

PROJECT MANUAL
FOR THE
CLEVELAND COUNTY
SOLID WASTE



C&D LANDFILL E&SC
IMPROVEMENT PROJECT

BID # _____

GARRETT & MOORE, INC.
206 HIGH HOUSE ROAD, SUITE 259
CARY, NORTH CAROLINA 27513
PHONE: (919) 792-1900 FAX: (866) 311-7206
www.garrett-moore.com

SECTION 00002

CERTIFICATION PAGE

I hereby certify that the specifications contained herein and the accompanying plans were prepared by me or under my direct supervision unless noted otherwise by a signature and seal from another registered engineer on these project specifications and plans

Signed, sealed, and dated this 31st day of March, 2021



By: 
Vance F. Moore, P.E.

Title: Professional Engineer

**CLEVELAND COUNTY SOLID WASTE
C&D LANDFILL E&SC IMPROVEMENT PROJECT**

TABLE OF CONTENTS

SECTION SUBJECT

DIVISION 0 – BIDDING AND CONTRACT DOCUMENTS

00001	Title Page
00002	Certification Page
00003	Table of Contents
00020	Advertisement
00100	Instructions to Bidders
00200	Information Available to Bidders
00300	Bid Form
00350	Authority to Execute Contract
00410	Bid Bond
00500	Agreement
00610	Performance Bond
00620	Payment Bond
00700	General Conditions
00800	Supplementary Conditions
00850	Drawing Index

DIVISION 1 – GENERAL REQUIREMENTS

01010	Summary of Work
01025	Measurement and Payment
01026	Schedule of Values
01027	Application for Payment
01030	Special Project Procedures
01036	Change Order Procedures
01050	Field Engineering
01200	Project Meetings
01310	Construction Schedules
01340	Shop Drawings
01380	Construction Photographs
01600	Material and Equipment

TABLE OF CONTENTS

(CONTINUED)

<u>SECTION</u>	<u>SUBJECT</u>
01630	Substitutions and Product Options
01700	Contract Closeout
01720	Project Record Documents
01740	Warranties and Bonds
DIVISION 2 – SITE WORK	
02100	Site Preparation
02200	Excavation, Backfill, and Compaction
02272	Filter Fabric
02276	Erosion and Sedimentation Control
02605	Precast Concrete Structures
02612	Reinforced Concrete Pipe
02901	Miscellaneous Work and Cleanup
02985	Stabilization
03350	Fabric-formed Concrete Revetment

END OF SECTION

ADVERTISEMENT FOR BIDS
BID # _____

**CLEVELAND COUNTY SOLID WASTE
C&D LANDFILL E&SC IMPROVEMENT PROJECT**

located in

Cleveland County, North Carolina

Cleveland County Solid Waste is requesting sealed proposals for the C&D LANDFILL E&SC IMPROVEMENT PROJECT. Electronic Bid Documents consisting of the Contract Drawings and Project Manual may be downloaded at the following website:

<https://www.clevelandcounty.com/main/departments/merchants.php>

A **mandatory** web-based video Pre-bid Conference to review the Project scope and address bidder questions will be held on **April 16, 2021, at 10:30 a.m.** Prospective bidders must in advance contact via email, Ms. Caroline LaFave (clafave@garrett-moore.com) to request Pre-bid Conference login credentials. Prospective bidders not requesting login credentials from Ms. LaFave shall be considered unresponsive. Prospective bidders may also make pre-arranged site visits. Site visits must be coordinated with Mr. Gene Wright with Cleveland County Solid Waste.

Questions regarding the intent or Scope of Work to be given consideration must be emailed to Ms. Caroline LaFave (clafave@garrett-moore.com) by 5:00 PM on Tuesday, April 27, 2021. Appropriate responses, where required, will then be issued by addendum and posted to the Cleveland County Purchasing Department website: <https://www.clevelandcounty.com/main/departments/merchants.php> prior to the date scheduled for submittal of bids. Bidders are responsible for checking for addenda prior to submitting bids.

Sealed proposals will be received by Cleveland County up to **2:00 p.m.** on **Friday, April 30, 2021** for the furnishing of labor, material, and equipment for the C&D LANDFILL E&SC IMPROVEMENT PROJECT, Cleveland County, NC.

Bids should be hand-delivered to Kim Lester, Cleveland County Purchasing Department, 2nd Floor Finance Department, 311 East Marion Street, Shelby, NC 28150. Or mailed to: Cleveland County Purchasing Department, Attn: Kim Lester, PO Box 1210, Shelby, NC 28151. Or emailed to Kim.Lester@clevelandcountync.gov. All bids, including those received by mail, must be received before 2:00 p.m. on Thursday, March 18, 2021. Any proposal received later than the specified time will NOT be accepted/considered.

Cleveland County Solid Waste reserves the right to accept or reject any and all proposals or any one item in a proposal.

The project site is the Cleveland County Solid Waste Facility located on Airport Road approximately 5 miles northeast of Shelby, North Carolina. The project consists of labor, materials, tools, equipment, and incidentals necessary to complete:

- Construction of 3300' of v-notch earthen diversion berm;
- Construction of 304' of Fabriform channel;
- Excavation of Sediment Basin 4;
- Furnishment and installation of riser outlet structures with skimmers for Sediment Basins 4 and 5; and
- Associated erosion and sedimentation controls.

It is the intention of the OWNER to award this contract to a Bidder competent to perform and complete the Work in a satisfactory manner. Accordingly, OWNER will require all Bidders to submit with their Bids evidence of Bidder's certification and license to perform the work and services.

To qualify, all bids shall be submitted using bid forms contained in the Contract Documents. Incomplete or segregated bids will not be accepted. No bid shall be withdrawn for a period of 90 days after bid opening except as provided in Instructions to Bidders. Bidders must be licensed contractors in the State of North Carolina. The Owner reserves the right to waive informalities and to reject any and/or all bids.

Cleveland County Solid Waste

**SECTION 00100
INSTRUCTIONS TO BIDDERS**

1.0 DEFINED TERMS

Terms used in these Instructions to Bidders are defined in the Standard General Conditions of the Construction Contract (NSPE-ACEC Document 1910-8, CSI 56465, 1996 Editions) and have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to OWNER, as distinct from a sub-bidder, who submits a Bid to the Bidder.

The term "Successful Bidder" means the lowest, qualified, responsible, and responsive Bidder to whom OWNER (on the basis of OWNER'S evaluation as hereinafter provided) makes an award.

The term "Bidding Documents" includes Instructions to Bidders, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids.)

2.0 COPIES OF BIDDING DOCUMENTS

2.1 Complete sets of Bidding Documents may be downloaded in electronic (PDF) format at:

<https://www.clevelandcounty.com/main/departments/merchants.php>

2.2 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents, by Bidders and their sub-bidders.

2.3 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

3.0 QUALIFICATIONS OF BIDDERS

3.1 All bidders must be licensed contractors, according to G.S. 143-131.

4.0 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

4.1 It is the responsibility of each Bidder, before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may in any manner affect cost, progress, performance or furnishing of the Work, (c) consider federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress, performance or finishing of the Work; (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify ENGINEER of all conflicts, errors or discrepancies in the Contract Documents.

4.2 Reference is made to the Supplementary Conditions and to Section 00200 for identification of:

4.2.1 those reports of explorations and tests of subsurface conditions at

or contiguous to the site that ENGINEER has used in preparation of the Contract Documents. Bidder may rely upon the accuracy of the “technical data” contained in such reports but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for the purposes of bidding or construction.

- 4.2.2 those drawings of physical conditions in or relating to existing surface and subsurface conditions (except Underground Facilities) which are at or contiguous to the site that ENGINEER has used in preparation of the Contract Documents. Bidder may rely upon the accuracy of the “technical data” contained in such drawings but not upon the completeness thereof for the purposes of bidding or construction.
- 4.2.3 Copies of such reports and drawings will be made available by ENGINEER and OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the Supplementary Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Such “technical data” has been identified and established in Section 00200. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
- 4.3 Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site are based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities or others, and OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.
- 4.4 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Facilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions.
- 4.5 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

- 4.6 On request in advance, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.
- 4.7 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.
- 4.8 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions of performance and furnishing of the Work.

5.0 INTERPRETATIONS AND ADDENDA

- 5.1 All questions about the meaning or intent of the Contract Documents are to be directed in writing to ENGINEER. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda e-mailed or faxed to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than three (3) working 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.
- 5.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or ENGINEER.

6.0 BID SECURITY

- 6.1 Not Applicable with this Bid

7.0 CONTRACT TIME

The number of consecutive calendar days within which the Work is to be completed (the Contract Time) is set forth in the form of Agreement (section 00500).

8.0 LIQUIDATED DAMAGES

Provisions for liquidated damages are set forth in the form of Agreement (Section

00500).

9.0 SUBSTITUTE MATERIAL AND EQUIPMENT

The Contract, if awarded, will be on the basis of material and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications 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 submittal of any such application and consideration by CONTRACTOR is set forth in Paragraph 6.05 of the General Conditions, and as may be supplemented in the Supplemental Conditions.

10.0 SUBCONTRACTORS

10.1 If requested by the OWNER or ENGINEER, the apparent Successful Bidder, and any other Bidder so requested, shall, within three (3) days after the date of the request, submit to OWNER an experience statement with pertinent information as to similar projects and other evidence of qualification for each such Subcontractor, person, and organization. If OWNER or ENGINEER after due investigation has reasonable objection to any proposed Subcontractor, supplier, other person or organization, either may, before giving the Notice of Award request the apparent Successful Bidder to submit an acceptable substitute without an increase in Contract Price or Contract Time. If apparent Successful Bidder declines to make any such substitution, Owner may award the contract to the next acceptable Bidder that proposes to use acceptable Subcontractors, Suppliers and other persons and organizations. Declining to make requested substitutions will not constitute grounds for sacrificing the Bid security of any Bidder. Any Subcontractor, Supplier, other person or organization listed and to whom OWNER or ENGINEER does not make 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.

10.2 No CONTRACTOR shall be required to employ any Subcontractor, Supplier, other person, or organization against whom he has reasonable objection.

11.0 BID FORM

11.1 The Bid Form is included with the Bidding Documents distributed electronically.

11.2 The Bid Form shall be completed in ink or by typewriter. All blanks on the Bid Form must be completed. **A COMPLETED ELECTRONIC COPY OR HARD COPY OF THE BID FORM WILL BE PROVIDED BY THE**

BIDDER. If the bidder chooses to submit a hard copy of the Bid only, the bidder shall notify Engineer in advance. In this case, the bid date and time set forth shall apply.

- 11.3 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. If requested, the person signing a Bid for a corporation or partnership must produce evidence satisfactory to the Owner of the person's authority to bind the corporation or partnership.
 - 11.4 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
 - 11.5 All names must be typed or printed below the signature.
 - 11.6 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers and dates of which shall be filled in on the Bid Form).
 - 11.7 The address and telephone number for communications regarding the Bid must be shown.
 - 11.8 All Bidders shall submit, attached to Bid, completed items as described in Paragraph 4 of Section 00300.
- 12.0 SUBMISSION OF BIDS
- 12.1 Bids shall be submitted (electronically or hard copy) and addressed to:
CLEVELAND COUNTY PURCHASING DEPARTMENT
Kim Lester
Kim.Lester@clevelandcountync.gov
PO Box 1210, Shelby, NC 28151
- 13.0 MODIFICATION AND WITHDRAWAL OF BIDS
- 13.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the deadline for submitting Bids. A request for withdrawal or a modification must be in writing and signed by a person duly authorized to do so; and, in case signed by a deputy or subordinate, the principal's proper written authority to such deputy or subordinate must accompany the request for withdrawal or modifications. Withdrawal of a Bid will not prejudice the rights of a Bidder to submit a new Bid prior to the Bid Date and Time. After expiration of the period for receiving Bids, no Bid may be withdrawn or modified.
- 14.0 OPENING OF BIDS

14.1 No public opening is required.

14.2 A bid tabulation will be made available after the receipt of Bids.

15.0 BIDS TO REMAIN OPEN

15.1 All Bids shall remain subject to acceptance for ninety (90) calendar days after the day of the Bid opening, but OWNER may, at its sole discretion, release any Bid and return the Bid Security prior to that date.

15.2 Extensions of time when Bids shall remain open beyond the ninety-day period may be made only by mutual agreement between the OWNER, the Successful Bidder, and the surety, if any, for the Successful Bidder.

16.0 AWARD OF CONTRACT

16.1 To the extent permitted by applicable state and federal laws and regulations, OWNER reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time or changes in the Work with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive, unbalanced or conditional Bids. Bids may be considered irregular and subject to rejection if they show serious omission, unauthorized alteration of form, unauthorized alternate bids, incomplete or unbalanced unit prices, or irregularities of any kind. Also, OWNER reserves the right to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that 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 OWNER. Discrepancies between words and figures will be resolved in favor of words. Discrepancies in 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.

16.2 The Bidder shall be notified of any errors in the Bid Documents submitted to the OWNER which affect his status as low bidder or as may otherwise reduce his total bid. If the corrected total represents an unacceptable amount and the CONTRACTOR can substantiate same, totally in accordance with the General Statutes of the State of North Carolina, the Bidder may then withdraw his bid without forfeiture of his bid security and the OWNER may award the project to the second low bidder or re-let the project, in which instance the Bidder, previously allowed to withdraw, shall not be permitted to re-bid this project or subcontract any portion thereof.

