measure to minimize the creation of tire ruts during maintenance activities.
- E. A stormwater management and sediment control plan shall be filed for a residential development and the buildings constructed within, regardless of the phasing of construction.
- (1) In applying the stormwater management and sediment control criteria, in R.72-307, individual lots in a residential subdivision development shall not be considered to be separate land disturbing activities and shall not require individual permits. Instead, the residential subdivision development, as a whole, shall be considered to be a single land

disturbing activity. Hydrologic parameters that reflect the ultimate subdivision development shall be used in all engineering calculations.

- (2) If individual lots or sections in a residential subdivision are being developed by different property owners, all land-disturbing activities related to the residential subdivision shall be covered by the approved stormwater management and sediment control plan for the residential subdivision. Individual lot owners or developers may sign a certificate of compliance that all activities on that lot will be carried out in accordance with the approved stormwater management and sediment control plan for the residential subdivision. Failure to provide this certification will result in owners or developers of individual lots developing a stormwater management and sediment control plan meeting the requirements of R.72-307.
 - (3) Residential subdivisions which were approved prior to the effective date of these regulations are exempt from these requirements. Development of new phases of existing subdivisions which were not previously approved shall comply with the provisions of these regulations.
- F. Risk analysis may be used to justify a design storm event other than prescribed or to show that rate and volume control is detrimental to the hydrologic response of the basin and therefore, should not be required for a particular site.
- (1) A complete watershed hydrologic/hydraulic analysis must be done using a complete model/procedure acceptable to the implementing agency. The level of detail of data required is as follows:
 - (a) Watershed designation on the 7.5 minute topo map exploded to a minimum of 1" = 400'.
 - (b) Inclusion of design and performance data to evaluate the effects of any structures which effect discharge. Examples may be ponds or lakes, road crossings acting as attenuation structures and there may be others which must be taken into account.
 - (c) Land use data shall be taken from the most recent aerial photograph and field checked and updated.
 - (d) The water surface profile shall be plotted for the conditions of pre-and post-development for the 10-, and 100-year 24-hour storm.
 - (e) Elevations of any structure potentially damaged by resultant flow shall also be shown.
 - (2) Based on the results of this type of evaluation, the certified plan reviewer representing the implementing agency shall review and evaluate the proposed regulation waiver or change.
- G. The general permit application for use by federal, local governments, or special purpose or public service districts shall contain, as a minimum, standard plans and specifications for stormwater management and erosion and sediment control; methods used to calculate stormwater runoff, soil loss and control method performance; staff assigned to monitor land disturbing activities and procedures to handle complaints for off-site property owners and jurisdictions.

This general permit will be valid for a period of three years and will be subject to the same review criteria by the Commission as that of the delegated program elements.

The use of the general permit classification does not relinquish a land disturbing activity from the requirements of these Regulations. Rather, the general permit precludes that activity from the necessity of a specific plan review for each individual project.

Approval of a general permit does not relieve any agency from the conditions that are part of the general permit approval regarding the implementation of control practices as required by the general permit. Failure to implement control practices pursuant to conditions included in the general permit may result in the revocation of the general permit and the requirement of the submission of individual plans for each activity.

H. The stormwater management and sediment control plan required for land disturbing activities of two (2) acres or less which are not part of a larger common plan of development or sale shall contain the following information, as applicable:

- (1) An anticipated starting and completion date of the various stages of land disturbing activities and the expected date the final stabilization will be completed;
- (2) A narrative description of the stormwater management and sediment control plan to be used during land disturbing activities;
- (3) General description of topographic and soil conditions of the tract from the local soil and water conservation district;
- (4) A general description of adjacent property and a description of existing structures, buildings, and other fixed improvements located on surrounding properties;
- (5) A sketched plan (engineer's, Tier B surveyor's or landscape architect's seal not required) to accompany the narrative which shall contain:
 - (a) A site location drawing of the proposed project, indicating the location of the proposed project in relation to roadways, jurisdictional boundaries, streams and rivers;
 - (b) The boundary lines of the site on which the work is to be performed;
 - (c) A topographic map of the site if required by the implementing agency;
 - (d) The location of temporary and permanent vegetative and structural stormwater management and sediment control measures.
- (6) Stormwater management and sediment control plans shall contain certification by the person responsible for the land disturbing activity that the land disturbing activity will be accomplished pursuant to the plan.
- (7) All stormwater management and sediment control plans shall contain certification by the person responsible for the land disturbing activity of the right of the Commission or implementing agency to conduct on-site inspections.

The requirements contained above may be indicated on one plan sheet.

I. The stormwater management and sediment control plan for land disturbing activities of greater than two (2) acres but less than five (5) acres which are not part of a larger common plan of development or sale shall contain the following information, as applicable:

- (1) An abbreviated application form;
- (2) A vicinity map sufficient to locate the site and to show the relationship of the site to its general surroundings at a scale of not smaller than one (1) inch to one (1) mile.
- (3) The site drawn to a scale of not smaller than one (1) inch to 200 feet, showing:
 - (a) The boundary lines of the site on which the work is to be performed, including the approximate acreage of the site;

- (b) Existing contours and proposed contours as required by the implementing agency;
 - (c) Proposed physical improvements on the site, including present development and future utilization if future development is planned;
 - (d) A plan for temporary and permanent vegetative and structural erosion and sediment control measures which specify the erosion and sediment control measures to be used during all phases of the land disturbing activity and a description of their proposed operation;
 - (e) Provisions for stormwater runoff control during the land disturbing activity and during the life of the facility, including a time schedule and sequence of operations indicating the anticipated starting and completion dates of each phase and meeting the following requirements:
 - 1. Post-development peak discharge rates shall not exceed pre-development discharge rates for the 2- and 10- year frequency 24-hour duration storm event. Implementing agencies may utilize a less frequent storm event (e.g. 25-year, 24-hour) to address existing or future stormwater quantity or quality problems.
 - 2. Discharge velocities shall be reduced to provide a nonerosive velocity flow from a structure, channel, or other control measure or the velocity of the 10-year, 24-hour storm runoff in the receiving waterway prior to the land disturbing activity, whichever is greater.
 - (f) A complete and adequate grading plan for borrow pits and material processing facilities where applicable, including restoration and revegetation measures;
 - (g) A general description of the predominant soil types on the site;
 - (h) A description of the maintenance program for stormwater management and sediment control facilities including inspection programs.
- (4) All stormwater management and sediment control plans submitted for approval shall contain certification by the person responsible for the land disturbing activity that the land disturbing activity will be accomplished pursuant to the approved plan.
 - (5) All stormwater management and sediment control plans shall contain certification by the person responsible for the land disturbing activity of the right of the Commission or implementing agency to conduct on-site inspections.
 - (6) All stormwater management and sediment control plans submitted to the appropriate plan approval agency for approval shall be certified by the designer. The following disciplines may certify and stamp/seal plans as allowed by their respective licensing act and regulations:
 - (a) Registered professional engineers as described in Title 40, Chapter 22.
 - (b) Registered landscape architects as describe in Title 40, Chapter 28, Section 10, item (b).
 - (c) Tier B land surveyors as described in Title 40, Chapter 22.
 - (7) Pursuant to Title 40, Chapter 22, Section 460, stormwater management and sediment control plans may be prepared by employees of the federal government and submitted by the person responsible for the land disturbing activity to the appropriate plan approval agency for approval.

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SECTION 32 11 23 – AGGREGATE BASE COURSES

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SECTION 32 11 23**AGGREGATE BASE COURSES****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Aggregate base course.

1.2 RELATED SECTIONS

- A. Section 01 22 00 – Unit Prices: Requirements applicable for the work of this section.
- B. Section 01 45 00 – Quality Control.
- C. Section 31 00 00 – Earthwork
- D. Section 32 12 16 SC– [Asphalt Paving]

1.3 MEASUREMENT AND PAYMENT

- A. Aggregate Base Course: Payment will be made at the contract unit price. Payment will include supplying all material, labor, and equipment, stockpiling, scarifying substrate surface, placing where required, and compacting.
- B. Prime Coat: Bituminous prime coat will not be measured for separate payment. All costs connected with applying prime coat will be included in the unit price bid for Aggregate Base Course.

1.4 REFERENCES (LATEST REVISION)

- A. ASTM C 131 – Resistance to Degradation of Small-Size Course Aggregate by Abrasion and Impact in the Los Angeles Machine.
- B. ASTM D 1557 – Laboratory Compaction Characteristics of Soil Using Modified Effort.
- C. ASTM D 3740 – Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock Used in Engineering Design and Construction.
- D. ASTM D 6938 – In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- E. ASTM E 329 – Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction.

1.6 TESTING

- A. Laboratory tests for moisture density relationship for fill materials shall be in accordance with ASTM D 1557, (Modified Proctor).
- B. In place density tests in accordance with ASTM D 6938.
- C. Testing laboratory shall operate in accordance with ASTM D 3740 and E 329 and be acceptable to the Engineer.
- D. Testing laboratory and Project Engineer/Project Representative shall be given a minimum of 48 hours notice prior to taking any tests.
- E. Testing shall be Contractor's responsibility and performed at Contractor's expense by a commercial testing laboratory operating in accordance with subparagraph C above.
- F. Test results shall be furnished to the Engineer prior to continuing with associated or subsequent work.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Aggregate shall consist of processed and blended crushed stone. Aggregates shall be free from lumps and balls of clay, organic matter, objectionable coatings, and other foreign material and shall be durable and sound. Coarse aggregate shall have a percentage of wear not to exceed 65% after 500 revolutions as determined by ASTM C 131. Aggregate shall meet applicable requirements of Section 305.2 in the South Carolina Department of Transportation Standard 2007 Specifications for Highway Construction. Material shall meet the following gradation and other requirements:

Granite Stone or Recycled Concrete	
Sieve Size	Percent by Weight Passing
2"	100
1-1/2"	95 – 100
1"	70 – 100
1/2"	48 – 75
# 4	30 – 60
# 30	11 – 30
#200	0 – 12
Liquid Limit	0 to 25
Plasticity Index	0 to 6

Marine Limestone	
Sieve Size	Percent by Weight Passing
2"	100
1-1/2"	95 - 100
1"	70 - 100
1/2"	50 - 85
# 4	30 - 60
# 30	17 - 38
#200	0 - 20
Liquid Limit	0 to 25
Plasticity Index	0 to 6

- B. Prime Coat: Shall be EA-P Special, Emulsified asphalt, conforming to Section 407 of the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify subbase has been tested, is dry, and slopes and elevations are correct.
- B. ON SITE OBSERVATIONS OF WORK: Owner's Representative or Engineer will have the right to require any portion of the work be completed in their presence. If the work is covered up after such instruction, it shall be exposed by Contractor for observation at no additional cost to the Owner. However, if Contractor notifies Owner such work is scheduled, and the Owner fails to appear within 48 hours, Contractor may proceed. All work completed and materials furnished shall be subject to review by the Owner, Engineer, or Project Representative. Improper work shall be reconstructed. All materials, which do not conform to requirements of specifications, shall be removed from the work upon notice being received from Engineer for rejection of such materials. Engineer shall have the right to mark rejected materials to distinguish them as such.

Contractor shall give the Owner, Project Engineer or Project Representative a minimum of 48 hours notice for all required observations or tests.

3.2 PREPARATION

- A. Subbase shall be graded and shaped conforming to the lines, grades, and cross sections required and cleaned of all foreign substances prior to constructing base course. Do not place base on soft, muddy or frozen surfaces. Correct irregularities in subbase slope and elevation by scarifying, reshaping, and recompacting.
- B. At the time of base course construction, subbase shall contain no frozen material.
- C. Surface of subbase shall be checked by the Engineer or Project Representative for adequate compaction and surface tolerances. Ruts or soft yielding spots appearing in areas of subbase course having inadequate compaction, and areas not smooth or which vary in elevation more than 3/8 inch above or below

required grade established on the plans, shall be corrected to the satisfaction of the Engineer or Project Representative. Base material shall not be placed until subbase has been properly prepared and test results have so indicated.

3.3 AGGREGATE PLACEMENT

- A. Aggregate shall be placed in accordance with South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction Section 305 and in accordance with all terms included in these specifications.
- B. Level and contour surfaces to elevations and slopes indicated.
- C. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- D. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- E. Use mechanical tamping equipment in areas inaccessible to compaction equipment.
- F. While at optimum moisture ($\pm 1-1/2\%$), compact base course with rollers capable of obtaining required density. Vibratory, flatwheel, and other rollers accepted by the Engineer may be used to obtain required compaction. Rolling shall continue until base is compacted to 98% of the maximum laboratory dry density as determined by ASTM D 1557. In-place density of the compacted base will be determined in accordance with ASTM D 6938.

3.4 PRIME COAT

- A. Bituminous material for the prime coat shall be applied uniformly and accurately in quantities of not less than 0.15 gallons per square yard nor more than 0.30 gallons per square yard of base course. All irregularities in the base course surface shall be corrected prior to application of prime coat. Clean the base course of all mud, dirt, dust, and caked and loose material
- B. Do not apply prime to a wet surface nor when temperature is below 40°F in the shade. Do not apply prime when rain threatens nor when weather conditions prevent proper construction and curing of prime coat.
- C. The primed base should be adequately cured before the binder or surface course is laid. In general, a minimum of 48 hours should be allowed for complete curing. Ordinarily, proper surface condition of the prime is indicated by a slight change in the shiny black appearance to a slightly brown color.

3.5 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with an acceptable 10-foot straight edge.
- B. Scheduled Compacted Thickness: Within 3/8 inch.

- C. Variation from Design Elevation: Within 3/8 inch.
- D. Depth measurements for compacted thickness shall be made by test holes through the base course. Where base course is deficient, correct such areas by scarifying, adding base material, and recompacting as directed by the Engineer.

3.6 FIELD QUALITY CONTROL

- A. Section 01 45 00 – Quality Control: Field observation.
- B. Density and moisture testing will be performed in accordance with ASTM D 1557 and ASTM D 6938.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Frequency of Tests:
 - 1. Base Density and Thickness – One test per 5,000 square feet.

END OF SECTION

INDEX TO
SECTION 32 12 16 – ASPHALT PAVING

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SECTION 32 12 16SC**ASPHALT PAVING****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Surface Course
- B. Binder Course

1.2 RELATED SECTIONS

- A. Section 01 22 00 – Unit Prices
- B. Section 01 45 00 – Quality Control
- C. Section 31 00 00 – Earthwork
- D. Section 32 11 23 – Aggregate Base Courses
- E. Section 32 12 16 SC – Asphalt Paving

1.3 MEASUREMENT AND PAYMENT

- A. Asphalt Paving: Will be paid for at the contract unit price per square yard of completed removal and replacement price included in the bid proposal.

1.4 REFERENCES (LATEST REVISION)

- A. ASTM D 946 – Penetration–Graded Asphalt–Cement for Use in Pavement Construction.
- B. ASTM D 1188 – Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples.
- C. ASTM D 1754 – Effect of Heat and Air on Asphaltic Materials (Thin–film Oven Test).
- D. ASTM D 2726 – Bulk Specific Gravity and Density of Non–Absorptive Compacted Bituminous Mixtures.
- E. ASTM D 2950 – Density of Bituminous Concrete in Place by Nuclear Methods.
- F. ASTM D 3740 – Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock Used in Engineering Design and Construction.

- G. ASTM E 329 – Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction.
- B. Mixing Plant: Conform to South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction.
- C. Method of Measurement for Handicap Parking and Access Aisle will be with a 24-inch digital smart-level. The 24-inch smart-level slope readings greater than specified tolerance within contract documents will be identified as non-compliant and not accepted.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Do not place asphalt mixture when ambient air temperature is less than that indicated in the Table nor when the surface is wet or frozen.

Lift Thickness	Min. Air Temperature, Degrees F.
1" or Less	55
1.1" to 2"	45
2.1" to 3"	40
3.1" to 4.5"	35

- B. Mixture shall be delivered to the spreader at a temperature between 250 degrees F and 325 degrees F.

1.7 GUARANTEE

- A. Contractor shall guarantee the quality of materials, equipment, and workmanship for a period of 12 months after acceptance. Defects discovered during this period shall be repaired by the Contractor at no cost to the Owner.

1.8 TESTING

- A. Testing laboratory shall operate in accordance with ASTM D 3740 and E 329 and be acceptable to the Engineer.
- B. Testing laboratory and Project Engineer/Project Representative shall be given a minimum of 48 hours notice prior to taking any tests.
- C. Testing shall be Contractor's responsibility and shall be performed at Contractor's expense by a commercial testing laboratory operating in accordance with subparagraph A above.

[OR]

- D. Test results shall be furnished to the Engineer prior to continuing with associated or subsequent work.

PART 2 – PRODUCTS

2.1 TACK COAT

- A. Shall consist of asphalt binder (asphalt cement) or emulsified asphalt, conforming to Section 401 of the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction. Asphalt binder shall be PG64-22. The acceptable grades of emulsified asphalt are RS-1, MS-1, MS-2, HFMS-1, HFMS-2, SS-1, CRS-1, CRS-2, CMS-2, and CSS-1.

2.2 ASPHALT BINDER AND ADDITIVES

- A. Shall be PG64-22 and conform to Section 401 of the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction.
- B. Anti-Stripping: Shall be hydrated lime and conform to requirements of Section 401 of the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction.

2.3 AGGREGATES

- A. General: Mineral aggregate shall be composed of fine aggregate or a combination of fine and coarse aggregate. Coarse aggregate shall be that portion of the material retained on a No. 4 sieve.

Fine aggregate shall be considered that portion passing the No. 4 sieve. Fine aggregate, coarse aggregate, and any additives in combination with the specified percentage of asphalt cement shall meet the requirements of tests specified, before acceptance may be given for their individual use. Marine (Fossiliferous) limestone shall not be used.

- B. Fine Aggregate: Shall conform to the requirements of Section 401 of the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction.
- C. Coarse Aggregate: Shall be granite stone and conform to the requirements of Section 401 of the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction.
- D. Surface Course: The surface course shall consist of fine and coarse aggregate and mineral filler uniformly mixed with hot asphalt binder in an acceptable mixing plant. The plant shall conform to South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction. The gradations, asphalt content and air voids shall be the following:

TYPE C	
Square Sieve	% Passing
3/4 inch	100
1/2 inch	97 – 100
3/8 inch	83 – 100
No. 4	58 – 80
No. 8	42 – 62
No. 30	20 – 40
No. 100	8 – 20
No. 200	3 – 9
% Asphalt Binder	5.0 – 6.8
Air Voids, %	3.5 – 4.5

- E. Intermediate or Binder Course: The mineral aggregates and asphalt binder shall be combined in such proportions the composition by weight of the finished mixture shall be within the following range limits:

TYPE B	
Sieve Designation	Percentage by Weight Passing
1 inch	100
3/4 inch	90 – 100
1/2 inch	75 – 90
3/8 inch	64 – 80
No. 4	38 – 54
No. 8	22 – 36
No. 30	8 – 22
No. 100	3 – 10
No. 200	2 – 8
% Asphalt Binder	4 – 6
Air Voids, %	3.5 – 4.5

2.4 SOURCE QUALITY CONTROL AND TESTS

- A. Section 01 45 00 – Quality Control and Section 01 45 23 – Testing and Inspecting Services.
- B. Submit proposed mix design for review prior to beginning of work.
- C. Test samples in accordance with the requirements of these specifications.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. On-Site Observations: Owner's Representative or Engineer will have the right to require any portion of work be completed in their presence. If work is covered up after such instruction, it shall be exposed by the

Contractor for observation at no additional cost to Owner. However, if Contractor notifies Engineer such work is scheduled, and Engineer fails to appear within 48 hours, the Contractor may proceed. All work completed and materials furnished shall be subject to review by the Engineer or Project Representative. Improper work shall be reconstructed. All materials, which do not conform to requirements of specifications, shall be removed from the work upon notice being received from Engineer for rejection of such materials. Engineer shall have the right to mark rejected materials to distinguish them as such.

Contractor shall give the Owner, Project Engineer or Project Representative a minimum of 48 hours notice for all required observations or tests.

- B. Contractor shall verify base has been tested, is dry, and slopes and elevations are correct.

3.2 PREPARATION

- A. Apply tack coat in accordance with Section 401 of the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction. Rate of application shall be 0.05 to 0.15 gallons per square yard of surface.
- B. Work shall be planned so no more tack coat than is necessary for the day's operation is placed on the surface. All traffic not essential to the work shall be kept off the tack coat.
- C. Apply tack coat to contact surfaces of curbs and gutters. Apply in manner so exposed curb or gutter surfaces are not stained.
- D. Coat surfaces of manhole frames and inlet frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

3.3 PLACEMENT

- A. Construction shall be in accordance with Sections 401, 402, and 403 of the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction.
- B. Asphaltic concrete shall not be placed on a wet or frozen surface.
- C. Compaction shall commence as soon as possible after the mixture has been spread to the desired thickness. Compaction shall be continuous and uniform over the entire surface. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks. Compaction rolling shall be complete before material temperature drops below 175° F.
- D. Areas of pavement with deficient thickness or density shall be removed and replaced at no additional cost to the Owner.

3.4 TOLERANCES

- A. General: All paving shall be subject to visual and straightedge evaluation during construction operations and thereafter prior to final acceptance. A 10-foot straightedge shall be maintained in the vicinity of the paving operation at all times for the purpose of measuring surface irregularities on all paving courses. The straightedge and labor for its use shall be provided by the Contractor. The surface of all courses shall be checked with the straightedge as necessary to detect surface irregularities. Irregularities such as rippling, tearing or pulling, which in the judgment of the Engineer indicate a continuing problem in equipment, mixture or operating technique, will not be permitted to recur. The paving operation shall be stopped until appropriate steps are taken by the Contractor to correct the problem.
- B. Flatness: All irregularities in excess of 1/8 inch in 10 feet for surface courses and 1/4 inch in 10 feet for intermediate courses shall be corrected.
- C. Variation from Design Elevation:
 - 1. General Paving: Less than 1/4 inch.
 - 2. Accessible Routes: Shall not exceed 1/4 inch. However, accessible routes shall not exceed maximum ADA allowable slopes. Contractor shall remove and replace any and all portions of the accessible route that exceed maximum ADA allowable slopes.
- D. Scheduled Compacted Thickness: Within 1/4 inch per lift.
- E. Pavement Deficient in Thickness: When measurement of any core indicates the pavement is deficient in thickness, additional cores will be drilled 10 feet either side of the deficient core along the centerline of the lane until the cores indicate the thickness conforms to the above specified requirements. A core indicating thickness deficiencies is considered a failed test. Pavement deficient in thickness shall be removed and replaced with the appropriate thickness of materials. If the Contractor believes the cores and measurements taken are not sufficient to indicate fairly the actual thickness of the pavement, additional cores and measurements will be taken, provided the Contractor will bear the extra cost of drilling the cores and filling the holes in the roadway as directed.

3.5 FIELD QUALITY CONTROL

- A. Acceptance of the in-place density of the binder and surface courses shall be in accordance with the South Carolina Department of Transportation 2007 Standard Specifications for Highway Construction and these specifications.

- B. Density Testing: Performed in accordance with ASTM D-2726 and ASTM D-2950. Core samples for each day's operation shall be taken, tested and results reported to the Engineer the following day. The areas sampled shall be properly restored by the Contractor at no additional cost to the Owner. Nuclear gauge tests shall be taken during the asphaltic concrete placement.
- C. Density of each pavement course shall conform to one of the following:
1. Average 96% of laboratory density with no test less than 94%.
 2. Average 92% of maximum theoretical density with no test less than 90%.
 3. Average 99% of control strip density.
- D. Temperature:
1. Asphaltic concrete shall not exceed 325 degrees F at any time.
 2. Asphaltic concrete shall not be placed once the temperature of the mix falls below 250 degrees F or the delivered temperature is more than 15 degrees F below the batch plant's delivery ticket.
 3. Temperature at time of loading shall be recorded on the truck delivery ticket.
- E. Frequency of Tests:
1. Asphaltic Concrete – One test for each 250 tons placed.
 - a. Asphalt extraction and gradation test.
 - b. Core Sample
 2. Field determination of density by nuclear method every 5,000 square feet during construction of the asphaltic concrete binder/surface course.

END OF SECTION

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SECTION 32 92 00**TURF AND GRASSES****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Seeding, planting grass, and fertilizing graded areas behind the structures, pipeline rights-of-way, roadway shoulders, and other disturbed areas.
- B. Seed protection.
- C. Maintaining seeded areas until final acceptance.

1.2 RELATED WORK

- A. Civil and Landscape plans and specifications.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging, and location of packaging. Damaged packages are not acceptable. Store in cool, dry locations away from contaminants.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer. Damaged bags are not acceptable. Store in cool, dry locations away from contaminants.
- C. Deliver sod on pallets.
- D. All material shall be acceptable to Engineer prior to use.

1.4 PLANTING DATES

- A. This specification provides for establishment of a permanent grass cover between the dates of March 1 and September 30. If finished earth grades are not completed in time to permit planting and establishment of permanent grass during the favorable season between dates specified above unless otherwise accepted, Contractor will be required to plant a temporary cover to protect new graded areas from erosion and to keep windborne dust to a minimum. The temporary cover shall be planted between October 1 and February 28 unless otherwise permitted.

1.5 MEASUREMENT AND PAYMENT

- A. When the season or stage of project is such results of grassing work cannot be determined, conditional acceptance will be made on work completed. When conditional acceptance is made for items of work covered, Contractor shall be entitled to 50% of bid price for the actual work placed and shall receive remaining 50% of bid price when final acceptance is made. Conditional acceptance shall not apply to the remaining items of work, and full bid price payment shall be made

when work is acceptably placed and completed in accordance with specifications.

- B. Payment for grassing will be made at contract unit price for the item "Grassing" and such payment shall constitute full compensation for furnishing and placing seed and fertilizer or sod where directed and protecting and maintaining seed and sod in all graded and disturbed areas.

PART 2 – PRODUCTS

- A. Contractor shall submit source and species certification documents to Engineer and Owner's Representative for review prior to installation. Supply complete information on all analysis/test methodologies and results; laboratory certifications, manufacturer's specifications, and agency approvals to the Landscape Architect/Project Engineer prior to placement of soil mixtures. In addition, provide the Landscape Architect/Project Engineer with thoroughly mixed sample of soil mixes for acceptance prior to placement. Landscape Contractor shall make modifications and improvements to soil mixes deemed necessary by the soil analysis to meet requirements specified here in before, and to ensure proper growing medium for plant material.

2.1 SEED

- A. All seed shall conform to State Laws and requirements and regulations of the State Department of Agriculture.
- B. The varieties of seed, as specified in Section 2.2, shall be individually packaged or bagged, and tagged to show name of seed, net weight, origin, germination, lot number, and other information required by the State Department of Agriculture.
- C. Engineer reserves the right to test, reject, or accept all seed before seeding.

2.2 SEEDING SCHEDULE

<u>SEED</u>	<u>RATE</u>	<u>PLANTING DATES</u>
Bermuda	15-lbs/acre	March 1 – September 30
Rye	75-lbs/acre	October 1 – February 28

2.3 FERTILIZER

- A. Commercial fertilizer of accepted type, conforming to State fertilizer laws at the rate as recommended by soils test.

2.4 LIME

- A. Agricultural grade, ground limestone at the rate as recommended by soils test.

2.5 SPRIG

- A. Healthy living stems, stolons, or rhizomes and attached roots of locally adapted grass without adhering soil, including two to three nodes and from 4 to 6 inches long. Obtain from heavy, dense certified sod. Provide sprigs which have been grown under climatic conditions similar to those in the locality of project. Coordinate harvesting and planting operations to prevent exposure of sprigs to the sun for more than 30 minutes before covering and moistening. Sprigs showing signs of wilt, mold, containing weeds, or other detrimental material or are heat damaged will be rejected.
- B. Varieties of sprig, as specified in section 2.6, shall be individually packaged or bagged, and tagged to show name of sprig, net weight, origin, and other information required by the State Department of Agriculture.
- C. Sprigs shall be pure to variety specified and shall be free of other grass species, weeds or foreign matter.
- D. Sprigs shall be harvested by digging (not collected above soil level), shredding sod, rototilling sod and raking, vericutting, or with a sprig harvester. Sprigs shall consist of mostly rhizomes and crowns with only a few green leaves.

2.6 SPRIGGING SCHEDULE

- | A. | <u>SPRIG</u> | <u>RATE</u> | <u>PLANTING DATES</u> |
|----|--|---|---|
| | 'Tifsport' Bermuda | 1,000 bushels/acre
(Maximum 12 week grow-in) | April 1 – August 31 |
| | Stabilize site with temporary grass seed | | September 1 – March 31
(See section 2.2) |
- B. In areas where existing grass is to be matched, Contractor shall sprig at the rate and dates recommended by sprig distributor.

2.7 SOD

- A. Sod shall be premium grade, densely rooted, good quality grass of the species and certified variety as shown on the plans, free from noxious weeds with no surface soil being visible. The sod shall be obtained from areas where the soil is reasonably fertile. Sod of specified species shall be grown from seed or sprig with not less than 95 percent germination, 85 percent pure seed, and not more than 0.5 percent weed seed. The sod shall be machine cut to a uniform soil thickness that shall contain practically all of the dense root system and not be less than 1-inch thick.
- B. Before cutting, sod shall be mowed to a height of not less than 1-1/2-inches or more than 2-inches. Sod shall be cut in minimum uniform widths of 12-inches and lengths of 24 inches.
- C. Sod shall be delivered to site in a fresh, moist condition with healthy green foliage. It shall be unloaded from delivery trucks on pallets or in rolls and placed in final position within 24 hours of delivery. Sod shall be protected from wind and sun and shall not be allowed to dry out before planting.

- D. Sod shall be strong enough to support its own weight and retain its size and shape when suspended vertically from a firm grasp on the upper 10 percent of the section.

2.8 ACCESSORIES

- A. Straw Mulch: Oat or wheat straw, reasonably free from weeds, foreign matter detrimental to plant life, and in dry condition.
- B. Excelsior Mulch: Excelsior mulch shall consist of wood fibers cut from sound, green timber. The average length of fibers shall be 4 to 6 inches. Cut shall be made in such a manner as to provide maximum strength of fiber, but at a slight angle to natural grain of the wood to cause splintering of fibers when weathering in order to provide adherence to each other and to soil.
- C. Wood cellulose fiber shall be made from wood chip particles manufactured particularly for discharging uniformly on the ground surface when dispersed by a hydraulic water sprayer. It shall remain in uniform suspension in water under agitation and blend with grass seed and fertilizer to form a homogenous slurry. Mulch fibers shall intertwine physically to form a strong moisture holding mat on the ground surface and allow rainfall to percolate into underlying soil. The mulch shall be heat processed to contain no germination or growth-inhibiting factors. It shall be dyed (non-toxic) an appropriate color to facilitate metering of material.

2.9 PRODUCT REVIEW

- A. Contractor shall provide the Engineer with a complete description of all products before ordering. The Engineer will review all products before they are ordered.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Areas to be seeded shall be made smooth and uniform and shall conform to the finished grade indicated on plans.
- B. Remove foreign materials, plants, roots, stones, and debris from surfaces to be seeded.
- C. Grassing areas, if not loose, shall be loosened to a minimum depth of 3 inches before fertilizer, seed or sod is applied.
- D. Amendments to soils shall be incorporated into loosened 3-inch top soil layer as recommended by soils tests.
- E. Contractor shall provide Topsoil Analysis Tests performed by a State Agricultural Experiment Station, Soil and Water Conservation District, State University, or other qualified private testing laboratory, as acceptable to Landscape Architect/Project Engineer. Soils test shall identify existing pH and nutrient levels, as well as recommended adjustments based on the type of grass to be installed.

3.2 STAND OF GRASS

- A. Before acceptance of seeding, sodding, or sprigging is performed for the establishment of permanent vegetation, Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and winter weather and be capable of re-establishment in spring.
- B. Before acceptance of seeding is performed for the establishment of temporary vegetation, Contractor will be required to produce a stand of grass sufficient to control erosion for a given area and length of time before the next phase of construction or establishment of permanent vegetation is to commence.

3.3 SEEDING AND SPRIGGING DATES

- A. Seeding and sprigging shall be performed during periods and at rates specified in their respective schedules. Seeding and sprigging work may, at discretion of Contractor, be performed throughout the year using schedule prescribed for given period. Seeding and sprigging work shall not be conducted when the ground is frozen or excessively wet. Contractor will be required to produce a satisfactory stand of grass regardless of the period of year work is performed.

3.4 APPLYING LIME AND FERTILIZER

- A. Following advance preparation and placing selected material for shoulders and slopes, lime and fertilizer, if called for based on soil tests, shall be spread uniformly over the designated areas, and shall be thoroughly mixed with the soil to a depth of approximately 2 inches. Fertilizer and lime shall be applied at the rate recommended by required soils test. Unless otherwise provided, lime will not be applied for temporary seeding. In all cases where practicable, acceptable mechanical spreaders shall be used for spreading fertilizer. On steep slopes subject to slides and inaccessible to power equipment, the slopes shall be adequately scarified. Fertilizer may be applied on steep slopes by hydraulic methods as a mixture of fertilizer and seed. When fertilizer is applied with combination seed and fertilizer drills, no further incorporation will be necessary. The fertilizer and seed shall be applied together when Wood Cellulose Fiber Mulch is used. Any stones larger than 2-1/2 inches in any dimension, larger clods, roots, or other debris brought to the surface shall be removed.

3.5 SEEDING

- A. Seed shall be sown within 24 hours following application of fertilizer and lime and preparation of the seedbed as specified in Section 3.4. Seed shall be uniformly sown at rate specified by the use of acceptable mechanical seed drills. Rotary hand seeders, power sprayers or other satisfactory equipment may be used on steep slopes or on other areas inaccessible to seed drills.
- B. Seeds shall be covered and lightly compacted by means of cultipacker or light roller if the drill does not perform this operation. On slopes inaccessible to compaction equipment, the seed shall be covered by dragging spiked chains, by light harrowing or by other satisfactory methods.
- C. Apply water with fine spray immediately after each area has been sown.

- D. Do not sow seed when ground is too dry, during windy periods or immediately following a rain.
- E. If permitted by the special provisions, wood cellulose fiber mulch or excelsior fiber mulch may be used.

3.6 SEED PROTECTION (STRAW MULCH)

- A. All seeded areas seeded with permanent grasses shall be uniformly mulched in a continuous blanket immediately following seeding and compacting operations, using at least 2 tons of straw per acre.

3.7 SEED PROTECTION (EXCELSIOR MULCH)

- A. Seed shall be sown as specified in Section 3.5. Within 24 hours after covering of seed, excelsior mulch shall be uniformly applied at the rate of 2 tons per acre. The mulch may be applied hydraulically or by other acceptable methods. Should the mulch be placed in a dry condition, it shall be thoroughly wetted immediately after placing. Engineer may require light rolling of the mulch to form a tight mat.

3.8 SEED PROTECTION (WOOD CELLULOSE FIBER MULCH)

- A. After the lime has been applied and ground prepared as specified in Section 3.4, wood cellulose fiber mulch shall be applied at a rate of 1,500 pounds per acre in a mixture of seed and fertilizer. Hydraulic equipment shall be used for application of fertilizer, seed, and slurry of the prepared wood pulp. This equipment shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry of the specified amount of fiber, fertilizer, seed, and water. The slurry distribution lines shall be large enough to prevent stoppage. The discharge line shall be equipped with a set of hydraulic spray nozzles which will provide an even distribution of slurry on various areas to be seeded. The slurry tank shall have a minimum capacity of 1,000 gallons.

Seed, fertilizer, wood pulp mulch, and water shall all be combined into the slurry tank for distribution of all ingredients in one operation by hydraulic seeding method specified herein. Materials shall be combined in a manner recommended by the manufacturer. The slurry mixture shall be regulated so amounts and rates of application shall result in a uniform application of all materials at rates not less than amount specified. Using the color of wood pulp as a guide, equipment operator shall spray prepared seedbed with a uniform visible coat. The slurry shall be applied in a sweeping motion, in an arched stream to fall like rain, allowing wood fibers to build upon each other until an even coat is achieved.

3.9 SPRIGGING

- A. Sprigs shall be placed at the date and rates as shown in section 2.6. The sprigging method shall be by broadcast sprigging, hydroplanting or row planter. Sprigging procedure shall ensure even coverage.
- B. Sprigs applied by broadcast over the site with a distributor or hydroseeder shall be planted at the rates listed in section 2.6. Cover broadcast sprigs with straw mulch immediately after broadcast and water in immediately (within 2 hours).
- C. Sprigs installed by row planter creating a narrow furrow that covers 50 to 80% of

the sprig with soil may use less sprig material. Rate shall be as recommended by sprig supplier to provide a solid stand of turf within the time required in Section 2.6. Water in immediately (within 1 hour).

3.10 SODDING

- A. Sod shall be placed between March 1st and December 1st. However, if sod is to be placed during periods of temperatures over 90 degrees F., the Contractor shall take extra care for quick placement of sod with adequate, consistent watering necessary to ensure sod thrives as planted.
- B. Sod shall be placed within 24 hours of cutting.
- C. Place top elevation of sod 1/2 inch below adjoining paving or curbs.
- D. All areas to be sodded shall be brought to the proper line grade or cross section as was existing prior to construction. Sod shall be placed so, upon completion, edges of sodded areas will be smooth and will conform to the proposed finished grade. Sod shall be laid smooth, edge to edge, with staggered joints. Sod shall be immediately pressed firmly into contact with the sod bed by tamping or rolling, to eliminate any air pockets. A true and even surface shall be provided, to insure knitting without displacement of the sod or deformation of the sodded areas surfaces. Do not stretch or overlap sod pieces. Following compaction, screened soil of good quality shall be used to fill all cracks. Excess soil shall be worked into the grass with rakes or other suitable equipment. On slopes steeper than 3 to 1, sod shall be fastened in place with suitable wood or metal pins to hold the sod in place. Any damage by erosion or other causes occurring after completion of grading operations shall be repaired, before commencing with the sodding operations.
- E. Immediately before sodding, moisten topsoil with a fine spray to a minimum 1-inch depth. Sod shall not be laid on dry or powdery soil.
- F. Sod shall be moist when laid and placed on moist ground. The sod shall be carefully placed by hand, beginning at the toe of slopes and working upwards. The length of strips shall be at right angles to flow of surface water. All joints shall be tightly butted and end joints shall be staggered at least 12 inches. Sod shall be immediately pressed firmly into the ground by tamping or rolling. Fill all joints between strips with fine screened soil. Sod on slopes shall be pegged with sod pegs to prevent movement.
- G. Within two hours after sod has been placed, thoroughly water to a minimum depth of 4-inches. After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove depressions and irregularities. Roll sodded areas with a roller not exceeding 150 lbs. per foot of roller width.