16.3 In evaluating Bids, OWNER will consider the qualifications of the 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.

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 Article 17 of the Instructions to Bidders.

- 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 Prior to Award, OWNER may choose to delete certain portions of the Work as identified in Section 00300. The OWNER shall have the right to accept Alternatives in any order or combination and to determine the low Bidder on the basis of the sum of the Base Bid and the Alternatives accepted.
- 16.7 If the contract is to be awarded, it will be awarded to the lowest responsible, responsive Bidder whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of the Project. However, the OWNER may award the bid in accordance with any and all procedures allowed by law, including but not limited to North Carolina General Statutes.
- 16.8 The OWNER reserves the right to award the Contract conditioned upon funds being made available for such construction.
- 16.9 The OWNER reserves the right to reject any bids from any Bidder currently engaged in litigation against or a contractual dispute with the OWNER.

17.0 QUALIFICATIONS SUBMITTALS

- 17.1 Submit verification of a current contractor's license.

18.0 TAXES

The CONTRACTOR shall pay all applicable sales, consumer, use and other similar taxes required by law. The CONTRACTOR is responsible for reviewing the pertinent State Statutes involving the sales tax and sales tax exemption and complying with all requirements. The CONTRACTOR shall include all Federal, State and local taxes in his bid. The CONTRACTOR shall indemnify, defend and hold harmless, OWNER, ENGINEER and their employees, agents and representatives from and against any and all claims, damages, losses, penalties, fines and tax liabilities whatsoever resulting from CONTRACTOR'S failure to include such taxes in his bid, pay any such tax or comply with any applicable tax requirements or statutes.

19.0 SIGNING OF AGREEMENT

When 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 five (5) business days thereafter CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER with the required Bonds. Within ten (10) business days thereafter OWNER shall deliver one fully signed counterpart to CONTRACTOR. Each counterpart is to be accompanied by a complete set of the Drawings with appropriate identification.

20.0 QUALIFICATIONS OF SURETY COMPANIES:

20.1 Not applicable with this Bid

21.0 REQUIRED DISCLOSURE

21.1 With its bid submission bidder shall disclose all material facts pertaining to any felony conviction or any pending felony charges in the last three (3) years in this state or any other state or the United States against (i) bidder, (ii) any business entity related to or affiliated with bidder, or (iii) any present or former executive employee, officer, director, stockholder, partner or owner of bidder or of any such related or affiliated entity. This disclosure shall not apply to any person or entity which is only a stockholder, which person or entity owns 20% or less of the outstanding shares of a bidder whose stock is publicly owned and traded.

21.2 At its sole discretion the OWNER may reject any bidder the OWNER finds to lack, or whose present or former executive employees, officers, directors, stockholders, partners or owners are found by the OWNER to lack honesty, integrity, or moral responsibility. The discretion of the OWNER may be exercised based on the disclosure required herein. By submitting a bid, bidder recognizes and accepts that the OWNER may reject the bid based upon the exercise of its sole discretion and bidder waives any claim it might have for damages or other relief resulting from the rejection of its bid based on these grounds.

22.0 NONDISCRIMINATION IN EMPLOYMENT

During the performance of this contract the CONTRACTOR agrees as follows:

The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, religion, sex, 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 race, color, religions, sex, 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; rate 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, notice to be provided by the Local Public Agency

setting forth the provisions of this nondiscrimination clause.

The CONTRACTOR will note that signing the Proposal in the Contract document constitutes certification of nondiscrimination. However, all certifications called for herein shall be executed prior to the award of contract, when applicable.

The OWNER shall have final authority to determine the question of compliance with these specifications.

23.0 COLLUSIVE BIDDING

In accordance the General Statutes of the State of North Carolina, the CONTRACTOR (Bidder), by submission and execution of this bid, certifies that he has not entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with his bid on this project.

Before executing any subcontract, the successful bidder shall submit the name of any proposed subcontractor for prior approval and a sworn affidavit substantially in accordance with the preceding.

24.0 CONTRACT DETERMINATION - DEBARMENT

A contract will not be awarded to a CONTRACTOR that has been suspended by the State where the project is located (or any agency or department thereof) for conviction or indictment or any of the offenses enumerated in the General Statutes of the State where the project is located.

Subcontracts of any tier will not be awarded to a subcontractor (or firm) that has been suspended for conviction or indictment of any of the offenses enumerated in the General Statutes, Laws, and Regulations of the State of the project location.

25.0 CONTRACTOR'S LICENSING

Each bidder must be qualified under the provisions of Chapter 87 of the General Statutes of the State of North Carolina and Regulations of the North Carolina Licensing Boards for contractors established and empowered by virtue of Chapter 318 of the public laws of 1925, as amended.

26.0 MINING OPERATIONS PERMIT

Any and all soil or rock materials provided to the Project under this contract from outside the limits of construction as indicated on the Drawings shall come from mining operations with valid operating permits. Obtaining and providing evidence that the mining operation has a valid operating permit is the responsibility of the CONTRACTOR. Within 5 days of request by OWNER or ENGINEER, the CONTRACTOR shall provide a copy of the active Mining Operations Permit as issued by North Carolina DEQ, Division of Land Resources.

27.0 ASSIGNMENTS

The CONTRACTOR shall not assign the whole or any part of this Contract, or any monies due, or to become due hereunder without written consent of the OWNER.

In case the CONTRACTOR assigns all or any part of any monies due or to become due under this Contract the instrument of assignment shall contain a clause substantially to the effect that is agreed that the right of the Assignee in and to any monies due or to become due to the CONTRACTOR shall be subject to prior liens of all persons, firms, and corporations for services rendered or materials supplied, for the performance of the work called for in this Contract.

28.0 MUTUAL RESPONSIBILITY OF CONTRACTORS

If any other contractor, subcontractor or any of their employees, or any other persons shall sustain any loss or damage through the negligence of the CONTRACTOR in the performance of the work, the CONTRACTOR agrees to be responsible for said loss or damage. If any claim is asserted against the OWNER on account of any loss or damage to other contractors, subcontractors or their employees through the negligence of the CONTRACTOR, the OWNER shall notify the CONTRACTOR and the CONTRACTOR shall be responsible for said loss or damage, and the CONTRACTOR shall indemnify and hold the OWNER and ENGINEER harmless against any such losses, damages, and claims, including the OWNER'S and ENGINEER'S attorney's fees.

29.0 LABORERS AND MATERIALMEN'S BOND

A payment bond is required in the amount of 100% of the construction contract amount, conditioned upon the prompt payment for all labor or materials for which a contractor or subcontractor is liable. The payment bond shall be solely for the protection of the persons furnishing materials or performing labor for which a contractor or subcontractor is liable.

30.0 ARBITRATION

The Agreement to be entered into between OWNER and the successful Bidder for the Work to be performed included in these Instructions to Bidders, and any disputes arising thereunder, shall not be subject to arbitration.

31.0 MINORITY BUSINESSES

Contractors shall take note that the Owner requires documentation of minority participation of a minimum of 10% of the contract price or a good faith effort to achieve such. Following is the "Cleveland County MWDBE Outreach Plan and Guidelines" and the documents that shall be used to document minority participation. "Identification of Minority Business Participation" and either Affidavit A or Affidavit B shall be submitted with your bid. After being notified as being the lowest responsible bidder, either Affidavit C or Affidavit D will be required within 72 hours after notification of being such bidder.

END OF SECTION

SECTION 00200
INFORMATION AVAILABLE TO BIDDERS

The following information is available. Prior to reviewing the Information and/or Report(s), interested Bidders will be required to sign a release form stating that it is understood the information is for general information purposes only; no warranties or guarantees are implied. Bound copies of the information and/or report(s) will be available at no charge.

Information and/or Name of Report(s):

1. None

RELEASE FORM

_____ ("CONTRACTOR") hereby acknowledges and agrees that the following information and/or report(s) are provided by Garrett & Moore, Inc. ("ENGINEER") solely for general information purposes and are not part of the Contract Documents, no warranties or guarantees are implied.

Information and/or Name of Report(s):

1. None

CONTRACTOR:

(Name of Company)

ACCEPTED BY:

(Name of the Contractor's Representative)

Title: _____

(Title of the Contractor's Representative)

Date: _____

**Bid Form
West Hill E&SC Improvement
Cleveland County C&DLF
March 2021**

Bid Item	Description	Estimated Quantity	Unit	Unit Price	Extended Total
1	Bonds, Insurance, Mobilization and Demobilization.	1	LS		
2	Silt Fence	1,200	LF		
3	Clearing and Grubbing	2	AC		
4	Stripping & Stockpile	2,420	CY		
5	Excavate Soil from SB-4 & Backfill	11,500	CY		
6	Excavate Soil from SB-4 & Stockpile in Existing Borrow Area	1,500	CY		
7	Furnish & Install SB-4 Riser Outlet Structure w/ Skimmer	1	LS		
8	Furnish & Install SB-5 Riser Outlet Structure w/ Skimmer	1	LS		
9	Sediment Pond Baffles	520	LF		
10	Furnish & Install 36" RCP w/ End Treatment	120	LF		
11	Class A Riprap Energy Dissipater	6	CY		
12	Class B Riprap Energy Dissipater	18	CY		
13	Class 2 Riprap Energy Dissipater	35	CY		
14	Turf Reinforcement Matting	12,300	SY		
15	6-in. Unimat Fabriform Ditch with 28 oz. Non-woven Geotextile Fabric Underlayment	648	SY		
16	Seeding & Mulching	8.5	AC		
Base Bid Total (Bid Items 1 through 16)					

**SECTION 00300
BID FORM**

PROJECT IDENTIFICATION:

Cleveland County Solid Wasted C&D Landfill E&SC Improvement Project

OWNER:

Cleveland County, North Carolina

THIS BID IS SUBMITTED TO:

Cleveland County, North 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 Contract Price and within the Contract Time indicated in this Bid Form and the Agreement, and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Bidding Documents, including without limitation those dealing with the disposition of Bid Security. This bid will remain open for 90 days after the date of the bid opening. If awarded a contract, Bidder agrees to execute the Agreement and comply with all of the conditions stipulated in the Notice of Award within the time stipulated in the Notice of Award.
3. In submitting this Bid, Bidder makes all representations required by the Instructions to Bidders and further warrants and represents that:
 - (a) Bidder has examined copies of all the Bidding Documents, the Invitation to Bid, and of the following Addenda (receipt of which is hereby acknowledged):

No. _____	Date _____
No. _____	Date _____
No. _____	Date _____
 - (b) Bidder has examined the site and locality where the Work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress, or performance of the Work and has made such independent investigations as Bidder deems necessary.

- (c) Bidder has carefully studied all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in Section 00200 of the Bidding and Contract Requirements and accepts the determination set forth in paragraph 4.02 of the General Conditions and the Supplementary Conditions thereto of the extent of the technical data contained in such reports and drawings upon which Bidder is entitled to rely.
- (d) Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, and studies (in addition to or to supplement these referred to in (c) above) which pertain to the subsurface or physical conditions at the site or which otherwise may affect the cost, progress, performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.02 of the General Conditions and the Supplementary Conditions thereto.
- (e) Bidder has reviewed and checked all information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities.
- (f) Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents.
- (g) Bidder has given ENGINEER written notice of all conflicts, errors, or discrepancies that it has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.
- (h) By bidding in response to this invitation, the Bidder represents that in the preparation and submission of this Bid, said Bidder did not, either directly or indirectly, enter into any combination or arrangement with any person, firm or corporation or enter into any agreement, participate in any collusion, or otherwise take any action in the restraint of free, competitive Bidding in violation of the Sherman Act (15 U.S.C. Section 1).
- (i) Except as otherwise provided in this Bid Form, the Bidder represents to OWNER that all prices herein include all Federal, State and local taxes. The Bidder agrees to assume responsibility for the payment of all such taxes and shall indemnify and hold harmless the OWNER from all tax

liability arising out of or related to Bidder's breach of this representation or failure to pay such taxes.

- (j) Bidder agrees that all Work required by the Contract Documents will be substantially completed within the number of calendar days stipulated in the Agreement after the date when the Contract time commences to run.
 - (k) Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.
 - (l) Bidder understands that the OWNER may select a Bidder based on the lowest responsible, responsive Base Bid plus or minus any Bid Alternates which the OWNER selects in order to determine the combination of lowest responsible, responsive bids for which the determination that the Bidder is suitably experienced. The OWNER reserves the right to reject any or all Bids and to waive any informalities in the Bidding procedure.
4. The following documents are attached to and made a condition of this Bid:
- (a) Evidence of Bidder's certification and license to perform the work and services.
 - (b) Experience and Financial Statement (see Section 00100, Article 17) - AGC Document No. 220 "Construction Contractor's Qualification Statement for Engineered Construction", attached to this Section.
 - (c) Section 00415 – Bid Information Questionnaire
 - (d) Section 00340 – Non-Collusive Affidavit
 - (e) Section 00350 – Authority to Execute Contract.
5. Please list all claims you have made against the OWNER in the last ten (10) years, citing the caption of any litigation commenced, and any cause of action alleged against the OWNER.
6. Communications with the Bidder concerning this Bid shall be addressed to:
- GARRETT & MOORE, INC.**
clafave@garrett-moore.com
7. The terms used in this Bid are defined in the General Conditions of the Construction Contract, included as part of the Contract Documents and have the meanings assigned to them in the General Conditions.

8. The Bidder executes this Bid as one of the following (circle one):
Individual / Partnership / Corporation / Joint Venture
9. The Bid Form must be complete in ink or by typewriter. Amounts shall be shown in both words and figures. In case of discrepancy, the amount in words will govern. Bidder agrees to complete the work for the following prices.

(Remaining portion of the page to remain blank)

**Bid Form
West Hill E&SC Improvement
Cleveland County C&DLF
March 2021**

Bid Item	Description	Estimated Quantity	Unit	Unit Price	Extended Total
1	Bonds, Insurance, Mobilization and Demobilization.	1	LS		
2	Silt Fence	1,200	LF		
3	Clearing and Grubbing	2	AC		
4	Stripping & Stockpile	2,420	CY		
5	Excavate Soil from SB-4 & Backfill	11,500	CY		
6	Excavate Soil from SB-4 & Stockpile in Existing Borrow Area	1,500	CY		
7	Furnish & Install SB-4 Riser Outlet Structure w/ Skimmer	1	LS		
8	Furnish & Install SB-5 Riser Outlet Structure w/ Skimmer	1	LS		
9	Sediment Pond Baffles	520	LF		
10	Furnish & Install 36" RCP w/ End Treatment	120	LF		
11	Class A Riprap Energy Dissipater	6	CY		
12	Class B Riprap Energy Dissipater	18	CY		
13	Class 2 Riprap Energy Dissipater	35	CY		
14	Turf Reinforcement Matting	12,300	SY		
15	6-in. Unimat Fabriform Ditch with 28 oz. Non-woven Geotextile Fabric Underlayment	648	SY		
16	Seeding & Mulching	8.5	AC		
Base Bid Total (Bid Items 1 through 16)					

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End of Section

**SECTION 00350
AUTHORITY TO EXECUTE CONTRACT**

If the Bidder is a Corporation, attach to this page a certified copy of corporate resolutions of the Board of Directors of the Corporation authorizing an officer of the Corporation to execute the Agreement contained within this document on behalf of the Corporation.

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END OF SECTION

00350-2

**SECTION 00500
AGREEMENT**

This AGREEMENT made as of the ____ day of ____ in the year 2021 by and between _____, hereinafter called OWNER and _____, hereinafter called CONTRACTOR with legal address and principal place of business at:

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

ARTICLE 1. WORK.

- 1.1 CONTRACTOR shall perform the Work as specified or indicated in the Contract Documents. The Work is generally described as follows:
“Cleveland County Solid Waste C&D Landfill E&SC Improvement Project”

ARTICLE 2. ENGINEER.

- 2.1 The Project has been designed by:

Garrett & Moore, Inc.
206 High House Rd., Suite 259
Cary, NC 27513

who will act as ENGINEER in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 3. CONTRACT TIME.

- 3.1 The project will be considered substantially complete upon completion of all items listed in the Bid Form and appurtenances in accordance with the Contract Documents, including successful performance of all testing and surveying requirements. The work shall be completed in accordance with Paragraph 14.04 of the General Conditions within 90 calendar days from (and including) the date when the Notice-to-Proceed is issued.
- 3.2 All work shall be complete and ready for final payment in accordance with paragraph 14.07 of the General Conditions within 105 calendar days from (and including) the date when the Notice-to-Proceed is issued.

ARTICLE 4. CONTRACT PRICE.

- 4.1 OWNER will pay CONTRACTOR for performance of the Work in accordance with the Contract Documents in current funds at the unit prices agreed upon in the CONTRACTOR'S Bid Form attached to this Agreement.

ARTICLE 5. APPLICATIONS FOR PAYMENT

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

ARTICLE 6. PROGRESS AND FINAL PAYMENTS

- 6.1 OWNER will make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, monthly during construction as provided below. All progress payments will be on the basis of the progress of the Work measured by the schedule of values provided for in Paragraph 14.01. of the General Conditions of the Contract.
- 6.2 Progress payments will be in an amount equal to 90% of the value of the Work completed and 90% of materials (excluding soils) and equipment not incorporated in the Work but delivered and suitably stored, less, in each case, the aggregate of payments previously made.
- 6.3 Upon final inspection and acceptance of the Work, in accordance with Paragraph 14.07 of the General Conditions of the Contract, OWNER will pay the remainder of the Contract Price as recommended by ENGINEER.

ARTICLE 7. LIQUIDATED DAMAGES

- 7.1 OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the Contract Time specified in Article 3 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving, in a legal proceeding, the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER as follows:

\$ 250 per day for each calendar day of delay until the Work as defined in Articles 1 and 3 has reached substantial completion. This amount, or a portion thereof,

incurred by the OWNER for providing additional inspection, testing, and engineering services by the ENGINEER.

- 7.2 Provided, that CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the Work is for reasons included in Paragraph 12.03 of the General Conditions.
- 7.3 Provided, further, that CONTRACTOR shall furnish OWNER the required notification of such delays in accordance with Paragraph 12.02. of the General Conditions.

ARTICLE 8. ASSURANCE

- 8.1 CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and Federal, State and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.
- 8.2 CONTRACTOR has carefully studied all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by ENGINEER in the preparation of the Drawings and Specifications and which have been identified in Article 4 of the Supplementary Conditions.
- 8.3 CONTRACTOR has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in the above paragraph as he/she deems necessary for the performance of the Work at the Contract Price within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required by him/her for such purposes.
- 8.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.
- 8.5 CONTRACTOR has given ENGINEER written notice of any conflict, error or discrepancy that he/she has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
- 8.6 CONTRACTOR agrees that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

ARTICLE 9. CONTRACT DOCUMENTS.

9.1 The Contract Documents which comprise the Contract between OWNER and CONTRACTOR are attached hereto and made a part hereof and consist of the following:

- A. Project Manual bearing the general title " CLEVELAND COUNTY SOLID WASTE C&D LANDFILL E&SC IMPROVEMENT PROJECT", Cleveland County, North Carolina, dated January 2021.
- B. Drawings bearing the general title " CLEVELAND COUNTY SOLID WASTE C&D LANDFILL E&SC IMPROVEMENT PROJECT", Cleveland County, North Carolina, dated January 2021.
- C. Addenda numbers [_____] to [_____], inclusive.
- D. Completed Bid Form (Section 00300).
- E. Completed Authority to Execute Contract (Section 00350)
- F. Completed Agreement (Section 00500).
- G. Executed Construction Performance Bond, Construction Labor and Material Payment Bond, and other required Bonds.
- H. Executed Certificate of Insurance.
- I. Any modification, including Change Orders, duly delivered after execution of Agreement.
- J. Other (Describe) _____

ARTICLE 10. MISCELLANEOUS

10.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions of the Contract shall have the meanings assigned in the General Conditions of the Contract.

10.2 Neither OWNER nor CONTRACTOR shall, without the prior written consent of the other, assign or sublet in whole or in part his/her interest under any of the Contract Documents; and, specifically but without limitation, CONTRACTOR shall not assign any monies due or to become due without the prior written consent of OWNER. In case CONTRACTOR assigns all or any part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to CONTRACTOR shall be subject to

March 2021

prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work called for in this Contract.

10.3 OWNER and CONTRACTOR each binds himself, his/her partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

10.4 The Contract Documents constitute the entire agreement between OWNER and CONTRACTOR and may only be altered, amended, or repealed by a Modification.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement in sextuple. Four copies each have been delivered to OWNER and one copy each to CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement shall become effective on _____, 2021.

OWNER

CONTRACTOR

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

(CORPORATE SEAL)

(CORPORATE SEAL)

Attest:

Attest:

Address for giving notices:

Address for giving notices:

Note: If CONTRACTOR is a corporation, an affidavit giving the principal the right to sign the Agreement must accompany the executed Agreement.

END OF SECTION

Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

EJCDC No. 1910-28-A (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

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 Contract, which is incorporated herein by reference.

2. If the CONTRACTOR performs the Contract, the Surety and the CONTRACTOR have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.

3. If there is no OWNER Default, the Surety's obligation under this Bond shall arise after:

3.1. The OWNER has notified the CONTRACTOR and the Surety at the addresses described in paragraph 10 below, that 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 Contract. If the OWNER, the CONTRACTOR and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the 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 paragraph 3.1; and

3.3. The OWNER has agreed to pay the Balance of the Contract Price to:

3.3.1. The Surety in accordance with the terms of the Contract;

3.3.2. Another contractor selected pursuant to paragraph 4.3 to perform the Contract.

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 Contract; or

4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the 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 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 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 paragraph 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 Contract, and if the Surety elects to act under paragraph 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 Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Contract. To a 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 Contract, the Surety is obligated without duplication for:

6.1. The responsibilities of the CONTRACTOR for correction of defective Work and completion of the 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 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 that are 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 change, including changes of time, to the 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 Contract was performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that 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 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 Contract.

12.2 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 Contract.

12.4 OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY--Name, Address and Telephone)
AGENT or BROKER: OWNER'S REPRESENTATIVE (Engineer or other party):

Payment Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: _____ (Corp. Seal)

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

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

EJCDC No. 1910-28-B (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER to pay for labor, materials and equipment furnished for use in the performance of the 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 all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract, provided the OWNER has promptly notified the CONTRACTOR and the Surety (at the addresses 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 addresses described in paragraph 12) and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with the CONTRACTOR:
 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 done or performed; and
 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 had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to the Surety and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the CONTRACTOR.
5. If a notice required by paragraph 4 is given by the OWNER to the CONTRACTOR or to the Surety, that is sufficient compliance.
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 that are undisputed and the basis for challenging any amounts that are 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 Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the CONTRACTOR furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the 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 that are unrelated to the 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 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 paragraph 4.1 or paragraph 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, the OWNER or the CONTRACTOR shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the OWNER or the 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 Contract 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, that 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, materials 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 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. 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 Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY--Name, Address and Telephone)

AGENCY or BROKER: OWNER'S REPRESENTATIVE (Engineer or other party):

March 2021

**SECTION 00650
NOTICE OF AWARD**

To: _____ (Bidder).

You are notified that your Bid dated _____ for the CLEVELAND COUNTY SOLID WASTE C&D LANDFILL E&SC IMPROVEMENT PROJECT, has been considered. You are the apparent successful Bidder and have been awarded a contract for the following work:

_____ for the Contract Price of:

_____ Notice of Award Date _____, 2021

You are required to execute the Agreement and furnish the required bond (if applicable) and certificates of insurance within 5 calendar days from the date of this Notice of Award to you. You shall furnish 5 copies of the executed Agreement to the Owner.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Acknowledged by: _____

Title: _____

Date Acknowledged _____

If you fail to execute said Agreement and furnish said bonds and certificate of insurance within 5 days for the date of the Notice of Award, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your bid to be abandoned and as forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

March 2021

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END OF SECTION

March 2021

**SECTION 00670
NOTICE TO PROCEED**

To: _____

Address: _____

Project: **CLEVELAND COUNTY SOLID WASTE C&D LANDFILL E&SC
IMPROVEMENT PROJECT**

You are hereby notified that the Contract Times under the above contract will commence to run on _____, 2021.

In accordance with Article 3 of the Agreement, the date of Substantial Completion is 90-Calendar days from (and including) the date when the Notice-to-Proceed is issued. The date of Final Completion is 105-Calendar days from (and including) the date when the Notice-to-Proceed is issued.

Notice-to-Proceed Issue Date: _____

By: (Cleveland County Representative) _____

Printed: _____

Title: _____

Date Signed: _____

ACCEPTANCE OF NOTICE

Receipt of the foregoing Notice to Proceed is hereby acknowledged by:

By: (Contractor Representative) _____

Printed: _____

Title: _____

Date Signed: _____

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END OF SECTION

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 Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and



AMERICAN CONSULTING
ENGINEERS COUNCIL



Issued and Published Jointly By

**National Society of
Professional Engineers**
Professional Engineers in Private Practice



AMERICAN SOCIETY OF
CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General



Contractors of America

Construction Specifications Institute



These General Conditions have been prepared for use with the Owner-Contractor Agreements (No. 1910-8-A-1 or 1910-8-A-2) (1996 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 EJCDC User's Guide (No. 1910-50). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. 1910-17) (1996 Edition).