PART 4 – MAINTENANCE, WARRANTY AND ACCEPTANCE

4.1 MAINTENANCE

- A. Maintain grassed surfaces until final acceptance.
- B. Maintenance shall consist of providing protection against traffic, watering to

ensure uniform seed germination and to keep surface of soil damp, and repairing any areas damaged as a result of construction operations or erosion. Maintenance shall also include, but is not limited to, watering, weeding, cultivating, removal of dead material, lawn mowing, fertilizing, and other necessary operations.

- C. The Contractor shall maintain all proposed plantings until the date of substantial completion issued by the Owner.

4.2 WARRANTY

- A. All grassed areas shall be guaranteed by Contractor to be alive and healthy for a one year period from date of substantial completion issued by the Owner. A final walk through with the Owner shall be conducted at end of warranty period to determine if any areas require replanting. At end of warranty period, sod shall show evidence of rooting to underlying soil and shall have no competitive weed growth from either the sod or from between sod joints.
- B. Any grassed area which is dead or not showing satisfactory growth shall be replaced at Contractor's expense at the end of warranty period. All replacement shall be of original quality. Replacement required because of vandalism, excessive use, or other causes beyond the control of Contractor are not part of this contract.

4.3 ACCEPTANCE

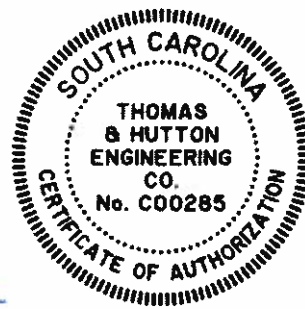
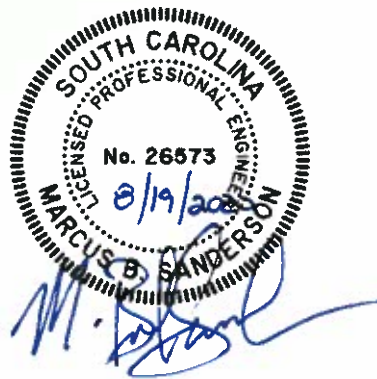
- A. Before acceptance of seeding performed for the establishment of permanent vegetation, Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and winter weather and be capable of reestablishment in spring.
- B. A minimum coverage of 80% density over 100% of the disturbed area is required for seeded areas before project acceptance. Sprig and sod areas shall have 95% coverage over 100% of the disturbed area prior project acceptance.

END OF SECTION

Technical Specifications (Water and Sewer)

Section 33 10 00 – Water Utilities

Section 33 30 00 – Sanitary Sewerage Utilities



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SECTION 33 10 00 – WATER UTILITIES

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SECTION 33 10 00SC**WATER UTILITIES****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Piping
- B. Valves
- C. Fittings
- D. Connect to Existing System
- E. All necessary appurtenances to convey potable water from the existing system to the location shown on the plans.

1.2 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork
- B. Section 31 10 00 – Site Clearing
- C. Section 32 92 00 – Turf and Grasses

1.3 REFERENCES (Latest Revision)

- A. ASTM A 53 – Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- B. ASTM A 139 – Electric-Fusion (Arc) – Welded Steel Pipe (NPS 4 and Over).
- C. ASTM C 443 – Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
- D. ASTM C 478 – Precast Reinforced Concrete Manhole Sections.
- E. ASTM D 1557 – Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
- F. ASTM D 1784 – Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
- G. ASTM D 2241 – Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR – Series).
- H. ASTM D 2737 – Polyethylene (PE) Plastic Tubing.
- I. ASTM D 2774 – Underground Installation of Thermoplastic Pressure Piping.
- J. ASTM D 3139 – Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.

- K. ASTM D 3740 – Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- L. ASTM D 6938 – In-Place Density and Water Content of Soil and Soil – Aggregate By Nuclear Methods (Shallow Depth).
- M. ASTM E 329 – Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
- N. AWWA C 104– Cement–Mortar Lining for Ductile Iron Pipe and Fittings for Water.
- O. AWWA C 110 – Ductile–Iron and Gray–Iron Fittings.
- P. AWWA C 111– Rubber Gasket Joints for Ductile–Iron Pressure Pipe and Fittings.
- Q. AWWA C 115 – Flanged Ductile–Iron Pipe with Ductile–Iron or Gray–Iron Threaded Flanges.
- R. AWWA C 150 – Thickness Design of Ductile Iron Pipe.
- S. AWWA C 151 – Ductile Iron Pipe, Centrifugally Cast, for Water.
- T. AWWA C 153 – Ductile–Iron Compact Fittings.
- U. AWWA C 200 – Steel Water Pipe 6 Inch (150 mm) and Larger.
- V. AWWA C 500 – Metal–Seated Gate Valves for Water Supply Service.
- W. AWWA C 502 – Dry–Barrel Fire Hydrants.
- X. AWWA C 504 – Rubber–Seated Butterfly Valves, 3 inch through 72 inch.
- Y. AWWA C 509 – Resilient–Seated Gate Valves for Water Supply Service.
- Z. AWWA C 512 – Air Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.
- AA. AWWA C 515 – Reduced–Wall, Resilient–Seated Gate Valves for Water Supply Service.
- BB. AWWA C 600 – Installation of Ductile Iron Water Mains and Their Appurtenances.
- CC. AWWA C 605 – Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.
- DD. AWWA C 651 – Disinfecting Water Mains.
- EE. AWWA C 800 – Underground Service Line Valves and Fittings.
- FF. AWWA C 900 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 inch through 12 inch for Water Transmission and Distribution.

- GG. AWWA C 901 – Polyethylene (PE) Pressure Pipe and Tubing, 1/2 inch through 3 inch, for Water Service.
- HH. AWWA C 905 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 inch through 48 inch (350 mm through 1,200 mm), for Water Transmission and Distribution.
- II. ASME B18/2.1 – Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (inch series).
- JJ. ASME B18/2.2 – Nuts for General Application: Machine Nut Screws, Hex, Square, Hex Flange, and Coupling Nuts (inch series).
- KK. NSF/ANSI 61 – Drinking Water System Components – Health Effects.
- LL. ASSE 1003 – Performance Requirements for Water Pressure Reducing Valves for Domestic Water Distribution Systems.

1.4 QUALITY ASSURANCE

- A. Materials – Contractor will furnish the Engineer and Owner a description of all material before ordering. Engineer will review the Contractor's submittals and provide in writing an acceptance or rejection of material.
- B. Manufacturer – Material and equipment shall be standard products of a manufacturer who has manufactured them for a minimum of 2 years and who provides published data on quality and performance of the products.
- C. Subcontractor – A subcontractor for any part of the work must have experience on similar work, and if required, furnish Engineer with a list of projects and Owners or Engineers who are familiar with its competence.
- D. Design – If Contractor wishes to furnish devices, equipment, structures, and systems not designed by Engineer, these items shall be designed by either a Professional Engineer registered in the state of this project, or by someone Engineer accepts as qualified. If required, complete design calculations and assumptions shall be furnished to the Engineer or Owner before acceptance.
- E. Testing Agencies – Soil testing shall be conducted by a testing laboratory which operates in accordance with ASTM D 3740 and E 329 latest revision and be acceptable to the Engineer prior to engagement. Mill certificates of tests on materials made by manufacturers will be accepted provided manufacturer maintains an adequate testing laboratory, makes regularly scheduled tests that are spot checked by an outside laboratory, and furnishes satisfactory certificates with name of entity making the test.
- F. Hydrostatic tests on pipe shall be made by Contractor with equipment qualified by the Engineer. The Engineer or Project Representative reserves the right to accept or reject testing equipment. Hydrostatic testing shall be conducted in the presence of Engineer or Project Representative and a representative of Water Supplier.

- G. All pipe, fittings, packing, jointing materials, valves, and fire hydrants shall conform to Section C of the American Water Works Association (AWWA) Standards.
- H. All materials and products which contact potable water must be third party certified as meeting the specifications of ANSI/NSF Standard 61.

1.5 REQUIREMENTS OF REGULATORY AGENCIES

- A. Water mains shall be sterilized to meet requirements of the appropriate Health Department. Sterilization shall be in accordance with AWWA Standards C-651, latest revision.
- B. Fire line sprinkler systems and dedicated fire lines shall be protected by an acceptable double check valve assembly. Water lines in high hazard categories shall be protected by an acceptable Reduced Pressure Zone (RPZ) Backflow Preventer.
- C. Any pipe, solder, or flux which is used in the installation or repair of any public water system or in any plumbing in a residential or nonresidential facility which provides water, through connection to a public water system, for human consumption shall be lead free. Lead free is defined as not more than 0.2% lead with respect to solder and flux and not more than 8.0% lead with respect to pipes and pipe fittings. Leaded joints necessary for repair of cast iron pipes shall be exempt from the lead free requirement.
- D. No water pipe shall pass through or come in contact with any part of a sewer manhole. Water lines may come in contact with storm sewers or catch basins if there is no practical alternative, provided ductile iron is used, no joints of water line are within the storm sewer or catch basin, and joints are located as far as possible from storm sewer or catch basin.
- E. Potable water lines shall not be laid less than 25 feet horizontally from any portion of a wastewater tile field or spray field, or shall be otherwise protected by a method acceptable to DHEC.
- F. Where the minimum cover of 30 inches cannot be provided, pipe shall be steel, concrete, ductile iron, or other material and method acceptable to DHEC, and, when necessary, insulated to prevent freezing.
- G. Air relief valves shall be provided in accordance with sound engineering practices at high points in water mains as required. Automatic air relief valves shall not be used in situations where flooding of the manhole or chamber may occur.
- H. The open end of an air relief pipe from automatic valves or from a manually operated valve shall be extended to the top of pit and provided with a screened downward facing elbow.
- I. Chambers, pits, or manholes containing valves, blow-off, meters, air release valves, or other such appurtenances to a distribution system, shall not be connected directly to any storm drain or sanitary sewer.

- J. There shall be no connection between distribution system and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contaminated materials may be discharged or drawn into the system.
- K. Asbestos cement pipe shall not be used in potable water system except in the repair of existing asbestos cement lines.
- L. Thermoplastic pipe shall not be used above grade.
- M. Steel pipe shall not be allowed in water systems unless specified as in AWWA C200 or ASTM A53.
- N. Water mains shall be installed out of contaminated areas, unless using piping materials protecting the system (i.e., Ductile Iron Pipe with chemical resistant gaskets). Route lines out of contaminated areas if possible.
- O. Cross Connection Control (Backflow Prevention Devices):
 - 1. There shall be no connection between the distribution system and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contaminated materials may be discharged or drawn into the system.
 - 2. No-by-passes shall be allowed, unless the bypass is also equipped with an equal, acceptable backflow prevention device.
 - 3. Reduced pressure principal backflow prevention assemblies shall not be installed in any area location subject to possible flooding. This includes pits or vaults not provided with a gravity drain to the ground's surface capable of exceeding discharge rate of relief valve. Generally, if installed in a pit, drain line shall be 2 times the size of line entering backflow prevention device. The drain cannot empty into any type of ditch, storm drain, or sewer, which could flood water back into pit.
 - 4. All piping up to inlet of the backflow prevention device must be suitable for potable water. The pipe must be AWWA or NSF approved. Black steel pipe cannot be used on inlet side of the device.

1.6 PRODUCT DELIVERY, STORAGE & HANDLING

- A. Material shall be unloaded in a manner avoiding damage and shall be stored where it will be protected and will not be hazardous to traffic. Contractor shall repair any damage caused by the storage. Material shall be examined before installation and neither damaged nor deteriorated material shall be used in the work.

1.7 SEQUENCING AND SCHEDULING

- A. Contractor shall arrange work so sections of mains between valves are tested, sterilized, pavement replaced, and the section placed in service as soon as reasonable after installation.

1.8 ALTERNATIVES

- A. The intention of these specifications is to produce the best system for the Owner. If Contractor suggests alternative material, equipment or procedures will improve the results at no additional cost, Engineer and Owner will examine suggestion, and if it is accepted, it may be used. The basis upon which acceptance of an alternative will be given is its value to the Owner, and not for Contractor's convenience.

1.9 GUARANTEE

- A. Contractor shall guarantee the quality of materials, equipment, and workmanship for a period of 12 months after acceptance. Defects discovered during this period shall be repaired by Contractor at no cost to the Owner.

1.10 EXISTING UTILITIES

- A. All known utility facilities are shown schematically on plans, and are not necessarily accurate in location as to plan or elevation. Utilities such as service lines or unknown facilities not shown on plans will not relieve the Contractor of responsibility under this requirement. "Existing Utilities Facilities" means any utility existing on the project in its original, relocated, or newly installed position. Contractor will be held responsible for the cost of repairs to damaged underground facilities; even when such facilities are not shown on plans
- B. The Contractor shall call for underground utility locations before starting work. Underground utilities location service can be contacted at 811 or 1-888-721-7877.

1.11 CONNECT NEW MAIN TO EXISTING SYSTEM

- A. Contractor shall furnish necessary pipe and perform all excavation, dewatering, shoring, backfilling, etc., necessary to make the connection of a new main to existing water system. Contractor shall contact the Superintendent of Water Utility a minimum of 48 hours in advance of construction. Contractor shall be responsible for coordinating construction with the utility operator.

1.12 DAMAGE TO EXISTING WATER SYSTEM

- A. Damage to any part of the existing water system by Contractor or Subcontractors, repaired by Utility Owner's forces, shall be charged to Contractor on basis of time and material, plus 30% for overhead and administration.

1.13 MEASUREMENT AND PAYMENT

- A. Measurement – The length of mains, and branch lines to be paid for will be determined by measurement along the centerline of the various sizes and types of pipe actually furnished and installed, from the center of fitting, and from the center of the main to the end of the branch connection. No deduction will be made for the space occupied by valves and fittings.

B. Payment –

1. Pipe – Payment will be made at the contract unit price per linear foot for the various types and sizes of pipe that are actually placed, as shown on the plans, or as directed by the Engineer. Excavation, installation, backfill, compaction, testing, metal detector tape, tracing wire, and all other incidentals to installation of the mains shall be considered as subsidiary obligations of the Contractor for the completion of the line in place.
2. Fittings – There will be no separate measurement or payment for fittings.
3. Valves – Payment will be made at the contract unit price for each size. Payment will include furnishing and installing the valve, valve boxes, extensions, or manholes.
4. Fire Hydrants – Payment will be made at the contract unit price. Payment will include the cost of furnishing, installing and connecting the hydrant, gravel sump, restrained joints, and backfilling. The 6 inch pipe from the main line to the hydrant will be paid for as 6 inch pipe. Gate valve and valve box will be paid for separately.
5. Cleaning and Disinfecting – No separate payment will be made for cleaning and disinfecting. Cleaning and disinfecting piping in the distribution system will be included in the lump sum and unit prices for the appropriate items.
6. Service Connections – Payment will be made at the contract unit price. Payment will include the cost of furnishing and installing the tapping saddle, corporation stop, curb stop and marking stake at the property line. The service pipe will be paid for at the contract unit price for each size specified.
7. Grassing – There will be no separate measurement or payment. Grassing shall be considered as a subsidiary obligation of the Contractor in the restoration of disturbed areas.
8. Metal Detector Tape – No separate payment will be made for tape. The cost of furnishing and placing metal detector tape shall be included in the contract unit price for installing pipe.
9. Connections to Existing Mains – Payment will be made at the contract unit price for each type connection and will include all equipment, labor, and materials required to locate, excavate, cut, connect, backfill, and compact.
10. Tapping Sleeves and Crosses – Payment will be made at the contract unit price. Payment will include all labor, materials, and equipment necessary to locate, excavate, furnish, and install the sleeve or cross, valve, valve boxes or manholes, tap the existing main, backfilling and compaction.
11. Remove and Replace Existing Pavement – Payment will be made on a square yard basis, and constructed in accordance with the detail shown.

12. Flush Valves – Payment will be made at the contract unit price. Payment will include furnishing and installing the ball valve, riser pipe and cap, valve or meter box, and the concrete collar.
13. Tracing Wire – No separate payment will be made for wire. The cost of furnishing and placing location wire shall be included in the contract unit price for installing pipe.
14. Restrained Joints – There will be no separate payment for restrained joints.
15. Air Release Valve in Manhole – Payment will be made at the contract unit price for each size. Payment will include furnishing and installing the air release valve, saddle, ball valve, manhole, frame, and cover.
16. Backflow Preventer Assembly – Payment will be made at the contract unit price for each size. Payment will include furnishing and installing the backflow preventer assembly, vault, cover, testing, and certification.
17. Casing – Payment will be made at the contract unit price per linear foot. Payment will include dewatering, excavation, providing steel pipe, installation, casing spacers, enclosure method, backfilling, compaction, testing, and all equipment, labor, and materials necessary to complete the work.

1.15 TESTING

- A. Laboratory tests for moisture density relationship for fill materials shall be in accordance with ASTM D 1557, (Modified Proctor).
- B. In place density tests in accordance with ASTM D 6938.
- C. Testing laboratory shall operate in accordance with ASTM D 3740 and E 329 and be acceptable to the Engineer.
- D. The testing laboratory and Project Engineer/Project Representative shall be given a minimum of 48 hours notice prior to taking any of the tests.
- E. Testing shall be the responsibility of the Contractor and shall be performed at the Contractor's expense by a commercial testing laboratory that operates in accordance with subparagraph C above.
- F. Test results shall be furnished to the Engineer prior to continuing with associated or subsequent work.

PART 2 – PRODUCTS

Products and materials used in the work shall conform to the following:

2.1 GENERAL REQUIREMENTS

- A. All material or products that come into contact with drinking water shall be third party certified as meeting the specifications of the American National Institute/National Sanitation Foundation Standard 61, Drinking Water System Components – Health Effects. The American National Standards Institute shall accredit the certifying party.
- B. All pipe, fittings, packing, jointing materials, valves, and fire hydrants shall conform to Section C of the AWWA Standards.

2.2 PIPE

- A. Ductile Iron Pipe – Shall conform to ANSI A-21.50 (AWWA C-150) and ANSI A-21.51 (AWWA C-151). All pipe shall be Pressure Class 350 unless otherwise noted. It shall be cement lined in accordance with ANSI A-21.4 (AWWA C-104).
- B. P.V.C. – All pipe shall be blue in color with factory marked homing lines. Pipe 4 inches through 12 inches shall conform to all requirements of AWWA C-900, DR 18, pressure class of 235 p.s.i. and shall have the following minimum wall thickness:

4 inches	0.267 inches
6 inches	0.383 inches
8 inches	0.503 inches
10 inches	0.617 inches
12 inches	0.733 inches

Pipe 14 inches through 18 inches in diameter shall conform to all the requirements of AWWA C 905, DR 18, pressure rating of 235 p.s.i.

Pipe with diameter less than 4 inches shall conform to all requirements of ASTM D-1784 and D-2241 (SDR 21). The pipe shall have a minimum pressure rating of 200 p.s.i. Certificates of conformance with the foregoing specifications shall be furnished with each lot of pipe supplied. All P.V.C. pipe shall bear the National Sanitation Foundation Seal of Approval.

- C. Plastic Tubing – Tubing for service lines shall be:

Polyethylene Tubing: CTS PE 3408 conforming to all requirements of AWWA C-901 and ASTM D-2737 (SDR9). The tubing shall be copper tubing size and rated for a minimum working pressure of 200 p.s.i. Marking on the tubing shall include: nominal tubing pipe size; type of tubing material – PE 3408; SDR 9; pressure rating – 200 p.s.i.; ASTM D-2737; manufacturer's name and seal of the National Sanitation Foundation.

2.3 JOINTS

- A. Flanged Joints – Shall conform to ANSI A-21.15 (AWWA C-115). Bolts shall conform to ANSI B-18.2.1 and nuts shall conform to ANSI B-18.2.2. Gaskets shall be rubber, either ring or full face, and shall be 1/8 inch thick. Gaskets shall conform to the dimensions recommended by AWWA C-115 latest revision.

- B. Mechanical Joints – In ductile iron pipe shall conform to ANSI A-21.11 (AWWA C-111).
- C. Push-On-Joints – In ductile iron pipes shall conform to ANSI A-21.11 (AWWA C-111).
- D. Plastic Pipe – Joints in plastic pipe 4 inches and larger shall meet all requirements of AWWA C-900. Joints in plastic pipe 14 inches through 18 inches shall meet all requirements of AWWA C905. Joints in plastic pipe with a diameter less than 4 inches shall conform to ASTM D-3139.
- E. Restrained Joints – Restrained joints for pipe, valves and fittings shall be mechanical joints with ductile iron retainer glands equivalent to "Megalug" or push-on type joints equivalent to "Lok-Ring," "TR Flex," or "Super Lock" and shall have a minimum rated working pressure of 250 p.s.i. for ductile iron pipe and 100 p.s.i. with a minimum safety factor of 2:1 for PVC pipe. The joints shall be in accordance with the applicable portions of AWWA C-111. The manufacturer of the joints shall furnish certification, witnessed by an independent laboratory, that the joints furnished have been tested without signs of leakage or failure. Restrained joints shall be capable of being deflected after assembly.
- F. Natural rubber or other material which will support microbiological growth may not be used for any gaskets, o-rings, and other products used for jointing pipes, setting meters and valves or other appurtenances which will expose such material to water.

2.4 FITTINGS

- A. Fittings for Ductile Iron or Plastic Pipe – Shall be ductile iron, manufactured in accordance with ANSI A-21.53 (AWWA C-153). They shall be cement lined in accordance with ANSI A-21.4 (AWWA C-104). Fittings shall be designed to accommodate the type of pipe used.
- B. Fittings for Flanged Pipe – Shall be manufactured in accordance with ANSI A-21.10 (AWWA C-110), Class 125 flanges.
- C. Fittings for Plastic Pipe – Less than 4 inches shall be PVC with ring tite rubber joints conforming to ASTM D-3139.

2.5 GATE VALVES

- A. Two Inches and Larger – Shall be cast iron or ductile iron body, bronze mounted, double disc or resilient wedge design, with non-rising stems, conforming to AWWA C-500, C-509, or C-515. Valves shall have a working pressure of 200 p.s.i. and be tested at 400 p.s.i.

Valves shall be furnished with "O" ring packing. Two "O" rings shall be located above the thrust collar and one "O" ring below. The thrust collar shall be permanently lubricated and have an anti-friction washer on top of the thrust collar.

Valves installed in pits or above ground shall be furnished with hand wheels. Buried valves shall be furnished with square operating nuts.

- B. Smaller than 2 Inches – Shall be all brass, ball valve type. The pressure rating shall be 175 p.s.i.
- C. Valve Boxes – Underground valves shall be installed in acceptable valve boxes. The valve boxes shall have a suitable base which does not damage the pipe, and shaft extension sections to cover and protect the valve and permit easy access and operation. The box, cover, and any extensions needed shall be cast or ductile iron having a crushing strength of 1,500 pounds per linear foot. Valve boxes shall conform to the detail shown.
- D. Valve Manholes –
 - 1. Masonry – Shall be new whole brick of good quality laid in masonry mortar or cement mortar made of 1 part Portland cement and 2 parts clean sharp sand. Every brick shall be fully bedded in mortar. Manholes shall conform to the locations and details shown on the plans.
 - 2. Precast Concrete – Shall be reinforced concrete constructed in accordance with ASTM C 478 and the details shown on the plans "Precast Concrete Manholes." The joints shall be tongue and groove sealed with flexible gaskets or mastic sealant. Gaskets shall be O-Ring or equivalent to Type A or B "Tylox" conforming to ASTM C 443. Mastic shall be equivalent to "Ram-nek" with primer. The primer shall be applied to all contact surfaces of the manhole joint at the factory in accordance with the manufacturer's instructions.
 - 3. Frames and Covers – Shall be cast iron equivalent to the following:

Neenah Foundry Co. R-1668 Type "C" Lid or Equal

- E. Flush valves – Shall conform to the details shown.

2.6 BUTTERFLY VALVES

- A. All butterfly valves shall be of the tight-closing, rubber seated type, with rubber seat positively locking in place sealing against flow from either direction. No metal-to-metal seating surfaces will be permitted. Valves shall be bubble-tight at rated pressures with flow in either direction. Butterfly valves shall conform to ANSI/AWWA C504, Class 150B. Butterfly valves shall not be used on pipe smaller than 14-inches unless otherwise specified.
 - 1. Valve body end connections for buried valves shall be installed using restrained joints equivalent to those manufactured by EBAA Iron, Inc.
 - 2. Valve shafts shall be stainless steel and may consist of a one-piece unit or may be the "Stub Shaft" type. A stub shaft comprises two separate shafts inserted into the valve disc hubs. Each stub shaft shall be inserted into the valve disc hubs for a distance of at least 1 ½ shaft diameters.

3. Valve discs shall be solid ductile iron with an epoxy coating making it corrosion resistant. The thickness of the discs shall not exceed 2 ¼ times the shaft diameter.
 4. Valve seats shall be natural or synthetic rubber providing 360 degrees uninterrupted seating. The resilient seat shall be adjustable or replaceable in the field without burning or grinding. The seat shall be molded over a stainless steel ring for support and secured to the disc by corrosion resistant, self locking stainless steel screws.
 5. All internal ferrous metal surfaces in the waterway shall be factory coated with a non-toxic, to-component, holiday-free, thermosetting epoxy to a nominal thickness of 4 mils.
 6. All butterfly valves shall be manually operated. Operators shall be of the traveling nut, self-locking type and shall be designed to hold the valve in any intermediate position without creeping or fluttering. Operators shall be furnished with externally adjustable mechanical stop limiting devices. Valves shall have a 2 inch square operating nut and shall be installed with extension stem to extend the operating nut in accordance with the project details. The operator shall be integrally mounted on the valve mounting flange and shall have a gearing totally enclosed for buried service. Maximum force for operating nut shall be 40 pounds.
- B. Valve Boxes – Underground valves shall be installed in approved valve boxes. The valve boxes shall have a suitable base that does not damage the pipe, and shaft extension sections to cover and protect the valve and permit easy access and operation. The cover, box, and any extensions needed shall be cast or ductile iron having a crushing strength of 1,500 pounds per linear foot. Valve boxes shall conform to the detail shown.
- C. Valve Manholes –
1. Masonry – Shall be new whole brick of good quality laid in masonry mortar or cement made of one part Portland cement and two parts clean sharp sand. Every brick shall be fully bedded in mortar. Manholes shall conform to the locations and details shown on the plans.
 2. Precast Concrete – Shall be reinforced concrete constructed in accordance with ASTM C 478 and the details shown on the plans "Precast Concrete Manholes." The joints shall be tongue and groove sealed with flexible gaskets or mastic sealant. Gaskets shall be O-Ring or equivalent to Type A or B "Tylox" conforming to ASTM C 443. Mastic shall be equivalent to "Ram-nek" with primer. The primer shall be applied to all contact surfaces of the manhole joint at the factory in accordance with the manufacturer's instructions.
 3. Frames and Covers – Shall be cast iron equivalent to the following:

Neenah Foundry Co. R-1668 Type "C" Lid or Equal

2.7 AIR RELEASE, AIR/VACUUM AND COMBINATION AIR VALVES

- A. Shall be designed for water service with a minimum working pressure of 100 p.s.i. The valve shall be constructed of a cast iron body, stainless steel or bronze trim, and stainless steel float. The inlet shall be 2 inches, 5/16 inch orifice, and a minimum venting capacity of 35 c.f.f.a.m. It shall conform to the detail shown on the drawings. Valves shall conform to AWWA C 512 and equivalent to Crispin or Valmatic.

2.8 FIRE HYDRANTS

- A. General – Hydrants shall be manufacturer's current model design and construction. All units to be complete including joint assemblies. Physical characteristics and compositions of various metal used in the hydrant components shall meet the requirements as specified in AWWA C-502 latest revision. Hydrants shall be suitable for working pressure of 150 p.s.i.
- B. Bonnet – Bonnet may have oil filled or dry reservoir. If oil filled, bonnet must have "O" ring packing so all operating parts are enclosed in a sealed oil bath. Oil filler plug shall be provided in bonnet to permit checking of oil level and adding oil when required. If dry type, hydrant top must have lubricating hole or nut for ease of lubrication. All parts must be removed through top of hydrant without moving entire barrel section from safety flange.
- C. Nozzles and Caps – The hydrant shall have 2 ½ inch connections and 4 ½ inch steamer connection, National standard threads. Nozzles shall be bronze and have interlocking lugs to prevent blowout. Nozzle caps shall be secured to fire hydrant with non-kinking type chain with chain loop on cap ends to permit free turning of caps.
- D. Seat Ring – Seat ring shall be bronze.
- E. Drain Valves and Openings – Positive operating drain valves shall be provided to assure drainage of fire hydrant when the main valve is closed. Drain openings shall have bronze bushings.
- F. Main Valve – Valve shall be designed to close with the pressure and remain closed. Valve shall be made from material resisting damage from rocks or other foreign matter. Valve shall have a full 4 ½-inch opening.
- G. Barrel and Safety Flanges – Hydrants shall have a safety-type vertical barrel with 3-1/2 foot bury and be designed with safety flanges and/or bolts to protect the barrel and stem from damage and to eliminate flooding when hydrant is struck. Bury depth shall be cast on barrel of hydrant.
- H. Operating Stop and Nut – Hydrant shall have a positive stop feature to permit opening of hydrant without over travel of stem. Operating nut shall be bronze, 1-1/2-inch, point to flat, pentagon.
- I. Bolts and Nuts – Bolts, washers and nuts shall be corrosion resistant.

- J. Inlet – Bottom inlet of hydrant shall be provided with mechanical joint connection as specified and shall be 6 inch nominal diameter.
- K. Direction of Opening – Hydrant shall be designed to close "right" or clockwise and open "left" or counter-clockwise.
- L. Coatings – All inside and outside portions of hydrant shall be coated in accordance with AWWA C-502. The exterior portion of hydrant above ground level shall be painted with two coats of best grade zinc chromate primer paint and with two coats of approved hydrant enamel. Color shall be Factory Safety Yellow unless otherwise designated by Owner.
- M. Joint Assemblies – Complete joint assemblies consisting of gland, gasket, bolts, and nut shall be furnished for mechanical joint inlets.
- N. Hydrants shall be factory painted yellow and manufactured by Mueller or equal.

2.9 SERVICE CONNECTIONS

- A. Taps in pipe larger than 3 inches shall be made with a tapping machine. A corporation stop shall be installed at the connection to the main. The corporation stop shall be brass manufactured in conformance with AWWA C-800. Inlet and outlet threads shall conform to AWWA C-800.

Corporation stops shall be 1 inch equivalent to Mueller H-15008 or B-25008 with a stainless steel stiffener. Service saddles shall have 1 inch AWWA taps, equal to Ford Styles 202B or S70. Contractor shall adhere to pipe manufacturer's recommendations on maximum tap sizes for each main size.

- B. Taps for services in PVC pipe 3 inches and smaller shall be equivalent to Romac Industries Style 306 Saddle or a PVC Tee. The connection shall be capable of withstanding internal water pressure continuously at 150 p.s.i. House service lines will be 1-inch polyethylene tubing with a curb stop at the property line. The end of the service lateral at the property line shall be marked with a 2 x 4 stake, 36 inches long with the top 6 inches above the ground and painted blue. The depth of the pipe shall be marked on the back of the stake. Location of service line must appear on the "as-built" information and record drawings.

2.10 TAPPING SLEEVES

- A. Shall be mechanical joint type sized to fit the intercepted pipe. They shall have duck-tipped end gaskets and shall be equal to Mueller H-615/715 with a tapping valve attached. The outlet end of the valve shall have a joint suitable for the type of pipe to be used in the new branch. Sleeve shall be sized to fit the intercepted pipe without leaking.

2.11 CURB STOPS

- A. At the end of the service line, where the meter is to be installed, a 1 inch brass ball valve shall be installed. The unconnected end shall be closed inside I.P. thread. All ball valves shall be ¼ turn valves and the full open and closed position shall be controlled by check lugs. The pressure rating shall be 175 p.s.i. The ball valves shall be equivalent to Ford Ball Valve No. B41-444W.

2.12 BACKFLOW PREVENTER ASSEMBLY

- A. Reduced Pressure – Shall consist of two independently operating check valves, one differential relief valve located between the two check valves, two resilient seat gate valves, and four properly placed resilient seated test cocks. Backflow preventer 2 inches and smaller shall have a bronze valve body. Backflow preventer greater than 2 inches shall be ductile iron or stainless steel. All internal parts in the check and relief valves shall be made of series 300 stainless steel or polymer materials suitable for potable water and rated for 175 p.s.i. working pressure. The assembly shall be constructed so all internal parts can be serviced or removed while in line. Assembly must be factory assembled and tested. Backflow preventer shall be equivalent to Febco Model 860 or Ames Model 4000 SS.
- B. Double Check – Shall consist of two independently operating check valves, two resilient seat gate valves, and four properly placed resilient seated test cocks. Backflow preventer 2 inches and smaller shall have a bronze valve body. Backflow preventer greater than 2 inches shall be ductile iron or stainless steel. All internal parts in the check valves shall be made of Series 300 stainless steel or polymer materials suitable for potable water and rated for 175 p.s.i. working pressure. The assembly shall be constructed so all internal parts can be serviced or removed while in line. Assembly must be factory assembled and tested. Backflow preventer shall be equivalent to Febco Model 805 YD or Ames Model 2000 SS.

2.13 CASING

- A. Casing pipe shall be steel conforming to ASTM A 139, yield point of 35,000 p.s.i., of the diameter shown on the contract drawings for each crossing. The minimum wall thickness shall be 0.25 inches.

2.14 CASING SPACERS

- A. Casing spacers shall be bolt on style with a shell made in two sections of a minimum 14 gauge T-304 Stainless Steel. Connecting flanges shall be ribbed for extra strength. The shell shall be lined with a PVC liner. All nuts and bolts shall be T-304 Stainless Steel. Runners shall be made of Ultra High Molecular Weight Polymer with inherently high abrasion resistance and a low coefficient of friction. The combined height of supports and runners shall keep carrier pipe a minimum of 0.75 inches from casing pipe at all times. Casing Spacers shall be as manufactured by Cascade Waterworks Manufacturing Company, or accepted equivalent.

2.15 METAL DETECTOR TAPE

- A. The tape shall consist of 0.35 mils thick solid foil core encased in a protective plastic jacket resistant to alkalis, acids, and other destructive elements found in the soil. The lamination bond shall be strong enough the layers cannot be separated by hand. Total composite thickness to be 5.0 mils. Foil core to be visible from unprinted side to ensure continuity. The tape shall have a minimum 3-inch width and a tensile strength of 35 lbs. per inch.

A continuous warning message indicating "potable water" repeated every 16 inches to 36 inches shall be imprinted on the tape surface. The tape shall contain an opaque color concentrate designating the color code appropriate to the line being buried (Water Systems – Safety Precaution Blue).

2.16 TRACER WIRE

- A. Tracer wire shall be #12 AWG High-Strength Copper Clad Steel (HS-CCS) Conductor, insulated with 30 mil High Density Polyethylene (HDPE) Insulation, and rated for direct burial. Insulation color shall meet APWA color code standards for identification of buried utilities.
- B. Wire connectors shall be designed for direct burial and moisture resistance. Connectors shall be equivalent to 3M DBR/4-6 Direct Bury Splice Kit.

2.17 PRODUCT REVIEW

- A. Contractor shall provide the Engineer with a complete description of all products before ordering. The Engineer will review all products before they are ordered.

PART 3 – EXECUTION

3.1 ON-SITE OBSERVATION

- A. Owner's Representative or Engineer shall have the right to require any portion of work be completed in their presence. If any work is covered up after such instruction, it shall be exposed by the Contractor for observation. However, if Contractor notifies Engineer such work is scheduled, and Engineer fails to appear within 48 hours, the Contractor may proceed. All work completed and materials furnished shall be subject to review by the Engineer or Project Representative. Improper work shall be reconstructed. All materials which do not conform to requirements of specifications shall be removed from the work upon notice being received from Engineer for rejection of such materials. Engineer shall have the right to mark rejected materials to distinguish them as such.

Contractor shall give the Project Engineer or Project Representative a minimum of 48-hours notice for all required observations or tests.

It will also be required of Contractor to keep accurate, legible records of the location of all water lines, service laterals, valves, fittings, and appurtenances. These records will be prepared in accordance with the paragraph on "Record Data" in Special Conditions. Final payment to the Contractor will be withheld until all such information is received and accepted.