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TABLE OF CONTENTS

	<u>Page</u>
ARTICLE 1 - DEFINITIONS AND TERMINOLOGY	00700 - 6
1.01 <i>Defined Terms</i>	00700 - 6
1.02 <i>Terminology</i>	00700 - 8
ARTICLE 2 - PRELIMINARY MATTERS	00700 - 9
2.01 <i>Delivery of Bonds</i>	00700 - 9
2.02 <i>Copies of Documents</i>	00700 - 9
2.03 <i>Commencement of Contract Times; Notice to Proceed</i>	00700 - 9
2.04 <i>Starting the Work</i>	00700 - 9
2.05 <i>Before Starting Construction</i>	00700 - 9
2.06 <i>Preconstruction Conference</i>	00700 - 10
2.07 <i>Initial Acceptance of Schedules</i>	00700 - 10
ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE	00700 - 10
3.01 <i>Intent</i>	00700 - 10
3.02 <i>Reference Standards</i>	00700 - 10
3.03 <i>Reporting and Resolving Discrepancies</i>	00700 - 11
3.04 <i>Amending and Supplementing Contract Documents</i>	00700 - 11
3.05 <i>Reuse of Documents</i>	00700 - 11
ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS	00700 - 11
4.01 <i>Availability of Lands</i>	00700 - 11
4.02 <i>Subsurface and Physical Conditions</i>	00700 - 12
4.03 <i>Differing Subsurface or Physical Conditions</i>	00700 - 12
4.04 <i>Underground Facilities</i>	00700 - 13
4.05 <i>Reference Points</i>	00700 - 13
4.06 <i>Hazardous Environmental Condition at Site</i>	00700 - 14
ARTICLE 5 - BONDS AND INSURANCE	00700 - 15
5.01 <i>Performance, Payment, and Other Bonds</i>	00700 - 15
5.02 <i>Licensed Sureties and Insurers</i>	00700 - 15
5.03 <i>Certificates of Insurance</i>	00700 - 15
5.04 <i>CONTRACTOR's Liability Insurance</i>	00700 - 15
5.05 <i>OWNER's Liability Insurance</i>	00700 - 16
5.06 <i>Property Insurance</i>	00700 - 16
5.07 <i>Waiver of Rights</i>	00700 - 17
5.08 <i>Receipt and Application of Insurance Proceeds</i>	00700 - 18
5.09 <i>Acceptance of Bonds and Insurance; Option to Replace</i>	00700 - 18
5.10 <i>Partial Utilization, Acknowledgment of Property Insurer</i>	00700 - 18
ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES	00700 - 18
6.01 <i>Supervision and Superintendence</i>	00700 - 18
6.02 <i>Labor; Working Hours</i>	00700 - 19
6.03 <i>Services, Materials, and Equipment</i>	00700 - 19
6.04 <i>Progress Schedule</i>	00700 - 19
6.05 <i>Substitutes and "Or-Equals"</i>	00700 - 19
6.06 <i>Concerning Subcontractors, Suppliers, and Others</i>	00700 - 20
6.07 <i>Patent Fees and Royalties</i>	00700 - 21
6.08 <i>Permits</i>	00700 - 21
6.09 <i>Laws and Regulations</i>	00700 - 22
6.10 <i>Taxes</i>	00700 - 22
6.11 <i>Use of Site and Other Areas</i>	00700 - 22
6.12 <i>Record Documents</i>	00700 - 22
6.13 <i>Safety and Protection</i>	00700 - 23
6.14 <i>Safety Representative</i>	00700 - 23
6.15 <i>Hazard Communication Programs</i>	00700 - 23

6.16	<i>Emergencies</i>	00700 - 23
6.17	<i>Shop Drawings and Samples</i>	00700 - 23
6.18	<i>Continuing the Work</i>	00700 - 24
6.19	<i>CONTRACTOR's General Warranty and Guarantee</i>	00700 - 25
6.20	<i>Indemnification</i>	00700 - 25
ARTICLE 7 - OTHER WORK		00700 - 26
7.01	<i>Related Work at Site</i>	00700 - 26
7.02	<i>Coordination</i>	00700 - 26
ARTICLE 8 - OWNER'S RESPONSIBILITIES		00700 - 26
8.01	<i>Communications to Contractor</i>	00700 - 26
8.02	<i>Replacement of ENGINEER</i>	00700 - 26
8.03	<i>Furnish Data</i>	00700 - 26
8.04	<i>Pay Promptly When Due</i>	00700 - 26
8.05	<i>Lands and Easements; Reports and Tests</i>	00700 - 26
8.06	<i>Insurance</i>	00700 - 27
8.07	<i>Change Orders</i>	00700 - 27
8.08	<i>Inspections, Tests, and Approvals</i>	00700 - 27
8.09	<i>Limitations on OWNER's Responsibilities</i>	00700 - 27
8.10	<i>Undisclosed Hazardous Environmental Condition</i>	00700 - 27
8.11	<i>Evidence of Financial Arrangements</i>	00700 - 27
ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION		00700 - 27
9.01	<i>OWNER'S Representative</i>	00700 - 27
9.02	<i>Visits to Site</i>	00700 - 27
9.03	<i>Project Representative</i>	00700 - 27
9.04	<i>Clarifications and Interpretations</i>	00700 - 28
9.05	<i>Authorized Variations in Work</i>	00700 - 28
9.06	<i>Rejecting Defective Work</i>	00700 - 28
9.07	<i>Shop Drawings, Change Orders and Payments</i>	00700 - 28
9.08	<i>Determinations for Unit Price Work</i>	00700 - 28
9.09	<i>Decisions on Requirements of Contract Documents and Acceptability of Work</i>	00700 - 28
9.10	<i>Limitations on ENGINEER's Authority and Responsibilities</i>	00700 - 28
ARTICLE 10 - CHANGES IN THE WORK; CLAIMS		00700 - 29
10.01	<i>Authorized Changes in the Work</i>	00700 - 29
10.02	<i>Unauthorized Changes in the Work</i>	00700 - 29
10.03	<i>Execution of Change Orders</i>	00700 - 29
10.04	<i>Notification to Surety</i>	00700 - 29
10.05	<i>Claims and Disputes</i>	00700 - 30
ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK		00700 - 30
11.01	<i>Cost of the Work</i>	00700 - 30
11.02	<i>Cash Allowances</i>	00700 - 32
11.03	<i>Unit Price Work</i>	00700 - 32
ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES		00700 - 33
12.01	<i>Change of Contract Price</i>	00700 - 33
12.02	<i>Change of Contract Times</i>	00700 - 33
12.03	<i>Delays Beyond CONTRACTOR's Control</i>	00700 - 33
12.04	<i>Delays Within CONTRACTOR's Control</i>	00700 - 34
12.05	<i>Delays Beyond OWNER's and CONTRACTOR's Control</i>	00700 - 34
12.06	<i>Delay Damages</i>	00700 - 34
ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK		00700 - 34
13.01	<i>Notice of Defects</i>	00700 - 34
13.02	<i>Access to Work</i>	00700 - 34
13.03	<i>Tests and Inspections</i>	00700 - 34
13.04	<i>Uncovering Work</i>	00700 - 35
13.05	<i>OWNER May Stop the Work</i>	00700 - 35
13.06	<i>Correction or Removal of Defective Work</i>	00700 - 35

13.07	<i>Correction Period</i>	00700 - 35
13.08	<i>Acceptance of Defective Work</i>	00700 - 36
13.09	<i>OWNER May Correct Defective Work</i>	00700 - 36
ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION		00700 - 36
14.01	<i>Schedule of Values</i>	00700 - 36
14.02	<i>Progress Payments</i>	00700 - 37
14.03	<i>CONTRACTOR's Warranty of Title</i>	00700 - 38
14.04	<i>Substantial Completion</i>	00700 - 38
14.05	<i>Partial Utilization</i>	00700 - 39
14.06	<i>Final Inspection</i>	00700 - 39
14.07	<i>Final Payment</i>	00700 - 39
14.08	<i>Final Completion Delayed</i>	00700 - 40
14.09	<i>Waiver of Claims</i>	00700 - 40
ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION		00700 - 40
15.01	<i>OWNER May Suspend Work</i>	00700 - 40
15.02	<i>OWNER May Terminate for Cause</i>	00700 - 40
15.03	<i>OWNER May Terminate For Convenience</i>	00700 - 41
15.04	<i>CONTRACTOR May Stop Work or Terminate</i>	00700 - 41
ARTICLE 16 - DISPUTE RESOLUTION		00700 - 41
16.01	<i>Methods and Procedures</i>	00700 - 41
ARTICLE 17 - MISCELLANEOUS		00700 - 42
17.01	<i>Giving Notice</i>	00700 - 42
17.02	<i>Computation of Times</i>	00700 - 42
17.03	<i>Cumulative Remedies</i>	00700 - 42
17.04	<i>Survival of Obligations</i>	00700 - 42
17.05	<i>Controlling Law</i>	00700 - 42

GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the 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. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

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.

SC 12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR 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 Substantial Completion; and (ii) 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.A 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. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *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.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *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 in connection with the Work.

24. *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.

25. *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.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *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.

SC 28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *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.

SC 30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *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.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *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.

36. *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.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *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.

39. *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.

40. *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.

SC 41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *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.

SC 43. *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.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *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 any Subcontractor.

46. *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.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed 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.

49. *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.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

SC 51. - 63. ADDED

1.02 Terminology

A. Intent of Certain Terms or Adjectives

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or 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 action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed 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 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 9.10 or any other provision of the Contract Documents.

B. Day

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or 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).

D. 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.

E. Unless stated otherwise in the Contract Documents, words or phrases which 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

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 Copies of Documents

SC A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

SC 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. **CONTRACTOR's Review of Contract Documents:** 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 may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, 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 knew or reasonably should have known thereof.

B. **Preliminary Schedules:** Within ten days after the Effective Date of the Agreement (unless otherwise specified

in the General Requirements), CONTRACTOR shall submit to ENGINEER for its 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 Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; 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.

SC C. *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.

2.06 *Preconstruction Conference*

A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by 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.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

SC A. Unless otherwise provided in the Contract Documents, at least ten 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.B. CONTRACTOR shall have an additional ten 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 any specified Milestones and 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 Shop Drawing and Sample 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*

SC A. The Contract Documents are complementary; what is called for by one is as binding as if called for 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 may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended 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, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees 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. 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 any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. 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; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known 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, code, or instruction (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 in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) 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: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not 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 ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of 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 adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL 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, 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.

SC 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 of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

SC B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general 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, ENGINEER, or any of ENGINEER's Consultants 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.

SC C. ADDED

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site 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 9.08 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 in respect of 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 within the time and 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, OWNER, ENGINEER, and ENGINEER's Consultants 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.

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; 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.

SC 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*

SC 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:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general 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, ENGINEER or any of ENGINEER's Consultants 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); 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.

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 to CONTRACTOR written notice: (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, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other 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.E 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, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other 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.F 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 are not intended to 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 CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, 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 current 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 must be accompanied by a certified copy of such agent's authority to act.

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 within 20 days thereafter substitute 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*

SC A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured 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. OWNER shall deliver to CONTRACTOR, with copies to each additional insured 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.

5.04 *CONTRACTOR's Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other 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: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) 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 so required by this paragraph 5.04 to be purchased and maintained shall:

SC 1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, 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, partners, employees, agents, and other 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 completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

SC 5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty 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);

6. 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

SC 7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and 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).

SC C. ADDED

5.05 OWNER's Liability Insurance

SC 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.

SC 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, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, 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, 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 additional insured to whom a certificate of insurance has been issued.

B. OWNER shall purchase and maintain such boiler and machinery 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, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with 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 additional insured 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 paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. 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, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other 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 additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other 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, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other 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, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other 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 peril 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, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

5.08 Receipt and Application of Insurance Proceeds

SC 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 insureds, 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 or Written Amendment.

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

SC 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 2.05.C. 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

SC 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

SC 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, but 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. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 Labor; Working Hours

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

SC 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, and CONTRACTOR will not permit overtime work or the performance of Work on 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

SC A. Unless otherwise specified in the General Requirements, 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.

SC 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 warranties and guarantees specifically called for 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. 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 (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with

any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

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: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, 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 that 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 procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first 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 shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not 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 work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also 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, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and 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 procedure for review by ENGINEER will be similar to that provided in subparagraph 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 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 either a Change Order for a substitute or 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 time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such 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*

SC 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 or Written Amendment signed. 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 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 shall it 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.

SC 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 an additional insured 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, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other 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*

SC 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. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants 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. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and 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 primary 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 may 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*

SC 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, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants 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 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, Written Amendments, 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. 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.

SC 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. 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 ENGINEER's Consultant, 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). 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 to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The 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.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample

submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, 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.

D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have 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.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop

Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. *ENGINEER's Review*

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample 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 of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.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 approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. *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

SC A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. 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.

B. 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 acceptance by OWNER or any failure to do so;
6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;
7. any inspection, test, or approval by others; or
8. 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, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other 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:

1. 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; and

SC 2. is caused in whole or in part 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, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees 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 Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them 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.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let 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 and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, 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 their work and will only cut or alter their 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.

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

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 Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly 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 in respect of 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 in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 Insurance

SC A. OWNER's responsibilities, if any, in 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 in 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

SC A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

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 and will not be changed without written consent of OWNER and ENGINEER.

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 9.10, and 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

SC 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 responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. 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 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. 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, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *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 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, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or 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.

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *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.

9.09 *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. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, 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. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *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 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

SC A. Without invalidating the Agreement 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 Written Amendment, 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.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) 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 notice 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) is required by the provisions of any Bond to be given to a surety, 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 and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter 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. Notice of the amount or extent of the Claim, dispute, or other matter 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, dispute, or other matter). 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 Time 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).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH 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 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 include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

SC 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 at the Site. 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.

SC 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, 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, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

SC j. When all the Work is performed on the basis of cost-plus, 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, 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 and 11.01.B.

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 *Cash 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 as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the 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

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allow-

ances 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.

B. 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. 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 9.08.

B. 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.

SC C. 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 any other item of Work; and

3. if 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 or by a Written Amendment. 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:

SC 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 paragraph 12.01.C.2.a 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 (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) 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 (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) 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.

12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to 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.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or
2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

SC B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

**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. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

SC A. OWNER, ENGINEER, ENGINEER's Consultants, 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, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site 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.

SC 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 said paragraph 13.04.B; 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, it must, if requested by ENGINEER, be uncovered 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. If it is found that such 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. If, however, such 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 Milestones), 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*

SC 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. 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).

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 Laws or Regulations or 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: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) 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. If CONTRACTOR does not promptly comply with the terms of such 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, and 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.

B. 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 or by Written Amendment.

C. 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.

D. 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 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*

SC 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 and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In

connection with such corrective and 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.

SC D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) 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 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 on the Site 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, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to 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: (i) 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 (ii) that 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 to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or 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 referred to 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 Written Amendment or 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*

SC 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 must 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 corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined 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.

14.03 *CONTRACTOR's Warranty of Title*

SC 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*

SC 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. Promptly thereafter, 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. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and 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. 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 responsibility.

ties 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.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

SCA. Use by OWNER at OWNER's option of 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, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. 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. 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.

2. No 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.

SC 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: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) 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 or OWNER's property might in any way be responsible 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. *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 will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 *Final Completion Delayed*

SCA. 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 and recommendation of ENGINEER, and without terminating the Agreement, 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 writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *OWNER May Suspend Work*

SCA. 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 allowed 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);

SC2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

SC4. 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 the surety, if any) seven days written notice, terminate

the services of CONTRACTOR, 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), 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 finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. 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.

C. 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.

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, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for 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. for 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. for 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. for 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

SC A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or 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. 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

SC A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

SCA. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if 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 if 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, and 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 Agreement.

17.05 *Controlling Law*

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

**SECTION 00800
SUPPLEMENTARY CONDITIONS**

TABLE OF CONTENTS

PART I - AMENDMENTS TO GENERAL CONDITIONS

<u>Article Number</u>	<u>Title</u>
1	DEFINITIONS AND TERMINOLOGY
2	PRELIMINARY MATTERS
3	CONTRACT DOCUMENTS; INTENT, AMENDING, REUSE
4	AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS
5	BONDS AND INSURANCE
6	CONTRACTOR'S RESPONSIBILITIES
7	OTHER WORK
8	OWNER'S RESPONSIBILITIES
9	ENGINEER'S STATUS DURING CONSTRUCTION
10	CHANGES IN THE WORK; CLAIMS
11	COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK
12	CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES
13	TESTS AND INSPECTION; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK
14	PAYMENTS TO CONTRACTOR AND COMPLETION
15	SUSPENSION OF WORK AND TERMINATION
16	DISPUTE RESOLUTION
17	MISCELLANEOUS

PART I - AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC Document No. 1910-8, 1996 edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01.A.12

Insert the following in the first sentence after the word "include":

Invitation to Bid, Instructions to Bidders,

SC-1.01.A.28

Delete paragraph 1.01.A.28 in its entirety and replace with the following:

The written notice by Owner to the apparent successful bidder stating that upon completion by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, if OWNER decides to proceed with the Work, Owner will sign and deliver the Agreement to the CONTRACTOR. However, the Notice of Award shall not be construed as an agreement, meeting of the minds, contract, or any other legal obligation between the OWNER and CONTRACTOR. Until the CONTRACTOR receives a Notice to Proceed from the OWNER, the CONTRACTOR has no remedy against the OWNER.

SC-1.01.A.30

Insert the following at the end of paragraph 1.01.A.30:

Cleveland County, North Carolina (OWNER).

SC-1.01.A.41

Delete paragraph 1.01.A.41 in its entirety and replace with the following:

41. Specifications - Sections included under Division 1 through Division 16 of the Project Manual.

SC-1.01.A.43

Delete paragraph 1.01.A.43 in its entirety and replace with the following:

43. Substantial Completion - Substantial completion shall mean that

all of the work has been completed and opened to OWNER'S use except for minor incomplete or unsatisfactory work items that do not materially impair the OWNER's use and that the remaining work required by the Contract has a Contract Price of less than five percent of the then adjusted total Contract Price.

SC-1.01.A.50

Add the following after paragraph 1.01.A.50:

SC-1.01.A.51

51. *Compensable Delay* - Any delay beyond the control and without the fault or negligence of the CONTRACTOR resulting from OWNER-caused changes in the Work, differing site conditions, suspensions of the Work, or termination for convenience by OWNER.

SC-1.01.A.52

52. *Excusable Delay* - Any delay beyond the control and without the fault or negligence of the CONTRACTOR, the OWNER, or any other contractor caused by events or circumstances such as, but not limited to, acts of God or of the public enemy, acts of interveners, acts of government other than the OWNER, fires, floods, epidemics, quarantine restrictions, freight embargos, and hurricanes, tornadoes, or new sink holes.

SC-1.01.A.53

53. *Inexcusable Delay* - Any delay caused either (i) by events or circumstances within the control of the CONTRACTOR, such as inadequate crewing, slow submittals, etc., which might have been avoided by the exercise of care, prudence, foresight, or diligence on the part of the CONTRACTOR, or (ii) by weather conditions (other than hurricanes and tornadoes) or labor disputes.

SC-1.01.A.54

54. *Non-prejudicial Delay* - Any delay impacting a portion of the Work within the available total float or slack time, as that term is used in Section 01310 and not necessarily preventing completion of the Work within the Contract Time.

SC-1.01.A.55

55. *Prejudicial Delay* - Any excusable or compensable delay impacting

the Work and exceeding the total float available in the progress schedule, thus preventing completion of the Work within the Contract Time unless the Work is accelerated.

SC-1.01.A.56

56. *Preoperational Testing* - All field inspections, installation checks, water tests, performance tests, and necessary corrections required of CONTRACTOR to demonstrate that individual components of the Work have been properly constructed and do operate in accordance with the Contract Documents for their intended purposes.

SC-1.01.A.57

57. *Start-Up Testing* - A predefined trial period required for achieving substantial completion during which CONTRACTOR is to operate the entire Work (or any part thereof agreed to by the OWNER) under actual and simulated operating conditions for the purpose (i) of making such minor adjustments and changes to the Work as may be necessary for the Work to comply with the Contract Documents and (ii) to comply with the final test requirements in the Contract Documents.

SC-1.01.A.58

58. *Float or Slack Time* - The time available in the progress schedule during which an unexpected activity can be completed without delaying substantial completion of the Work.

SC-1.01.A.59

59. Cleveland County, North Carolina – Same as OWNER

SC-1.01.A.60

60. *Consultant* - Same as Engineer.

SC-1.01.A.61

61. *Work Directive Change* - Same as Work Change Directive.

SC-1.01.A.62

62. *Acceptance* - By the OWNER of the Work as being fully complete in accordance with the Contract Documents subject to waiver of claims.

SC-1.01.A.63

63. *Bidder* - Any person, firm or corporation submitting a bid for the

Work.

ARTICLE 2. PRELIMINARY MATTERS

SC-2.02.A

Delete "ten" in the first line and replace with "three".

SC-2.03.A

Delete paragraph 2.03.A in its entirety and replace with the following:

2.03.A A Notice to Proceed may be given at any time within thirty days after the Effective Date of the Agreement. The Contract Time will commence at the time specified in such notice or, if noticed is not given, thirty days following the Effective Date of Agreement, provided that the Notice to Proceed may not specify a time of commencement later than 60 days after the Effective Date of the Agreement. However, the CONTRACTOR has no rights or remedies arising from execution of the agreement prior to receiving a Notice to Proceed from the OWNER or ENGINEER.

SC-2.05.C

Delete paragraph 2.05.C in its entirety and replace with the following:

2.05.C. Before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with copies to ENGINEER and each additional insured identified in Article 5 of the Supplementary Conditions, certificates of insurance (and other evidence requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the requirements of Article 5.

SC-2.07.A

Delete "Engineer" throughout paragraph 2.07.A and replace with "Engineer and Owner".

ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01.A

Add a new paragraph immediately after Paragraph 3.01.A, which is to read as follows:

3.01.A.1 Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the

application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

ARTICLE 4. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

SC-4.01.C

Add a new paragraph immediately after paragraph 4.01.C, which is to read as follows:

4.01.D If all lands and right-of-ways are not obtained as herein contemplated before construction begins, CONTRACTOR shall begin the Work upon such land and right-of-ways as OWNER has previously acquired and no claim for damages whatsoever will be allowed by reason of delay in obtaining the remaining lands and right-of-way. Should OWNER be prevented or enjoined from proceeding with the Work, or from authorization its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or right-of-ways for the Work, CONTRACTOR shall not be entitled to make or assert claim for damage by reason or said delay, or to withdraw from the Agreement except by consent of OWNER. Time of completion of the Work will be extended as provided in Article 12, to such time OWNER determines will compensate for the time lost by such delay.

SC-4.02.B

Delete "Supplementary Conditions" from the sixth line and replace with "Specifications and Contract Drawings".

SC-4.02.C

Add the following new paragraph immediately after paragraph 4.02.B, which is to read as follows:

C. In the preparation of Drawings and Specifications, the ENGINEER has relied upon the following reports of explorations and tests of subsurface conditions at the Site:

1. None

D. Copies of reports itemized in SC-4.02.C that are not included with Bidding Documents may be purchased from the ENGINEER's office during regular business hours. These reports are not part of the Contract Documents, but the "technical data" contained herein

upon which the CONTRACTOR may rely as identified and established above are incorporated therein by reference. CONTRACTOR is not entitled to rely upon other information and data utilized by ENGINEER in preparation of Drawings and Specifications.

SC-4.04.B.2

Add the following to the end of the second sentence of Paragraph 4.04.B.2:

“and if the existing underground facility requires relocation and is not covered by other Lump Sum or Unit Price items of Work”.

SC-4.05.A

Add a new paragraph immediately after paragraph 4.05.A, which is to read as follows:

4.05.B ENGINEER may check the lines, elevations, reference marks, batter boards, etc., set by CONTRACTOR, and CONTRACTOR shall correct any errors disclosed by such check. Such a check shall not be considered as approval of CONTRACTOR'S work and shall not relieve CONTRACTOR of the responsibility for accurate construction of the entire Work. CONTRACTOR shall furnish personnel to assist ENGINEER in checking lines and grades.

ARTICLE 5. BONDS AND INSURANCE

SC-5.03.A

Add a new paragraph immediately after paragraph 5.03.A, which is to read as follows:

5.03.B Wherever in this Article the terms "The Insured" and OWNER occurs with respect to coverage in a policy, it shall mean the OWNER and its agent and agencies, all municipalities where work is being performed under the Contract, the ENGINEER, and any other parties specifically designated herein, who shall be named as insured in each policy issues. The insurance policies required herein shall not contain any Third Party Beneficiary Exclusion.

The CONTRACTOR shall not commence work under the Contract until he has obtained all insurance required under this Article and such insurance has been approved by the OWNER, nor shall the CONTRACTOR allow any Subcontractor to commence work on his Subcontract until all similar insurance required of the Subcontractor has been so obtained and approved.

Provisions of some types of insurance by a Subcontractor may be waived, at the option of the OWNER, where it is deemed that adequate coverage is provided by the CONTRACTOR'S insurance. Subcontractors must, in all cases, provide Workmen's Compensation and Employer's Liability Insurance and Motor Vehicle Liability Insurance.

An authorized representative of the insurance company(ies) shall certify that all of the required insurance coverages and amounts specified hereinafter are provided by the submitted policies. The certification shall be signed by the authorized representatives of the insurance company(ies) shall specifically indicate with the submittal which of the policies submitted fulfill which specific coverage and amounts specified under Article 5.4 and 5.5 of the Supplementary Conditions. The certification statement and correlation shall be furnished and included with the insurance certificates.

One (1) copy of each such insurance policy and certificates indicating each type of coverage mentioned, and the correlation between the insurance furnished and that required, shall be filed with each of the Insured.

All policies relating to the Contract shall be so written that each of The Insured shall be notified by the carrier of cancellation or change at least sixty (60) days prior to the effective date of such cancellation or change. Renewal certificates covering the renewal of all policies expiring during the lift of the Contract shall be filed with each of The Insured not less than sixty (60) days before the expiration of such policies. The insurance carrier shall notify each of The Insured of the filing of any claims within thirty (30) days of the filing of such claim.

SC-5.04.B.1

Add a new paragraph immediately after paragraph 5.04.B.1, which is to read as follows:

5.04.B.1.a The following entities are “additional insured as their interest may appear” including their respective officers, directors, agents, and employees: ENGINEER: Garrett and Moore, Inc., and any sub-consultants to the ENGINEER, including their respective offices, directors, agents, and employees, to be named during the execution of this Contract.

SC-5.04.B.5

Delete the words “to whom a certificate of insurance has been issued” from the six and seventh lines.