3.2 INSTALLATION

- A. Ductile iron pipe shall be laid in accordance with AWWA C-600; Plastic pipe shall be laid in accordance with AWWA C 605, ASTM D 2774, UNI-Bell UNI-B 3 and the pipe manufacturer's recommendations. The standards are supplemented as follows:
1. Depth of Pipe – Contractor shall perform excavation of whatever substances are encountered to a depth providing a minimum cover over top of pipe of 36 inches from the existing or proposed finished grade, unless pipe material is steel, concrete, ductile iron, or other accepted material, and if exposed, should be insulated to prevent freezing.
 2. Alignment and Grade – Water mains shall be laid and maintained to lines and grades established by the plans and specifications, with fittings, valves, and hydrants at required locations unless otherwise accepted by Owner. Valve-operating stems shall be oriented in a manner to allow proper operation. Hydrants shall be installed plumb.
 - a. Prior Investigation – Prior to excavation, investigation shall be made to the extent necessary to determine location of existing underground structures, utilities, and conflicts. Care shall be exercised by the Contractor during excavation to avoid damage to existing structures and utilities. Pipe manufacturer's recommendations shall be used when the watermain being installed is adjacent to a facility cathodically protected.
 - b. Unforeseen Obstructions – When obstructions not shown on plans are encountered during progress of work and interfere so an alteration of the plans is required, Owner will alter plans, or order a deviation in line and grade, or arrange for removal, relocation, or reconstruction of obstructions.
 - c. Clearance – When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the acceptance of Engineer, to provide clearance as required by federal, state, and local regulations or as deemed necessary by Engineer to prevent future damage or contamination.
 3. Trench Construction – The trench shall be excavated to alignment, depth, and width specified or shown on plans and shall be in conformance with all federal, state, and local regulations for protection of workers.
 4. Joint Restraint – All hydrants, bends, plugs, valves, caps and tees on 2 inch pipe and larger, shall be provided with stainless steel tie rods or joint restraints equivalent to Megalugs. Additional restraint shall be as indicated on the drawings.
 5. Anchorage for Hydrants – A concrete block 1 foot x 1 foot x 2 feet shall be poured between back of hydrant and undisturbed earth of the trench side without covering weep holes and bolts. Joint restraints equivalent to Megalugs manufactured by EBAA Iron may be used in lieu of concrete blocking.

6. Hydrostatic and Leakage Tests – Ductile iron pipe shall be tested in accordance with AWWA Standard C 600, Section 5.2 – Hydrostatic Testing. Allowable leakage shall not exceed the formula $L = SDP^{1/2}/148,000$, in which L is allowable leakage in gallons per hour; S is length of pipe in feet tested; D is nominal diameter of pipe in inches; and P is average test pressure during leakage test in pounds per square inch gauge. Test shall be conducted for at least 2 hours and a pressure of 150 p.s.i. shall be maintained during the test. Fire lines shall be tested at 225 p.s.i. for the same duration.

P.V.C. pipe shall be tested in accordance with AWWA Standard C 605, Section 7.3 – Hydrostatic Testing. Allowable leakage shall not exceed formula $Q = LDP^{1/2}/148,000$, in which Q is allowable leakage in gallons per hour; L is length of pipe in feet tested; D is nominal diameter of the pipe in inches; and P is average test pressure during leakage test in pounds per square inch gauge. Test shall be conducted for at least 2 hours, and a minimum pressure of 150 p.s.i. or 1-1/2 times the working pressure, shall be maintained during the test. Fire lines shall be tested at 225 p.s.i. for the same duration.

Should any test of pipe laid disclose leakage greater than the above specified, Contractor shall, at its own expense, locate and repair defective joints until leakage is within specified allowance. Contractor is responsible for notifying the Engineer 48 hours (minimum) prior to applying pressure for testing. Pressure test will be witnessed by Engineer or Project Representative. All visible leaks shall be repaired regardless of the leakage amount.

7. Bedding, Backfilling, and Compaction – Continuous and uniform bedding shall be provided for all buried pipe. All trenches and excavation shall be backfilled immediately after pipes are laid therein, unless other protection of the pipe line is directed. The backfilling material shall be selected and deposited with special reference to future safety of the pipes. The material shall be completely void of rocks, stones, bricks, roots, sticks, or any other debris causing damage to pipe and tubing or preventing proper compaction of backfill. Except where special methods of bedding and tamping are provided for, clean earth or sand shall be solidly tamped about pipe up to a level at least 2 feet above top of pipes, and shall be carefully deposited to uniform layers, each layer solidly tamped or rammed with proper tools to not injure or disturb the pipeline. The remainder of trench backfilling shall be carried on simultaneously on both sides of pipe in such manner preventing injurious side pressure. Material used shall be selected from excavations anywhere on site if any of the soil is suitable. Stones, other than crushed bedding, shall not come in contact with the pipe and shall not be within 6 inches of any pipe.

Under traffic areas, the top 24 inches of backfill material shall be compacted to a density of not less than 98% of maximum laboratory density at optimum moisture as determined by ASTM D 6938. Below the 24 inch line, and including area around pipe, density shall not be less than 95% of maximum laboratory density, at optimum moisture. In areas other

than traffic areas, the backfill shall be compacted to 90% of maximum laboratory density at optimum moisture.

Whenever trenches have not been properly filled, or if settlement occurs, they shall be refilled, smoothed off, and finally made to conform to the ground surface. Backfilling shall be carefully performed, and the original surface restored to full satisfaction of Engineer immediately after installation.

Where thermoplastic (PVC) pipe is installed, Contractor shall take precautions, in accordance with ASTM D-2774, during backfilling operations, not to create excessive side pressures, or horizontal or vertical deflection of the pipe, nor impair flow capacity.

8. New Service Connections – Contractor shall tap the main and install a service connection to each vacant lot or as directed by Engineer in accordance with detail shown on plans for Water Service Connections. Plastic tubing for service lines shall be installed in a manner preventing abrupt changes or bends in any direction. Contractor shall exercise extreme caution to prevent crimping of the tubing during handling, storage, and installation. Tubing shall have an absolute positive connection to the water main to prevent leakage. Taps shall be made perpendicular to the main. A water service connection shall be marked on the curb with a "W." The mark shall be made with a branding iron on vertical face of curb and shall be a minimum of 1/4-inch in depth.
9. Detection Tape – Detection tape will be used over all pipe and tubing. The tape shall be laid 18 inches below finished grade.
10. Tracer Wire – Tracer wire will be installed on all water mains and water service laterals directly on top of the pipe. The wire shall be secured to the pipe with tape or other acceptable methods at spacings of no more than 36 inches apart. Where water service laterals connect to water mains, the wire connection shall be made with a direct bury moisture resistant connector. Installation of connector shall be per manufacturer's instructions. The insulated wire must maintain electrical continuity. The tracer wire shall also be stubbed up into each valve box and at each fire hydrant. Stub up connections shall be installed as previously described for water service laterals. This tracer wire system shall be checked and tested by Contractor, in the presence of Engineer or water department, prior to acceptance of water main installation. All equipment, meters, detectors, etc., needed for testing shall be furnished by the Contractor.
11. Jacking and Boring – Steel casing of diameter shown on the plans shall be jacked and bored in location indicated. Joints between sections of the steel casing shall be of a continuous weld made by a certified welder. Jacking and boring shall be in accordance with the State Department of Transportation Standard Specifications. Carrier pipe shall be installed as shown on the detail. After carrier pipe has been installed, ends of the casing shall be sealed using a rubber enclosure and stainless steel straps or brick and mortar.

Where work involves a highway, Resident Engineer of the State Department of Transportation shall be notified 3 days before crossing is started. Where the work involves a railroad, installation shall conform to requirements of AREA specifications. Division Superintendent of the Railroad shall be notified 3 days prior to beginning work. Before commencing work within right-of-way of railroads or highways, Contractor shall verify the Owner has obtained required permits.

12. Lubricants – Lubricate pipe before jointing per manufacturer's recommendations using acceptable lubricants. Lubricants that will support microbiological growth shall not be used. Vegetable shortening shall not be used to lubricate joints.
13. Hydrant drains shall not be connected to or located within 10-feet of sanitary sewers. No flushing device shall be directly connected to any sewer.
14. Pipe for above water crossings shall be adequately supported and anchored, protected from damage and freezing, and accessible for repair or replacement.
15. Underwater line crossings shall have a minimum 2 feet of cover over the pipe. When crossing water courses greater than fifteen 15 feet in width, the following shall be provided:
 - a. The pipe material and joints shall be designed appropriately.
 - b. Valves shall be located on both sides of crossing so the section can be isolated for testing or repair. Valves shall be easily accessible and not subject to flooding.
 - c. A blow-off shall be provided on the side opposite the supply, sized in accordance with State Drinking Regulation Section R.61-58.4(D)(7). Direct blow-off away from streams, over ground.
 - d. Provide ductile iron pipe with mechanical joints for any lines installed in rock.

3.3 AIR RELEASE, AIR/VACUUM AND COMBINATION AIR VALVES

- A. Valves shall be installed in locations as shown on the contract drawings. The Contractor shall verify high points in the water line and notify Engineer of differing conditions from the drawings.
- B. Valves shall be opened during initial filling of the water main. Valves shall be closed during hydrostatic testing. Once tested and the system is accepted for operation, valves shall be opened when water lines are put on line.

3.4 CONNECTIONS OF WATER MAINS

- A. Any physical connection of untested water mains with existing water mains is prohibited except when acceptable backflow prevention devices have been installed and checked by Engineer or Engineer's Representative.
1. Any new water main to be tested must be capped and restrained with retaining glands or thrust blocks to prevent blow out or leakage during the pressure testing.
 2. Water for filling or flushing a new water main will be obtained through a Temporary Jumper Connection to the existing main. Appropriate taps of sufficient size must be made at the end of new system to allow air to escape during filling sequence.
 3. This physical tie-in with the existing system must be physically disconnected after sufficient water for hydrostatic testing and disinfection has been obtained.
 4. Once the new water system has demonstrated adequate hydrostatic testing and has been flushed and chlorinated in accordance with paragraph 3.5, the new system or main will then be subjected to bacteriological testing.
 5. Permanent connection to the new system must be made with clean materials. The connection may be made with either solid or split ductile iron sleeves. Any connection with stainless steel or similar metal full circle clamps is prohibited. Once connection has been made, the new system must be flushed using water from existing system to insure adequate flow and velocity into new water system.

3.5 DISINFECTION

- A. After hydrostatic and leakage tests have been completed, water pipes shall be disinfected in accordance with AWWA C 651 and Regulations of the local Health Department.

All new mains shall be thoroughly flushed then chlorinated with not less than fifty parts per million (50 ppm) of available chlorine. Chlorine gas or 70% high-test calcium hypochlorite can be used. Water from existing distribution system or other source of supply should be controlled to flow slowly into the newly laid pipeline during application of chlorine. The solution shall be retained in pipeline for not less than 24 hours and a chlorine residual of 25 ppm shall be available at this time. Then system shall be flushed with potable water and the sampling program started. Prior to sampling, the chlorine residual must be reduced to normal system residual levels or be non-detectable in those systems not chlorinating. Normal system residual should be between 0.2 and 0.8 ppm. The chlorine residual shall be measured and reported. If the membrane filter method of analysis is used for coliform analysis, non-coliform growth must also be reported. If non-coliform growth is greater than eighty colonies per one hundred milliliters, the sample result is invalid and must be repeated.

A minimum of two samples from each sampling site shall be collected for total coliform analysis. The number of sites depends on amount of new construction,

but must include all dead end lines, be representative of water in newly constructed mains, and shall be collected a minimum of every 1,200 linear feet. Each set of samples shall be taken at least 24 hours apart after disinfection and tested by a State approved lab and shall indicate bacteriological satisfactory water. Contractor shall submit results to the Engineer.

3.6 PARTIAL ACCEPTANCE OF THE WORK

- A. Owner reserves right to accept and use any portion of the work. Engineer shall have power to direct on what line Contractor shall work and the order thereof.

3.7 GRASSING

- A. Grassing of areas disturbed during construction shall be in accordance with the Section 32 92 00 "Turf and Grasses."

3.8 SEPARATION BETWEEN WATER AND SANITARY SEWER OR FORCE MAIN

- A. Water mains shall be laid at least 10 feet horizontally from any existing or proposed sanitary sewer or force main. Deviation may be allowed for installation of the water main closer to a sanitary sewer or force main, provided water main is laid in a separate trench, where bottom of water main is at least 18-inches above top of sanitary sewer or force main. Water mains crossing sanitary sewers or force mains shall be laid to provide a minimum vertical distance of 18 inches between the invert of water main and top of sanitary sewer or force main line; both water and sanitary sewer or force main lines must be ductile iron when laid in violation of separation requirements. At all water and sanitary sewer or force main crossings, one full length of water pipe shall be located so both joints will be as far from the sanitary sewer or force main as possible.
- B. When it is impossible to obtain distances specified in Section R.61-58.4(D)(12)(a) and (b) of the State Primary Drinking Water Regulations, an alternate, SCDHEC accepted design may be allowed. The alternate design must:
 1. maximize distances between the water main and sewer line and joints of each;
 2. use materials which meet requirements cited in Section R.61-58.4(D)(1) of the State Primary Drinking Water Regulations for sewer line; and
 3. Allow enough distance to make repairs to one of the lines without damaging other.

3.9 REMOVE AND REPLACE PAVEMENT

- A. Pavement shall only be removed after prior written authorization by the Owner. Pavement removed and replaced shall be constructed in accordance with latest specifications of the State Department of Transportation. Traffic shall be maintained and controlled per State Department of Transportation regulations.

Edges of the pavement shall be cut to a neat straight line with a masonry saw. Backfill shall be compacted and tested and a concrete base course of 5,000

p.s.i. placed on compacted fill as shown in the details. The concrete base shall be placed within 24 hours after water line is installed. A temporary wearing surface may be used provided it presents a smooth surface. The final wearing surface shall be 1-1/2 inches asphaltic concrete, Type C.

3.10 FIELD QUALITY CONTROL

- A. Soil and density tests shall be made by a testing laboratory acceptable to Engineer. Laboratory tests of the soil shall be made in accordance with ASTM D 1557. In-place density tests shall be made in accordance with ASTM D 6938. Results of tests shall be furnished to the Engineer.

The minimum number of tests required shall be:

Backfill over pipe

in traffic areas. 1 per 100 linear feet or less for each 4 feet of depth or portion thereof.

Backfill over pipe

in non-traffic areas. 1 per 500 linear feet or less for each 4 feet of depth or portion thereof.

The minimum percent of backfill compaction, in accordance to ASTM D1557, shall be the following:

In traffic Areas. 98% of maximum laboratory density.

In non-traffic Areas. 90% of maximum laboratory density, unless otherwise accepted by the Engineer.

END OF SECTION

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SECTION 33 30 00 – SANITARY SEWERAGE UTILITIES

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SECTION 33 30 00
SANITARY SEWERAGE UTILITIES

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Sewer Pipes.
- B. Manholes.
- C. Connect to existing system.
- D. All necessary appurtenances to collect the sanitary sewerage and deliver it to the existing system.
- E. Pumping Station
- F. Force Main

1.2 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork.
- B. Section 33 10 00 – Water Utilities.

1.3 OPTIONS

- A. The specifications describe several materials. Where manufacturers and models of equipment are named in the specifications, it is intended these are to describe quality and function required. Contractor may use equipment or materials of other manufacturers provided they are reviewed and accepted by the Engineer and Owner as equivalent to those specified.

1.4 REFERENCES (Latest Revision)

- A. ASTM A 139 – Electric-Fusion (Arc) Welded Steel Pipe (NPS 4 and Over).
- B. ASTM A 377 – Index of Specifications for Ductile Iron Pressure Pipe.
- C. ASTM A 615/A 615 M – Deformed and Plain Carbon – Steel Bars for Concrete Reinforcement.
- D. ASTM A 746 – Ductile Iron Gravity Sewer Pipe.
- E. ASTM C 39/C 39M – Compressive Strength of Cylindrical Concrete Specimens.
- F. ASTM C 443 – Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.

- G. ASTM C 478 – Precast Reinforced Concrete Manhole Sections.
- H. ASTM C 890 – Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
- I. ASTM C 891 – Installation of Underground Precast Concrete Utility Structures.
- J. ASTM C 913 – Precast Concrete Water and Wastewater Structures.
- K. ASTM D 714 – Evaluating Degree of Blistering of Paints.
- L. ASTM D-1557 – Laboratory Compaction Characteristics of Soil Using Modified Effort.
- M. ASTM D 2241 – Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
- N. ASTM D 2321 – Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
- O. ASTM D 2774 – Underground Installation of Thermoplastic Pressure Piping.
- P. ASTM D 2794 – Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- Q. ASTM D 3034 – Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- R. ASTM D 3139 – Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
- S. ASTM D 3212 – Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- T. ASTM D 3740 – Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- U. ASTM D-6938 – In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- V. ASTM E 96 – Water Vapor Transmission of Materials.
- W. ASTM E 329 – Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
- X. ASTM F 477 – Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- Y. ASTM F 1417 – Installation Acceptance of Plastic Non-Pressure Sewer Lines Using Low-Pressure Air.
- Z. ASTM G 154 – Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for UV Exposure of Nonmetallic Materials.
- AA. AWWA C 111 – Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings.

- BB. AWWA C115 – Flanged Ductile Iron Pipe with Ductile Iron or Gray Iron Threaded Flanges.
- CC. AWWA C 150 – Thickness Design of Ductile Iron Pipe.
- DD. AWWA C 151 – Ductile Iron Pipe, Centrifugally Cast, for Water.
- EE. AWWA C–500 – Metal–Seated Gate Valves for Water Supply Service.
- FF. AWWA C–509 – Resilient–Seated Gate Valves for Water Supply Service.
- GG. AWWA C 600 – Installation of Ductile Iron Water Mains and their appurtenances.
- HH. AWWA C900 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 Inches through 12 inches, for Water Transmission and Distribution.
- II. AWWA C905 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 Inches through 48 inches, for Water Transmission and Distribution.
- JJ. ACI 318 – Building Code Requirements for Structural Concrete.

1.5 MEASUREMENT AND PAYMENT

- A. Measurement – Items listed in the proposal shall be considered as sufficient to complete work in accordance with plans and specifications. Any portion of work not listed in the bid form shall be deemed to be a part of item it is associated with and shall be included in costs of unit shown on bid form. Payment for unit shown on the bid form shall be considered satisfactory to cover cost of all labor, material, equipment, and performance of all operations necessary to complete work in place. The unit of measurement shall be unit shown on bid form. Payment shall be based upon the actual quantity multiplied by unit prices. Where work is to be performed at a lump sum price, the lump sum shall include all operations and elements necessary to complete work.
- B. Payment
 - 1. Gravity Sewer Pipe – Measurements will be made between the centers of manholes or to other pipe ends. No deduction will be made for the space occupied by fittings. Payment will be made at the contract unit price per linear foot for each pipe size at various depths of cut. Depths of cut are measured from existing ground unless otherwise noted. Payment will include cost of pipe, plugs, dewatering, excavating all material, testing, backfilling, compaction, cleaning, metal detector tape, tracing wire, and all work necessary to complete the sewer lines.
 - 2. Trench Wall Supports – No separate payment will be made for bracing and sheeting.
 - 3. Manholes – Payment for manholes will be made at the unit price for various types and depths. Manhole depths are measured from invert to proposed finish grade unless otherwise noted. Payment shall include cost of excavating, dewatering, constructing manholes in accordance with

plans, furnishing and installing a frame and cover, steps, interior and exterior coatings, pipe connectors, backfilling, and compacting material around the manhole.

4. Stone Bedding – No separate payment will be made for stone bedding.
5. Sand Bedding – Will be measured by using the length and depth for which sand is specified by Engineer or Geotechnical Consultant, times a width of four feet wider than outside barrel of pipe. Payment will include excavating the unsuitable material below the invert, furnishing, and compacting the sand bedding.
6. Service Connection – Payment will be made at the contract unit price. Payment shall include the fitting, plug, and marking stake.
7. Metal Detector Tape – No separate payment will be made for tape. Cost of furnishing and placing metal detector tape shall be included in the contract unit price for installing sewer and force main pipe.
8. Tracer Wire – No separate payment will be made for wire. The cost of furnishing and placing tracer wire shall be included in the contract unit price for installing sanitary sewer, and service laterals.
9. Laterals – Shall be measured from center of main to the point where lateral reaches property line. Payment will include furnishing the pipe, excavation, installation, metal detector tape, tracing wire, backfilling, compaction, and all work and materials necessary to complete laterals.
10. Grassing – There will be no separate measurement or payment. Grassing shall be a subsidiary obligation of Contractor in the restoration of disturbed areas.
11. Remove and Replace Existing Pavement – Payment will be made on a square yard basis, and in accordance with the detail shown.
12. Connect Sewers to Existing Structures – Payment will be made at the contract unit price for each pipe size connected. For precast structures payment shall include cost of dewatering, excavation, coring, furnishing and installing flexible sleeve, installing and connecting pipe to sleeve, backfilling, compaction, clean-up, and all work necessary to complete the connection. For brick structures, payment shall include cost of dewatering, excavation, cutting a hole, installing and grouting in pipe, backfilling, compaction, cleanup, and all work necessary to complete the connection.

1.6 QUALITY ASSURANCE

- A. Contractor will furnish the Engineer and Owner a description of all material before ordering. Engineer will review the Contractor's submittals and provide in writing an acceptance or rejection of material.

- B. Where ductile iron pipe is indicated on the plans, or required by Engineer, it shall be used.
- C. Material and equipment shall be the standard products of a manufacturer who has manufactured them for a minimum of two years and provides published data on their quality and performance.
- D. A subcontractor for any part of the work must have experience on similar work, and if required, furnish Engineer with a list of projects and Owners or Engineers who are familiar with its competence.
- E. If Contractor wishes to furnish devices, equipment, structures, and systems not designed by Engineer, these items shall be designed by either a Professional Engineer registered in the project state or by someone Engineer accepts as qualified. If required, complete design calculations and assumptions shall be furnished to the Engineer or Owner before acceptance.
- F. Testing shall be by a testing laboratory which operates in accordance to ASTM D 3740 or E 329 and shall be acceptable to Engineer prior to engagement. Mill certificates of tests on materials made by manufacturers will be accepted provided the manufacturer maintains an adequate testing laboratory, makes regularly scheduled tests, spot checked by an outside laboratory, and furnishes satisfactory certificates with name of entity making test.
- G. Infiltration, line and grade of sewer, pump performance, and hydrostatic tests on force mains shall be made by Contractor with equipment qualified by Engineer and in the presence of Engineer. Engineer or Project Representative reserves the right to accept or reject testing equipment.

1.7 PRODUCT DELIVERY, STORAGE & HANDLING

- A. Material shall be unloaded in a manner avoiding damage and shall be stored where it will be protected and will not be hazardous to traffic. If stored on private property, Contractor shall obtain permission from property owner and shall repair any damage caused by the storage. Material shall be examined before installation. Neither damaged nor deteriorated material shall be used in the work.

1.8 JOB CONDITIONS

- A. Installation of sanitary sewerage utilities must be coordinated with other work on the site. Generally, sanitary sewer pipes will be installed first and shall be backfilled and protected so subsequent excavating and backfilling of other utilities does not disturb them. Contractor shall replace or repair any damaged pipe or structure at no additional expense to the Owner.

1.9 SEQUENCING AND SCHEDULING

- A. Contractor shall arrange the work so sections of sewers between manholes are backfilled and tested, lateral sewers connected, pavement replaced, and placed in service as soon as reasonable after installation.

1.10 ALTERNATIVES

- A. The intention of these specifications is to produce the best system for the Owner. If the Contractor suggests alternate material, equipment or procedures will improve results at no additional cost, Engineer and Owner will examine suggestion, and if accepted, it may be used. The basis upon which acceptance of an alternate will be given is its value to Owner, and not for Contractor's convenience.

1.11 GUARANTEE

- A. Contractor shall guarantee quality of materials, equipment, and workmanship for 12 months after acceptance of the completed Project. Defects discovered during this period shall be repaired by Contractor at no cost to the Owner.

1.12 EXISTING UTILITIES

- A. All known utility facilities are shown schematically on the construction drawings and are not necessarily accurate in location as to plan or elevation. Utilities such as service lines or unknown facilities not shown will not relieve the Contractor of responsibility under this requirement. "Existing Utilities Facilities" means any utility existing on the project in its original, relocated, or newly installed position. Contractor will be held responsible for cost of repairs to damaged underground facilities, even when such facilities are not shown on the drawings.
- B. The Contractor shall call for underground utility locations before starting work. Underground utilities location service can be contacted at 1-888-721-7877 (SC) or 811.

1.13 TESTING

- A. Laboratory tests for moisture density relationship for fill materials shall be in accordance with ASTM D 1557, (Modified Proctor).
- B. In place density tests in accordance with ASTM D 6938.
- C. Testing laboratory shall operate in accordance with ASTM D 3740 and E 329 and be acceptable to the Engineer.
- D. Testing laboratory and Project Engineer/Project Representative shall be given a minimum of 48-hours notice prior to taking any tests.
- E. Testing shall be Contractor's responsibility and shall be performed at the Contractor's expense by a commercial testing laboratory operating in accordance with subparagraph C above.
- F. Test results shall be furnished to the Engineer prior to continuing with associated or subsequent work.

PART 2 – PRODUCTS

Materials used in the work shall be those named in Bid Form. In multiple type bids, selection of material types will be at the opinion of Owner. Materials and products used in work shall conform to one of the following:

2.1 SEWER PIPE

- A. PVC Pipe – Shall be polyvinyl chloride plastic (PVC) and shall meet all requirements of ASTM D 3034 SDR 26, except for depths less than 3 feet where ductile iron pipe must be installed. All pipe shall be suitable for use as a gravity sewer conduit. Provisions must be made for contraction and expansion at each joint with a rubber gasket. Pipe sizes and dimensions shall be as shown below. All pipe shall be green or white in color with factory marked homing lines. Fittings shall meet the same specification requirements as pipe.

Nom. Size	Outside Diameter		Min. Wall Thickness
	Average	Tolerance	SDR-26
4	4.215	± 0.009	.162
6	6.275	± 0.011	.241
8	8.400	± 0.012	.323
10	10.500	± 0.015	.404
12	12.500	± 0.018	.481

Tests on PVC Pipe – Pipe shall be designed to pass all tests at 73 ° F. ($\pm 3^{\circ}$ F.).

- B. Ductile Iron – Shall conform to AWWA C 150, AWWA C 151 and ASTM A 746. All pipe shall be Pressure Class 350 unless otherwise noted. All ductile iron pipes and fittings shall be bituminous coated on the outside and lined with Protecto 401 Ceramic Epoxy or equivalent on inside.
1. Coating on the outside shall be an asphaltic coating approximately 1 mil thick. Finished coating shall be continuous, smooth, neither brittle when cold or sticky when exposed to sun and shall be strongly adherent to the iron.
 2. Protecto 401 Ceramic Epoxy or equivalent interior lining shall conform to ASTM E 96, ASTM D 714, ASTM D 2794 and ASTM G 53. Interior of the pipe shall receive 40 mils nominal dry film thickness of epoxy. Lining application, inspection, certification, handling, and surface preparation of area to receive the protective coating shall be in accordance with manufacturer's specifications and requirements.

2.2 JOINTS – GRAVITY SYSTEM

- A. Joints for Ductile Iron Pipe – Shall be slip-on rubber equivalent to "Fastite," "All-tite," or "Tyton."
- B. Joints for PVC Pipe – Shall be integral wall bell and spigot with a rubber ring gasket. Joints shall conform to ASTM D 3212 and gaskets to ASTM F 477.

2.3 CASING

- A. Casing pipe shall be steel conforming to ASTM A 139, yield point of 35,000 p.s.i., of the diameter shown on drawings at each crossing. The minimum wall thickness shall be 0.25 inches.

2.4 CASING SPACERS

- A. Casing spacers shall be bolt on style with a shell made in two sections of a minimum 14 gauge T-304 Stainless Steel. Connecting flanges shall be ribbed for extra strength. The shell shall be lined with a PVC liner. All nuts and bolts shall be T-304 Stainless Steel. Runners shall be made of Ultra High Molecular Weight Polymer with inherently high abrasion resistance and a low coefficient of friction. The combined height of supports and runners shall keep carrier pipe a minimum of 0.75-inches from casing pipe at all times. Casing Spacers shall be as manufactured by Cascade Waterworks Manufacturing Company or accepted equivalent.

2.5 MANHOLES

- A. Masonry – Shall be new whole brick of good quality laid in masonry mortar or cement mortar made of one part Portland cement and two parts clean sharp sand. Every brick shall be fully bedded in mortar. Manholes shall conform to locations and details shown on the plans.
- B. Precast Concrete – Shall be reinforced concrete constructed in accordance with ASTM C 478 and details shown on the plans "Precast Concrete Manholes." Coarse aggregate shall be granite stone. The joints shall be tongue and groove sealed with flexible gaskets or mastic sealant. Gaskets shall be O-Ring or equivalent to Type A or B "Tylox" conforming to ASTM C 443. Mastic shall be equivalent to "Ram-ek" with primer. Primer shall be applied to all contact surfaces of manhole joint at the factory in accordance with manufacturer's instructions.
- C. Frames and Covers – Shall be cast iron equivalent to the following:

Neenah Foundry Co. R-1668 Type "C" Lid or Equal
- D. Manhole Steps – Shall be equivalent to M.A. Industries, Type PS-1 or PS-2-PF. Steps shall be installed at the manhole factory and in accordance with recommendations of step manufacturer. Manholes will not be acceptable if steps are not installed accordingly.
- E. Pipe Connections – Shall have flexible watertight joints at sewer main point of entry into the manhole. The joint shall be an EPDM or polyisoprene sleeve equivalent to "Kor-N-Seal."
- F. Coatings – New manholes shall have all interior surfaces coated with a factory applied acrylic polymer-base coating and sealant. The coating shall be ConSeal CS-55 manufactured by Concrete Sealants, New Carlisle, Ohio or an accepted equivalent. The coating shall be applied in three coats to achieve a total dry film

thickness of at least 3.5 mils in accordance with manufacturer's recommendations. Surfaces shall be cleaned of all dust, form oils, curing compounds and other foreign matter prior to the coating application.

New or existing manholes requiring a force main tie-in and the next downstream manhole shall be coated with 125 wet film mils of Raven 405 ultra high build epoxy or an accepted equivalent. The interior surfaces shall be cleaned and prepared according to manufacturer's recommendations.

2.6 TEES AND WYES

- A. Gravity sewer tees shall be four or six inches and same diameter as the run of pipe. They shall be of same material as the sewer main.
- B. Wyes for cleanouts shall be of same material as the lateral pipe.

2.7 LATERALS AND CLEANOUTS

- A. Shall be Ductile Iron Pipe conforming to paragraph 2.1-B, with push-on joints or Polyvinyl Chloride pipe with bells and rubber gaskets for jointing, conforming, to Paragraph 2.1-A, PVC Pipe.
- B. Cleanout Access Box shall be equivalent to U.S. Foundry USF 7623 in pavement or Genova Products 4-inch Schedule 40 PVC-DWV cleanout fitting with threaded plug out of pavement.

2.8 STONE BACKFILL

- A. Shall be graded crushed granite with the following gradation:

Square Opening Size	Percent Passing
1 inch	100%
3/4 inch	90 to 100%
3/8 inch	0 to 65%
No. 4	0 to 25%

2.9 SAND BACKFILL

- A. Shall be clean sand free from clay and organic material. Not more than 10% shall pass the No. 100 sieve.

2.10 BORROW

- A. Where it is determined sufficient suitable material is not available from the site to satisfactorily backfill pipe to at least two feet above top of pipe, Contractor shall furnish suitable sandy borrow material to accomplish requirements. Material shall not have more than 60% passing the No. 100 sieve, nor more than 20% passing a No. 200 sieve.

2.11 AIR RELEASE VALVE

- A. Shall be designed for sewage service. The valve shall be constructed of a cast iron body, stainless steel or bronze trim, and stainless steel float. The inlet shall be 2 inches, 5/16 inch orifice, and a venting capacity of 35 c.f.f.a.m. The working pressure shall be 0 to 50 p.s.i. It shall conform to detail shown on the drawings.

2.12 METAL DETECTOR TAPE

- A. Will be installed above all pipe. Tape shall consist of 0.35 mils thick solid foil core encased in a protective plastic jacket resistant to alkalis, acids, and other destructive elements found in the soil. The lamination bond shall be strong enough so layers cannot be separated by hand. Total composite thickness shall be 5.0 mils. Foil core to be visible from unprinted side to ensure continuity. The tape shall have a minimum 3 inch width and a tensile strength of 35 lbs. per inch.

A continuous warning message indicating "sewer line" repeated every 16 inches to 36 inches shall be imprinted on the tape surface. Tape shall contain an opaque color concentrate designating color code appropriate to the line being buried (Sewer Line – Green).

2.13 TRACER WIRE

- A. Will be used over all sanitary sewer. Tracer wire shall be #12 AWG High-Strength Copper Clad Steel (HS-CCS) Conductor, insulated with 30 mil High Density Polyethylene (HDPE) Insulation, and rated for direct burial. Insulation color shall meet APWA color code standards for identification of buried utilities.
- B. Wire connectors shall be designed for direct burial and moisture resistance. Connectors shall be equivalent to 3M DBR/Y-6 Direct Bury Splice Kit.

PART 3 – EXECUTION**3.1 CONSTRUCTION OBSERVATION**

- A. The line, grade, deflection, and infiltration of sewers shall be tested by Contractor under the direction of Engineer. Engineer or Project Representative will have the right to require any portion of work be completed in their presence. If work is covered up after such instruction, it shall be exposed by Contractor for observation. However, if Contractor notifies Engineer such work is scheduled and Engineer fails to appear within 48 hours, the Contractor may proceed. All work completed and materials furnished shall be subject to review by the Engineer or Project Representative. All improper work shall be reconstructed. All materials not conforming to requirements of specifications shall be removed from the work upon notice being received from Engineer for rejection of such materials. Engineer shall have the right to mark rejected materials to distinguish them as such.

Contractor shall give the Project Engineer or Project Representative a minimum of 48 hours notice for all required observations or tests.

It will also be required by Contractor to keep accurate, legible records of the location of all sanitary lines, service laterals, manholes, force mains, valves, bends, and appurtenances. These records will be prepared in accordance with "Record Data and Drawings" paragraph in the Special Conditions. Final payment to the Contractor will be withheld until all such information is received and accepted.

3.2 LOCATION AND GRADE

- A. Line and grade of sewers and position of all manholes and other structures are shown on the drawings. Grade line as given on the profile or mentioned in these specifications means invert or inside bottom of pipe and price for trenching shall include trench for depth below this line necessary to lay sewer to this grade, but measurements for payment will be made only to grade line. Master control lines and bench marks have been provided by the Engineer. The Contractor shall be responsible for proper locations and grades of sewers.

3.3 SEWER EXCAVATION

- A. Contractor shall perform all excavations of every description and of whatever substance encountered to the depth shown on the plans or specified for all sewers, manholes, and other appurtenances. All excavations shall be properly dewatered before installations are made, by the use of well points, pumping, or other methods accepted by Engineer. Trenches shall be excavated in conformance with the Occupational and Safety Health Administration's (OSHA) Regulations.

Where the character of soil is unsuitable for pipe bedding as determined by Engineer or Geotechnical Consultant, additional excavation will be authorized. Engineer or Geotechnical Consultant shall determine the depth needed for additional bedding and whether material will be sand or stone. The unsuitable material shall be disposed of at Contractor's expense in a proper manner. Bottom of all trenches shall be rounded to conform to bottom of pipe, to afford full bearing on pipe barrel. Excavation in excess of depths and widths required for sewers, manholes, and other structures shall be corrected by pouring subfoundations of 3,000 p.s.i. concrete and half cradle at the Contractor's expense.

- B. Trenches shall not be excavated more than 400 feet in advance of pipe laying.

3.4 TRENCH WALL SUPPORT

- A. Bracing and Sheeting – The sides of all trenches shall be securely held by stay bracing, or by skeleton or solid sheeting and bracing, as required by soil conditions encountered, to protect adjoining property and for safety. Where shown on drawings or where directed by Engineer, the Contractor must install solid sheeting to protect adjacent property and utilities. Sheeting shall be steel or timber and Contractor shall submit design data, including the section modulus of members and arrangement for bracing at various depths, to Engineer for review before installing sheeting. It shall penetrate at least 3-feet below the pipe invert. Contractor shall ensure support of pipe and its embedment is maintained throughout installation and ensure sheeting is sufficiently tight to prevent washing out of the trench wall from behind sheeting.

- B. Sheeting Removal – Sheeting shall be removed in units and only when backfilling elevation has reached the level necessary to protect pipe, adjoining property, personnel, and utilities. Removal of sheeting or shoring shall be accomplished in a manner to preclude loss of foundation support and embedment materials. Fill voids left on removal of sheeting or shoring and compact all materials to required densities.
- C. Movable Trench Wall Supports – Do not disturb installed pipe and its embedment when using movable trench boxes and shields. Movable supports should not be used below top of pipe zone unless acceptable methods are used for maintaining the integrity of embedment material. Before moving supports, place and compact embedment to sufficient depths to ensure protection of the pipe. As supports are moved, finish placing and compacting embedment.
- D. When sheeting or shoring cannot be safely removed, it shall be left in place. Sheeting left in place shall be cut off at least 2 feet below the surface. No separate payment shall be made for bracing and sheeting except where shown on drawings or authorized by the Engineer.

3.5 LAYING PIPE

- A. All sewer pipe shall be laid upgrade with spigots pointing downgrade and in accordance with ASTM D 2321. The pipe shall be laid in a ditch prepared in accordance with Paragraph 3.3 "Sewer Excavation." When sewer is complete, the interior surface shall conform on bottom accurately to grades and alignment fixed or given by Engineer. Special care shall be taken to provide a firm bedding in good material, select borrow, stone backfill or 3,000 p.s.i. concrete, as authorized, for length of each joint and 1/2 of the circumference. Holes shall be provided to relieve bells from bedding strain, but not so large to allow separation of the bell from barrel by settlement after backfilling. All pipe shall be cleaned out and left clean. Every third joint shall be filled around immediately after being properly placed.
- B. Jointing – Comply with manufacturer's recommendations for assembly of joint components, lubrication, and making joints. When pipe laying is interrupted, secure piping against movement and seal open ends to prevent the entrance of water, mud, or foreign material.
- C. Placing and Compacting Pipe Embedment – Place embedment materials by methods which will not disturb or damage the pipe. Work in and tamp haunching material in area between the bedding and underside of pipe before placing and compacting remainder of embedment in pipe zone. Do not permit compaction equipment to contact and damage the pipe. Use compaction equipment and techniques compatible with materials used and location in the trench. Before using heavy compaction or construction equipment directly over the pipe, place sufficient backfill to prevent damage, excessive deflections, or other disturbance of the pipe.
- D. Rock or Unyielding Materials in Trench Bottom – If ledge rock, hard pan, shale, or other unyielding material, cobbles, rubble, debris, boulders, or stones larger than

1.5-inches are encountered in the trench bottom, excavate a minimum depth of 6-inches below pipe bottom and replace with proper embedment material.