SC-5.04.B.7

Delete the words “to whom a certificate of insurance has been issued” from the six and seventh lines.

SC-5.04.B.7

Add new paragraphs immediately after paragraph 5.04.B.7, which are to read as follows:

5.04.B.7.a CONTRACTOR may purchase and maintain excess liability insurance in the umbrella form in order to satisfy the limits of liability required for the insurance to be purchased and maintained in accordance with paragraph 5.04. Evidence of such excess liability shall be delivered to OWNER in accordance with paragraph 2.05.C. in the form of a certificate indicating the policy numbers and limits of liability of all underlying insurance. The umbrella liability insurance shall have a combined single limit of not less than \$5,000,000.

5.04.B.7.b With respect to all insurance required by this paragraph 5.04, CONTRACTOR agrees to waive all rights of subrogation against OWNER, ENGINEER, and each additional insured identified in the Supplemental Conditions.

5.04.B.7.c In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, CONTRACTOR shall purchase and maintain for OWNER at CONTRACTOR’S expense OWNER’s Protective Liability insurance naming OWNER as the named insured with ENGINEER and ENGINEER’s consultants as additional insured.

5.04.B.7.c.1 Said insurance will protect said parties against claims which may arise from operations under the Contract Documents. This coverage shall be in the same company, which provides CONTRACTOR’s liability insurance coverage, and it the same minimum amounts.

5.04.B.7.c.2 The following entities are “additional insured as their interest may appear” including their respective officers, directors, agents, and employees: ENGINEER: Garrett and Moore, Inc., and any sub-consultants to the ENGINEER, including their respective offices, directors, agents, and employees, to be named during the execution of this Contract.

5.04.C The limits of liability for the insurance required by paragraph 5.04.A of the General Conditions shall provide coverage for not less than the following amounts or greater where required by law:

5.04.A.1 and 5.04.A.2 Workers' Compensation

- | | | |
|-----|-----------------------|-------------|
| (1) | Worker's Compensation | Statutory |
| (2) | Employer's Liability | \$1,000,000 |

5.04.A.3, 5.04.A.4, and 5.04.A.5 Comprehensive General Liability including Premise/Operations; Explosion, Collapse and Underground Property Damage; Products/Completed Operations, Broad Form Contractual, Independent Contractors; Broad Form Property Damage; and Personal Injury liabilities:

- | | | |
|---|-------------|------------------|
| (1) Bodily Injury: | \$1,000,000 | Each Occurrence |
| | \$1,000,000 | Annual Aggregate |
| (2) Property Damage: | \$1,000,000 | Each Occurrence |
| | | Annual Aggregate |
| (3) Personal Injury, with employment exclusion deleted. | \$1,000,000 | Annual Aggregate |

5.04.A.6. Comprehensive Automobile Liability including all owned (private and others), hired and non-owned vehicles:

- | | | | |
|-----|---|-------------|----------------|
| (1) | Combined Single Limit
(Bodily Injury and Property Damage): | \$3,000,000 | Each Accident. |
|-----|---|-------------|----------------|

SC-5.06

Delete paragraphs 5.06.A, 5.06.B, 5.06.C, and 5.06.E in their entirety without replacing.

SC-5.07

Delete paragraphs 5.07.A, 5.07.B, and 5.07.C, in their entirety without replacing.

SC-5.08.A

Delete paragraphs 5.08.A and 5.08.B in their entirety without replacing.

SC-5.09.A

Delete paragraph 5.09.A in its entirety without replacing.

SC-5.10.A

Delete paragraph 5.10.A in its entirety without replacing.

ARTICLE 6. CONTRACTOR'S RESPONSIBILITIES

SC-6.01.A

Add the following at the end of paragraph 6.01.A:

CONTRACTOR is responsible for coordination with their Subcontractors, other project contractors, the OWNER and the ENGINEER.

SC-6.02.B

Add the following to the beginning of the first sentence of paragraph 6.02.B:

In the absence of any Federal, State or local laws, regulations or covenants and, ...

SC-6.02.B

Add new paragraphs immediately after paragraph 6.02.B, which are to read as follows:

6.02.B.1 Regular working hours are defined as 10 hours per day, Monday through Friday, excluding holidays, between the hours of 7 AM and 7 PM. Requests to work other than regular working hours shall be submitted to ENGINEER not less than 48 hours prior to any proposed additional daily working hours, weekend work, or scheduled extended work weeks. All requests to work other than regular working hours must comply with all applicable regulation and ordinances. Requests will be reviewed by ENGINEER and ENGINEER will either (1) deny request or (2) provide CONTRACTOR with terms for additional engineering and/or inspection costs to be paid for by CONTRACTOR as a result of overtime work in excess of the regular working hours. CONTRACTOR shall agree to the ENGINEER's terms prior to ENGINEER approving CONTRACTOR's request to work other than regular working hours.

6.02.B.2. CONTRACTOR shall reimburse the OWNER for additional engineering and/or inspection costs incurred as a result of overtime work in excess of the regular working hours stipulated in Article SC-6.02.B.1. At OWNER'S option, overtime costs may either be deducted from the CONTRACTOR'S monthly payment request or deducted from the CONTRACTOR'S retention prior to release of final payment. Overtime costs for the OWNER'S personnel shall be based on the

individual's current overtime wage rate and expenses. If applicable, overtime costs for personnel employed by the ENGINEER shall be as follows:

Resident Project Representative	\$75.00 per hour
Registered Professional Engineer (PE)	\$120.00 per hour

6.02.B.3. CONTRACTOR shall employ only competent persons to do the work and whenever OWNER shall notify CONTRACTOR, in writing, that any person on the Work appears to be incompetent, disorderly, or otherwise unsatisfactory, such person shall be removed from the PROJECT and shall not again be employed except with the consent of OWNER.

SC-6.03.A

Add a new paragraph immediately after paragraph 6.03.A, which is to read as follows:

6.03.A.1 Where all Work requires equipment be furnished, due to the lack of standardization of equipment as produced by various manufacturers, it may become necessary to make minor modifications in the structures, buildings, piping, to accommodate the particular equipment offered. CONTRACTOR'S bid price for any equipment offered shall include the cost of making any necessary changes subject to the approval of ENGINEER.

SC-6.03B

Add a new sentence after the first sentence in paragraph 6.03.B, which is to read as follows:

All items of standard equipment shall be of the latest model at the time of delivery.

SC-6.06.A

Delete Paragraphs 6.06.A and 6.06.B in their entirety and replace with the following:

6.06.A CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization, (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom OWNER may have reasonable objection. Acceptance of any Subcontractor, other person or organization by OWNER shall not constitute a waiver of any right of OWNER to reject defective Work. CONTRACTOR shall not be required to employ any

Subcontractor, other person or organization against whom CONTRACTOR has reasonable objection.

SC-6.06.D

Add a new paragraph at the end of section 6.06.D, which is to read as follows:

6.06.D.1 OWNER or ENGINEER may furnish to any such Subcontractor, Supplier or other person or organization, to the extent practicable, information about amounts paid on their behalf to CONTRACTOR in accordance with CONTRACTOR'S Applications for Payment.

SC-6.07.A

Delete 6.07.A in its entirety and replace with the following:

6.07.A Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work of any invention, design, process, products or device which is the subject of patent rights or copyrights held by others. CONTRACTOR shall indemnify and hold harmless OWNER and Engineer and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses, including attorney's fees, arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or furnished by him in fulfillment of the requirements of this Contract. In the event of any claim or action by law on account of such patents or fees, it is agreed that the OWNER may retain out of the monies which are or which may become due the CONTRACTOR under this Contract, a sum of money sufficient to protect itself against loss, and to retain the same until said claims are paid or are satisfactorily adjusted.

SC-6.10.A

Delete paragraph 6.10.A in its entirety and replace with the following:

6.10.A The following procedure in handling the North Carolina Sales Tax is applicable to this Project. CONTRACTORS shall comply fully with the requirements outlined hereinafter, in order that the OWNER may recover the amount of tax permitted under the law.

6.10.A.1 It shall be the CONTRACTOR'S responsibility to furnish the OWNER documentary evidence showing the materials used and sales tax paid by the CONTRACTOR and each of his Subcontractors with

each payment request in a format approved by the OWNER.

6.10.A.2 The documentary evidence shall consist of a certified statement, by the CONTRACTOR and each of his Subcontractors individually, showing total purchases of materials from each separate vendor and total sales taxes paid each vendor. Certified statements must show the invoice number or numbers, covered and inclusive dates of such invoices.

6.10.A.3 Materials used from the CONTRACTOR'S or Subcontractor's warehouse stock shall be shown in a certified statement at warehouse stock prices.

6.10.A.4 The CONTRACTOR shall not be required to certify the Subcontractor's tax statements.

6.10.A.5 The documentary evidence to be furnished to OWNERS eligible for sales or use tax refunds covers sales taxes paid on building materials, supplies, fixtures, and equipment which become a part of or annex to buildings or structures being erected, altered or repaired under Contracts with such institutions, organizations or governmental units.

SC-6.13.B

Add a new paragraph immediately after paragraph 6.13.B, which is to read as follows:

6.13.C Until final acceptance of the work by the ENGINEER, as evidenced in writing, the CONTRACTOR shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by action of the elements, or from other causes, whether arising from the execution or from the non-execution of the work. Unless otherwise provided in these specifications, the CONTRACTOR shall rebuild, restore and make good all injuries or damages to any portion of the work occasioned by any cause before final acceptance and shall bear the expense thereof.

SC-6.19.A

After the first sentence of paragraph 6.19.A add the following:

All materials or equipment delivered to the site shall be accompanied by certificates, signed by an authorized officer of the supplier, and notarized guaranteeing that the materials or equipment conform to specification requirements. Such certificates shall be immediately

turned over to the ENGINEER. Materials or equipment delivered to the site without such certificates will be subject to rejection.

SC-6.20.A.2

Delete the word "negligent" from the first line

SC-6.20.A.2

Add the following to the end of paragraph 6.20.A.2

If through the acts of negligence on the part of CONTRACTOR, any other CONTRACTOR or any Subcontractor shall suffer loss or damage on the Work, CONTRACTOR shall settle with such other CONTRACTOR or Subcontractor by agreement or arbitration if such other CONTRACTOR or Subcontractor will so settle. If such other CONTRACTOR or Subcontractor shall assert any claim against OWNER on account of any damage alleged to have been sustained, OWNER shall notify CONTRACTOR, who shall indemnify and save harmless OWNER against any such claims.

SC-6.20.A.2

Add a new paragraph immediately after paragraph 6.20.A.2, which is to read as follows:

6.20.A.3 It is understood and agreed between the parties that the Owner is in no way connected with the actual performance of this contract on the part of the CONTRACTOR, nor as to the employment of labor or the incurring of other expenses; that the CONTRACTOR is an independent contractor in the performance of each and every part of this contract and so liable for all labor and expenses in connection therewith and for all damages which may be occasioned on account of the operation of this contract, whether the same be for personal injuries or damages of any kind. Nothing in these Contract Documents shall be construed to be inconsistent with the CONTRACTOR'S status as an independent contractor, or construed to constitute the CONTRACTOR, or any of its agents or employees as agents, employees, or representatives of the OWNER. The CONTRACTOR will superintend the execution of all work covered by these Contract Documents which shall be in the exclusive charge and control of the CONTRACTOR. The CONTRACTOR agrees that as an independent contractor, it will not assert in any legal action by claim or defense, or take the position in any administrative procedures that it is an agent or employee of the Owner. The CONTRACTOR further

agrees that as an independent contractor it cannot and will not incur the OWNER with any obligation and that it will make no representation to any person or any party on behalf of the OWNER. The CONTRACTOR further additionally agrees that it will be barred and estopped from instituting or participating in any litigation against the OWNER to recover damages, costs, or expenses which might arise out of or in any way be connected with the performance of any work, services, or functions covered by this Agreement, with the exception of actions by the CONTRACTOR to recover payment for services provided under this Agreement. The CONTRACTOR further additionally agrees and binds itself and its successors in any action by the OWNER for recoupment or reimbursement of such damages and expenses and to be estopped for asserting as a defense that the OWNER did not have proper authority or approval to enter into such indemnity agreement or that the CONTRACTOR is not liable for such costs, claims, and expenses and the CONTRACTOR shall be deemed to have waived such defenses and positions so that only the amount of such costs, claims, etc. shall be the subject of defense. The CONTRACTOR agrees that these Contract Documents may be pleaded by the OWNER in such actions.