- E. Vertical Risers – Provide support for vertical risers as commonly found at service connections, cleanouts, and drop manholes to preclude vertical or lateral movement. Prevent the direct transfer of thrust due to surface loads and settlement and ensure adequate support at points of connection to main lines.
- F. Exposing Pipe for Making Service Line Connections – When excavating for a service line connection, excavate material from above the top of main line before removing material from sides of pipe. Materials and density of service line embedment shall conform to specifications for the main line.
- G. Manhole Connections – Use flexible water stops, resilient connectors, or other flexible systems acceptable to the Engineer making watertight connections to manholes and other structures. Fill annular space between pipe and precast concrete on inside of manhole with non-shrink grout.

3.6 SEPARATION BETWEEN WATER & SANITARY SEWER

A. Parallel Installation:

1. Water mains shall be laid at least 10 feet horizontally from any existing or proposed sanitary sewer, storm sewer, or sewer manhole. The distance shall be measured edge-to-edge.
2. When conditions prevent a horizontal separation of 10 feet, water main may be laid closer to a sewer (on a case-by-case basis) provided water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation where bottom of water main is at least 18 inches above top of sewer. It is advised the sewer be constructed of materials and with joints equivalent to water main standards of construction and be pressure tested to assure water-tightness prior to backfilling.

B. Crossing:

1. Water mains crossing house sewers, storm sewers, or sanitary sewers shall be laid to provide a separation of at least 18 inches between the bottom of water main and top of sewer. At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required.
2. When conditions prevent a vertical separation of 18 inches, the sewer passing over or under water mains shall be constructed of materials and with joints equivalent to water main standards of construction and shall be pressure tested to assure water-tightness prior to backfilling.
3. When water mains cross under sewers, additional measures shall be taken by providing:

- a. a vertical separation of at least 18 inches between bottom of the sewer and top of water main;
- b. adequate structural support for sewers to prevent excessive deflection of joints settling on and breaking the water mains;
- c. length of water pipe be centered at the point of crossing so joints will be equidistant and as far as possible from sewer; and
- d. both sewer and water main shall be constructed of water pipe and subjected to hydrostatic tests, as prescribed in this document. Encasement of the water pipe in concrete shall also be considered.
- e. crossings shall conform to South Carolina Department of Health and Environmental Control's Bureau of Water Standards for Wastewater Facility Construction: Regulation 61-67.

3.7 BACKFILLING

- A. All trenches and excavation shall be backfilled immediately after pipes are laid therein, unless other protection of the pipe line is directed. Backfilling material shall be selected and deposited with special reference to the future safety of pipes. Except where special methods of bedding and tamping are provided for, clean earth or sand shall be solidly tamped about pipe up to a level at least 2 feet above top of pipes, and shall be carefully deposited to uniform layers, each layer solidly tamped or rammed with proper tools to not injure or disturb the pipeline. Remainder of the trench backfilling shall be carried on simultaneously on both sides of pipe in such a manner preventing injurious side pressure. The material used shall be selected from excavated material anywhere on site if any of this material is suitable. Backfill material shall be clean and free of rock, organic and other deleterious matter.

Under traffic areas, the top 24 inches of backfill material shall be compacted to a density of not less than 98% of maximum laboratory density at optimum moisture. Below the 24-inch line and to and including area around pipe, density shall not be less than 95% of maximum laboratory density at optimum moisture. In non-traffic areas, the backfill material shall be compacted to a density of not less than 90% of maximum laboratory density at optimum moisture unless otherwise accepted by Engineer. Compaction tests shall be conducted in accordance with ASTM D 6938 by an independent testing laboratory. Tests are to be taken at the direction of Engineer.

Whenever trenches have not been properly backfilled, or if settlement occurs, they shall be refilled, smoothed off and finally made to conform to the ground surface. Backfilling shall be carefully performed, and original surface restored to the full satisfaction of Engineer immediately after installation.

Where thermoplastic (PVC) pipe is installed, Contractor shall take precautions in accordance with ASTM D 2321, during backfilling operations so not to create excessive side pressures, or vertical or horizontal deflection of the pipe nor impair flow capacity.

3.8 MANHOLES

- A. Manholes shall be constructed where shown on the drawings or where directed by Engineer. The channel in bottom of manholes shall be smooth and properly rounded. Special care must be exercised in laying the channel and adjacent pipes to grade. Manhole top elevations shall be greater than or equal to the 50 year flood elevation, unless watertight covers are provided. Tops of manholes outside of roads shall be built to grades 1-inch above ground surface in developed areas and 6 inches above ground surface in undeveloped areas unless otherwise shown on the plans. Manholes in roads shall be built to grades designated by the Engineer. Manhole sections with either honeycomb defects; exposed reinforcing; broken/fractured tongue or groove; or cracked walls will be subject to rejection by Engineer for use on the project. When mastic sealant is used, improperly applied primer will also be cause for rejection.

No leaks in any manhole will be acceptable. All repairs made from inside the manhole shall be made with mortar composed of one part Portland cement and two parts clean sand. The mixing liquid shall be straight bonding agent equivalent to "Acryl 60."

3.9 STONE BEDDING

- A. Where, in the Engineer's or Geotechnical Consultant's opinion, subgrade of pipe trench is unsuitable material, Contractor shall remove unsuitable material to a depth determined by Engineer or Geotechnical Consultant and furnish and place stone backfill in trench to stabilize subgrade. Presence of water does not necessarily mean stone backfill is required. If well points or other types of dewatering will remove the water, Contractor shall be required to completely dewater trench in lieu of stone backfill. Stone bedding will be limited to areas where well pointing and other conventional methods of dewatering will not produce a dry bottom. Stone shall be placed 4 feet wider than the outside diameter of pipe. The pipe shall be carefully bedded in stone as specified, or in accordance with manufacturer's recommendations.

3.10 SAND BEDDING

- A. Where, in the Engineer's or Geotechnical Consultant's opinion, character of soil is unsuitable for pipe bedding, even though dewatered, additional depth of excavation as determined by Engineer or Geotechnical Consultant shall be made and replaced with clean sand furnished by Contractor.

3.11 DEFLECTION

- A. It is the Contractor's responsibility to assure backfill is sufficient to limit pipe deflection to no more than 5%. When flexible pipe is used, a deflection test shall be made by Contractor on the entire length of installed pipeline, not less than 30-days after completion of all backfill and placement of any fill. Deflection shall be determined by use of a deflection device or by use of a spherical, spheroidal, or elliptical ball, a cylinder, or circular sections fused to a common shaft. Ball, cylinder, or circular sections shall have a diameter, or minor diameter as applicable, of 95% of the inside pipe diameter. The ball, cylinder, or circular

sections shall be of a homogeneous material throughout, shall have a density greater than 1.0 as related to water at 39.2 degrees F, and shall have a surface brinell hardness of not less than 150. The device shall be center bored and through bolted with a 1/4-inch minimum diameter steel shaft having a yield strength of 70,000 p.s.i. or more, with eyes at each end for attaching pulling cables. The eye shall be suitably backed with flange or heavy washer; a pull exerted on opposite end of shaft shall produce compression throughout remote end of ball, cylinder, or circular section. Circular sections shall be spaced so distance from the external faces of front and back sections shall equal or exceed diameter of circular section. Failure of the ball, cylinder, or circular section to pass freely through a pipe run, either by being pulled through by hand or by being flushed through with water, shall be cause for rejection of individual run. When a deflection device is used for the test in lieu of a ball, cylinder, or circular sections described, such device shall be acceptable to Engineer prior to use. Device shall be sensitive to 1.0% of diameter of pipe being measured and shall be accurate to 1.0% of indicated dimension. Installed pipe showing deflections greater than 5% of the normal diameter of pipe shall be retested by a run from opposite direction. If retest also fails, the suspect pipe shall be repaired or replaced at no cost to Owner.

3.12 LEAKAGE

- A. In no stretch of sewer between any two adjoining manholes shall infiltration/exfiltration exceed 25 gallons/day/inch of pipe diameter per mile of pipe. In case leakage exceeds this amount, the sewer shall not be accepted until such repairs and replacements are made to comply with above requirements. Such corrections will be made at the Contractor's expense. All visible leaks shall be repaired, regardless of the amount of leakage.
- B. Lines shall be tested for leakage by low pressure air testing, infiltration tests, or exfiltration tests, as appropriate. Low pressure air testing for PVC pipe shall be as prescribed in ASTM F 1417. Prior to infiltration or exfiltration tests, trench shall be backfilled up to at least the lower half of pipe. If required, sufficient additional backfill shall be placed to prevent pipe movement during testing, leaving the joints uncovered to permit inspection. Visible leaks encountered shall be corrected regardless of leakage test results. When water table is 2 feet or more above top of pipe at upper end of pipeline section to be tested, infiltration shall be measured using a suitable weir or other device acceptable to Engineer. When Engineer determines infiltration cannot be properly tested, an exfiltration test shall be made by filling the line to be tested with water so a head of at least 2 feet is provided above both water table and top of pipe at upper end of pipeline to be tested. The filled line shall be allowed to stand until pipe has reached its maximum absorption, but not less than 4 hours. After absorption, the head shall be re-established. The amount of water required to maintain this water level during a 2-hour test period shall be measured. Leakage as measured by either the infiltration test or exfiltration test shall not exceed 25 gallons per inch diameter per mile of pipeline per day. When leakage exceeds the maximum amount specified, satisfactory correction shall be made and retesting accomplished. Testing, correction, and retesting shall be made at no additional cost to the Owner.

- C. The Contractor shall furnish equipment and plugs and subject force mains to hydrostatic tests at 100 p.s.i. for a period of 2 hours. Any leaks shall be located and repaired. Each section tested shall be slowly filled with water, care being taken to expel all air from the pipes. No pipe installation will be accepted until leakage during pressure test is less than the number of gallons listed for each 1000-foot of pipe tested:

6 inches & less – 0.9 gallons	12 inches – 1.80 gallons
8 inches – 1.20 gallons	14 inches – 2.10 gallons
10 inches – 1.50 gallons	16 inches – 2.40 gallons

3.13 CLEANING AND ACCEPTANCE

- A. Before acceptance of sewer system, it shall be tested and cleaned to the satisfaction of Engineer. Where any obstruction is met, Contractor will be required to clean sewers by means of rod and swabs or other instruments. The pipeline shall be straight and show a uniform grade between manholes. The Engineer shall check lines by lamping or other methods to determine final acceptance.

3.14 CLOSING PIPE

- A. When work or pipe installation is suspended, either for the night or at other times, end of sewer must be closed with a tight cover. Contractor will be held responsible for keeping the sewer free from obstruction.

3.15 PARTIAL ACCEPTANCE OF THE WORK

- A. Owner reserves right to accept and use any part of the work. Engineer shall have power to direct on what line the Contractor shall work and order thereof.

3.16 GRASSING

- A. Grassing of areas disturbed during construction shall be in accordance with Section 32 92 00 – “Turf and Grasses.”

3.17 RECORD DATA

- A. It will be required of the Contractor to keep accurate, legible records, locating all sewers, force mains, tees, and laterals. These records will be made available to Engineer before final review for incorporation into the Engineer's Record Drawings. Final payment to the Contractor will be withheld until all such information is received and accepted.

3.18 REMOVE AND REPLACE PAVEMENT

- A. Pavement shall only be removed after prior written authorization by the Owner. Pavement removed and replaced shall be constructed in accordance with latest specifications of the State Department of Transportation. Traffic shall be maintained and controlled per State Department of Transportation regulations.

Edges of the pavement shall be cut to a neat straight line with a masonry saw. Backfill shall be compacted and tested and a concrete base course of 5,000 p.s.i. placed on the fill as shown on details. The concrete base shall be placed within 24 hours after pipeline is installed. A temporary wearing surface may be used provided it presents a smooth surface. The final wearing surface shall be 2 inches asphaltic concrete.

3.19 METALLIC DETECTOR TAPE

- A. Contractor shall place metallic detector tape, suitably coded, directly over all installed pipes at a depth of 18 inches below the finished surface.

3.20 CONNECT SEWERS TO EXISTING STRUCTURES

- A. Contractor shall connect the system to existing structures where indicated. For brick structures, a hole not more than 4 inches larger than the outside diameter of new pipe shall be cut neatly in structure, new pipe laid so it is flush with inside face of structure, and annular space around pipe filled with a damp, expanding mortar or grout to make a watertight seal. For precast structures, core proper size hole in structure for pipe being connected, attach flexible sleeve into cored hole and connect new pipe into flexible sleeve with a stainless steel band.

3.21 FIELD QUALITY CONTROL

- A. Soil and density tests shall be made by a testing laboratory acceptable to the Engineer. Laboratory tests of the soil shall be made in accordance with ASTM D 1557. In-place density tests shall be made in accordance with ASTM D 6938. Results of the tests shall be furnished to the Engineer.
The minimum number of tests required shall be:

Backfill over sewer in traffic areas..... 1 per 100 linear feet or less for each 4 feet of depth or portion thereof.

Backfill over sewer in non-traffic areas... 1 per 500 linear feet or less for each 6 feet of depth or portion thereof.

END OF SECTION



RIA GRANT NUMBER: R-19-2043

WATER & WASTEWATER IMPROVEMENTS VENTURE PARK FOR COLLETON COUNTY

PREPARED FOR:
COLLETON COUNTY
109 BENSON STREET
WALTERBORO, SC 29488

TM# MULTIPLE

JULY 27, 2020

J-28422.0000

PREPARED BY:



VICINITY MAP
SCALE: 1" = 1000'

J-28422.0000 WATER & WASTEWATER IMPROVEMENTS VENTURE PARK
07/27/2020

Sheet List Table

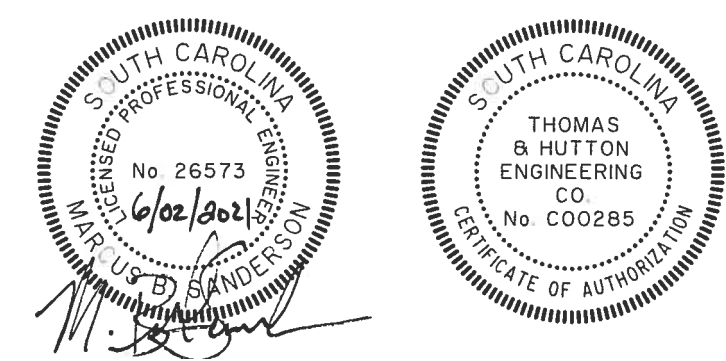
Sheet Number	Sheet Title
CO	COVER SHEET
GN-01	GENERAL NOTES AND INDEX
ECO.1	SWPP - NOTES
ECl.1	SWPP - CHARTS
ECl.2	SWPP - DETAILS
ECl.3	SWPP - DETAILS
C2.1	SEWER MAIN PLAN & PROFILE
C2.2	SEWER MAIN PLAN & PROFILE
C2.3	SEWER MAIN PLAN & PROFILE
C2.4	SEWER MAIN PLAN & PROFILE
C2.5	SEWER MAIN PLAN & PROFILE
C2.6	SEWER MAIN PLAN & PROFILE
C2.7	SEWER MAIN PLAN & PROFILE
C2.8	SEWER MAIN PLAN & PROFILE
C2.9	SEWER MAIN PLAN & PROFILE
C3.1	WATER MAIN PLAN & PROFILE
C3.2	WATER MAIN PLAN & PROFILE
C3.3	WATER MAIN PLAN & PROFILE
C4.1	WATER MAIN DETAILS
C4.2	WATER MAIN DETAILS
C4.3	SEWER MAIN DETAILS

REVISION HISTORY

REV. NO.	REVISION	BY	DATE

SUBMITTAL HISTORY

SCDHEC	SUBMITTED TO	DATE



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ABBREVIATIONS

DBL	DOUBLE	FM	FORCE MAIN (SANITARY SEWER)	PC	POINT OF CURVE	TC	TOP OF CURB
BOT	BOTTOM	FP	FINISH PAD	PH	POST HYDRANT	TH	THROAT ELEVATION
CB	CATCH BASIN	FR	FRAME	PT	POINT OF TANGENT	TG	TOP OF GUTTER
CI	CURB INLET	GI	GRATE INLET	PVC	POLYVINYL CHLORIDE	TP	TOP OF PAVEMENT
CO	CLEAN OUT	GV	GATE VALVE	RCP	REINFORCED CONCRETE PIPE	TW	TOP OF WALK
CPP	CORRUGATED PLASTIC PIPE	HDPE	HIGH DENSITY POLYETHYLENE	RC	ROLL CURB INLET	TYP	TYPICAL
DBL	DOUBLE	HI	HOODED INLET	RCP	REINFORCED CONCRETE PIPE	VI	VALLEY INLET
DI	DITCH INLET	INV	INVERT ELEVATION	RI	ROOF INLET	W	WATER
DIP	DUCTILE IRON PIPE	JB	JUNCTION BOX	RJP	RESTRAINED JOINT PIPE	W/	WITH
EL	ELEVATION	LF	LINEAR FEET	R/W	RIGHT-OF-WAY	WV	WATER VALVE
ES	END SECTION	MAX	MAXIMUM	SD	STORM DRAINAGE	YI	YARD INLET
FES	FLARED END SECTION	MIN	MINIMUM	SDMH	STORM DRAINAGE MANHOLE	YI	YARD INLET
FG	FINISH GRADE	MH	MANHOLE	SF	SQUARE FEET		
FH	FIRE HYDRANT	OC	ON CENTER	SS	SANITARY SEWER		

OTHER UTILITIES LEGEND

DESCRIPTION	EXISTING
NATURAL GAS	UGG UGG
TELEPHONE	OHT OHT
UNDERGROUND TELEPHONE	UTL UTL
ELECTRICITY	OHP OHP
UNDERGROUND ELECTRICITY	UGP UGP

DRAINAGE LEGEND

DESCRIPTION	EXISTING	PROPOSED
PIPE		
DITCH		
CURB INLET (CI) CATCH BASIN (CB)		
CURB INLET - RIGHT (CI) OR CATCH BASIN - RIGHT (CB)		
CURB INLET - LEFT (CI) OR CATCH BASIN - LEFT (CB)		
CURB INLET - BOTH (CI) OR CATCH BASIN - LEFT (CB)		
CONTROL STRUCTURE (CS)		
DITCH INLET (DI)		
GRATE INLET (GI)		
HOODED INLET (HI)		
JUNCTION BOX (JB)		
MANHOLE (SDMH)		
ROLL CURB INLET (RC)		
ROOF INLET (RI)		
YARD INLET (YI)		
FLARED END SECTION (FES)		

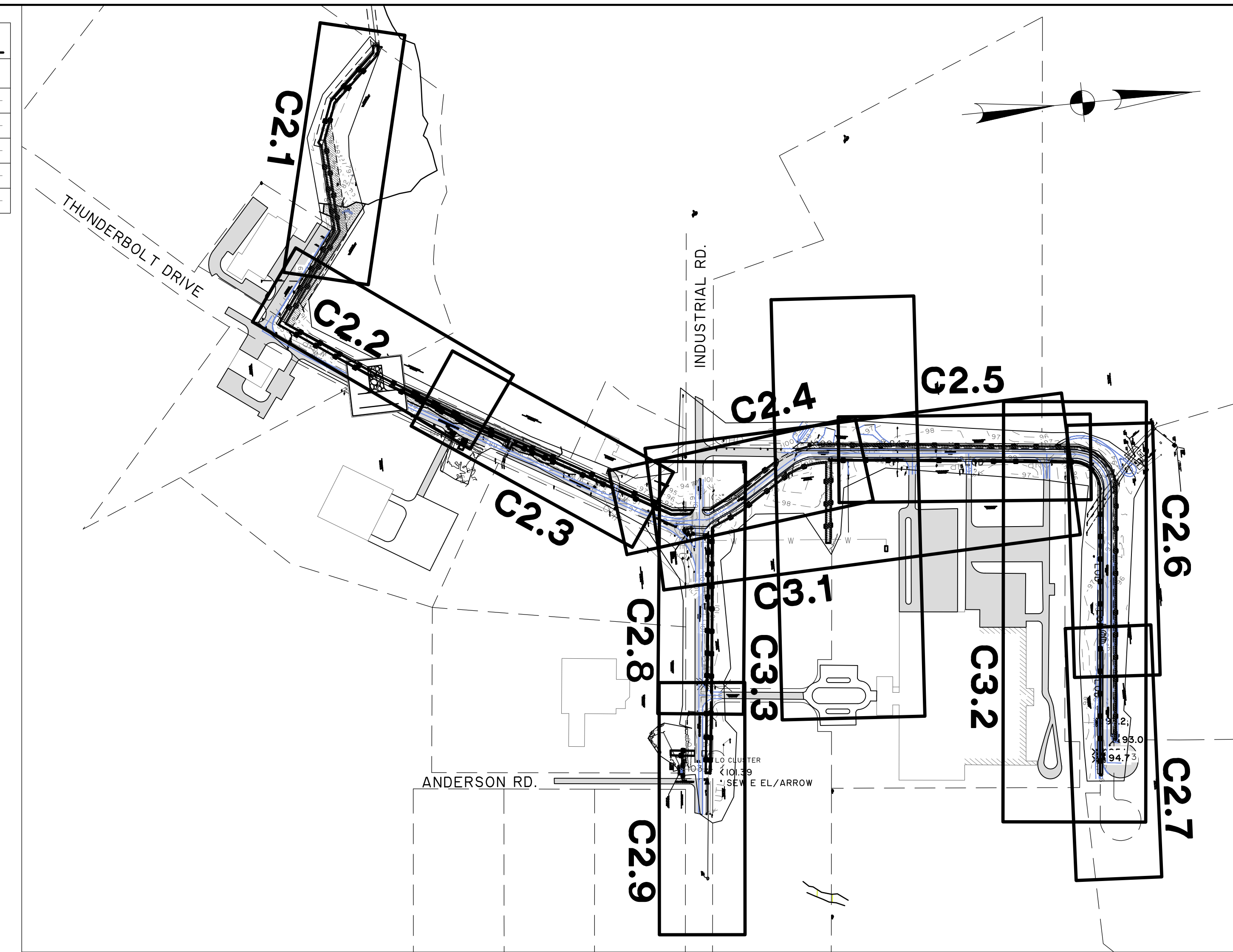
WATER LEGEND

DESCRIPTION	EXISTING	PROPOSED
WATER MAIN	10" W	10" W
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
VALVE AND BOX		
FIRE HYDRANT W/VALVE & BOX		
POST HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-1/2° BEND - HORIZONTAL		
11-1/4° BEND - HORIZONTAL		
BEND - VERTICAL		
CAP		

SEWER LEGEND

DESCRIPTION	EXISTING	PROPOSED
GRAVITY PIPE	SS	
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
MANHOLE		
CLEANOUT		
FORCEMAIN	10" FM	10" FM
VALVE AND BOX		
FLUSH HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-1/2° BEND - HORIZONTAL		
11-1/4° BEND - HORIZONTAL		
BEND - VERTICAL		
PLUG \ CAP		

- CONTRACTOR SHALL COORDINATE TIE-IN OF NEW WATER AND SEWER FACILITIES TO CITY OF WALTERBORO.
- CONTRACTOR SHALL MAINTAIN MINIMUM COVER OVER THE WATER MAIN PIPE BARREL OF 4'-0" UNLESS OTHERWISE INDICATED. TOP OF PIPE ELEVATIONS ARE SHOWN FOR CASES WHERE FUTURE STORM SEWERS ARE TO BE INSTALLED. IN NO CASE SHALL THE WATER MAIN BE INSTALLED AT A LOWER ELEVATION THAN THAT SHOWN.
- SHOULD PIPE, FITTINGS, AND OTHER MATERIALS BE NEEDED IN ADDITION TO THAT SHOWN ON THE DRAWINGS BECAUSE PIPELINE WAS NOT INSTALLED TO THE ALIGNMENT AND PROFILE SHOWN, THEN THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THOSE NECESSARY MATERIALS AND PROVIDING THE EQUIPMENT AND LABOR TO INSTALL ALL THEM TO MEET THE DESIGN INTENT OF THE WATERMAIN AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER 48 HOURS IN ADVANCE OF ALL REQUIRED TESTS AND INSPECTIONS.
- THE CONTRACTOR WILL NOTIFY THE ENGINEER IF UNSUITABLE MATERIAL IS DISCOVERED PRIOR TO BEGINNING ANY REMOVAL OPERATION.
- ALL WATERMANS SHALL BE POLYVINYL CHLORIDE (PVC C900) UNLESS OTHERWISE INDICATED.
- ALL GRAVITY SEWER MAIN SHALL BE POLYVINYL CHLORIDE (PVC C900) UNLESS OTHERWISE INDICATED.
- SURVEYING AND BOUNDARY INFORMATION BY THOMAS AND HUTTON
- ALL ELEVATIONS SHOWN ARE BASED ON NAVD88.
- TOPOGRAPHIC SURVEY BY THOMAS AND HUTTON.
- CONTRACTOR IS TO VERIFY ACCURACY OF ANY TEMPORARY BENCHMARKS SHOWN PRIOR TO UTILIZING THEM FOR CONSTRUCTION.
- THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES OTHER THAN THOSE SHOWN ARE ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND TAKE STEPS TO PROTECT THE LINE(S) AND ENSURE CONTINUED SERVICE. DAMAGE CAUSED TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR. ADDITIONALLY, THE CONTRACTOR SHALL CONFIRM THE CONNECTION POINTS OF NEW UTILITIES TO EXISTING UTILITIES PRIOR TO BEGINNING NEW CONSTRUCTION.
- IF WORK IS SUSPENDED OR DELAYED FOR 14 DAYS, THE CONTRACTOR SHALL TEMPORARILY STABILIZE THE DISTURBED AREA AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL INSTALL ANY BARRICADES PRIOR TO BEGINNING CONSTRUCTION
- ANY DAMAGE TO EXISTING PAVEMENT MUST BE REPAIRED AT CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE COUNTY ENGINEER AND THE PROJECT ENGINEER.
- ALL RIGHT-OF-WAY AND DRAINAGE EASEMENT CONSTRUCTION SHALL MEET SCDDOT STANDARD SPECIFICATIONS UNLESS SPECIFIED ELSEWHERE AND APPROVED IN WRITING BY THE COUNTY ENGINEER.
- WHERE FIELD INSPECTIONS ARE REQUIRED BY THE COUNTY, THE CONTRACTOR SHALL NOTIFY THE ENGINEERING DIVISION A MINIMUM OF 48 HOURS IN ADVANCE TO SCHEDULE SUCH INSPECTIONS.
- A COMPLETE SET OF APPROVED DRAWINGS AND SPECIFICATIONS MUST BE MAINTAINED ON SITE AT ALL TIMES THAT THE CONTRACTOR IS PERFORMING WORK. THESE DRAWINGS SHALL BE MADE AVAILABLE UPON REQUEST.
- ANY REVISIONS DURING CONSTRUCTION WHICH ALTER THE ROAD LAYOUT, CONSTRUCTION METHODS, RIGHT-OF-WAY LOCATION OR DRAINAGE MUST BE SUBMITTED AND APPROVED IN WRITING BY THE COUNTY ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS NECESSARY FROM OTHER RESPONSIBLE AGENCIES.
- ALL TREES SHOWING DISTURBANCE WITHIN THE PROTECTED ROOT ZONE SHALL BE PRUNED AND FERTILIZED BY A CERTIFIED ARBORIST PRIOR TO RECEIVING FINAL PLAT APPROVAL. (THIS WORK WILL BE DONE BY THE



GENERAL NOTES

- OWNER OUTSIDE OF THE CONTRACT.)
- THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL AND PREVENTION STRUCTURES SHOWN ON THE PLANS. BOTH MUST BE APPROVED BY COLLETON COUNTY PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES.
- CONTRACTOR WILL BE REQUIRED TO ADJUST MANHOLE FRAMES TO MATCH FINAL GRADE AT NO ADDITIONAL COST.
- THE FOLLOWING NOTES ARE SPECIFIED BY THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL - OFFICE OF OCEAN AND COASTAL RESOURCES MANAGEMENT (SCDHEC-OCRM) AND ARE TO BE EXECUTED BY THE CONTRACTOR:
 - ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES OF PRECIPITATION DURING ANY 24-HOUR PERIOD. ALL SEDIMENT CONTROL FEATURES SHALL BE MAINTAINED UNTIL FINAL STABILIZATION HAS BEEN OBTAINED.
 - STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN 14 DAYS.
- ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH THE DISTURBANCE OF THE LAND AND SHALL REMAIN FUNCTIONAL UNTIL THE CONTRIBUTING DISTURBED AREAS ARE STABILIZED. SILT BARRIERS WILL BE INSTALLED AS NECESSARY TO PREVENT EXCESSIVE SEDIMENTATION OF DOWNSTREAM AREAS. DEVICES SHALL BE IN ACCORDANCE WITH THE MANUAL OF "EROSION AND SEDIMENT CONTROL PRACTICES FOR DEVELOPING AREAS" BY THE S.C. LAND RESOURCES CONSERVATION COMMISSION.
- CONTRACTOR SHALL GRADE AREAS TO DRAIN FOR POSITIVE FLOW PRIOR TO FINAL APPROVAL.
- ALL TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON "UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND "SOUTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BOTH CURRENT EDITIONS.
- ALL AREAS DISTURBED WILL BE GRASSED IMMEDIATELY AFTER THE INSTALLATION. GRASSING SHALL BE IN ACCORDANCE WITH SECTION BID OF THE SCDDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CURRENT EDITION. PAYMENT SHALL BE AS SHOWN IN THE BID FORM AND SHALL BE COMPENSATION FOR ALL NECESSARY WORK AND MATERIALS TO COMPLETE THE SEEDING IN ACCORDANCE WITH THESE SPECIFICATIONS. (SEE SPECIFICATIONS BELOW)

- ALL DRAINAGE WILL BE MADE FUNCTIONAL DAILY AS WORK PROGRESSES.
- EACH EXISTING ROAD WILL BE CLEANED UP AND RESTORED DAILY.
- NEW PAVEMENT TO BE FLUSH WITH EDGE OF EXISTING PAVEMENT.
- ALL STORM DRAIN PIPE INVERTS IN AND OUT ARE THE SAME AS THE BOX INVERT UNLESS OTHERWISE NOTED ON THE PLAN SHEETS AND/OR PROFILES.
- ALL SEWER INSTALLATION AND MATERIALS SHALL COMPLY WITH SECTION 30.30.00 OF THE THOMAS AND HUTTON STANDARDS AND SPECIFICATIONS.
- ALL WATER INSTALLATION AND MATERIALS SHALL COMPLY WITH SECTION 33.10.00SC OF THE THOMAS AND HUTTON STANDARDS AND SPECIFICATIONS.
- IF ARCHEOLOGICAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION WORK SHALL IMMEDIATELY CEASE. THE PROCEDURES CODIFIED AT 36 CFR 800.13(B) WILL APPLY AND EDA, THE SOUTH CAROLINA STATE HISTORIC PRESERVATION OFFICE, AND THE CATAWBA INDIAN NATION SHALL BE CONTACTED IMMEDIATELY. ARCHEOLOGICAL MATERIALS CONSIST OF ANY ITEMS, FIFTY YEARS 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 REMAINS.

GENERAL INFORMATION

COUNTY COLLETON
TOWN WALTERBORO
ZONING INDUSTRIAL

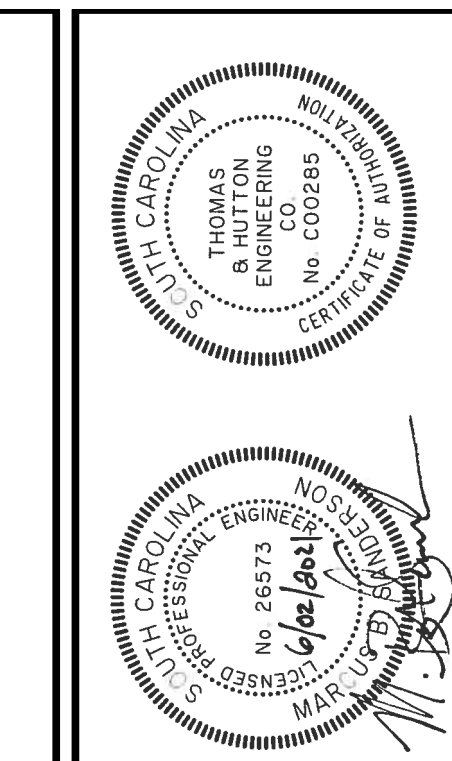
OWNER:
CITY OF WALTERBORO
242 HAMPTON STREET
(843) 782-1015

ENGINEER:
THOMAS & HUTTON
1501 MAIN STREET
COLUMBIA, SC 29201
(803) 451-6789

SURVEYOR: THOMAS & HUTTON
50 PARK OF COMMERCE WAY
SAVANNAH, GA 31405
(912) 234-5300

UTILITY: CITY OF WALTERBORO
242 HAMPTON STREET
(843)782-1015

PREPARED FOR:
COLLETON COUNTY
109 BENSON STREET
WALTERBORO, SC 29488
843-549-5221



NO.	BY	DATE

THOMAS & HUTTON
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Columbia, SC 29201 • 803.451.6789
www.thomasandhutton.com

COLLETON COUNTY
COLLETON COUNTY

WATER & WASTEWATER IMPROVEMENTS VENTURE PARK

GENERAL NOTES AND INDEX

JOB NO: J-28422.0000
DATE: 07/27/2020
DRAWN: MCL
DESIGNED: EAC
REVIEWED: PLB
APPROVED: PLB
SCALE: N/A

GN-01

I. SITE DESCRIPTION

Table with 2 columns: Description and Value. Includes Project Description, Runoff Data, Receiving Waters, Flood, and Control Measures.

II. CONTROL MEASURES

- 1. EROSION AND SEDIMENT CONTROLS
PRIOR TO START OF CONSTRUCTION, ALL EXTERIOR SILT FENCE WILL BE INSTALLED AS SHOWN ON THE PLANS.
1.1. CLEARING
1.1.1. AS CLEARING IS COMPLETED, ADDITIONAL SILT FENCE WILL BE INSTALLED WHERE NECESSARY...

- 3.1.1. NO SOIL MATERIALS, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED TO ANY RECEIVING WATERS.
3.1.2. OFFSITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST SHALL BE MINIMIZED.
3.1.3. THIS PLAN SHALL COMPLY WITH STATE AND/OR LOCAL WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS.

III. MAINTENANCE

- 1. MAINTENANCE PROGRAM
1.1. THE SITE SUPERINTENDENT, OR HIS/HER REPRESENTATIVE, SHALL MAKE VISUAL INSPECTIONS OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREAS (I.E. SEEDED AND MULCHED AND/OR SODDED AREAS) ON A DAILY BASIS...
2. SILT FENCE
SILT FENCES WILL BE MONITORED DURING CONSTRUCTION. ANY SILT FENCE WHICH IS NOT FUNCTIONING PROPERLY WILL BE PROMPTLY REPAIRED...

IV. INSPECTIONS

- 1. QUALIFIED PERSONNEL WILL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE. AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION THAT HAVE NOT BEEN FINALLY STABILIZED...
2. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM...

V. LONG TERM MAINTENANCE OF DRAINAGE AND STORM WATER MANAGEMENT SYSTEM

THE ROADS AND DRAINAGE SYSTEM WILL BE OWNED AND MAINTAINED BY CURRENT OWNER.

VI. SC DHEC STANDARD NOTES

- 1. IF NECESSARY, SLOPES WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO GRASSING / HYDROSEEDING...
2. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED...
3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK...

STORMWATER POLLUTION PREVENTION PLAN

AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

- 6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO THE ROADWAY FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST.
7. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN...
10. LITTER, ROADWAY DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND LIQUID CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

VII. EROSION, SEDIMENTATION & POLLUTION CONTROL NOTES

- 1. THE IMPLEMENTATION OF THESE EROSION SEDIMENT CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
2. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADSWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
3. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS DURING THE CONSTRUCTION PERIOD. THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.

VIII. HOUSEKEEPING

- THESE PERFORMANCE STANDARDS APPLY TO ALL SITES.
1. PETROLEUM PRODUCTS: INCLUDING OIL, GASOLINE, LUBRICANTS AND ASPHALTIC SUBSTANCES.
1.1. HAVE EQUIPMENT TO CONTAIN AND CLEAN UP PETROLEUM SPILLS IN FUEL STORAGE AREAS OR ON MAINTENANCE AND FUELING VEHICLES
1.2. STORE IN COVERED AREAS PROTECTED WITH DIKES
2. SPILLS: PREVENTION AND RESPONSE.
2.1. STORE AND HANDLE MATERIALS TO PREVENT SPILLS
2.2. TIGHTLY SEALED CONTAINERS, NEAT AND SECURE STACKING, ETC.
2.3. REDUCE STORM WATER CONTACT IF SPILL OCCURS
2.3.1. CLEANUP PROCEDURES SHOULD BE CLEARLY POSTED.
2.3.2. CLEANUP MATERIALS SHOULD BE READILY AVAILABLE
2.3.3. STOP THE SOURCE
2.3.4. CONTAIN THE SPILL
3. NON-STORM WATER DISCHARGES
3.1. DISCHARGES FROM FIRE-FIGHTING ACTIVITIES
3.2. FIRE HYDRANT FLUSHINGS
3.3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED
3.4. WATER USED TO CONTROL DUST
3.5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHINGS
3.6. ROUTINE EXTERNAL BUILDING WASH DOWN THAT DOES NOT USE DETERGENTS
3.7. PAVEMENT WASH WATERS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED UNLESS ALL SPILLED MATERIAL HAS BEEN REMOVED AND WHERE DETERGENTS ARE NOT USED

XI. FERTILIZER REQUIREMENTS

- 1. TEMPORARY SEEDING FERTILIZER
APPLY A MINIMUM OF 500 LBS PER ACRE OF A COMPLETE 10-10-10 FERTILIZER (11.5 POUNDS PER 1000 SQUARE FEET) OR EQUIVALENT DURING TEMPORARY SEEDING OF GRASSES UNLESS A SOIL TEST INDICATES A DIFFERENT REQUIREMENT.
2. PERMANENT SEEDING FERTILIZER
APPLY A MINIMUM OF 1000 LBS PER ACRE OF A COMPLETE 10-10-10 FERTILIZER (23 POUNDS PER 1000 SQUARE FEET) OR EQUIVALENT DURING PERMANENT SEEDING OF GRADES UNLESS A SOIL TEST INDICATES A DIFFERENT REQUIREMENT.
3. CONSTRUCTION WASTES: DEMOLITION RUBBLE, PACKAGING MATERIALS, SCRAP BUILDING SUPPLIES, ETC.
4.1. SELECT A DESIGNATED WASTE COLLECTION AREA
4.2. REMOVE LIDS FOR WASTE CONTAINERS
4.3. WHEN POSSIBLE LOCATE CONTAINERS IN COVERED AREA
4.4. MAINTAIN CONSISTENT REMOVAL SCHEDULE FOR WASTE
5. PESTICIDES: REDUCE THE AMOUNT OF PESTICIDES AVAILABLE FOR CONTACT WITH STORM WATER.
5.1. STORE IN A DRY COVERED AREA
5.2. INSTALL CURBS OR DIKES AROUND STORAGE AREA TO PROTECT AGAINST SPILLS
5.3. STRICTLY FOLLOW RECOMMENDED APPLICATION RATES
6. FERTILIZERS AND DETERGENTS: REDUCE THE AMOUNT OF FERTILIZERS AND DETERGENTS AVAILABLE FOR CONTACT WITH STORM WATER.
6.1. LIMIT APPLICATION OF FERTILIZERS TO THE MINIMUM NEEDED
6.2. APPLY MORE FREQUENTLY BUT AT LOWER APPLICATION RATES
6.3. LIMIT USE OF DETERGENTS ON-SITE
6.4. DO NOT DISCHARGE WASH WATER INTO STORM WATER SYSTEM
6.5. MAINTAIN STRUCTURAL AND VEGETATIVE BMPs
6.6. APPLY ACCORDING TO SOIL TEST RECOMMENDATIONS PRIOR TO SEEDING.

IX. GRASSING NOTES

- 1. THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL EXISTING UTILITIES. EXISTING UTILITIES ARE ALL UTILITIES THAT EXIST ON THE PROJECT IN AN ORIGINAL, RELOCATED OR NEWLY INSTALLED POSITION. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE COST OF REPAIRS TO DAMAGED UNDERGROUND OR OVERHEAD FACILITIES.
2. EGRESS FROM THE SITE SHALL BE CONTROLLED SUCH THAT VEHICLES LEAVING THE SITE MUST TRAVERSE CONSTRUCTION EXITS TO REMOVE MUD FROM TIRES.
3. SCHEDULE CONSTRUCTION ACTIVITIES TO MINIMIZE THE EXPOSED AREA AND DURATION OF EXPOSURE. IN SCHEDULING, TAKE INTO ACCOUNT THE SEASON AND THE WEATHER FORECAST.

- 1. SOD:
ALL SOD SHALL BE NURSERY GROWN AS CLASSIFIED IN THE ASPGS CSS. MACHINE CUT SOD AT A UNIFORM THICKENS OF 3/4" WITHIN A TOLERANCE OF 1/4". EXCLUDING TOP GROWTH AND THATCH. EACH INDIVIDUAL SOD PIECE SHALL BE STRONG ENOUGH TO SUPPORT ITS OWN WEIGHT WHEN LIFTED BY THE ENDS. BROKEN POOLS, IRREGULARLY SHAPED PIECES, AND TORN OR UNEVEN ENDS WILL BE REJECTED.
2. SODDING SCHEDULE:
LAY SOD FROM MAY 1 TO SEPTEMBER 15 FOR SPRING PLANTING AND FROM SEPTEMBER 15 TO NOVEMBER 1 FOR FALL PLANTING.
3. SEED:
ALL SEED SHALL CONFORM TO ALL STATE LAWS AND TO ALL REQUIREMENTS AND REGULATIONS OF THE SOUTH CAROLINA DEPARTMENT OF AGRICULTURE. THE SEVERAL VARIETIES OF SEED SHALL BE INDIVIDUALLY PACKAGED OR BAGGED, AND TAGGED TO SHOW NAME OF SEED, NET WEIGHT, ORIGIN, GERMINATION, LOT NUMBER, AND OTHER INFORMATION REQUIRED BY THE DEPARTMENT OF AGRICULTURE.
3.1. PENNISETUM GLAUCIUM (BROWNTOP MILLET); TESTING 98 PERCENT PURITY AND 85 PERCENT GERMINATION.
3.2. BERMUUDA COMMON; TESTING 98 PERCENT PURITY AND 85 PERCENT GERMINATION.
3.3. DOMESTIC ITALIAN RYE; TESTING 98 PERCENT PURITY AND 90 PERCENT GERMINATION.
4. MISCELLANEOUS:
4.1. PERMANENT SEEDING SHALL COVER ALL DISTURBED AREA NOT TO BE COVERED BY LANDSCAPING OR OTHER PAVED AREAS.
4.2. SEED ALL DISTURBED AREAS WITHIN SEVEN DAYS OF FINAL GRADING AND TEMPORARY SEED/MULCH ALL AREAS THAT WILL BE LEFT INACTIVE FOR MORE THAN FOURTEEN (14) DAYS.
4.3. ALL PERMANENT GRASS PLANTINGS SHALL BE MULCHED
4.4. CENTIPEDE SOD CAN BE USED AS PERMANENT COVER ANYTIME EXCEPT JUNE THRU OCTOBER
4.5. IF GRASSING OCCURS DURING A MONTH REQUIRING TEMPORARY COVER, THE CONTRACTOR SHALL APPLY PERMANENT COVER (IN ADDITION TO THE TEMPORARY COVER) AT THE APPROPRIATE TIME AT NO ADDITIONAL COST. THE CONTRACTOR MUST ACHIEVE A STRAND OF PERMANENT GRASS WITH AT LEAST 95% COVER. BARE SPOTS CAN NOT BE MORE THAN 1 INCH SQUARE IN ANY 10 SF.

X. PERMANENT STABILIZATION

- NEWLY SEEDDED OR SODDED AREAS MUST BE PROTECTED FROM VEHICLE TRAFFIC, EXCESSIVE PEDESTRIAN TRAFFIC, AND CONCENTRATED RUNOFF UNTIL THE VEGETATION IS WELL ESTABLISHED. IF NECESSARY, AREAS MUST BE RE-WORKED AND RE-STABILIZED IF GERMINATION IS SPARSE, PLANT COVERAGE IS SPOTTY, OR TOPSOIL EROSION IS EVIDENT. ONE OR MORE OF THE FOLLOWING MAY APPLY TO THE SITE.
4.1. SEEDDED AREAS
FOR SEEDDED AREAS, PERMANENT STABILIZATION MEANS A 90% COVER OF THE DISTURBED AREA WITH MATURE, HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OR RILLING OF THE TOPSOIL.
4.2. SODDED AREAS
FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THE COMPLETE BINDING OF THE SOD ROOTS INTO THE APPROVED MULCH MATERIAL.
4.3. PERMANENT MULCH
FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL.
4.4. RIPRAP
FOR AREAS STABILIZED WITH RIPRAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIPRAP HAVE AN APPROPRIATE BACKING OF AN APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIPRAP.
4.5. DITCHES, CHANNELS, AND SWALES
FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH WELL-GRADED RIPRAP LINING, OR WITH ANOTHER NON-EROSIVE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE LINING, UNDERCUTTING OF THE BANKS, OR DOWN CUTTING OF THE CHANNEL.

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6.5. MAINTAIN STRUCTURAL AND VEGETATIVE BMPs
6.6. APPLY ACCORDING TO SOIL TEST RECOMMENDATIONS PRIOR TO SEEDING.

XII. SWPP PREPARER CERTIFICATION

I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000.

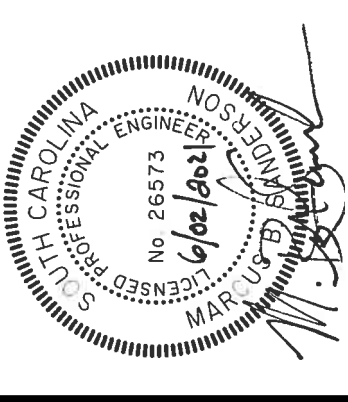
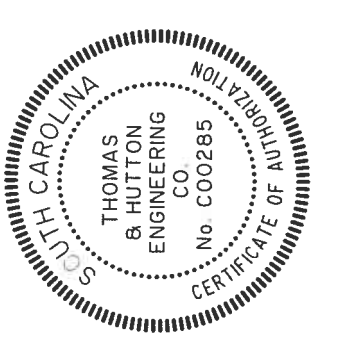


Table with columns: No., Date, Revisions. Contains revision history entries.

THOMAS & HUTTON logo and contact information: 1501 Main Street • Suite 760 Columbia, SC 29201 • 803.451.6789 www.thomasandhutton.com

COLLETON COUNTY logo and project title: WATER & WASTE WATER IMPROVEMENTS VENTURE PARK SWPP - NOTES

Table with project details: JOB NO: J-28422.0000, DATE: 07/27/2020, DRAWN: JTB, DESIGNED: JTB, CHECKED: JTB, REVIEWED: PLB, APPROVED: PLB, SCALE: N/A

EC0.1

STORMWATER POLLUTION PREVENTION PLAN

TEMPORARY SEEDING - COASTAL

SPECIES	LBS/AC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SANDY, DROUGHTY SITES													
BROWNTOP MILLET	40												
RYE, GRAIN	56												
RYEGRASS	50												
WELL DRAINED, CLAYEY/LOAMEY SITES													
BROWNTOP MILLET	40												
JAPANESE MILLET	40												
RYE, GRAIN	56												
OATS	75												
RYEGRASS	50												

PERMANENT SEEDING - COASTAL

SPECIES	LBS/AC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SANDY, DROUGHTY SITES													
BROWNTOP MILLET	10												
BAHIAGRASS	40												
BROWNTOP MILLET	10												
BAHIAGRASS	30												
SERICEA LESPEDEZA	40												
BROWNTOP MILLET	10												
ATLANTIC COASTAL PANICGRASS	15 PLS												
BROWNTOP MILLET	10												
SWITCHGRASS (ALAMO)	8 PLS												
LITTLE BLUESTEM	4												
SERICEA LESPEDEZA	20												
BROWNTOP MILLET	10												
WEEPING LOVEGRASS	8												
WELL DRAINED, CLAYEY/LOAMEY SITES													
BROWNTOP MILLET	10												
BAHIAGRASS	40												
RYE, GRAIN	10												
BAHIAGRASS	40												
CLOVER, CRIMSON (ANNUAL)	5												
BROWNTOP MILLET	10												
BAHIAGRASS	30												
SERICEA LESPEDEZA	40												
BROWNTOP MILLET	10												
BERMUDA, COMMON	10												
SERICEA LESPEDEZA	40												
BROWNTOP MILLET	10												
BERMUDA, COMMON	12												
KOBE LESPEDEZA (ANNUAL)	10												
BROWNTOP MILLET	10												
BAHIAGRASS	20												
BERMUDA, COMMON	6												
SERICEA LESPEDEZA	40												
BROWNTOP MILLET	10												
SWITCHGRASS	8												
LITTLE BLUESTEM	PLS												
INDIANGRASS	3												

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
SILT FENCE	
DOUBLE ROW SILT FENCE	
CLEARING LIMITS	
DIVERSION DIKE	
DIVERSION BERM	
TEMPORARY DIVERSION	
PERMANENT DIVERSION	
SUBSURFACE DRAIN	
VEGETATED CHANNEL	
RIP RAP LINED CHANNEL	
ECB OR TRM LINED CHANNEL	
PAVED CHANNEL	
TREE PROTECTION	
SURFACE ROUGHENING	
TOP SOILING	
TEMPORARY SEEDING	
PERMANENT SEEDING	
LIMITS OF DISTURBANCE	

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
MULCHING	
EROSION CONTROL BLANKET OR TURF REINFORCEMENT MAT	
FLEXIBLE GROWTH MATRIX	
BONDED FIBER MATRIX	
SODDING	
SLOPED SODDING	
STAKED SOD	
ROCK OUTLET	
RIPRAP	
OUTLET PROTECTION - RIP RAP	
OUTLET PROTECTION - ECB OR TRM	
DUST CONTROL	
POLYACRYLAMIDE (PAM)	
SEDIMENT BASIN	
SEDIMENT BASIN WITH SKIMMER	
SEDIMENT TRAP	
ROCK SEDIMENT DIKE	

EROSION CONTROL LEGEND

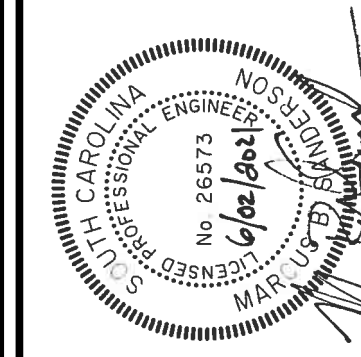
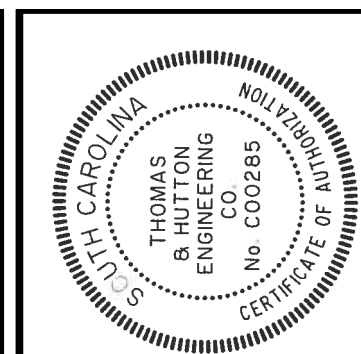
DESCRIPTION	PLAN SYMBOL
SEDIMENT TUBE	
ROCK CHECK DAM	
POROUS BAFFLES	
STABILIZED CONSTRUCTION ENTRANCE	
CONCRETE WASHOUT	
STORM DRAIN INLET PROTECTION - TYPE A FILTER FABRIC	
STORM DRAIN INLET PROTECTION - TYPE A SEDIMENT TUBE	
STORM DRAIN INLET PROTECTION - TYPE B HARDWARE FABRIC AND STONE	
STORM DRAIN INLET PROTECTION - TYPE C BLOCK AND GRAVEL	
STORM DRAIN INLET PROTECTION - TYPE D RIGID INLET FILTER	
STORM DRAIN INLET PROTECTION - TYPE E SURFACE COURSE CURB INLET FILTER	
STORM DRAIN INLET PROTECTION - TYPE F INLET TUBE	
STORM DRAIN INLET PROTECTION - TYPE G IMPERVIOUS AREA	
STORM DRAIN INLET PROTECTION - CATCH BASIN INSERT	
PIPE SLOPE DRAINS	
TEMPORARY STREAM CROSSING	
LEVEL SPREADER	

CONSTRUCTION SEQUENCE

CONSTRUCTION ACTIVITY	SCHEDULE CONSIDERATION
1 OBTAIN COPIES OF ALL PLAN APPROVALS AND OTHER APPLICABLE PERMITS.	CONTRACTOR TO HAVE ONSITE AT ALL TIMES DURING CONSTRUCTION.
2 FLAG THE WORK LIMITS AND BARRICADE TREES AND MARK BUFFER AREAS FOR PROTECTION.	HAVE LOCAL REGULATORY AGENCY INSPECT TREE BARRICADES.
3 HOLD PRE CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.	REVIEW TREE PROTECTION (BARRICADE) WITH OWNER AND LOCAL REGULATORY AGENCY. TAKE PICTURES OF ALL PROTECTED TREES AND LOCATIONS WHERE SITE WORK TIES INTO EXISTING TO DOCUMENT PREDEVELOPMENT PROCEDURES.
4 INSTALL CONSTRUCTION ACCESS AND LAY DOWN AREAS	STABILIZE BARE AREAS IMMEDIATELY AND INSTALL CONSTRUCTION EXITS / ENTRANCES.
5 CONSTRUCT SEDIMENT TRAPS AND BARRIERS - BASIN TRAPS, SEDIMENT FENCES, AND OUTLET PROTECTION.	INSTALL PRINCIPAL BASINS AFTER CONSTRUCTION SITE IS ACCESSED. INSTALL ADDITIONAL TRAPS AND BARRIERS AS NEEDED DURING GRADING.
6 ESTABLISH RUNOFF CONTROL - DIVERSIONS, PERIMETER DIKES, WATER BARS, AND OUTLET PROTECTION.	INSTALL KEY PRACTICES AFTER PRINCIPAL SEDIMENT TRAPS AND BEFORE LAND GRADING. INSTALL ADDITIONAL RUNOFF-CONTROL MEASURES DURING GRADING.
7 LAND CLEARING AND GRADING-SITE PREPARATION CUTTING, FILLING AND GRADING, SEDIMENTATION TRAPS, BARRIERS, DIVERSIONS, DRAINS, SURFACE ROUGHENING.	BEGIN MAJOR CLEARING AND GRADING AFTER PRINCIPAL CUTTING, FILLING AND GRADING. SEDIMENTATION TRAPS, BARRIERS, DIVERSIONS, DRAINS, SURFACE ROUGHENING ARE INSTALLED. CLEAR BORROW AND DISPOSAL AREAS ONLY AS NEEDED. INSTALL ADDITIONAL CONTROL MEASURES AS GRADING PROGRESSES. MARK TREES AND BUFFER AREAS FOR PRESERVATION.
8 RUNOFF CONVEYANCE SYSTEM- INSTALL STORM DRAINS, STABILIZE BANKS, CHANNELS, INSTALL INLET AND OUTLET PROTECTION, SLOPE DRAINS.	WHERE NECESSARY, STABILIZE BANKS AS EARLY AS POSSIBLE. INSTALL PRINCIPAL RUNOFF CONVEYANCE SYSTEM WITH RUNOFF-CONTROL MEASURES. INSTALL REMAINDER OF SYSTEM AFTER GRADING.
9 INSTALL WASTEWATER COLLECTION, WATER DISTRIBUTION, AND STORM DRAINAGE SYSTEMS	APPLY TEMPORARY OR PERMANENT STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS WHERE WORK IS DELAYED OR COMPLETE.
10 SURFACE STABILIZATION-TEMPORARY AND PERMANENT SEEDING, MULCHING, SODDING, RIP RAP.	APPLY TEMPORARY OR PERMANENT STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS WHERE WORK IS DELAYED OR COMPLETE.
11 BUILDING CONSTRUCTION- BUILDINGS UTILITIES, ROADS, ETC.	INSTALL NECESSARY EROSION AND SEDIMENTATION CONTROL PRACTICES AS WORK TAKES PLACE.
12 LANDSCAPING AND FINAL STABILIZATION - TOPSOILING, TREES AND SHRUBS, PERMANENT SEEDING, MULCHING, SODDING, RIP RAP.	LAST CONSTRUCTION PHASE-STABILIZE ALL OPEN AREAS, INCLUDING BORROW AND SPOIL AREAS. REMOVE AND STABILIZE ALL TEMPORARY CONTROL MEASURES.

LIST OF ACRONYMS FOR SEDIMENT AND EROSION CONTROL

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AMD	ACRYLAMIDE POLYMER
BFM	BONDED FIBER MATRIX
BMP(S)	BEST MANAGEMENT PRACTICE(S)
CFS	CUBIC FEET PER SECOND
CMP	CORRUGATED METAL PIPE
DHEC	DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
ECB	EROSION CONTROL BLANKET
EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
EPSC	EROSION PREVENTION AND SEDIMENTATION CONTROL
FDA	UNITED STATES FOOD AND DRUG ADMINISTRATION
FGM	FLEXIBLE GROWTH MATRIX
HDPE	HIGH DENSITY POLYETHYLENE
MS4	MUNICIPAL SEPARATE STORM SEWER SYSTEM
MSDS	MATERIAL SAFETY DATA SHEETS
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PAM	POLYACRYLAMIDE OR POLYMER
RCP	REINFORCED CONCRETE PIPE
SCS	SOIL CONSERVATION SERVICE
SWPPP	STORMWATER POLLUTION PREVENTION PROGRAM
TRM	TURF REINFORCEMENT MAT
VFS	VEGETATED FILTER STRIP



NO.	REVISIONS	BY	DATE

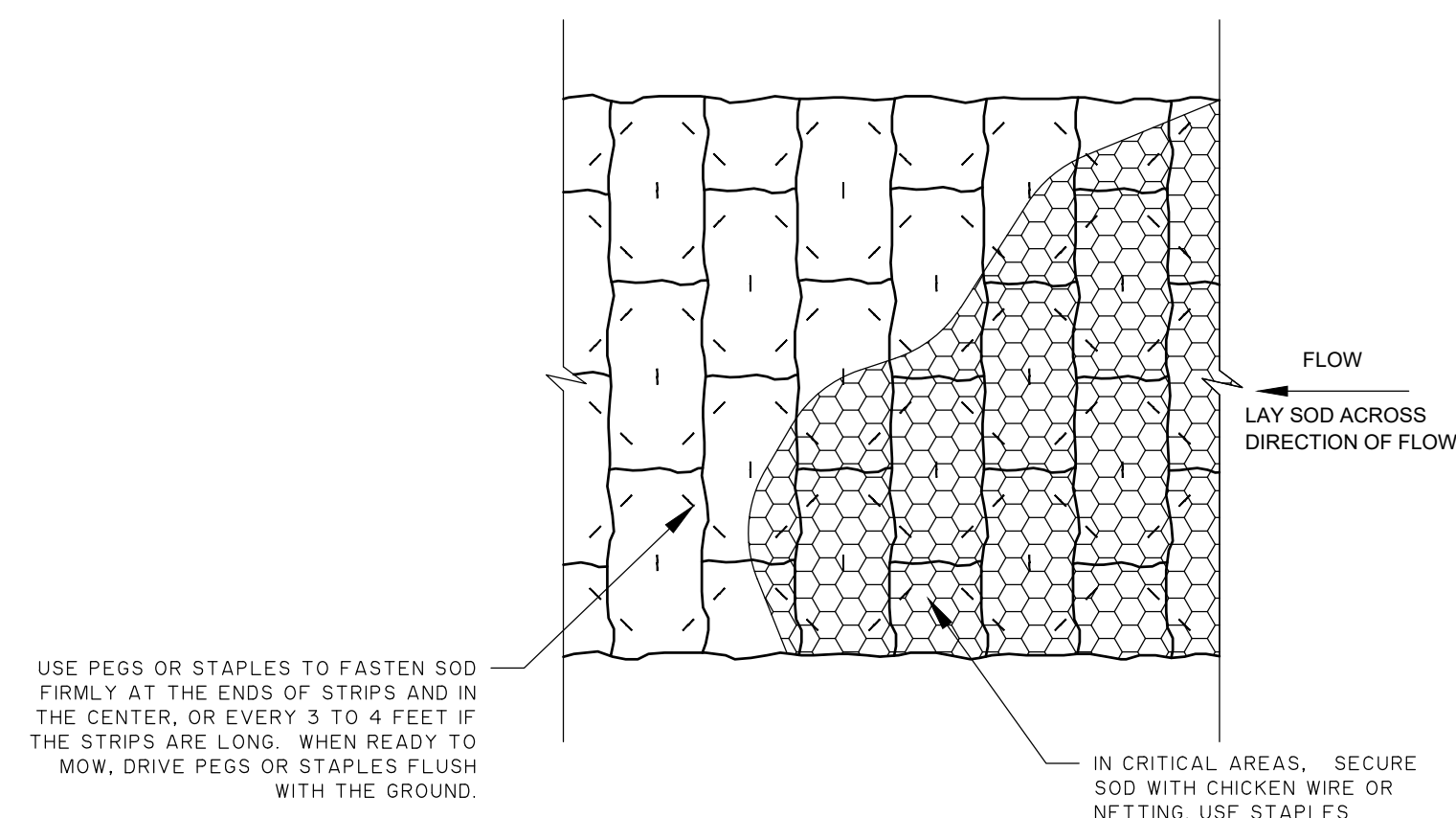
THOMAS & HUTTON
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COLLETON COUNTY
 COLLETON COUNTY
 WATER & WASTEWATER IMPROVEMENTS VENTURE PARK
 SWPP - CHARTS

JOB NO:	J-28422.0000
DATE:	07/27/2020
DRAWN:	JTB
DESIGNED:	EAC
REVIEWED:	PLB
SCALE:	N/A

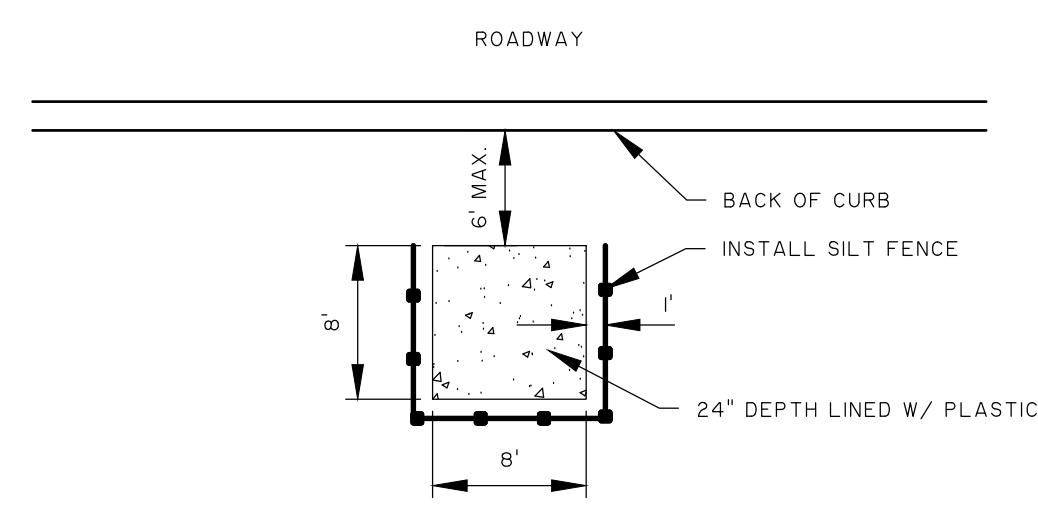
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STORMWATER POLLUTION PREVENTION PLAN



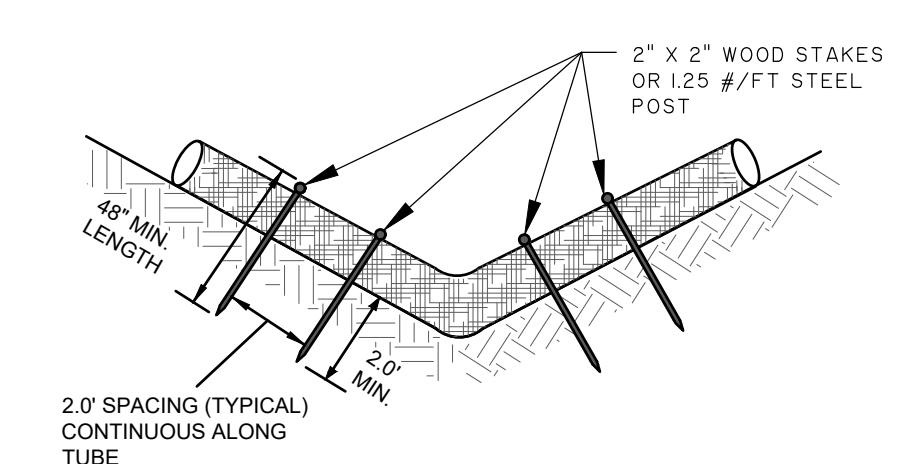
STAKED SOD INSTALLATION

NOT TO SCALE

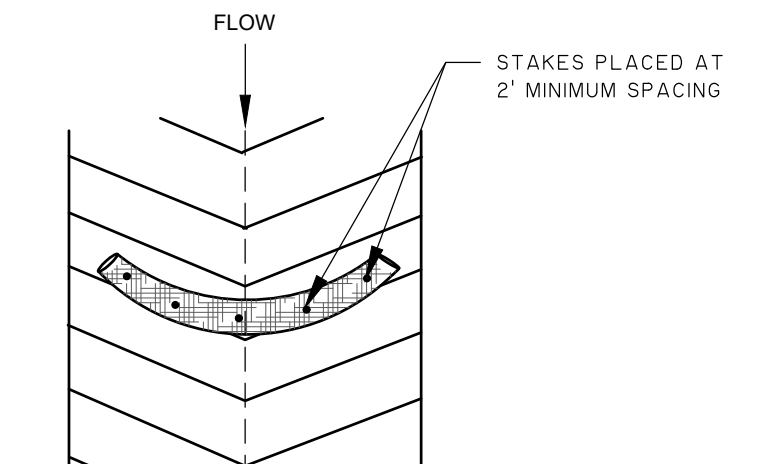


CONCRETE WASHOUT DETAIL

NOT TO SCALE



END VIEW OF DITCH



TOP VIEW OF DITCH

DESCRIPTION:
SEDIMENT TUBES ARE ELONGATED TUBES OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH. STRAW, PINE NEEDLE AND LEAF MULCH-FILLED SEDIMENT TUBES ARE NOT PERMITTED UNDER THIS SPECIFICATION.

WHEN AND WHERE TO USE IT:
INSTALL SEDIMENT TUBES ALONG CONTOURS, IN DRAINAGE CONVEYANCE SWALES, AND AROUND INLETS TO HELP REDUCE THE EFFECTS OF SOIL EROSION BY ENERGY DISSIPATION AND RETAIN SEDIMENT.

MATERIALS:
SEDIMENT TUBES FOR DITCH CHECKS AND TYPE A INLET STRUCTURE FILTERS EXHIBIT THE FOLLOWING PROPERTIES:
PRODUCED BY A MANUFACTURER EXPERIENCED IN SEDIMENT TUBE MANUFACTURING.
COMPOSED OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBERS, HARDWOOD MULCH OR A MIX OF THESE MATERIALS ENCLOSED BY A FLEXIBLE NETTING MATERIAL.
STRAW, STRAW FIBER, STRAW BALES, PINE NEEDLES AND LEAF MULCH ARE NOT ALLOWED UNDER THIS SPECIFICATION.
UTILIZES OUTER NETTING THAT CONSISTS OF SEAMLESS, HIGH-DENSITY POLYETHYLENE PHOTODEGRADABLE MATERIALS TREATED WITH ULTRAVIOLET STABILIZERS OR A SEAMLESS, HIGH-DENSITY POLYETHYLENE NON-DEGRADABLE MATERIALS. DIAMETER RANGING FROM 18-INCHES TO 24-INCHES. CURLED EXCELSIOR WOOD, OR NATURAL COCONUT ROLLED EROSION CONTROL PRODUCTS (RECPs) THAT ARE ROLLED UP TO CREATE A SEDIMENT TUBE ARE NOT ALLOWED UNDER THIS SPECIFICATION.

INSTALLATION:
INSTALL OVER BARE SOIL, MULCHED AREAS OR EROSION CONTROL BLANKETS. BE COMPOSED OF GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH ENCLOSED BY A FLEXIBLE NETTING MATERIAL. STRAW, STRAW FIBER, STRAW BALES, PINE NEEDLES AND LEAF MULCH ARE NOT ALLOWED.

THE MINIMUM DIAMETER SHOULD BE 18 INCHES.
SEDIMENT TUBES SHOULD BE STAKED USING WOODEN STAKES (2-INCH X 2-INCH) OR STEEL POSTS (STANDARD "U" OR "T" SECTIONS WITH A MINIMUM WEIGHT OF 1.25 POUNDS PER FOOT) A MINIMUM OF 48-INCHES IN LENGTH PLACED ON 2-FOOT CENTERS.

STAKES SHOULD BE INTERTWINED WITH THE OUTER MESH ON THE DOWNSTREAM SIDE AND DRIVEN IN THE GROUND TO A MINIMUM DEPTH OF 1.5 FEET LEAVING LESS THAN 1 FOOT OF STAKE EXPOSED ABOVE THE SEDIMENT TUBE. ALWAYS REFER TO THE MANUFACTURER'S RECOMMENDATIONS FOR THE STAKING DETAIL. INSTALL ALL SEDIMENT TUBES INSURING THAT NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE SEDIMENT TUBE.
THE ENDS OF ADJACENT SEDIMENT TUBES SHOULD BE LAPPED 6-INCH TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT. IN NO SITUATIONS SHOULD SEDIMENT TUBES BE STACKED ON TOP OF ONE ANOTHER.

CONSTRUCT A TRENCH THAT IS 20% OF THE TUBE DIAMETER TO INSTALL THE TUBE IN. AVOID DAMAGE TO SEDIMENT TUBES WHILE INSTALLING THEM. IF THE SEDIMENT TUBE BECOMES DAMAGED DURING INSTALLATION, A STAKE SHOULD BE PLACED ON BOTH SIDES OF THE DAMAGED AREA TERMINATING THE TUBE SEGMENT AND A NEW TUBE SEGMENT SHOULD BE INSTALLED.
SHOULD BE INSTALLED IN SWALES OR DRAINAGE DITCHES PERPENDICULAR TO THE FLOW OF WATER. SEDIMENT TUBES SHOULD CONTINUE UP THE SIDE SLOPES A MINIMUM OF 1 FOOT ABOVE THE DESIGN FLOW DEPTH. SEDIMENT TUBES SHOULD BE SPACED ACCORDING TO THE FOLLOWING TABLE.

SEDIMENT TUBE SPACING	
SLOPE	MAXIMUM SEDIMENT TUBE SPACING
LESS THAN 2%	150-FEET
2%	100-FEET
3%	75-FEET
4%	50-FEET
5%	40-FEET
6%	30-FEET
GREATER THAN 6%	25-FEET

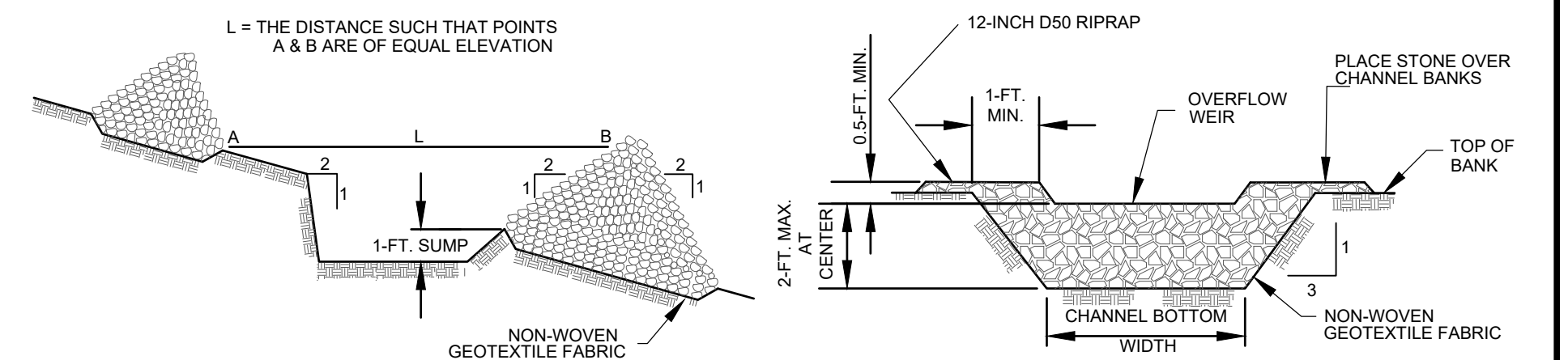
SEDIMENT TUBE LENGTH SELECTED SHOULD MINIMIZE THE NUMBER OF SEDIMENT TUBES NEEDED TO SPAN THE WIDTH OF THE DRAINAGE CONVEYANCE. IF THE DITCH CHECK LENGTH (PERPENDICULAR TO THE WATER FLOW) IS 15 FEET, THEN ONE 15 FOOT SEDIMENT TUBE IS PREFERRED COMPARED TO TWO OVERLAPPING 10 FOOT SEDIMENT TUBES.

SEDIMENT TUBES FOR DITCH CHECKS SHOULD REMAIN IN PLACE UNTIL FULLY ESTABLISHED VEGETATION AND ROOT SYSTEMS HAVE COMPLETELY DEVELOPED AND CAN SURVIVE ON THEIR OWN.

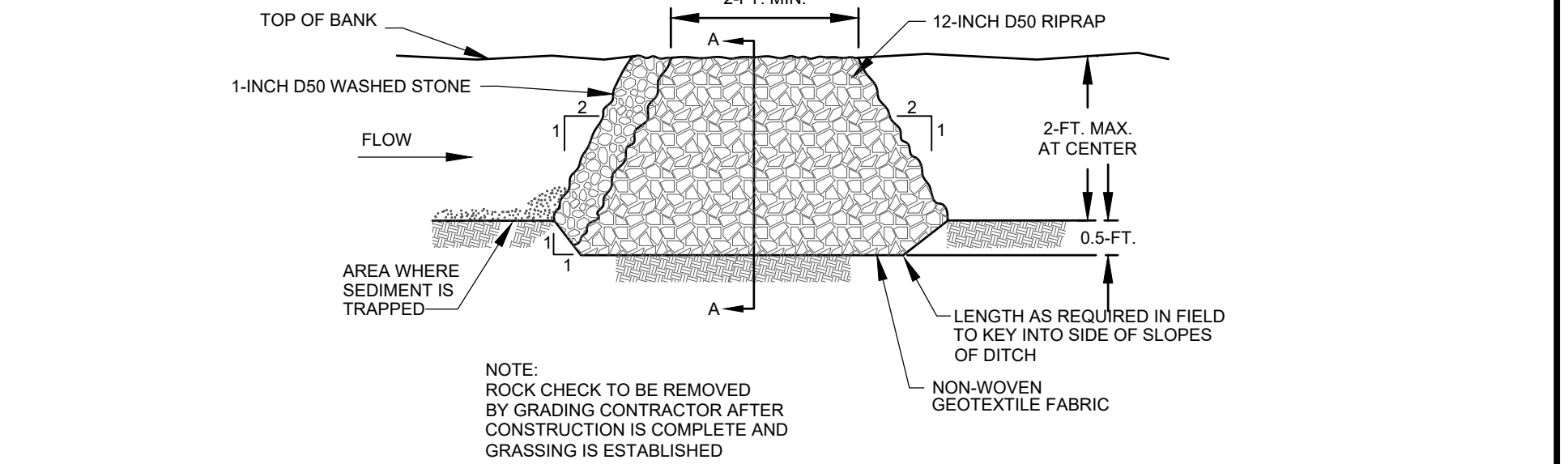
INSPECTION AND MAINTENANCE:
LARGE DEBRIS, TRASH, AND LEAVES SHOULD BE REMOVED.
IF EROSION CAUSES THE EDGES TO FALL TO A HEIGHT EQUAL TO OR BELOW THE HEIGHT OF THE CENTER, REPAIRS SHOULD BE MADE IMMEDIATELY.
REMOVE ACCUMULATED SEDIMENT FROM THE UPSTREAM SIDE OF THE SEDIMENT TUBE WHEN THE SEDIMENT HAS REACHED A HEIGHT OF APPROXIMATELY ONE-THIRD OF THE EXPOSED HEIGHT OF THE TUBE (MEASURED AT THE CENTER).
ACCUMULATED SEDIMENT SHOULD BE REMOVED PRIOR TO REMOVING SEDIMENT TUBES.
SEDIMENT TUBE REMOVAL SHOULD BE COMPLETED ONLY AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN COMPLETELY STABILIZED. PERMANENT VEGETATION SHOULD REPLACE AREAS FROM WHICH GRAVEL, STONE, SEDIMENT TUBES, OR OTHER MATERIALS HAVE BEEN REMOVED.