ARTICLE 7. OTHER WORK

SC-7.02.B

Add a new paragraph immediately after paragraph 7.02.B, which is to read as follows:

7.02.C Should CONTRACTOR cause damage to the work or property of any separate contractor at the site, or should any claim arising out of CONTRACTOR's performance of the Work at the site be made by any separate contractor against CONTRACTOR, OWNER, ENGINEER, Engineer's Consultants, the Construction Coordinator or any other person, CONTRACTOR shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER, ENGINEER, Engineer's Consultants and the Construction Coordinator harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals, and court and arbitration or mediation costs) arising directly, indirectly or consequentially out of any action, legal

or equitable, brought by any separate contractor against OWNER, ENGINEER, Engineer's Consultants or the Construction Coordinator to the extent based on a claim arising out of CONTRACTOR's performance of the Work. Should a separate contractor cause damage to the Work or property of CONTRACTOR or should the performance of work by any separate contractor at the site give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER, ENGINEER, Engineer's Consultants or the Construction Coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from OWNER, ENGINEER, Engineer's Consultants or the Construction Coordinator on account of any such damage or claim. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and OWNER and CONTRACTOR are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, CONTRACTOR may make a claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be CONTRACTOR's exclusive remedy with respect to OWNER, ENGINEER, Engineer's Consultants and Construction Coordinator for any delay, disruption, interference or hindrance caused by any separate contractor. This paragraph does not prevent recovery from OWNER, ENGINEER, Engineer's Consultant or Construction Coordinator for activities that are their respective responsibilities.

ARTICLE 8. OWNER'S RESPONSIBILITIES

SC-8.06.A

Delete paragraph 8.06.A in its entirety without replacing.

SC-8.11.A

Add a new paragraph immediately after paragraph 8.11.A, which is to read as follows:

8.12.A Work Changes: The OWNER may, as the need arises, order changes in the work through additions, deletions, or modifications to the extent of 25% of the Contract Price, without invalidating the Contract. Compensation and time of completion affected by the change shall be adjusted at the time of ordering such change.

ARTICLE 9. ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.03.A

Add a new paragraph immediately after paragraph 9.03.A, which is to read as follows:

9.03.B The duties and responsibilities of the Resident Project Representative will be as enumerated in Section 01055-Resident Project Representative of the Project Manual.

ARTICLE 10.CHANGES IN THE WORK

SC-10.01.A

Add the following to the end of the Paragraph 10.01.A:

A change in the Contract Price or the Contract Times shall be accomplished only be a written amendment, a written change order, or a written work change directive. Accordingly, no course of conduct or dealings between the parties, no expressed or implied acceptance of alterations or additions to the Work, and no claim that the OWNER had been unjustly enriched by any alterations or additions to the Work shall be the basis of any claim for an increase in any amount due under the contract documents or a change in any time period for in the contract documents.

SC-10.01.A

Add two (2) new paragraphs immediately after paragraph 10.04.A, which are to read as follows:

10.01.A.1. At any time ENGINEER may request a quotation from CONTRACTOR for a proposed change in the Work. Within 14 calendar days after receipt of a request for a quotation for a proposed change, a written and detailed proposal for an increase or decrease in the Contract Price or Contract Time for the proposed change. ENGINEER shall have 14 calendar days after receipt of the detailed proposal to respond in writing. The proposal shall include an itemized estimate of all cost and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in accordance with Articles 11 and 12 of the General Conditions, and in sufficient detail reasonably to permit an analysis by ENGINEER of all material, labor, equipment, subcontracts, overhead costs and fees, and shall cover all Work involved in the change, whether such Work was deleted, added, changed or impacted. Any amount claimed for subcontracts shall be similarly supported.

Itemized schedule adjustments shall be in sufficient detail to permit an analysis of impact as required in the Contract Documents. Notwithstanding the request for quotation, CONTRACTOR shall carry on the Work and maintain the progress schedule. Delays in the submittal of the written and detailed proposal will be considered non-prejudicial as defined in the Supplementary Conditions.

10.01.A.2 The adjustment in Contract Price and/or Contract Time stated in a Change Order shall comprise the total price and/or time adjustment due or owed the CONTRACTOR for the work or changes defined in the Change Order. By executing the Change Order, the CONTRACTOR acknowledges and agrees that the stipulated price and/or time adjustments include the costs and delays for all work contained in the Change Order, including costs and delays associated with the interruption of schedules, extended overheads, delay, and cumulative impacts of ripple effect on all other non-affected work under this contract. Signing of the Change Order constitutes full and mutual accord and satisfaction for the adjustment in contract price or time as a result of increases or decreases in costs and time of performance caused directly and indirectly from the change, subject to the current scope of the entire work as set forth in the Contract Documents. Acceptance of this waiver constitutes an agreement between OWNER and CONTRACTOR that the Change Order represents an equitable adjustment to the Contract, and that CONTRACTOR will waive all rights to file a claim on this Change Order after it is properly executed.

ARTICLE 11. COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

SC-11.01.A.1

Delete paragraph 11.01.A.1 in its entirety and replace with the following:

11.01.A.1 Payroll costs for employees in the direct employ of the CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by the OWNER and CONTRACTOR. 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' or workmen's compensation, health and retirement benefits, bonuses,

sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work after regular working hours, on Sunday or legal holidays shall be included in the above to the extent authorized by the OWNER.

- (1) Wage rates used in determining the amount of the payment shall be actual wage rates paid by the CONTRACTOR for Work under this Contract except that no rate used shall exceed the rate of comparable labor currently employed on the project.
- (2) Payment for the services of foremen in direct charge of the specific operation will be made. Payment for the service of superintendents, timekeepers, or other overhead personnel will not be made nor will payment for the services of watchmen be made unless required specifically by the Cost Reimbursement Work. The actual function performed by an employee rather than his payroll title will be the criterion used in determining the eligibility of an employee's services for payment under this provision.

SC-11.01.A.5.c.

Add two (2) new paragraphs immediately after paragraph 11.01.A.5.c which are to read as follows:

11.01.A.5.c.1 The types and amounts of equipment and machinery used by the CONTRACTOR in carrying out his Work shall be in keeping with normal practice for Work of a similar nature, except that the ENGINEER of OWNER may, at their discretion, limit by specific instruction the types and amounts of equipment and machinery to be used.

11.01.A.5.c.2 In computing the hourly rental of such equipment, less than thirty (30) minutes shall be considered one-half (1/2) hour, except the minimum rental time to be paid shall be one (1) hour. Rental time shall not be allowed while equipment is inoperative due to breakdowns. The rental time of equipment to be paid for shall be the time the equipment is in operation on the Cost Reimbursement Work being performed and, in addition, shall include the time required to move the equipment to the Work and return it to its original location. When approved in advance by the OWNER, towing or transporting costs will be allowed when the equipment is moved by means other

than its own power. No payment shall be made for moving time, towing, or transporting the equipment if it is used at the site of the Work on other than Cost Reimbursement Work. Payment for the approved rental time shall be at the monthly rental rate prorated over the rental time.

SC-11.01.A.5.j

Add a new paragraph immediately after paragraph 11.01.A.5.j, which is to read as follows:

11.01.A.5.k For additional premiums paid on Performance and Labor and Material Bonds by reason of increases in the amount of Work over and above that called for in the original Contract Agreement due to the inclusion of the Cost Reimbursement Work, and for additional premiums paid on public liability and property damage insurance by reason of extra hazard inherent in the Cost Reimbursement Work over and above the hazard normally encountered in Work of the type called for in the original Contract Agreement, the CONTRACTOR will, on presentation of substantiating evidence from his bonding and insurance carriers, be paid the actual costs to which sums no percentage will be added. Payment for the cost of additional premiums paid on workmen's compensation insurance by reason of extra hazard introduced into the CONTRACTOR's operations by the inclusion of Cost Reimbursement Work is covered by the provisions above, except that any claim for additional cost based on the application, by reason of extra hazard, or a higher insurance rate to any portion of the payroll over and above that chargeable to the Cost Reimbursement Work under the provisions above, must be substantiated by evidence from the CONTRACTOR's insurance carrier.

SC-11.03.C

Delete paragraph 11.03.C in its entirety and replace with the following:

11.03.C The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment under the following conditions:

11.03.C.1. If the total cost of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement;

and

11.03.C.2. If there is no corresponding adjustment with respect to any other item of Work; and

11.03.C.3. If CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof; or if OWNER believes that the quantity variation entitles OWNER to an adjustment in the unit price, either OWNER or CONTRACTOR may make a claim for an adjustment in the Contract Price in accordance with Article 11 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

ARTICLE 12 CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

SC-12.01.C.1

Delete paragraph 12.01.C.1 in its entirety without replacing.

SC-12.06.B

Add a new paragraph immediately after paragraph 12.06.B, which is to read as follows:

12.06.C. On any day that the CONTRACTOR considers that he is delayed by adverse weather conditions, he shall identify in writing to the ENGINEER and the OWNER the adverse weather conditions affecting his activity, the specific nature of the activity affected, the number of hours lost and the number of and identity (by responsibility or trade) of workers affected and shall obtain from the Engineer written recognitions of the delay. A delay is defined as the CONTRACTOR being unable to perform at least 4 hours of work on the critical path. The time for performance of this contract includes an allowance of ten (10) calendar days that are unsuitable for critical path construction work by reason of adverse weather. The Contract time will be extended only if the number of calendar days of adverse weather recognized by the Engineer exceeds the ten (10) calendar days of adverse weather set forth, and the Contractor demonstrates how this adverse weather impacts activities on the critical path of the Contract Construction schedule.

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

SC-13.02.A

Delete paragraph 13.02.A in its entirety and replace with the following:

13.02.A ENGINEER and his representatives and other representatives of OWNER, State and public agencies shall have unrestricted access to the Work. CONTRACTOR shall provide proper and safe facilities for such access and observation, and such uncovering and replacement shall be at CONTRACTOR's expense.

SC-13.03.B

Delete paragraph 13.03.B in its entirety and replace with the following:

13.03.B. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to be specifically inspected, tested, or approved by some public body, CONTRACTOR shall assume full responsibility therefore, pay all costs in connection therewith and furnish ENGINEER the required certificates of inspection, testing or approval.

13.03.B.1 The OWNER reserves the right to independently perform at its own expense, laboratory tests on random samples of material or performance tests on equipment delivered to the site. These tests if made will be conducted in accordance with the appropriate referenced standards or specification requirements. The entire shipment represented by a given sample, samples or piece of equipment may be rejected on the basis of the failure of samples or pieces of equipment to meet specified test requirements. All rejected materials or equipment shall be removed from the site, whether stored or installed in the Work, and the required replacement shall be made, all at no additional cost to the OWNER.

SC-13.05.A

Add a new paragraph immediately after paragraph 13.05.A, which is to read as follows:

13.05.B. If the OWNER stops Work under Paragraph 13.05 CONTRACTOR shall be entitled to no extension of Contract Time or increase in Contract Price.

SC-13.09.A

Add a new sentence immediately after the first sentence of paragraph 13.09.A, which is to read as follows:

However, if the deficiency results in the issuance of the Notice of Violation by any agency or department of the State of the project location, OWNER may take immediate action to correct and remedy any such deficiency without written notice.

SC-13.09.D

Add a new paragraph immediately after paragraph 13.09.D, which is to read as follows:

13.09.E At any time during the progress of the Work and up to the date of final acceptance, the Engineer shall have the right to reject any work which does not conform to the requirements of the Contract Documents, even though such work has been previously inspected and paid for. Any omissions or failure on the part of the Engineer to disapprove or reject any Work or materials at the time of inspection shall not be construed as an acceptance of any defective work or materials.

ARTICLE 14. PAYMENTS TO THE CONTRACTOR AND COMPLETION

SC-14.02.A.1

Delete paragraph 14.02.A.1 in its entirety and replace with the following:

14.02.A.1 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. CONTRACTOR shall submit Application for Payment on or after the date established for progress payments (but not more than once a month). 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 the 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. The CONTRACTOR shall also furnish evidence that payment received on the basis of such materials and equipment has in fact been paid to the respective supplier(s) within sixty days of payment by OWNER. Failure to provide such evidence of payment may result

in the withdrawal of previous approval(s) and removal of the cost of related materials and equipment from the next submitted Application for Payment.

SC-14.02.C.1

Amend the first sentence of Paragraph 14.02.C.1 to read as follows:

Thirty days after presentation of the Application for Payment

SC-14.03.A

Add two (2) new paragraphs immediately after paragraph 14.03.A, which are to read as follows:

14.03.B No materials or supplies for the Work shall be purchased by CONTRACTOR or Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. CONTRACTOR warrants that he/she has good title to all materials and supplies used by him/her in the Work, free from all liens, claims or encumbrances.

14.03.C CONTRACTOR shall indemnify and save OWNER harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this Contract. CONTRACTOR shall at OWNER's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If CONTRACTOR fails to do so, then OWNER may, after having served written notice on the said CONTRACTOR either pay unpaid bills, of which OWNER has written notice, direct, or withhold from the CONTRACTOR's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to CONTRACTOR shall be resumed, in accordance with the terms of this Contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon OWNER to either CONTRACTOR or his/her Surety. In paying any unpaid bills of the CONTRACTOR, OWNER shall be deemed the agent of CONTRACTOR and any payment so made by OWNER, shall be considered as payment made under the Contract by OWNER to CONTRACTOR and OWNER

shall not be liable to CONTRACTOR for any such payment made in good faith.

SC-14.04.A

Delete paragraph 14.04.A in its entirety and replace with the following:

14.04.A Contractor may, in writing to OWNER and Engineer, certify that the entire Project is substantially complete and request that Engineer issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, Contractor and Engineer shall make an inspection of the Project to determine the status of completion. If Engineer and OWNER do not consider the Project substantially complete, Engineer will notify Contractor in writing giving his reasons therefor. If Engineer and OWNER consider the Project substantially complete, Engineer will prepare and deliver to OWNER a tentative certificate of Substantial Completion and the responsibilities between OWNER and Contractor for maintenance. There shall be attached to the certificate a tentative list of items to be completed or corrected before Substantial Completion, and the certificate shall fix the time within which such items shall be completed or corrected, said time to be within Contract Time.