SEDIMENT TUBES

NOT TO SCALE



TYPICAL DITCH CHECK SECTION



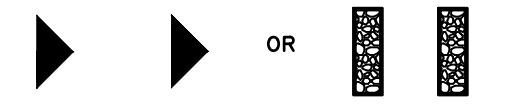
ROCK DITCH CHECK

NOT TO SCALE

WHEN AND WHERE TO USE IT:
A ROCK DITCH CHECK SHOULD BE INSTALLED IN STEEPLY SLOPED SWALES, OR IN SWALES WHERE ADEQUATE VEGETATION CANNOT BE ESTABLISHED. ROCK DITCH CHECKS SHOULD BE USED ONLY IN SMALL OPEN CHANNELS. ROCK DITCH CHECKS SHOULD NOT BE PLACED IN WATERS OF THE COMMONWEALTH OR USGS BLUE-LINE STREAMS.

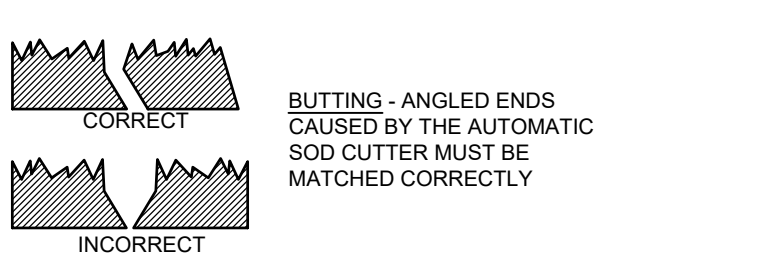
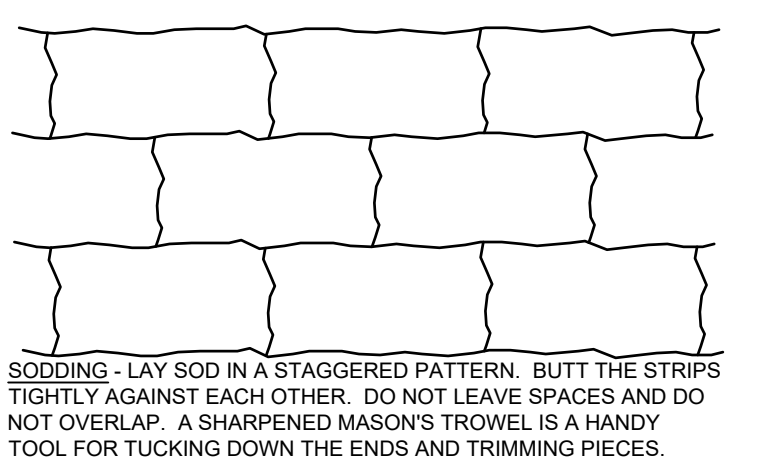
INSTALLATION:
A NON-WOVEN GEOTEXTILE FABRIC SHALL BE INSTALLED OVER THE SOIL SURFACE WHERE THE ROCK DITCH CHECK IS TO BE PLACED.
THE BODY OF THE ROCK DITCH CHECK SHALL BE COMPOSED OF 12-INCH D50 RIPRAP.
THE UPSTREAM FACE OF THE ROCK DITCH CHECK MAY BE COMPOSED OF 1-INCH D50 WASHED STONE.
ROCK DITCH CHECKS SHOULD NOT EXCEED A HEIGHT OF 2-FEET AT THE CENTERLINE OF THE CHANNEL.
ROCK DITCH CHECKS SHOULD HAVE A MINIMUM TOP FLOW LENGTH OF 2-FEET.
STONE SHOULD BE PLACED OVER THE CHANNEL BANKS TO PREVENT WATER FROM CUTTING AROUND THE DITCH CHECK.
THE ROCK MUST BE PLACED BY HAND OR MECHANICAL PLACEMENT (NO DUMPING OF ROCK TO FORM DAM) TO ACHIEVE COMPLETE COVERAGE OF THE DITCH OR SWALE AND TO ENSURE THAT THE CENTER OF THE CHECK IS LOWER THAN THE EDGES.
THE MAXIMUM SPACING BETWEEN THE DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM CHECK IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM CHECK.

INSPECTION AND MAINTENANCE:
INSPECT FOR SEDIMENT AND DEBRIS ACCUMULATION. INSPECT DITCH CHECK EDGES FOR EROSION AND REPAIR PROMPTLY AS REQUIRED.
SEDIMENT SHOULD BE REMOVED WHEN IT REACHES 1/3 THE ORIGINAL CHECK HEIGHT.
IN THE CASE OF GRASS-LINED DITCHES AND SWALES, ROCK DITCH CHECKS SHOULD BE REMOVED WHEN THE GRASS HAS MATURED SUFFICIENTLY TO PROTECT THE DITCH OR SWALE UNLESS THE SLOPE OF THE SWALE IS GREATER THAN 4%.
AFTER CONSTRUCTION IS COMPLETE, ALL STONE SHOULD BE REMOVED BY THE GRADING CONTRACTOR IF VEGETATION WILL BE USED FOR PERMANENT EROSION CONTROL MEASURES.
THE AREA BENEATH THE ROCK DITCH CHECKS SHOULD BE SEEDED AND MULCHED IMMEDIATELY AFTER ROCK CHECK DAM REMOVAL.

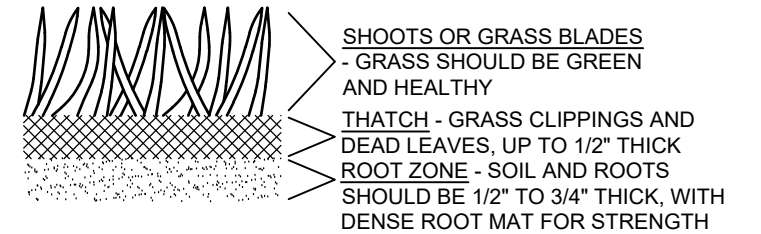


ROCK DITCH CHECK

NOT TO SCALE



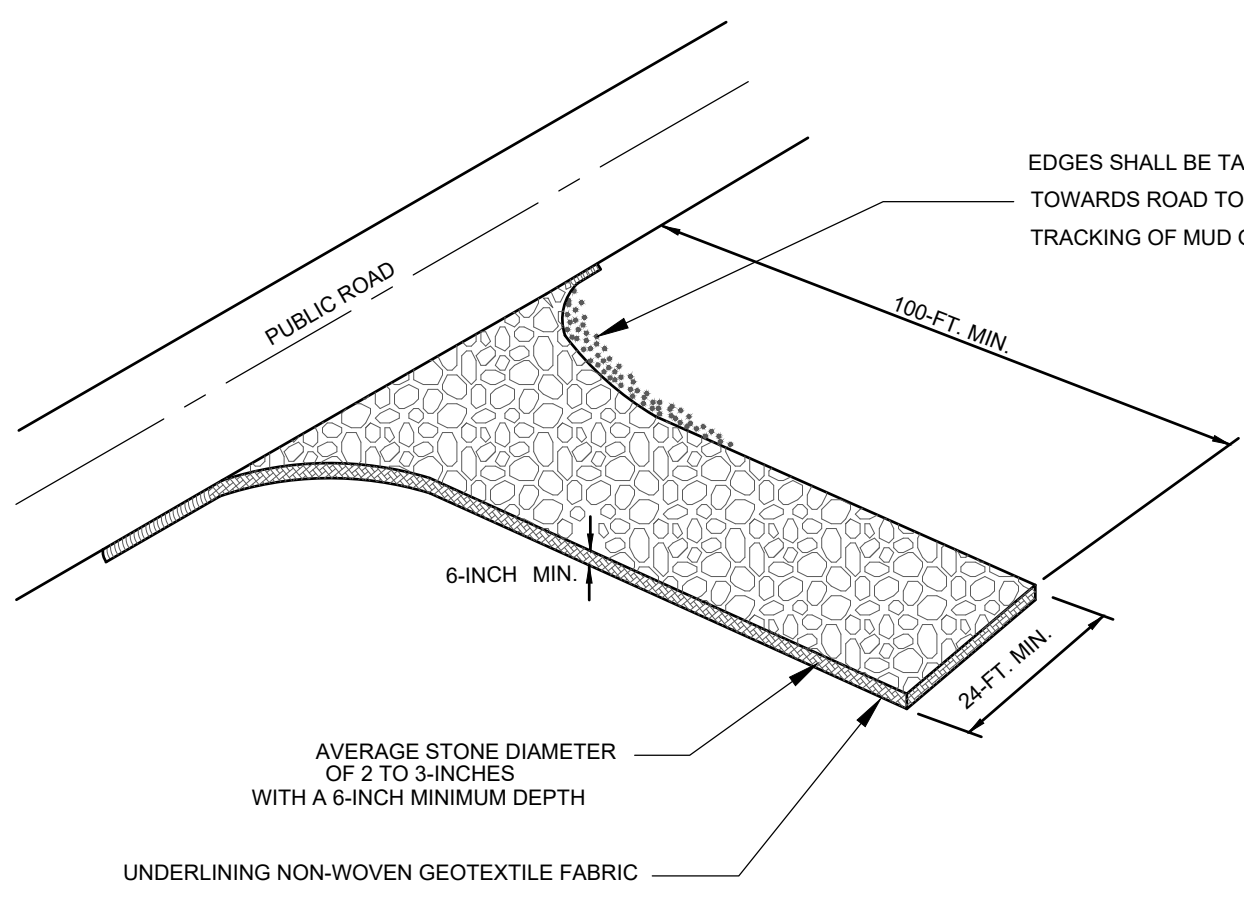
ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID. MOW WHEN THE SOD IS ESTABLISHED - IN 2 - 3 WEEKS. SET THE MOWER HIGH (2"-3").



SODDING

NOT TO SCALE

SPECIFICATIONS:
IF FEASIBLE, SOD SHOULD NOT BE LAID IN EXCESSIVELY WET OR DRY WEATHER.
DURING PERIODS OF HIGH TEMPERATURE, OR IF THE SOIL IS DRY, THE SOIL SHOULD BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.
THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH AND TO REDUCE THE CHANGE OF WASHOUTS UNDERNEATH THE SOD. CARE SHOULD BE EXERCISED TO INSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS. SMALL GAPS OR VOIDS REMAINING AFTER THE SOIL IS LAID SHOULD BE FILLED WITH TOPSOIL.
PLACEMENT SHOULD BEGIN AT THE LOWER END OF SLOPES AND CHANNELS. ON SLOPES 3:1 OR GREATER, OR WHEREVER EROSION MAY BE A PROBLEM, SOD SHOULD BE SECURED BY PEGGING OR OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON THE CONTOUR).
AS SODDING IS COMPLETED, SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE FIRM CONTACT BETWEEN ROOTS AND SOIL.
AFTER ROLLING, SOD SHOULD BE IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE SOD PAD AND THE SOIL 4" BELOW THE SOD IS THOROUGHLY WET.
ESTABLISHMENT AND MAINTENANCE OF SOD:
DURING THE FIRST 3 - 4 WEEKS WATERING SHOULD BE PERFORMED AS OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 2 INCHES.
THE FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. USUALLY 2 - 3 WEEKS. THE MOWER SHOULD BE SET HIGH (2-3 INCHES) FOR THE FIRST MOWING. NO MORE THAN 1/3 OF THE SHOOT (GRASS LEAF) SHOULD BE REMOVED IN ANY MOWING.
FERTILIZER SHOULD BE APPLIED, AS NECESSARY, TO OBTAIN AND MAINTAIN THE DESIRED GROWTH AND DENSITY. LIME SHOULD BE ADDED, AS NEEDED, TO MAINTAIN PROPER pH. SOIL SHOULD BE TESTED EVERY 1 - 2 YEARS TO DETERMINE FERTILIZER AND LIME REQUIREMENTS.



STABILIZED CONSTRUCTION ENTRANCE

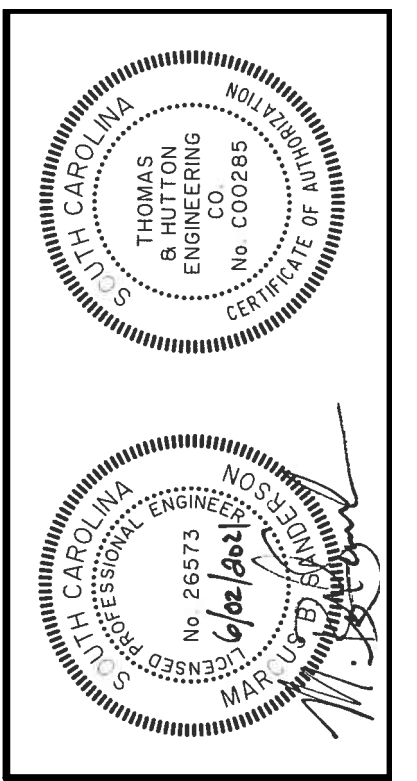
NOT TO SCALE

WHEN AND WHERE TO USE IT:
STABILIZED CONSTRUCTION ENTRANCES SHOULD BE USED AT ALL POINTS WHERE TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE AND MOVING DIRECTLY ONTO A PUBLIC ROAD.

IMPORTANT CONSIDERATIONS:
IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFFSITE. WASHDOWN FACILITIES SHALL BE REQUIRED AS DIRECTED BY SCHEG AS NEEDED. WASHDOWN AREAS IN GENERAL MUST BE ESTABLISHED WITH CRUSHED GRAVEL AND DRAIN INTO A SEDIMENT TRAP OR SEDIMENT BASIN.
CONSTRUCTION ENTRANCES SHOULD BE USED IN CONJUNCTION WITH THE STABILIZATION OF CONSTRUCTION ROADS TO REDUCE THE AMOUNT OF MUD PICKED UP BY VEHICLES.

INSTALLATION:
REMOVE ALL VEGETATION AND ANY OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA.
DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM STONES TO A SEDIMENT TRAP OR BASIN.
INSTALL A NON-WOVEN GEOTEXTILE FABRIC PRIOR TO PLACING ANY STONE.
INSTALL A CULVERT PIPE ACROSS THE ENTRANCE WHEN NEEDED TO PROVIDE POSITIVE DRAINAGE.
THE ENTRANCE SHALL CONSIST OF 1-INCH TO 3-INCH D50 STONE PLACED AT A MINIMUM DEPTH OF 6-INCHES.
MINIMUM DIMENSIONS OF THE ENTRANCE SHALL BE 24-FEET WIDE BY 100-FEET LONG, AND MAY BE MODIFIED AS NECESSARY TO ACCOMMODATE SITE CONSTRAINTS.
THE EDGES OF THE ENTRANCE SHALL BE TAPERED OUT TOWARDS THE ROAD TO PREVENT TRACKING OF MUD AT THE EDGE OF THE ENTRANCE.

INSPECTION AND MAINTENANCE:
CHECK FOR MUD AND SEDIMENT BUILDUP AND PAD INTEGRITY. MAKE DAILY INSPECTIONS DURING PERIODS OF WET WEATHER. MAINTENANCE IS REQUIRED MORE FREQUENTLY IN WET WEATHER CONDITIONS. RESHAPE THE STONE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
WASH OR REPLACE STONES AS NEEDED. THE STONE IN THE ENTRANCE SHOULD BE WASHED OR REPLACED WHENEVER THE ENTRANCE FAILS TO REDUCE MUD BEING CARRIED OFF-SITE BY VEHICLES.
FREQUENT WASHING WILL EXTEND THE USEFUL LIFE OF STONE.
IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED WHEN THE WATER CAN BE DISCHARGED TO A SEDIMENT TRAP OR BASIN.
REPAIR ANY BROKEN PAVEMENT IMMEDIATELY.



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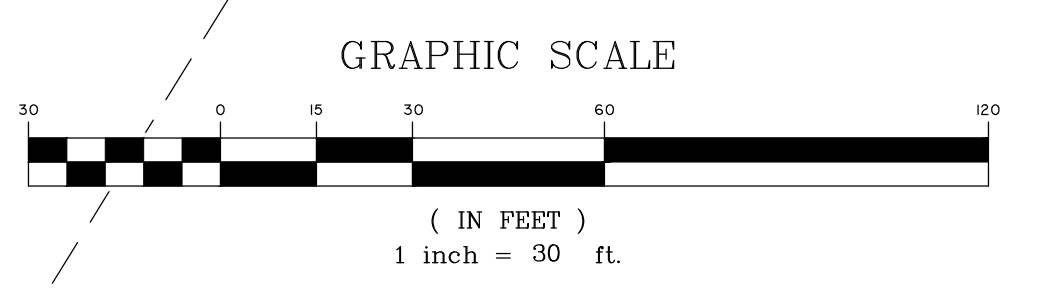
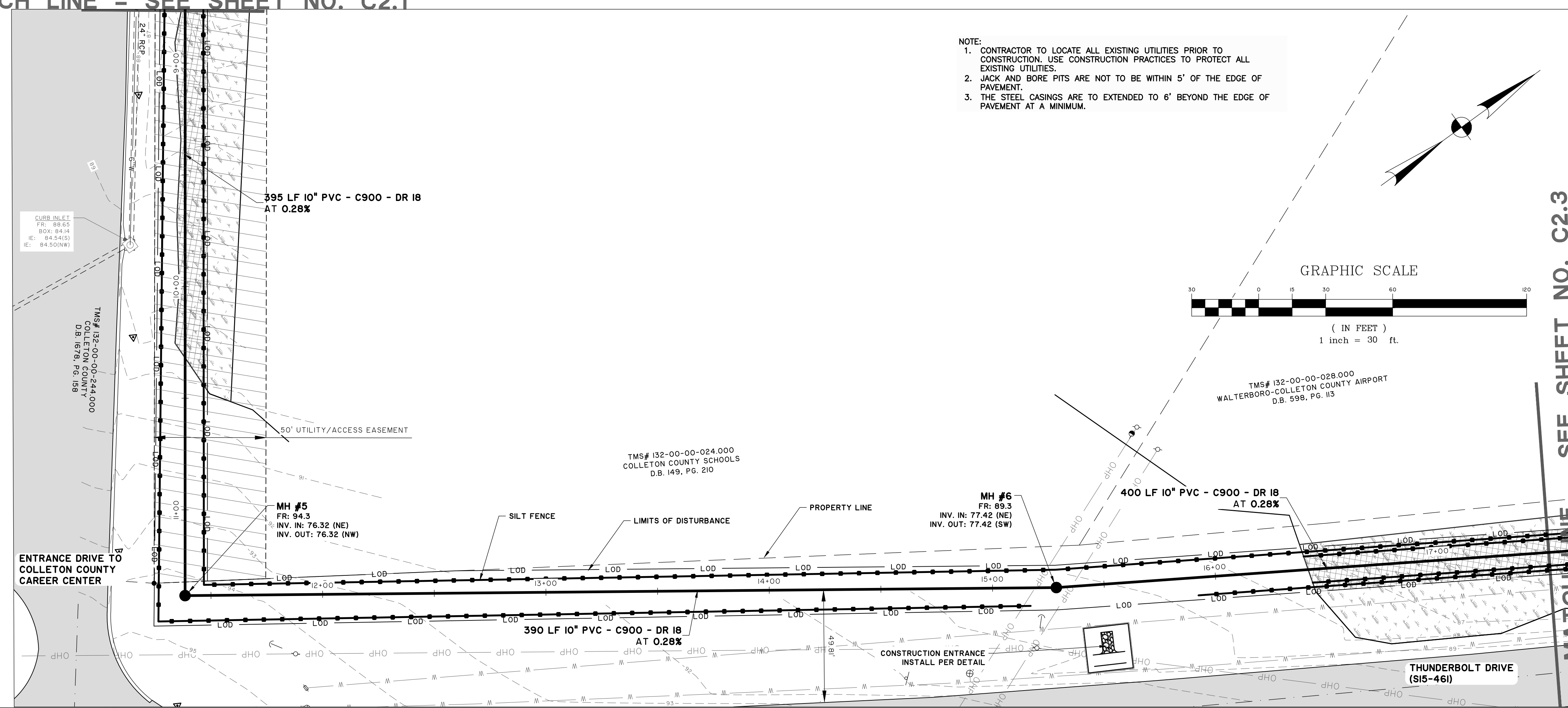
COLLETON COUNTY
COLLETON COUNTY
WATER & WASTE WATER IMPROVEMENTS VENTURE PARK
SWPP - DETAILS

JOB NO:	J-28422.0000
DATE:	07/27/2020
DRAWN:	JTB
DESIGNED:	EAC
REVIEWED:	PLB
APPROVED:	PLB
SCALE:	N/A

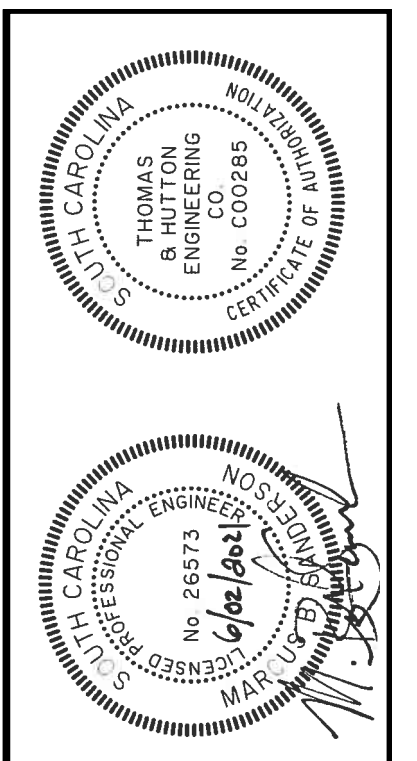
EC1.3

MATCH LINE - SEE SHEET NO. C2.1

- NOTE:
1. CONTRACTOR TO LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. USE CONSTRUCTION PRACTICES TO PROTECT ALL EXISTING UTILITIES.
 2. JACK AND BORE PITS ARE NOT TO BE WITHIN 5' OF THE EDGE OF PAVEMENT.
 3. THE STEEL CASINGS ARE TO EXTENDED TO 6' BEYOND THE EDGE OF PAVEMENT AT A MINIMUM.



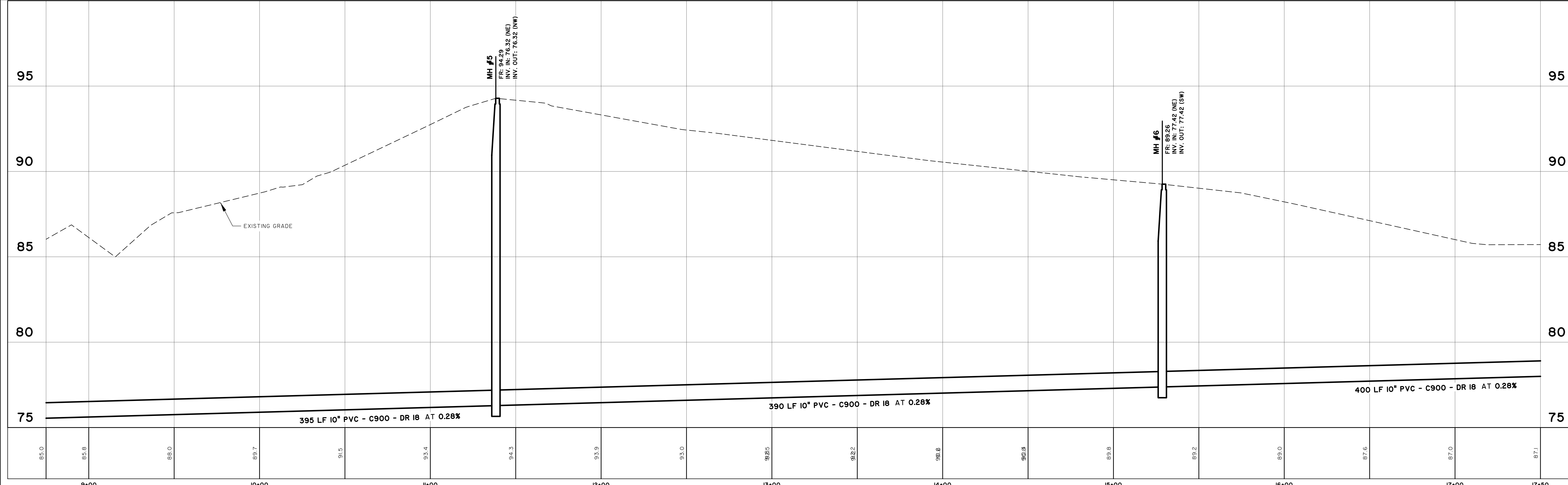
MATCH LINE - SEE SHEET NO. C2.3



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 WATER & WASTEWATER IMPROVEMENTS VENTURE PARK
SEWER MAIN PLAN & PROFILE

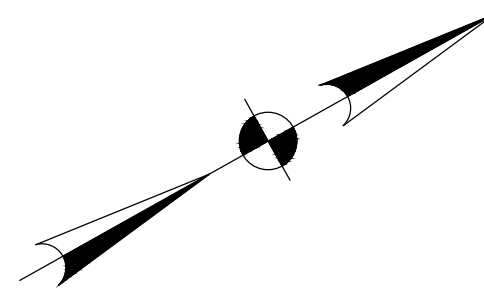


SEWER MAIN
 STATIONS: 8+75 - 17+50
 SCALE: HORZ.: 1" = 30'
 VERT.: 1" = 3'

JOB NO.:	J-28422.0000
DATE:	07/27/2020
DRAWN:	JTB
DESIGNED:	EAC
REVIEWED:	PLB
APPROVED:	PLB
SCALE:	AS NOTED

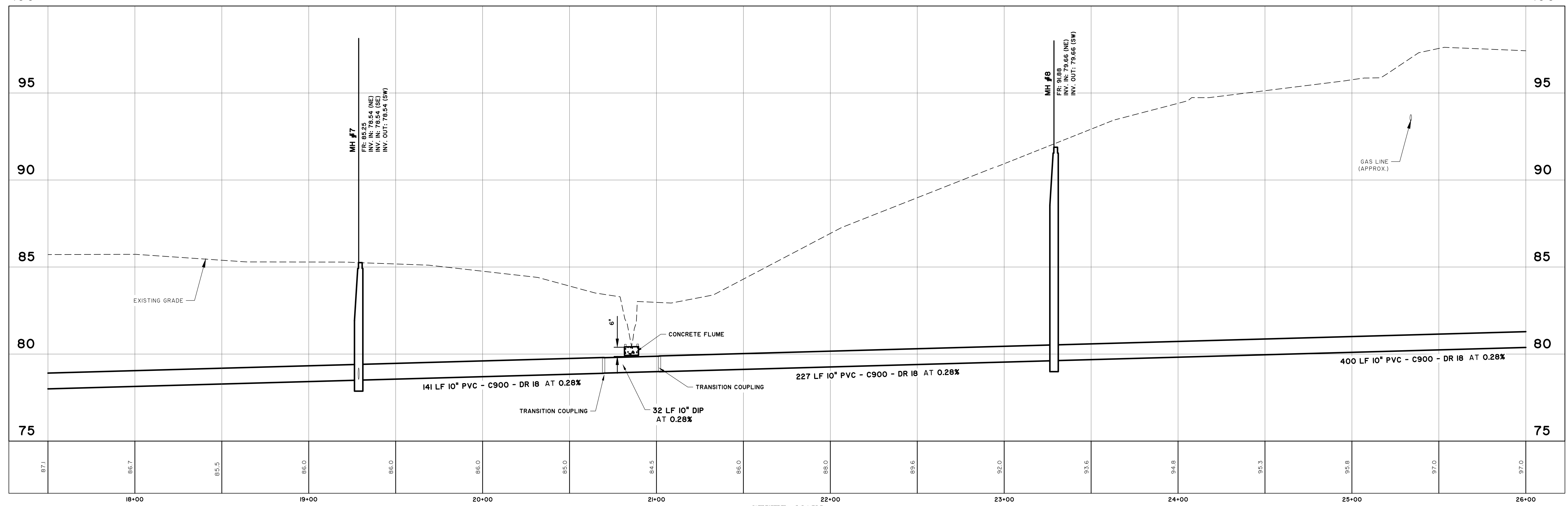
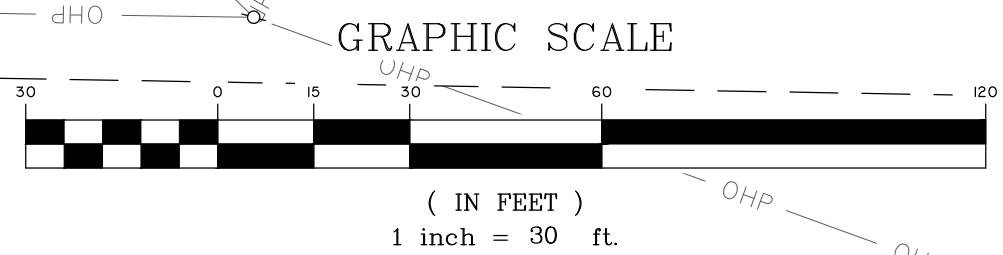
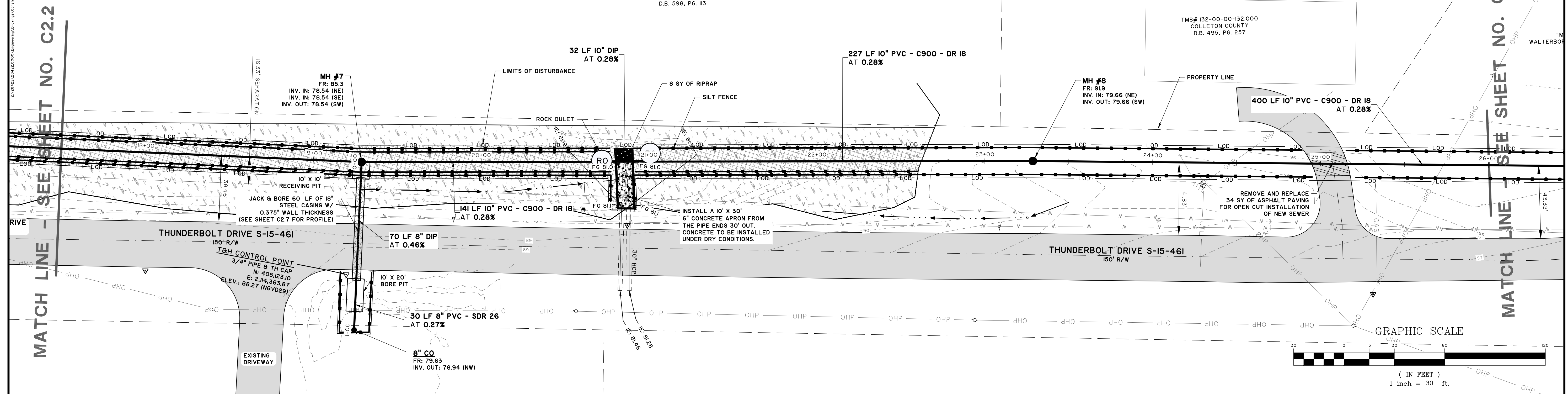
C2.2

- NOTE:
- CONTRACTOR TO LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. USE CONSTRUCTION PRACTICES TO PROTECT ALL EXISTING UTILITIES.
 - JACK AND BORE PITS ARE NOT TO BE WITHIN 5' OF THE EDGE OF PAVEMENT.
 - THE STEEL CASINGS ARE TO EXTENDED TO 6' BEYOND THE EDGE OF PAVEMENT AT A MINIMUM.



TMS# 132-00-00-028.000
WALTERBORO-COLLETON COUNTY AIRPORT
D.B. 598, PG. 13

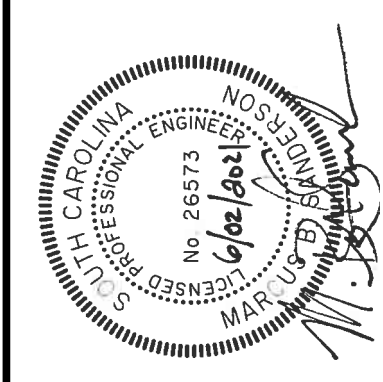
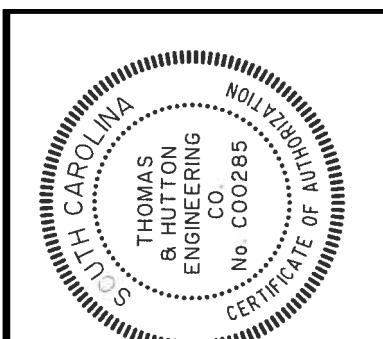
TMS# 132-00-00-132.000
COLLETON COUNTY
D.B. 495, PG. 257



SEWER MAIN
STATIONS: 17+50 - 26+00
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

MATCH LINE - SEE SHEET NO. C2.2

MATCH LINE SEE SHEET NO. C2.4



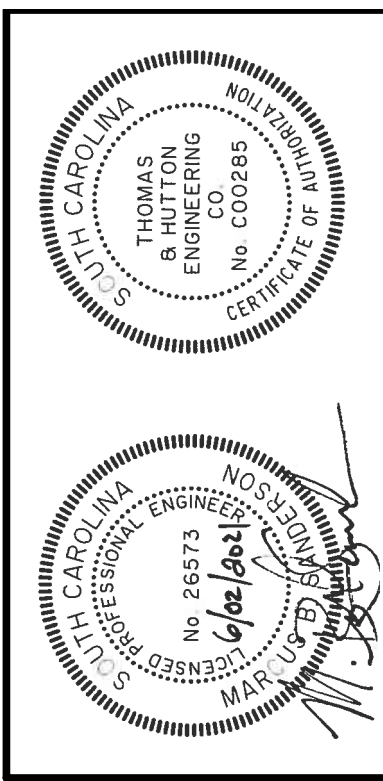
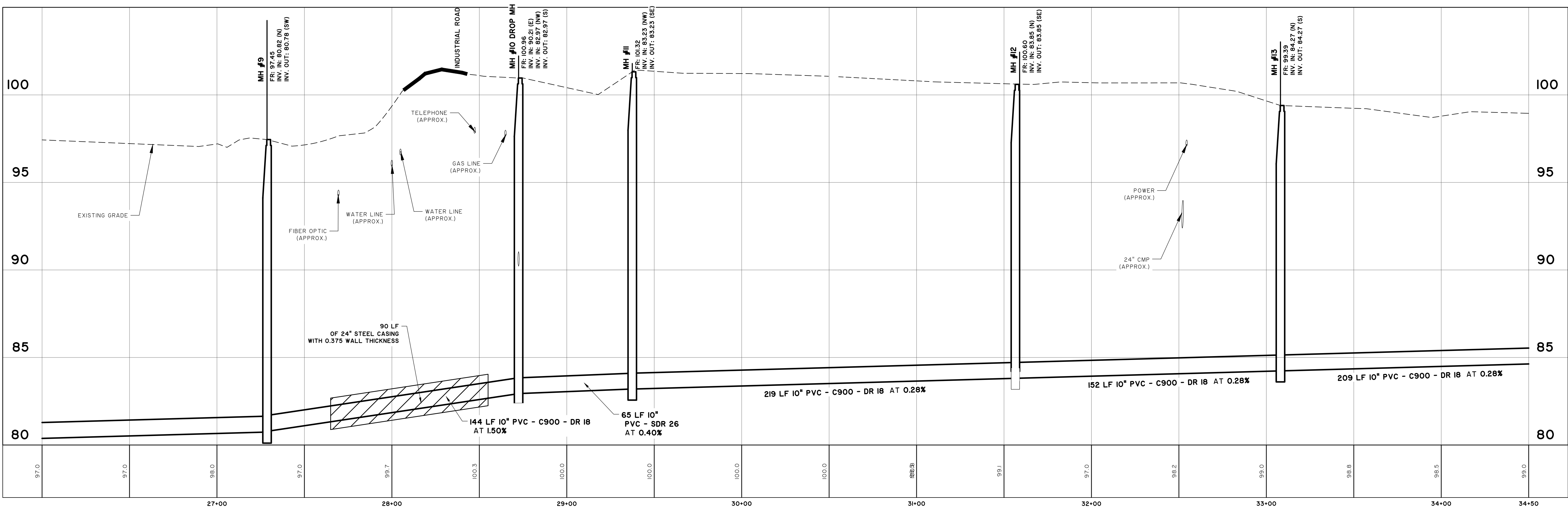
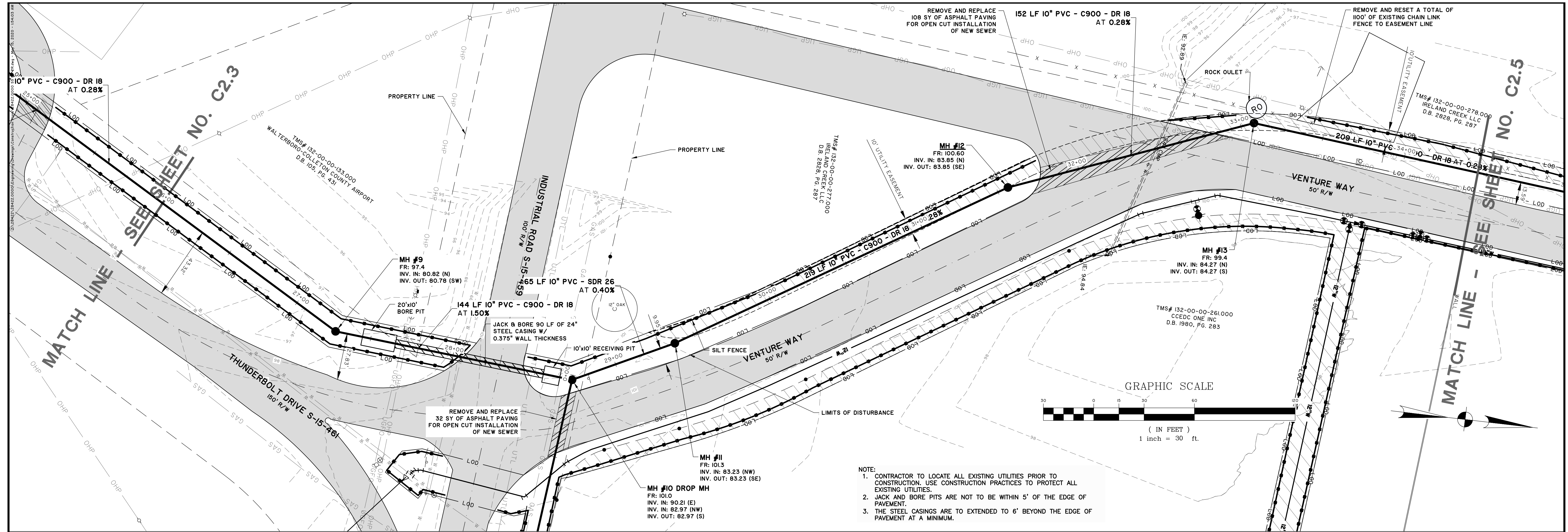
NO.	REVISIONS	BY	DATE

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SEWER MAIN PLAN & PROFILE

JOB NO:	J-28422.0000
DATE:	07/27/2020
DRAWN:	JTB
DESIGNED:	EAC
REVIEWED:	PLB
APPROVED:	PLB
SCALE:	AS NOTED

C2.3



NO.	REVISIONS	BY	DATE

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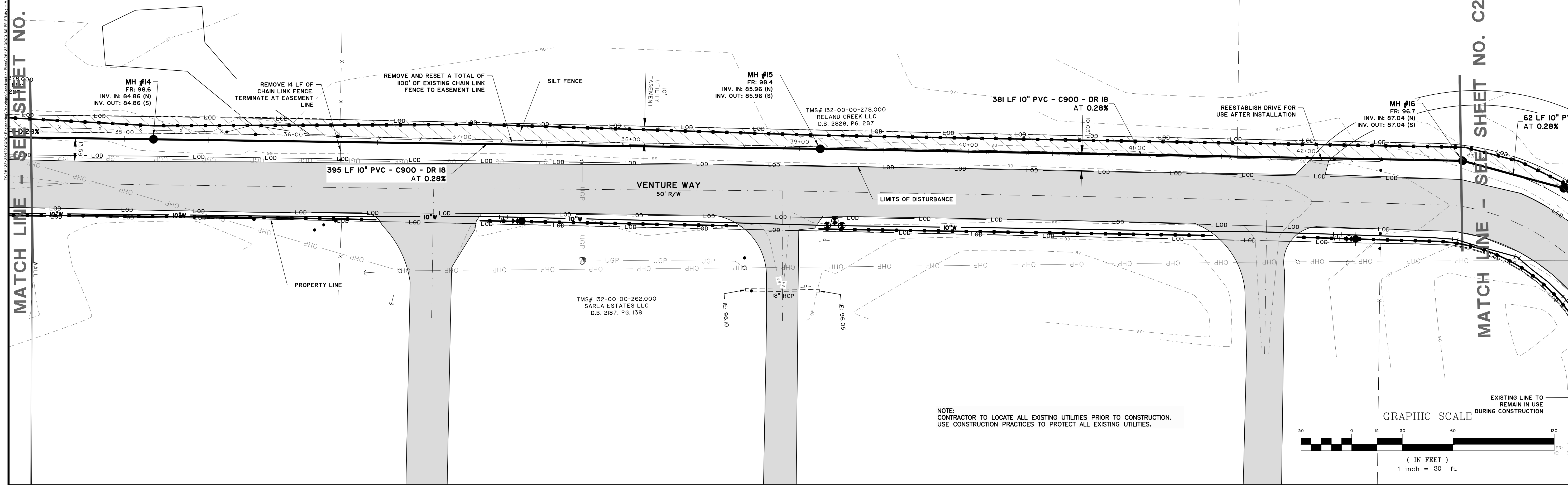
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SEWER MAIN PLAN & PROFILE

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REVIEWED:	PLB
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SCALE:	AS NOTED

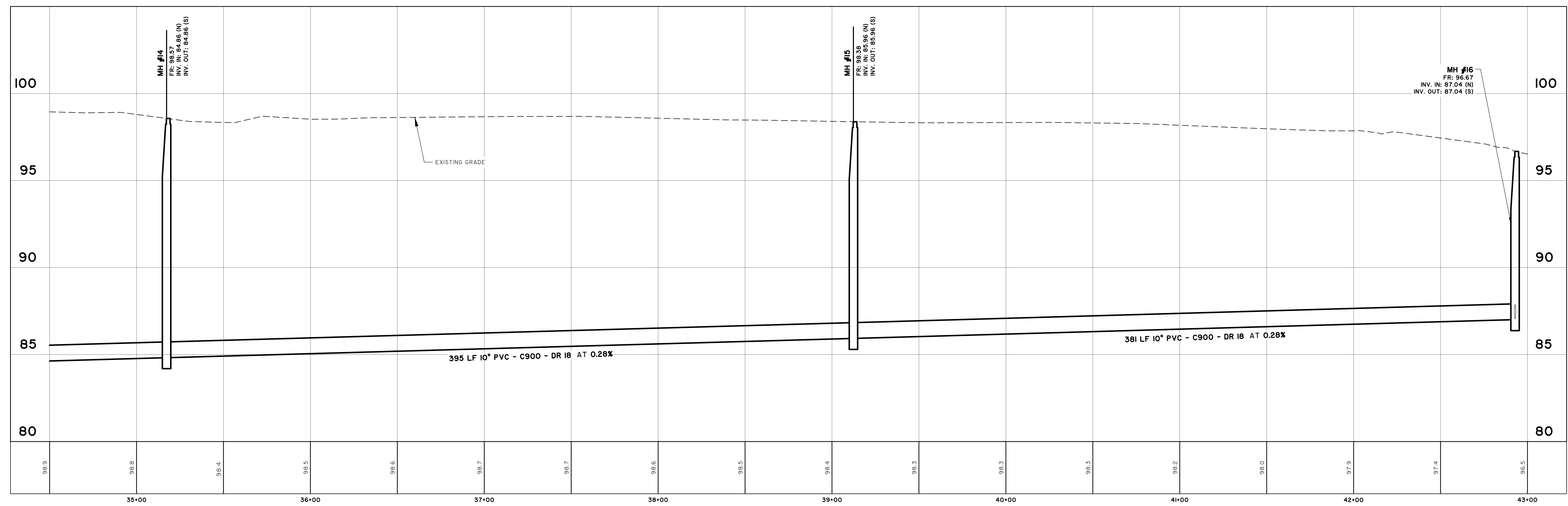
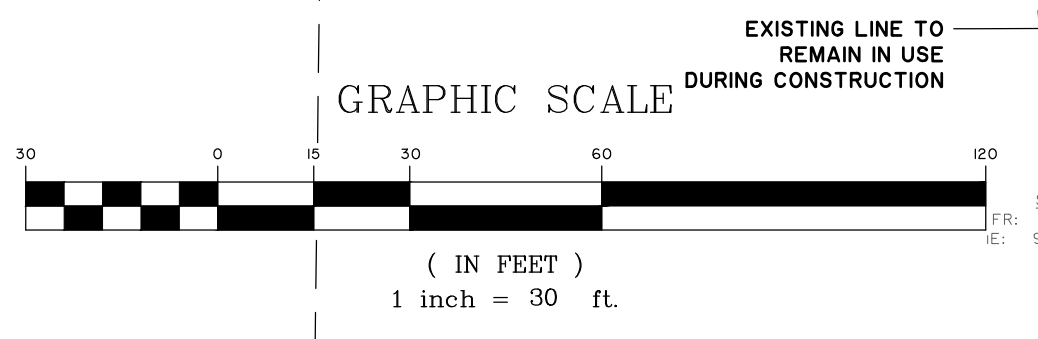
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MATCH LINE - SEE SHEET NO. C2.4

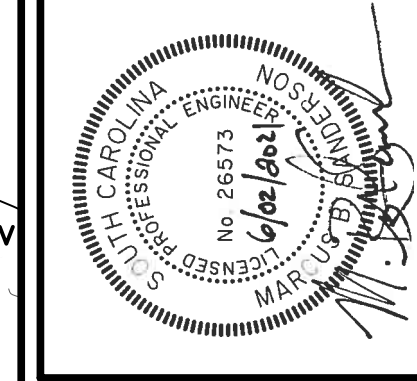
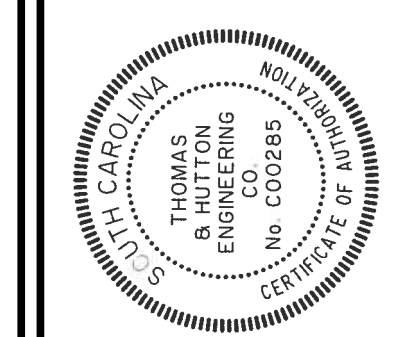
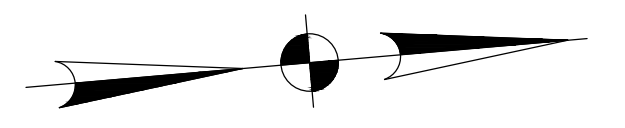
MATCH LINE - SEE SHEET NO. C2.6



NOTE:
CONTRACTOR TO LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
USE CONSTRUCTION PRACTICES TO PROTECT ALL EXISTING UTILITIES.



SEWER MAIN
STATIONS: 34+50 - 43+00
SCALE: HORIZ.: 1" = 30'
VERT.: 1" = 3'



NO.	REVISIONS	BY	DATE

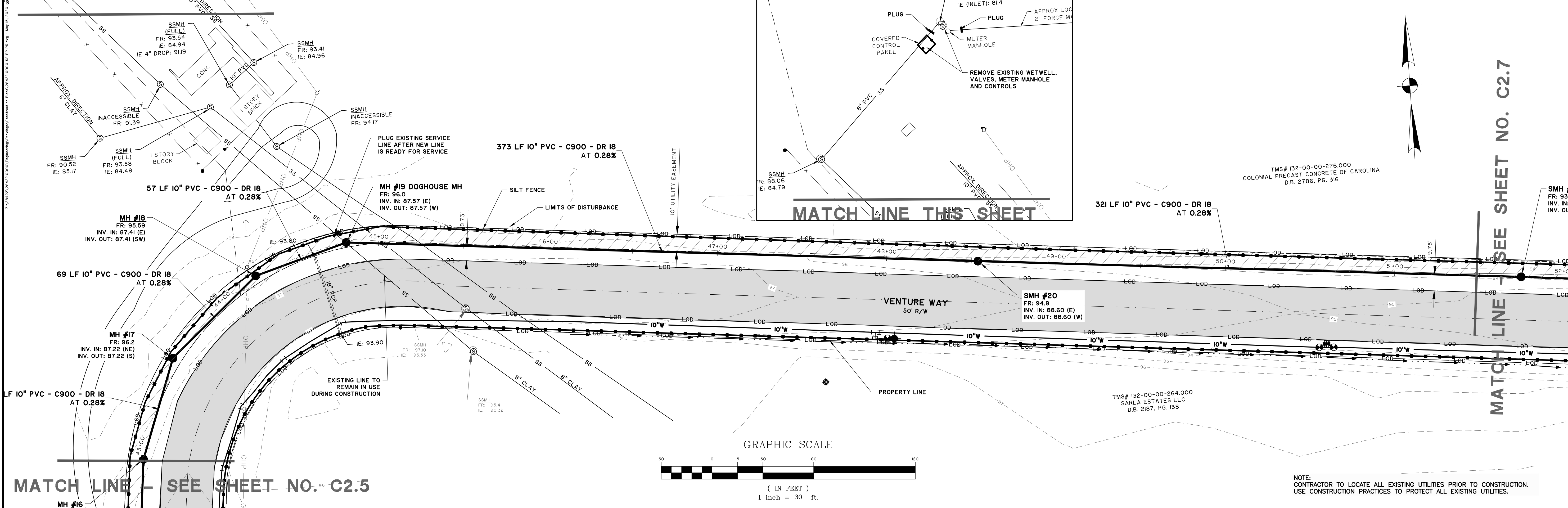
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SEWER MAIN PLAN & PROFILE

JOB NO:	J-28422.0000
DATE:	07/27/2020
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DESIGNED:	EAC
REVIEWED:	PLB
APPROVED:	PLB
SCALE:	AS NOTED

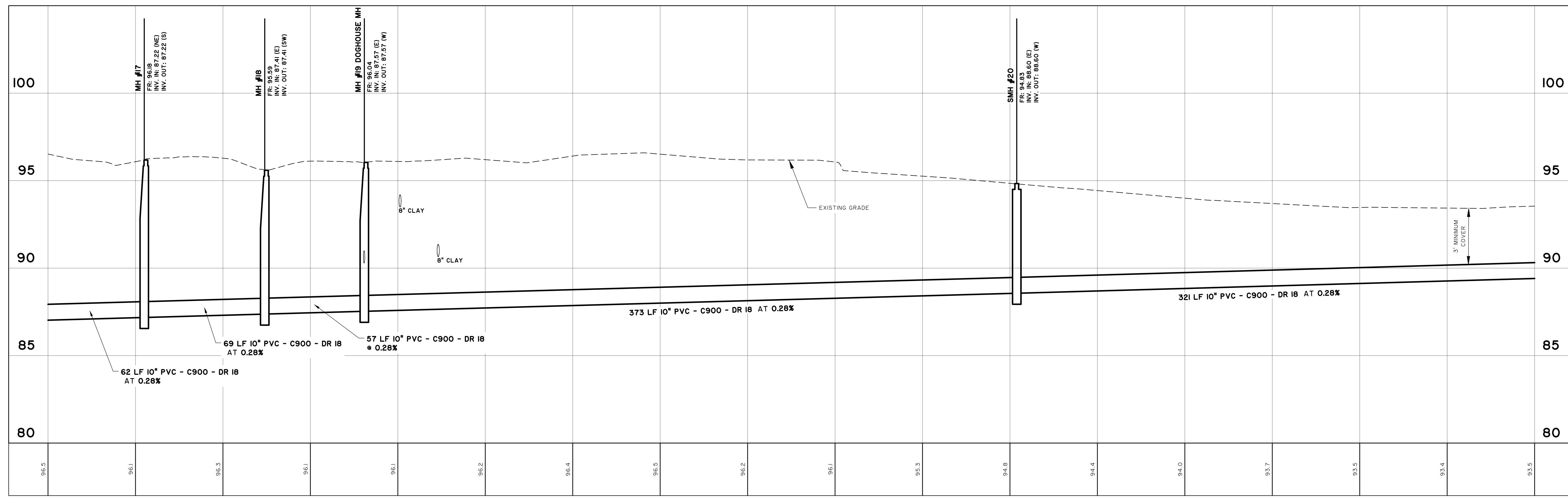
C2.5

MATCH LINE THIS SHEET

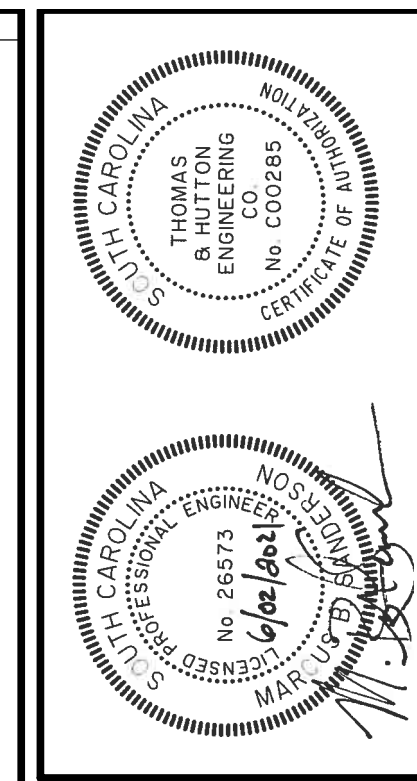


MATCH LINE - SEE SHEET NO. C2.5

SEE SHEET NO. C2.7



SEWER MAIN
STATIONS: 43+00 - 51+50
SCALE: HORIZ.: 1" = 30'
VERT.: 1" = 3'



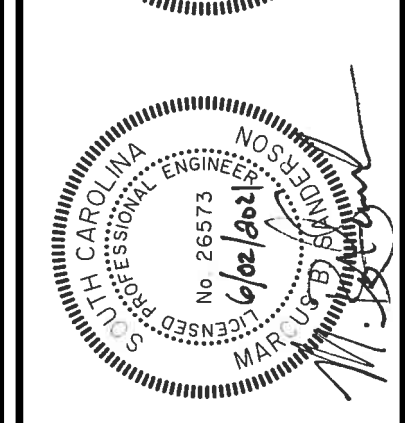
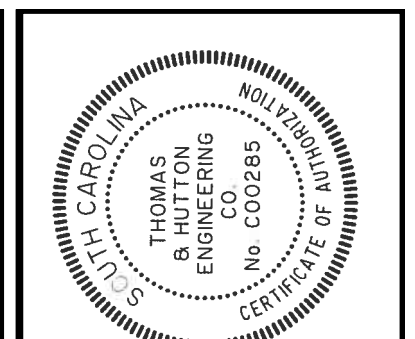
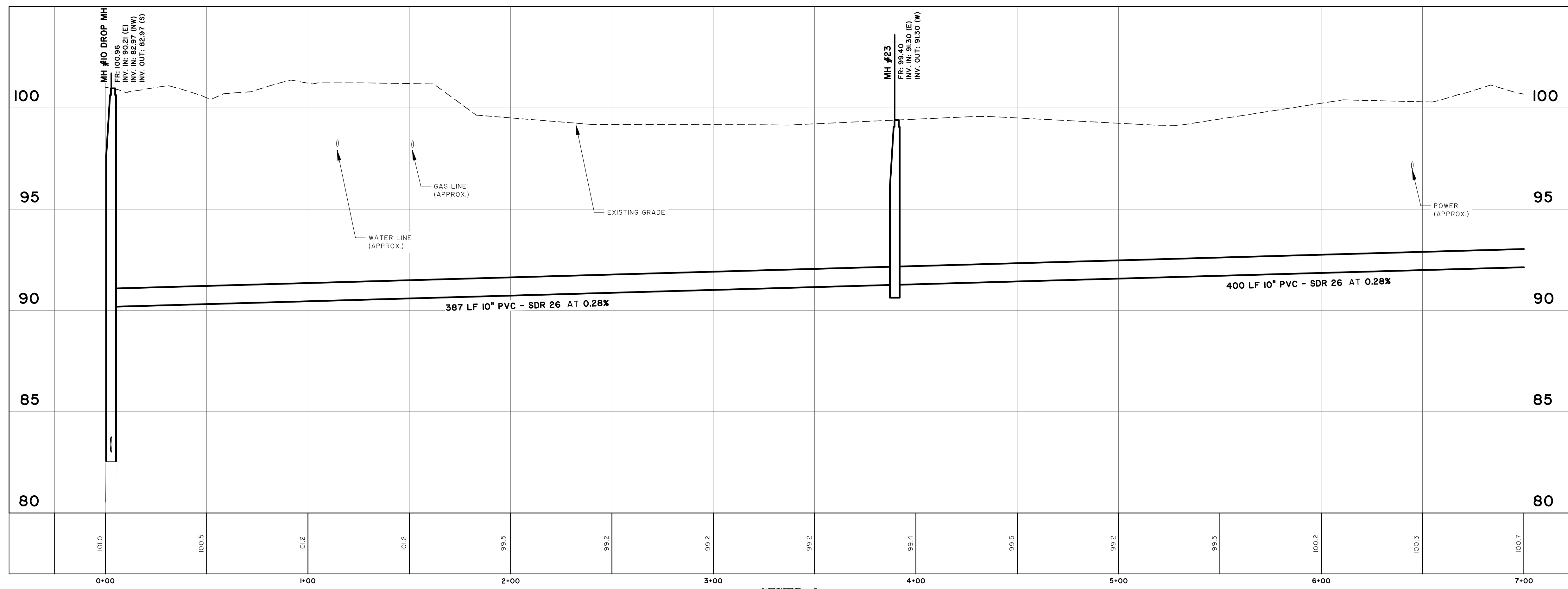
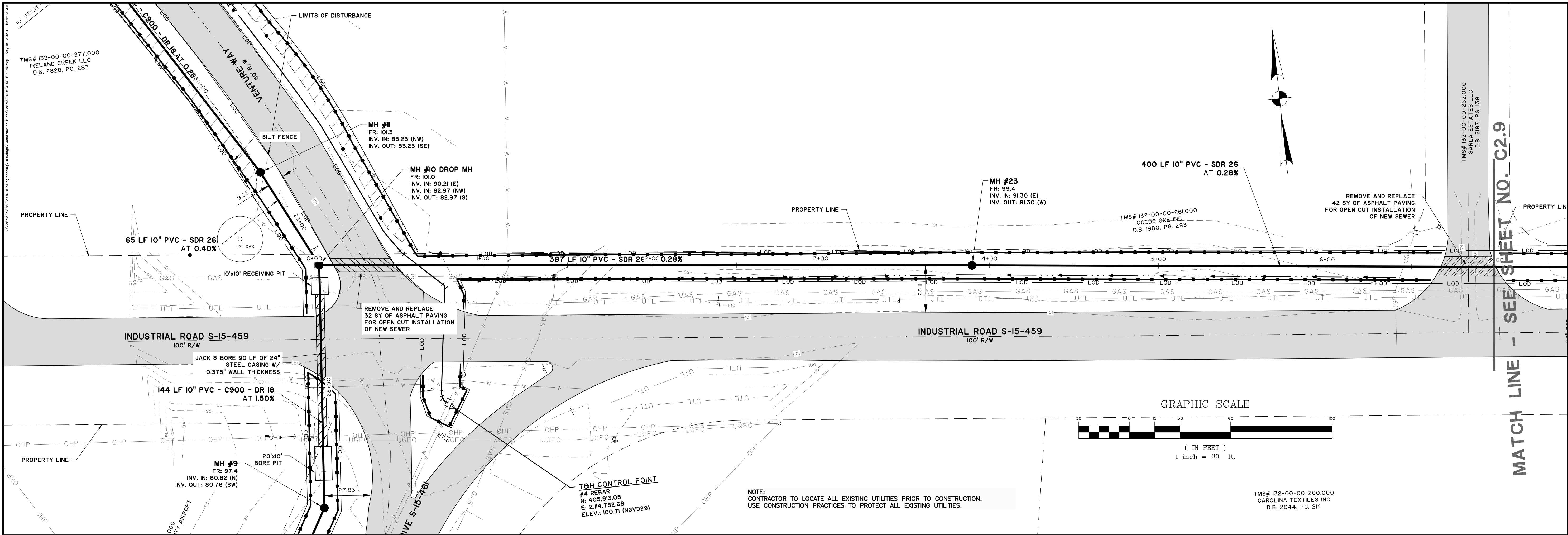
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 WATER & WASTEWATER IMPROVEMENTS VENTURE PARK
SEWER MAIN PLAN & PROFILE

JOB NO: J-28422.0000
 DATE: 07/27/2020
 DRAWN: JTB
 DESIGNER: EAC
 REVIEWED: PLB
 APPROVED: PLB
 SCALE: AS NOTED

C2.6



NO.	REVISIONS	BY	DATE

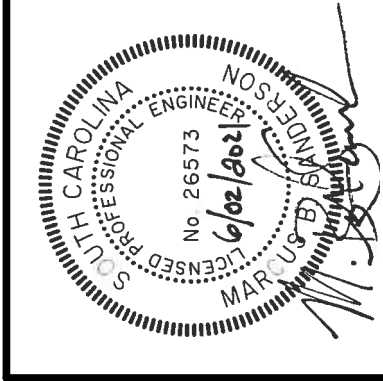
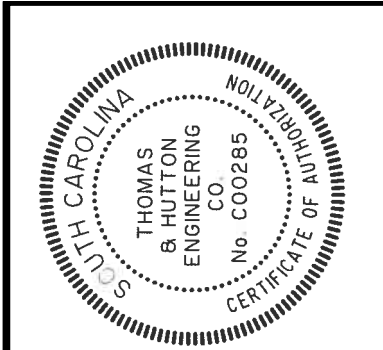
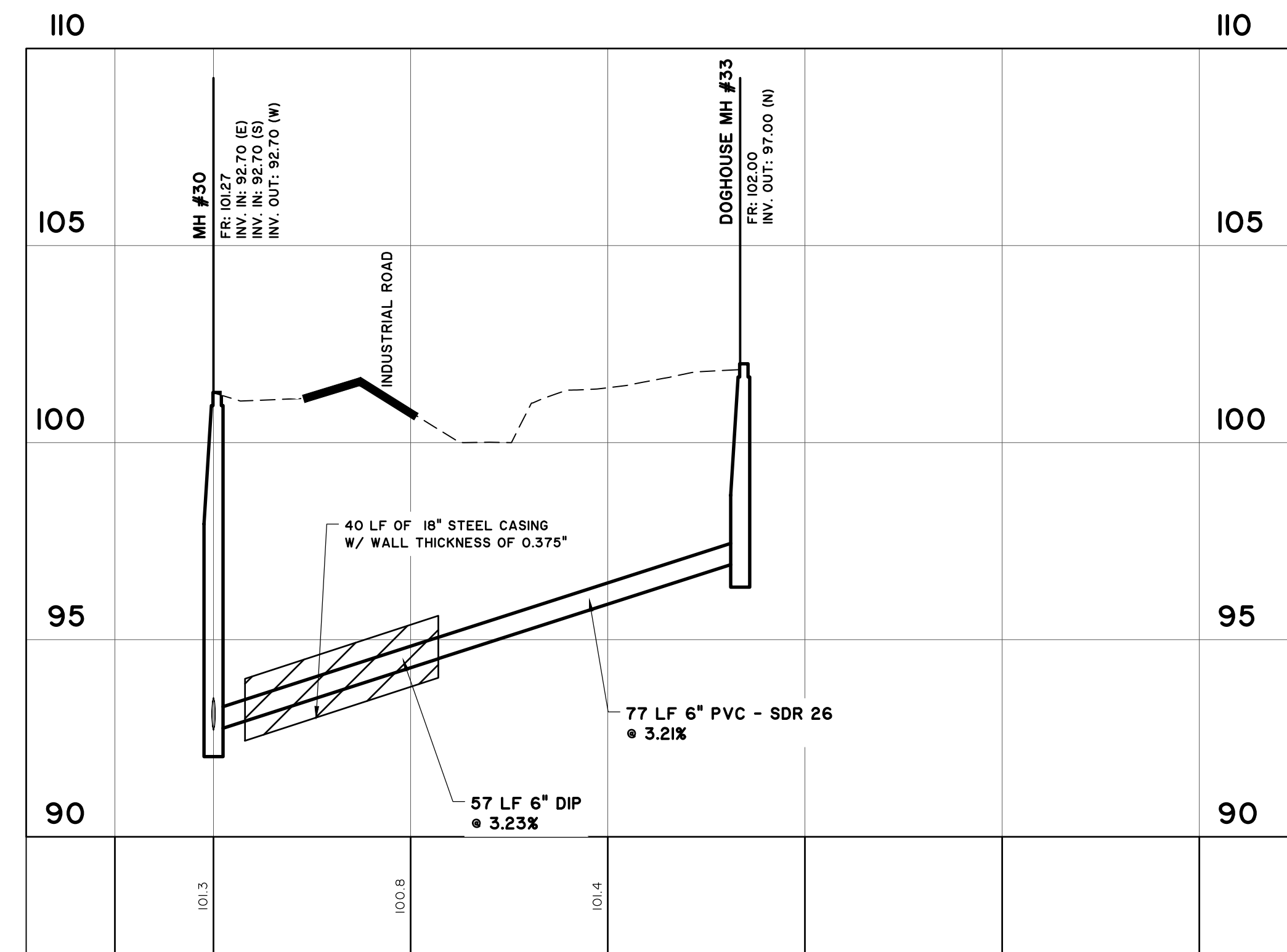
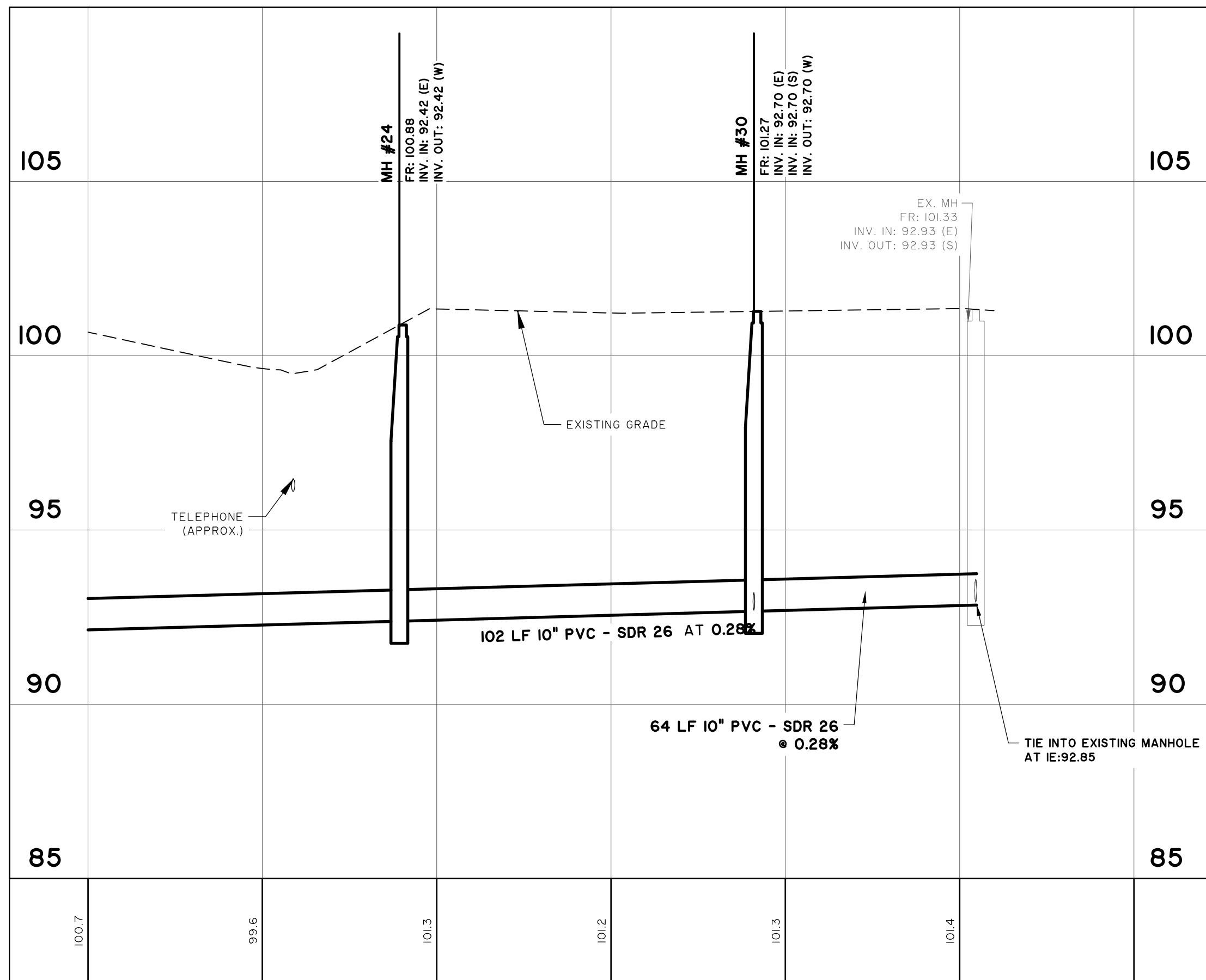
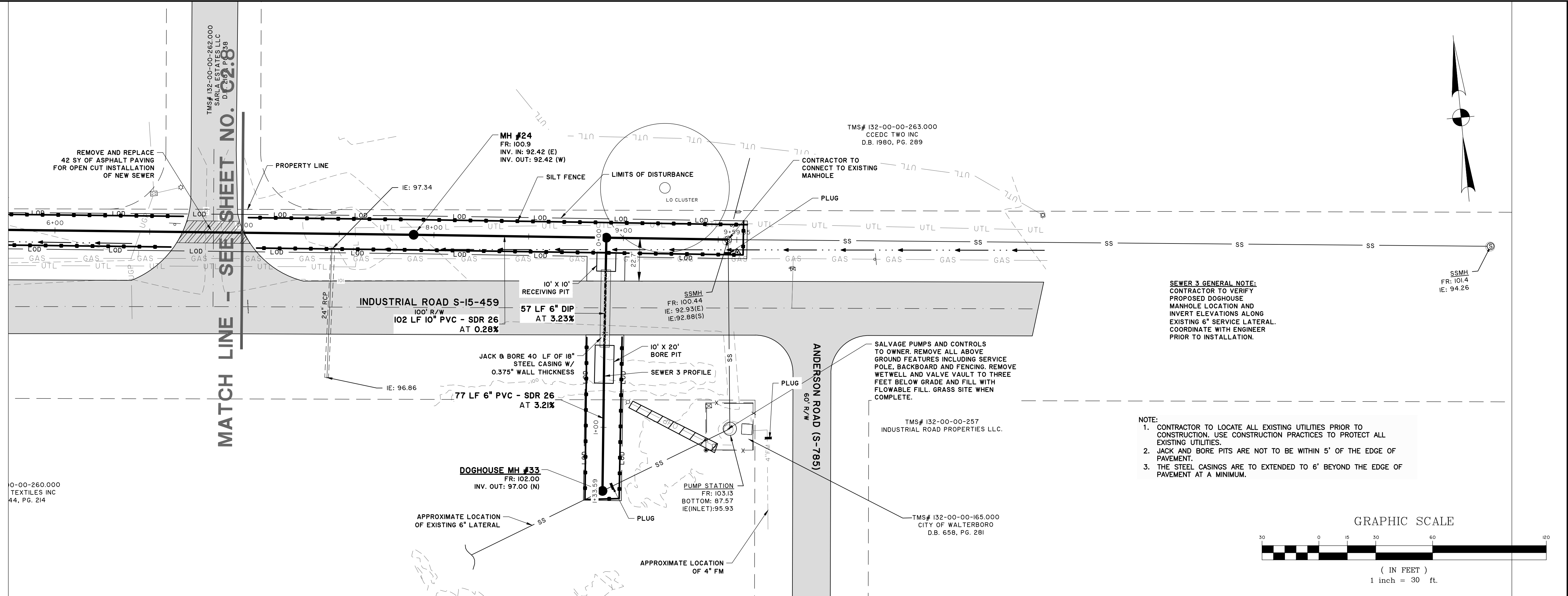
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SEWER MAIN PLAN & PROFILE

JOB NO:	J-28422.0000
DATE:	07/27/2020
DRAWN:	JTB
DESIGNED:	EAC
REVIEWED:	PLB
APPROVED:	PLB
SCALE:	AS NOTED

C2.8

218422.0000 Engineering Services/Utility Plans/28422.0000 SS PIP Plans - May 15, 2020 - 15453.M



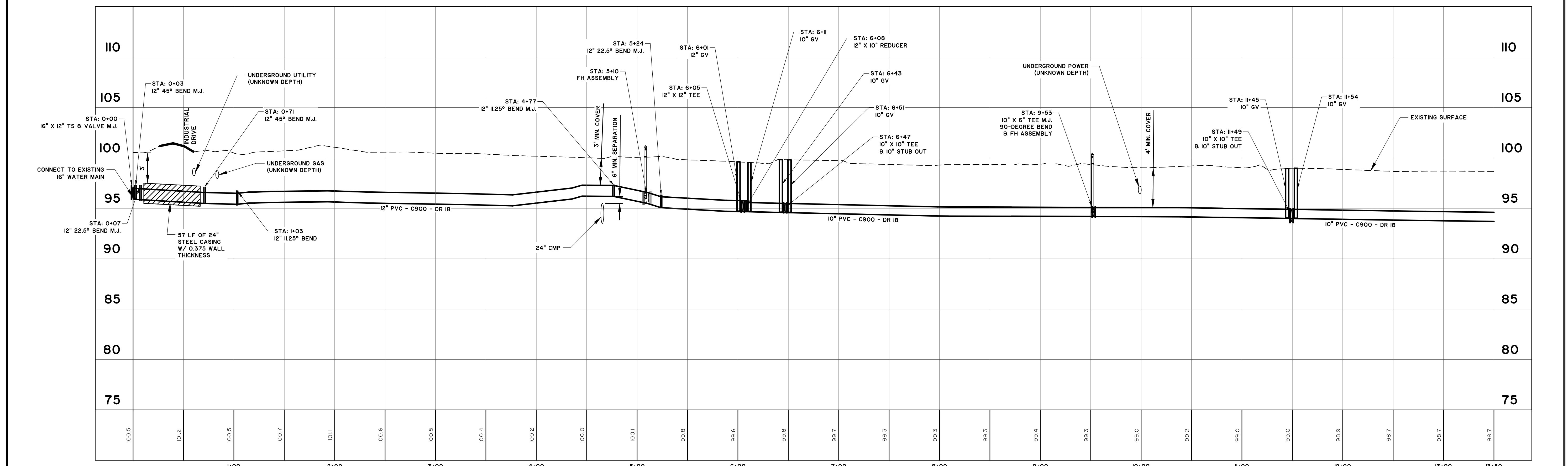
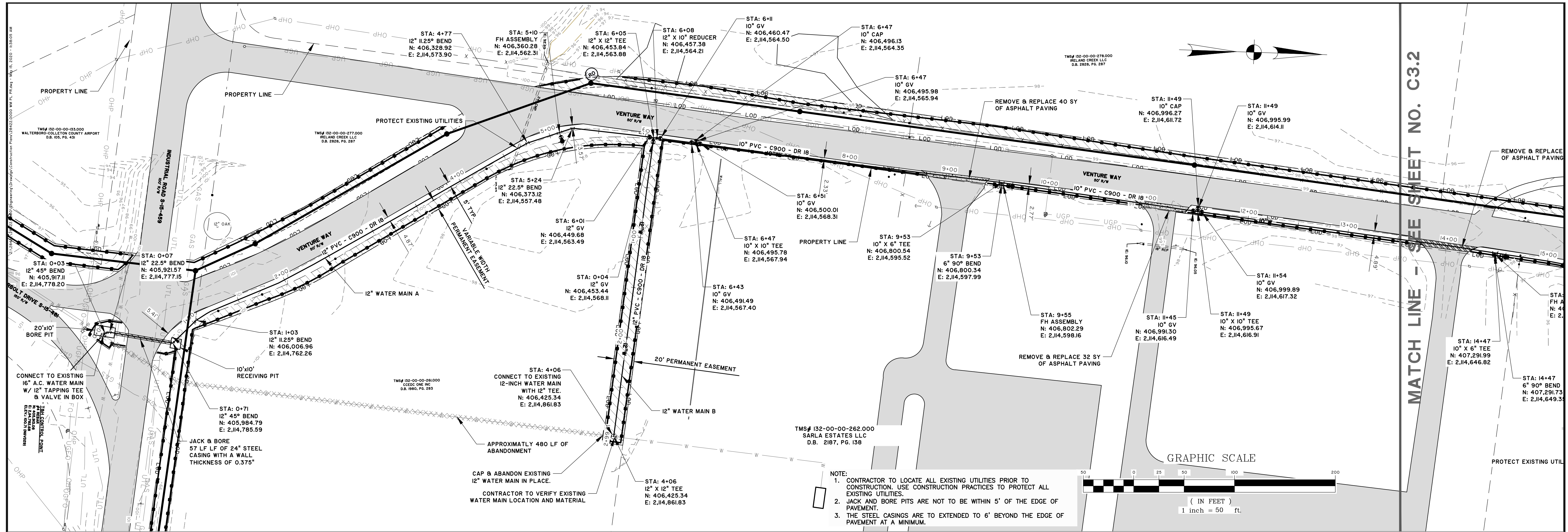
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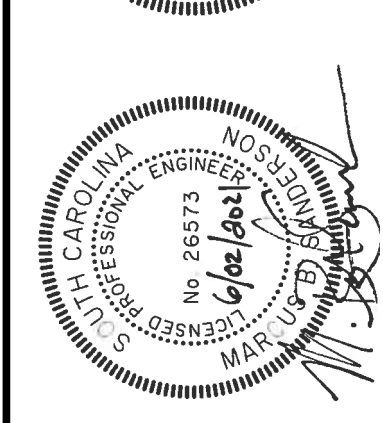
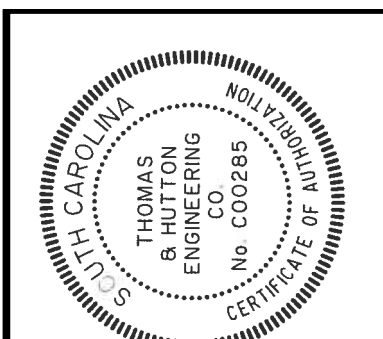
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SEWER MAIN PLAN & PROFILE

JOB NO: J-28422.0000
DATE: 07/27/2020
DRAWN: JTB
DESIGNED: EAC
REVIEWED: PLB
APPROVED: PLB
SCALE: AS NOTED

C2.9



28422.0000 - 10-INCH WATER MAIN A
 STATIONS: 0+00 - 13+50
 SCALE: HORIZ.: 1" = 50'
 VERT.: 1" = 5'



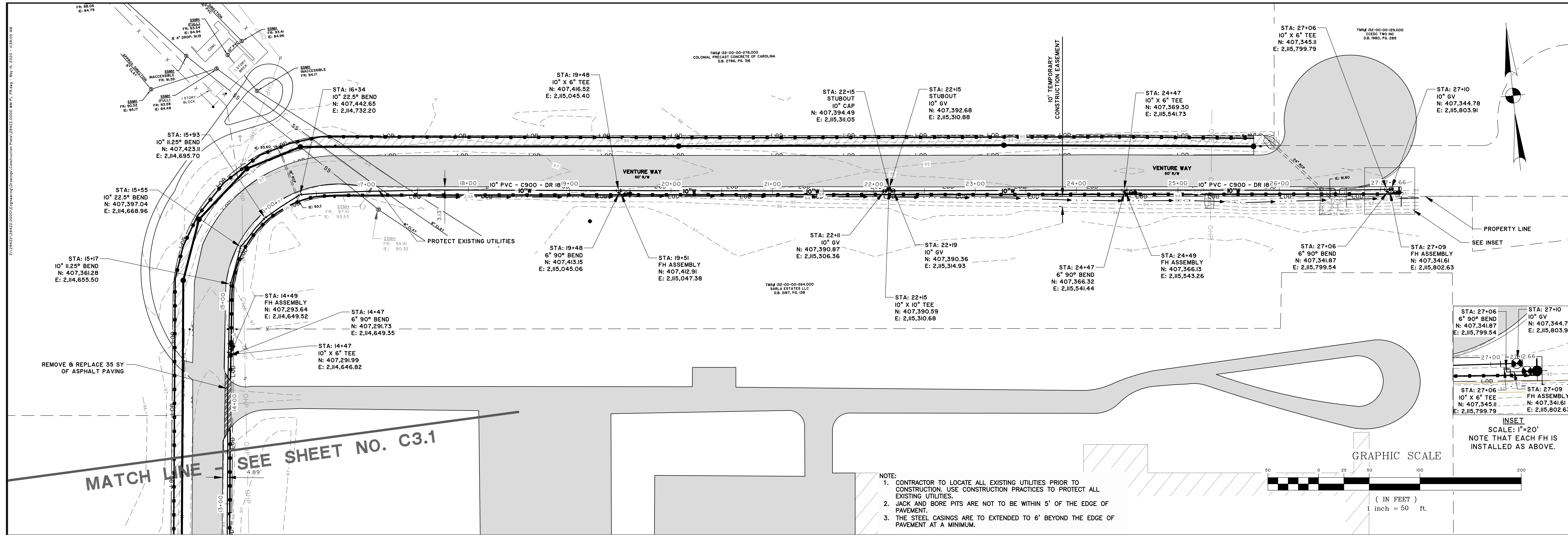
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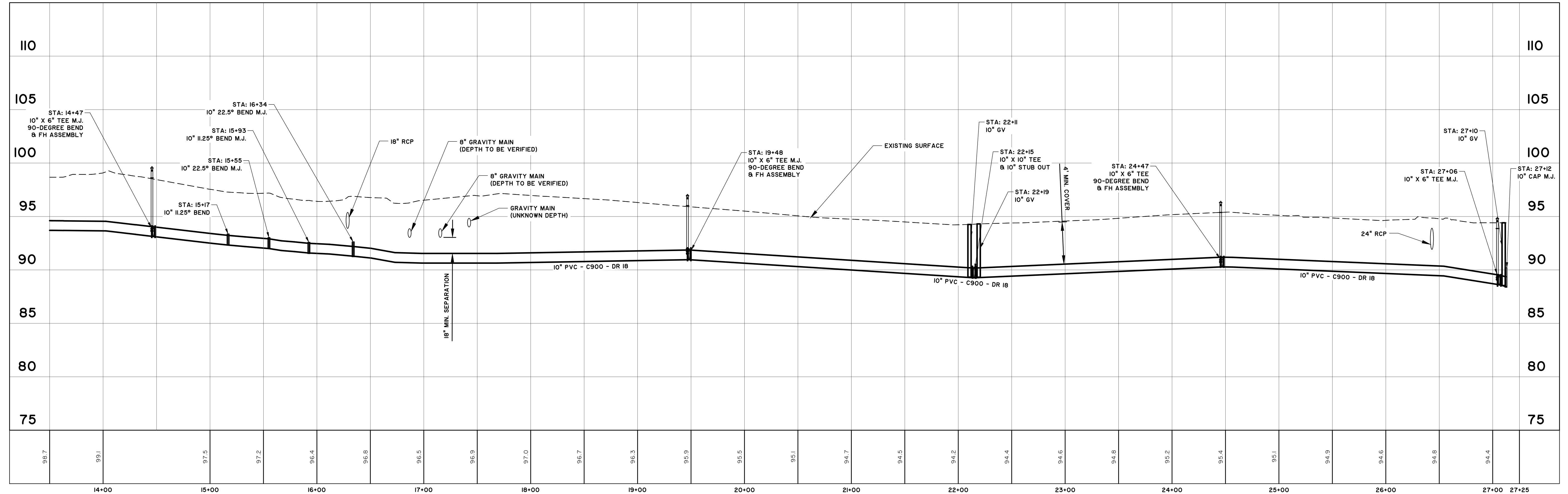
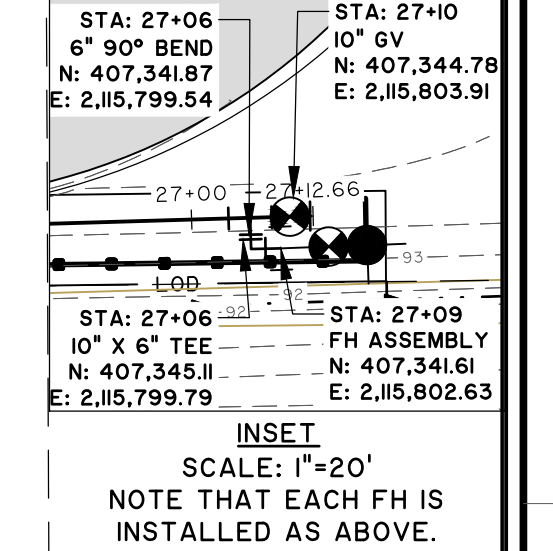
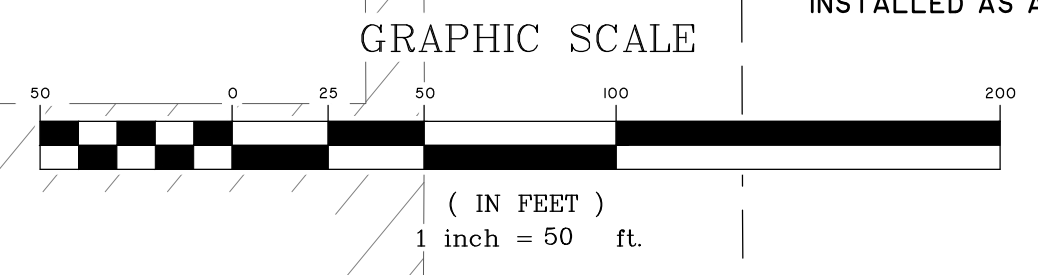
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WATER MAIN PLAN & PROFILE

JOB NO: J-28422.0000
 DATE: 07/27/2020
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 DESIGNED: EAC
 REVIEWED: PLB
 APPROVED: PLB
 SCALE: AS NOTED

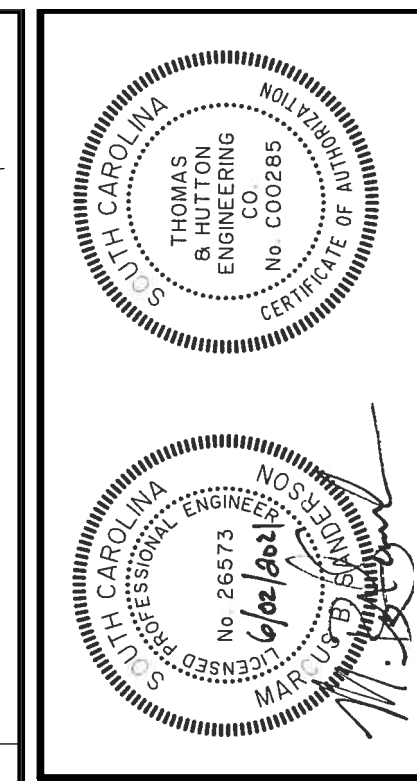
C3.1



- NOTE:
- CONTRACTOR TO LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. USE CONSTRUCTION PRACTICES TO PROTECT ALL EXISTING UTILITIES.
 - JACK AND BORE PITS ARE NOT TO BE WITHIN 5' OF THE EDGE OF PAVEMENT.
 - THE STEEL CASINGS ARE TO EXTENDED TO 6' BEYOND THE EDGE OF PAVEMENT AT A MINIMUM.



28422.0000 - 10-INCH WATER MAIN A
 STATIONS: 13+50 - 27+25
 SCALE: HORZ.: 1" = 50'
 VERT.: 1" = 5'



NO.	REVISIONS	BY	DATE

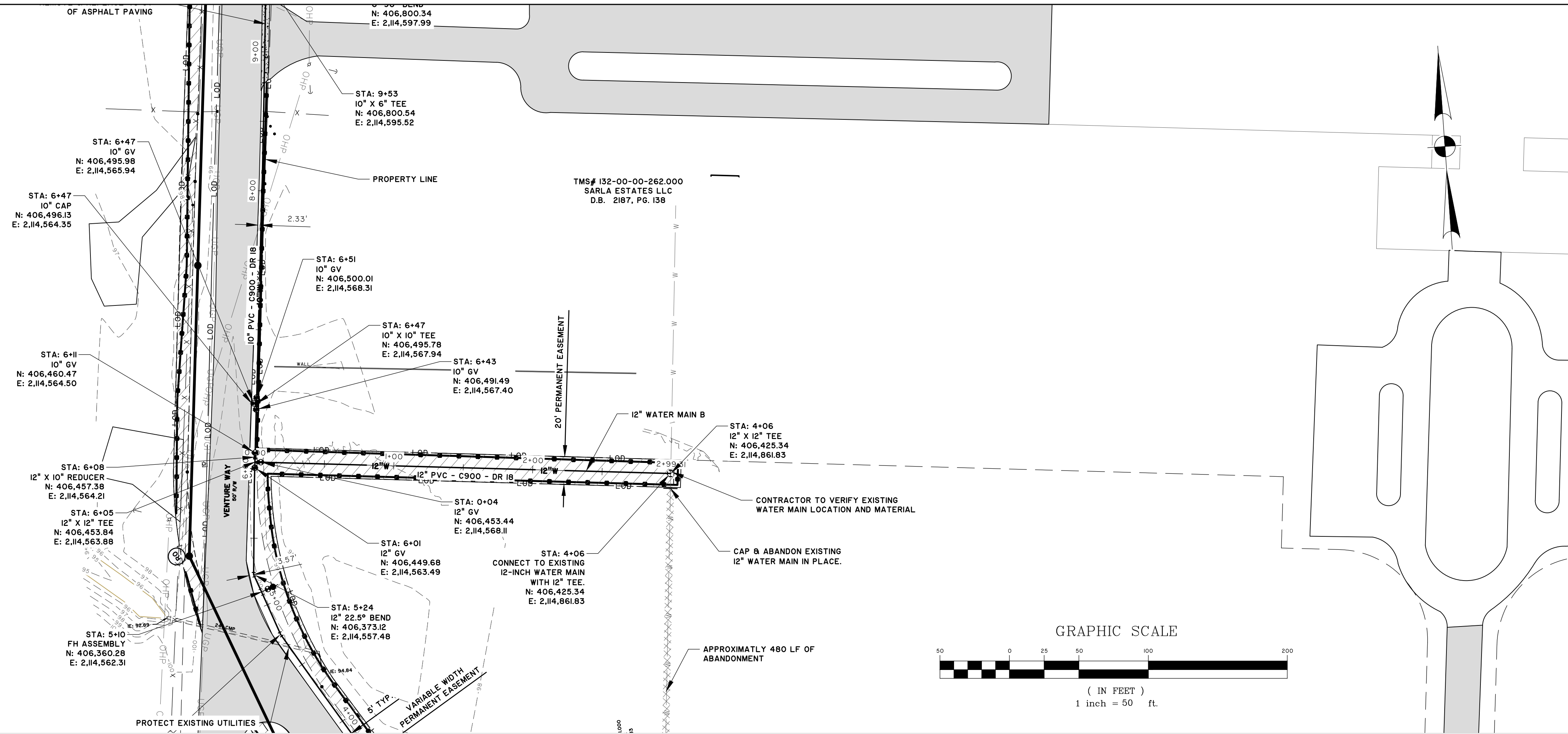
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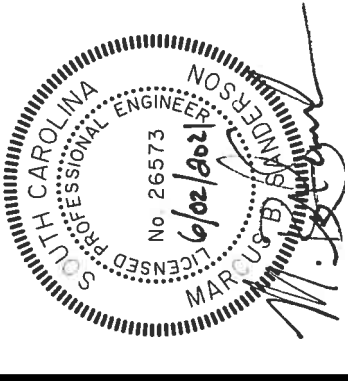
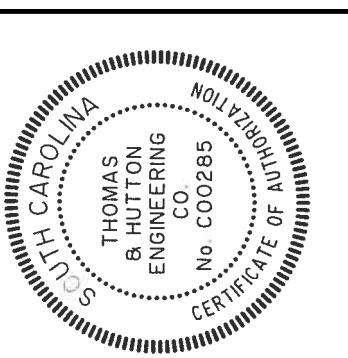
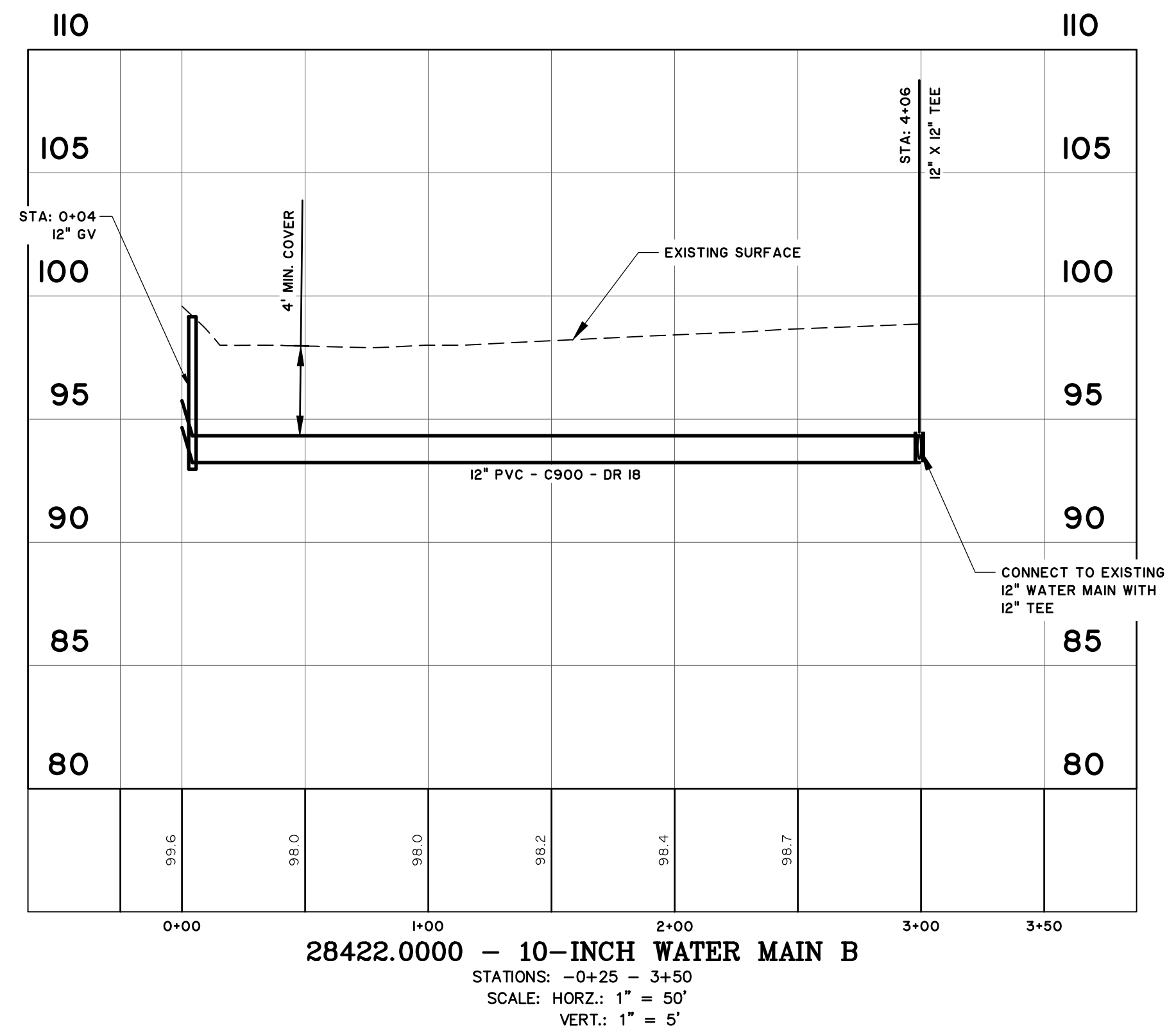
JOB NO:	J-28422.0000
DATE:	07/27/2020
DRAWN:	JTB
DESIGNED:	EAC
REVIEWED:	PLB
APPROVED:	PLB
SCALE:	AS NOTED

C3.2

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NOTE:
CONTRACTOR TO LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
USE CONSTRUCTION PRACTICES TO PROTECT ALL EXISTING UTILITIES.



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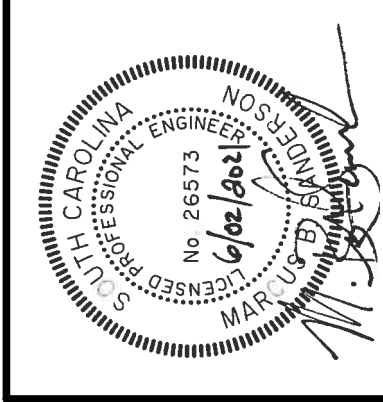
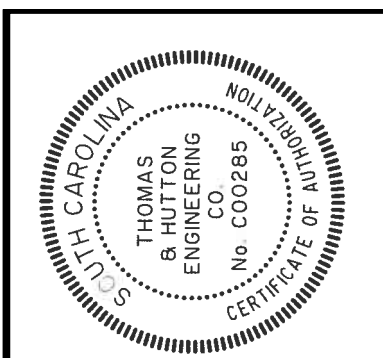
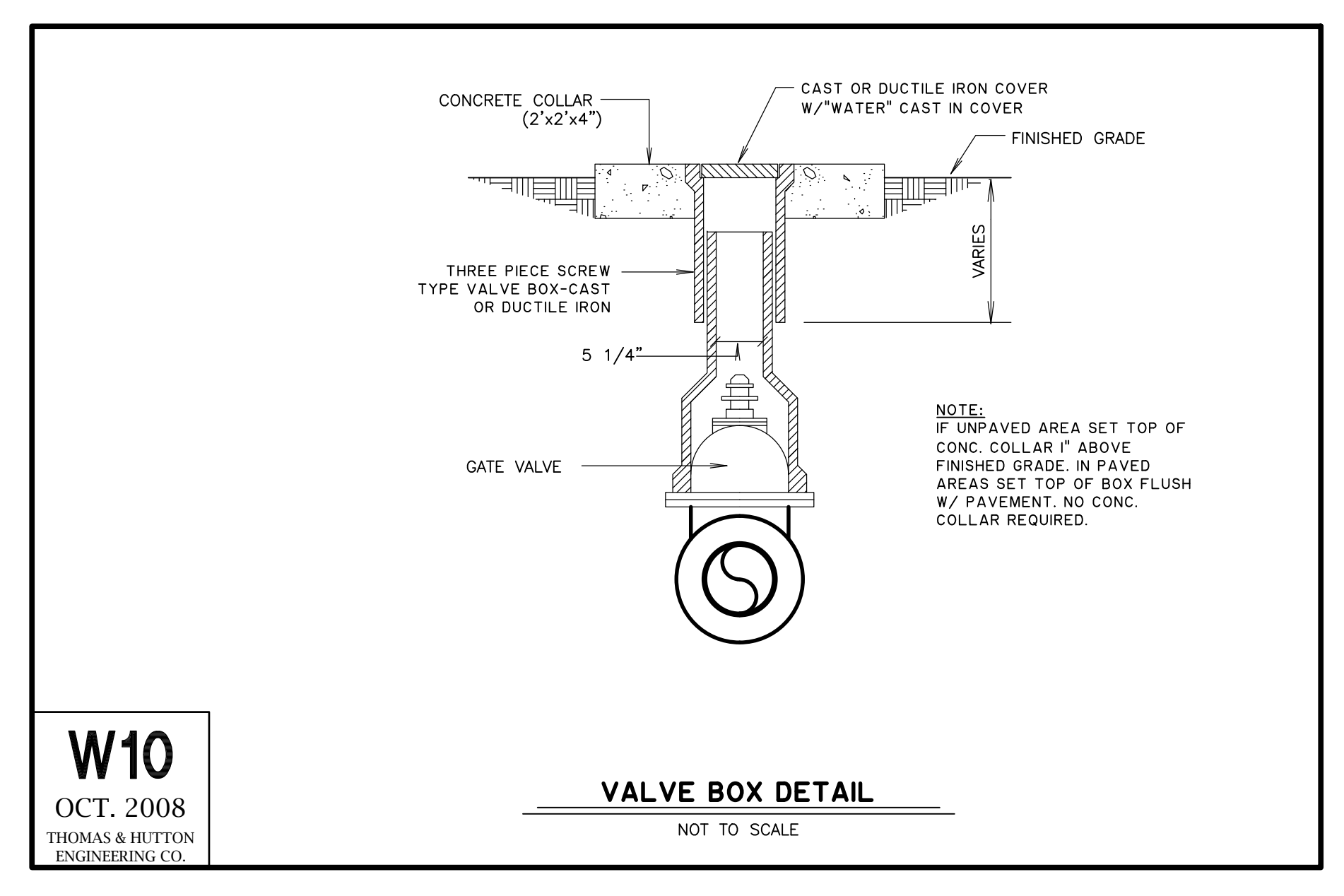
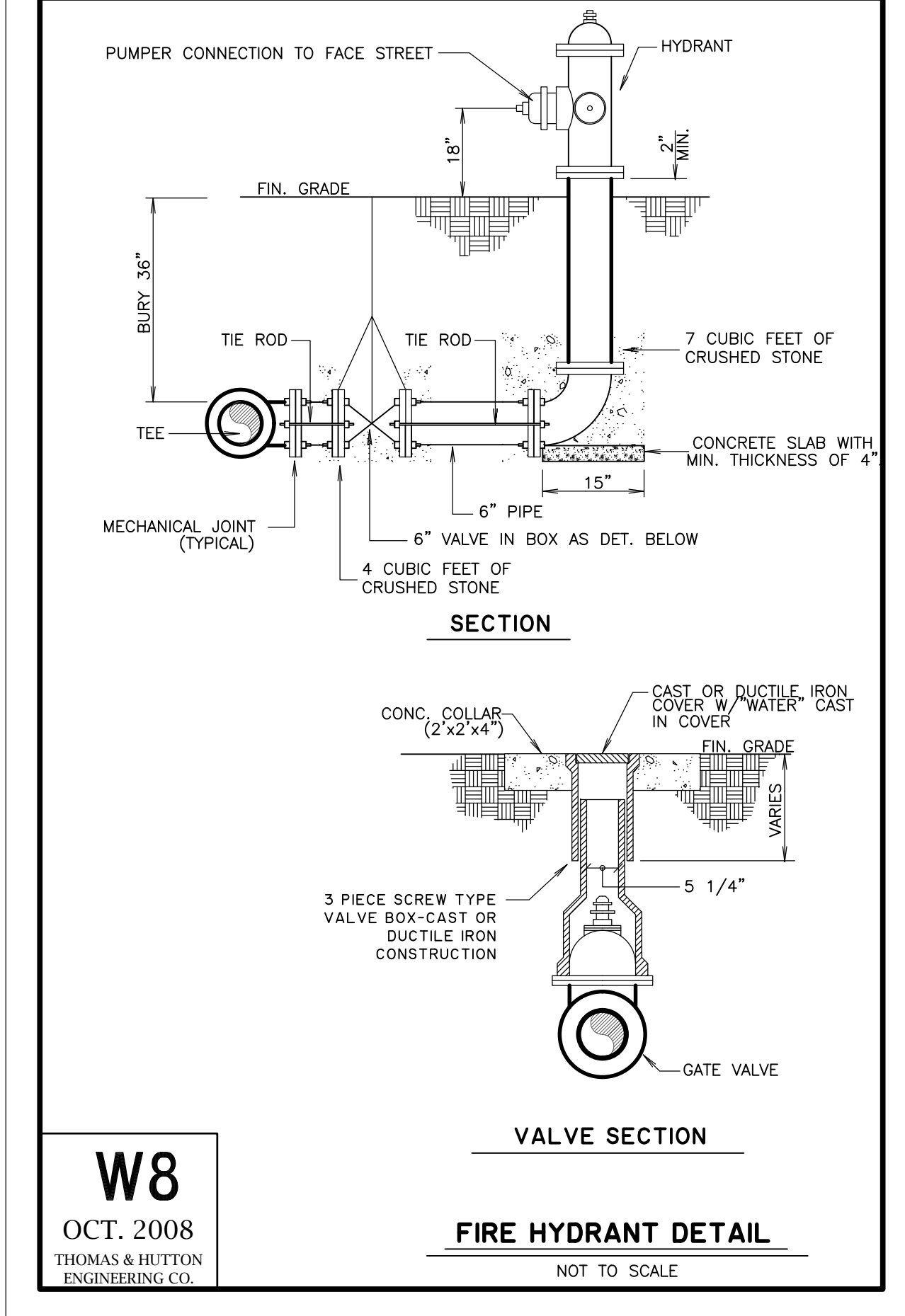
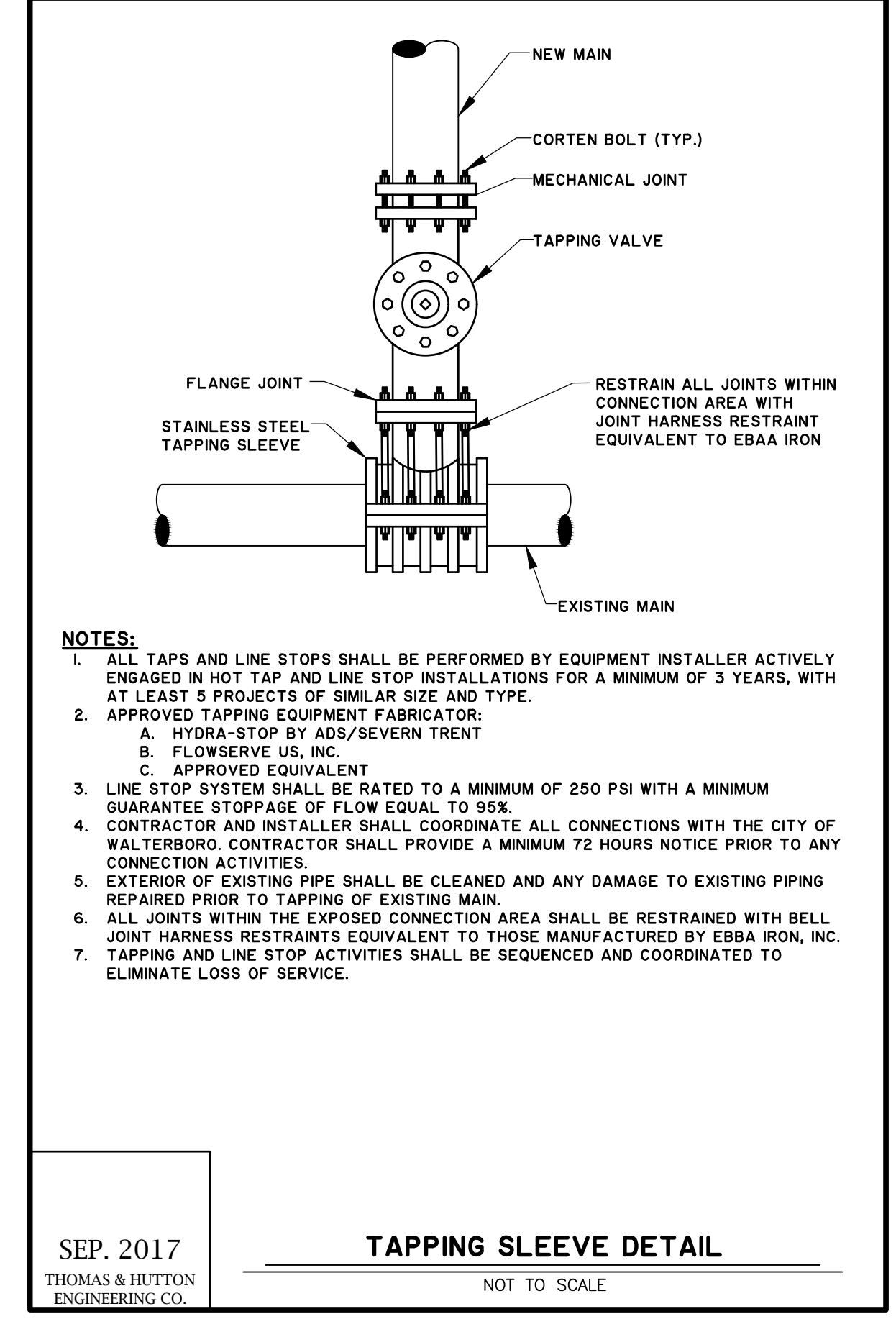
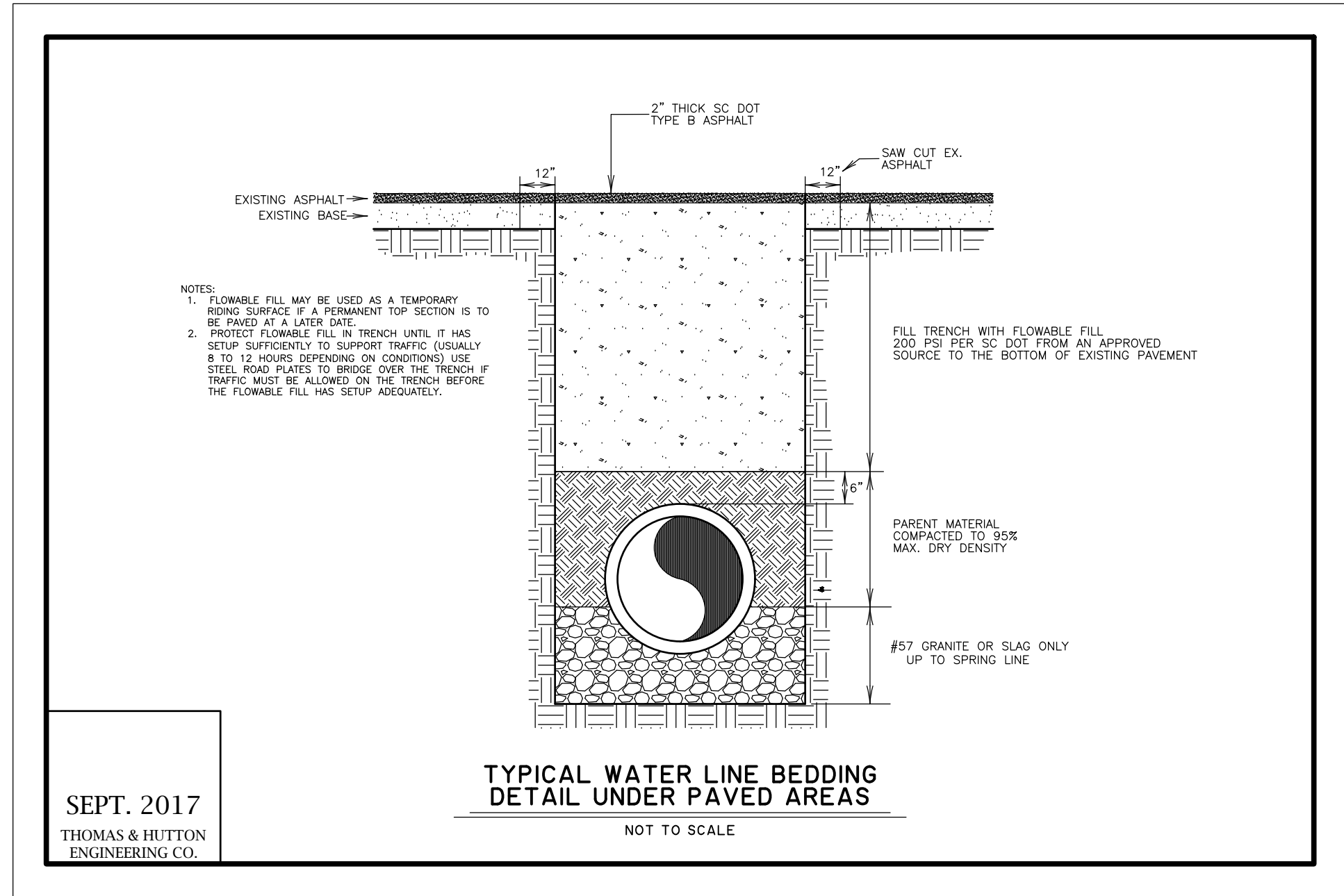
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WATER MAIN PLAN & PROFILE

JOB NO: J-28422.0000
DATE: 07/27/2020
DRAWN: MCL
DESIGNED: EAC
REVIEWED: PLB
APPROVED: PLB
SCALE: AS NOTED

C3.3

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WATER & WASTEWATER IMPROVEMENTS VENTURE PARK
WATER MAIN DETAILS

JOB NO:	J-28422.0000
DATE:	07/27/2020
DRAWN:	JTB
DESIGNED:	EAC
REVIEWED:	PLB
APPROVED:	PLB
SCALE:	NA

C4.1