SC-14.05.A

Delete 14.05.A in its entirety and replace with the following:

14.05.A Prior to Substantial Completion of the Project, OWNER may request Contractor in writing to permit him to use a specified part of the Project which he believes he may use without significant interference with construction of the other parts of the Project. If Contractor agrees, he will certify to OWNER and Engineer that said part of the Project is substantially complete and request the Engineer to issue a certificate of Substantial Completion for that part of the Project. Within a reasonable time thereafter, OWNER, Contractor and Engineer shall make an inspection of that part of the Project to determine its status of completion. If Engineer and OWNER do not consider that it is substantially complete, Engineer will notify Contractor in writing giving his reasons therefore. If Engineer and OWNER consider that part of the Project to be substantially complete, Engineer will execute and deliver to OWNER and Contractor a certificate to that effect, fixing the date of Substantial Completion as

to that part of the Project, attaching thereto a tentative list of items to be completed or corrected before Substantial Completion of the entire Project and fixing the responsibility between OWNER and Contractor for Maintenance as to that part of the Project. OWNER shall have the right to exclude Contractor from any part of the Project which Engineer has so certified to be substantially complete, but OWNER shall allow Contractor reasonable access to complete items on the tentative list.

SC-14.07

Delete paragraphs 14.07.B and 14.07.C in their entirety replace with the following:

14.07.B 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 - all 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 indicate in writing his/her recommendation of payment and present the Application to OWNER for payment. Thereupon, ENGINEER will 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 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. If the Application and accompanying documentation are appropriate as to form and substance, OWNER shall, within sixty-five days after receipt thereof pay CONTRACTOR the amount recommended by ENGINEER.

SC-14.08.A

Add a new paragraph immediately after paragraph 14.08.A, which is to read as follows:

14.08.A.1 CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress of final payment by ENGINEER, nor the issuance of a certificate of Substantial Completion, nor any payment by Owner to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any

failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.07, nor any correction of defective work by OWNER will constitute an acceptance of work not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the work in accordance with the Contract Documents (except as provided in paragraph 14.09).

ARTICLE 15. SUSPENSION OF WORK AND TERMINATION

SC-15.01.A

Add a new paragraph immediately after paragraph 15.01.A, which is to read as follows:

15.01.A.1 Should the OWNER suspend Work due to repeated unsafe Work conducted by the CONTRACTOR which is confirmed by subsequent inspection by OSHA, the CONTRACTOR shall not be allowed any adjustment in Contract Price or extension of Contract Time attributed to this delay.

SC-15.02.A.2

Add the following to the end of Section 15.02.A.2 after "jurisdiction":

"(including those governing employee safety)"

SC-15.02.A.4

Add a new paragraph immediately after paragraph 15.02.A.4, which is to read as follows:

15.02.A.5 If CONTRACTOR abandons the Work, or sublets this Contract or any part thereof, without the previous written consent of OWNER, or if the Contract or any claim thereunder shall be assigned by CONTRACTOR otherwise than as herein specified;

SC-15.04.A

Add a new paragraph immediately after paragraph 15.04.A, which is to read as follows:

15.04.B. CONTRACTOR shall not assign, transfer, convey or otherwise dispose of the Contract, or of his legal right, title, or interest in or to the same or to any part thereof, without the prior written consent of the OWNER. CONTRACTOR shall not assign by power of attorney or otherwise any monies due him and payable under this contract without the prior written consent of the OWNER. Such consent, if given, will in no way relieve the CONTRACTOR from any of the obligations of this Contract.

ARTICLE 16. DISPUTE RESOLUTION

SC-16.

Delete paragraph 16.01.A in its entirety and replace with following:

16.01.A This Agreement shall be governed by and construed in accordance with the laws of the State of North Carolina. Any cause of action between the parties arising out of or involving this Agreement shall be brought in the Superior Court of Cleveland County, North Carolina.

ARTICLE 17. MISCELLANEOUS

SC-17.01.A

Add a new paragraph immediately after paragraph 17.01.A, which is to read as follows:

17.01.B. No oral statement of any person whomsoever shall in any manner of degree modify or otherwise affect the terms of this Contract. Any notice to the CONTRACTOR, from OWNER and ENGINEER, relative to any part of this Contract shall be in writing.

SC-17.05.A

Add four (4) new paragraphs immediately after paragraph 17.05.A, which are to read as follows:

17.06.A. Both the address given in the Bid Form upon which this Agreement is founded, and CONTRACTOR's office at or near the site of the Work are hereby designated as places to either of which notices, letters, and other communications to CONTRACTOR shall be certified, mailed, or delivered. The delivering at the above named place, or depositing in a postpaid wrapper directed to the first-named place, in any post office box regularly maintained by the post office department, of any notice, letter or other communication to Contractor shall be deemed sufficient service thereof upon CONTRACTOR; and the date of said service shall be the date of such delivery or mailing. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by CONTRACTOR, and delivered to OWNER and ENGINEER. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter, or other communication upon CONTRACTOR personally.

17.07.A. The form of all submittals, notices, change orders and other

documents permitted or required to be used or transmitted under the Contract Documents shall be determined by the ENGINEER. The forms for Notice of Award, Notice to Proceed, Field Order, Application for Payment, Work Change Directive, Change Order, Certificate of Substantial Completion and Final Receipt which the ENGINEER may use are contained in the Project Manual.

17.08.A. The CONTRACTOR shall keep adequate records and supporting documents applicable to this contractual matter. Said records and documentation will be retained by the CONTRACTOR for a minimum of five (5) years from the date of termination of this Contract. The OWNER and its authorized agents shall have the right to audit, inspect and copy records and documentation as often as the OWNER deems necessary during the period of this Contract and during the period of five (5) years thereafter; provided, however, such activity shall be conducted only during normal business hours. The OWNER, during the period of time expressed by the preceding sentence, shall also have the right to obtain a copy of and otherwise inspect and audit made at the direction of the CONTRACTOR as concerns the aforesaid records and documentation.

17.09.A Whenever the terms of the Contract require the CONTRACTOR to notify or advise the OWNER in writing on a specific matter, such written notification or advisement shall be limited to one subject or one item. By virtue of this Paragraph, the CONTRACTOR is prohibited from addressing more than one issue or subject in a letter, when the intent of such letter is to satisfy a notification requirement called for in the Contract. Any notice not in compliance with this requirement shall automatically not be deemed to satisfy the notice or advisement requirement imposed by this Contract.

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END OF SECTION

**SECTION 00850
DRAWING INDEX**

Drawing 1	Facility Layout
Drawing 2	Existing Conditions
Drawing 3	Grading Plan & Erosion Control Measures
Drawing 4	Profiles
Drawing 5	Details
Drawing 6	Details

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END OF SECTION

**SECTION 01010
SUMMARY OF WORK**

PART 1: GENERAL

1.01 LOCATION OF WORK

- A. The work of this Contract is located in Cleveland County, North Carolina.

1.02 WORK TO BE DONE

- A. Provide all labor, materials, equipment, tools, services and incidentals necessary to complete all work required by the Contract Documents to furnish and install all work as shown on the Drawings and specified herein.
- B. Complete the Work, in place, tested, and ready for continuous service. Perform or provide repairs, replacements and restoration required as a result of damages resulting from construction operations.
- C. Furnish and install all materials, equipment, and incidentals which are reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Contract Documents or not.

1.03 DRAWINGS AND SPECIFICATIONS FURNISHED TO THE CONTRACTOR FOR CONSTRUCTION

- A. One electronic set of Drawings and a portable document format (.pdf) file of Specifications shall be furnished to the Contractor for construction at no charge. Additional sets may be purchased at the cost of reproduction.

1.04 ABBREVIATIONS AND REFERENCES

- A. Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the date of advertisement for bids, even if reference has been made to an earlier standard. Where standards, specifications or codes of the various technical societies, organizations or bodies have been referred to throughout the Specifications, the referenced standard, specification or code is hereby made a part of the Contract the same as if herein repeated in full.

- B. In the event of any conflict between any of these specifications, standards, codes or tentative specifications, and the Specifications, the latter shall govern.
- C. Reference to a technical society, organization, or body may be made in the Specifications by abbreviations, in accordance with the following list:

AASHTO	The American Assoc. of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AGA	American Gas Association
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASME	American Society at Mechanical Engineers
ASTM	American Society of Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association
DIPRA	Ductile Iron Pipe Research Association
EPA	Environmental Protection Agency
FED.SPEC.	Federal Specifications
IEEE	Institute of Electrical and Electronic Engineers
OSHA	Occupational Safety and Health Administration
SCDOT	South Carolina Department of Transportation
NEMA	National Electrical Manufacturers Association
DEHNR	Department of Environment, Health, and Natural Resources

- D. When no reference is made to a code, standard, or specification, the standard specifications of the ASTM, the ANSI, the ASME, the IEEE, or the NEMA shall govern.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

END OF SECTION

**SECTION 01025
MEASUREMENT AND PAYMENT**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. All contract prices included in Section 00300 will be full compensation for all labor, materials, tools, equipment, and incidentals necessary to complete the Work as shown on the Drawings and specified in the Contract Documents to be performed under this Contract.
- B. The items listed below, refer to and are the same pay items listed in the Bid Form. They constitute all of the pay items for the completion of the Work. No direct or separate payment will be made for providing miscellaneous temporary or accessory work, services, job signs, sanitary requirements, testing, safety devices, surveying, field engineering, approval and record drawings, water supplies, power, maintaining traffic, removal of waste, watchmen, and all other requirements of the General Conditions and DIVISION 1 GENERAL REQUIREMENTS. Compensation for all such services, equipment and materials shall be included in the prices stipulated for the lump sum and unit price bid items listed herein.
- C. Each lump sum and 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. Restoration is not a separate bid item but is considered to be an integral part of the work under the contract, and all contract bid prices include the cost of restoration necessitated by the work related to that bid item.
- E. Progress Payment for any item for which certifying surveys are required by Section 01050 will be made based on estimated quantities verified by the ENGINEER. The ENGINEER will verify all final quantities prior to Final Payment for that item. Certifying surveys will be required for payment greater than 75% of the estimated total amount of that bid item as required by Section 01050. No Final Payment will be made for any item for which certifying surveys required by Section 01050 have not been submitted and approved by the ENGINEER.

1.02 BID ITEMS

Item 1 – Bonds (IF REQUIRED), Insurance, Mobilization and Demobilization

1. Measurement for this item will be based on actual invoice amounts to substantiate the actual bond and insurance premiums and other invoiced costs, as well as an allowance for mobilization/demobilization. Performance and Payment bonds are required only if total bid price exceeds **\$300,000**.
2. Payment: The lump sum bid for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for Bonds, Insurance, and organizing and moving all forces, supplies, equipment and incidentals to the project site, regardless of the number of times such moves are made, and all pre-construction costs incurred after award of the contract.

Item 2 – Silt Fence

1. Measurement: The quantity of Silt Fence to be paid under this item will be the actual number of linear feet of Silt Fence installed.
2. Payment: The unit price bid for this item will be full compensation for vegetation removal, furnishing, installing, and maintaining Silt Fence as shown on the Drawings and specified herein, for a minimum period including the duration of the project or until areas are stabilized with vegetation.

Item 3 – Clearing & Grubbing

1. Measurement: The quantity of Clearing and Grubbing to be paid under this item will be the actual number of acres of land cleared and grubbed including removal of surface organic debris within the construction limits as measured by the survey of the two-dimensional plan limits of clearing and grubbing as required by Section 01050. Clearing and grubbing debris to be stockpiled at a location approved by the ENGINEER. CONTRACTOR to dispose of clearing and grubbing debris by burning. No burning shall be performed without CONTRACTOR obtaining applicable burning permits. The area measurement for payment will be verified by the ENGINEER.
2. Payment: The unit price bid for this item will be full compensation to perform all work required to remove and dispose existing clearing and grubbing debris at the onsite Compost Area. No Final Payment will be made for this item for which certifying surveys required by Section 01050 have not been submitted and approved by the ENGINEER.

Item 4 – Stripping

1. Measurement: The quantity of Stripping which will be paid for under this item will be the actual number of square yards, as measured in the two-dimensional plan view, stripped within the construction limits as measured by the survey of the limits of stripping.
2. Payment: The unit prices bid for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required to perform all work required to remove existing vegetation and topsoil within the construction limits. Stripped debris shall be placed in Surplus Soil Stockpile.

Item 5 – Excavate and Backfill Soil from Sediment Basin 4

1. Measurement: The quantity of Excavate and Backfill Soil from Sediment Basin 4, to be paid under this item will be the actual number of cubic yards measured by comparing the topographic survey performed after the clearing, grubbing, and stripping and prior to excavation and backfill, to the topographic survey performed upon the completion of excavation and backfill.
2. Payment: The unit price per cubic yard for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing as shown on the Drawings and specified herein including but not limited to excavating, backfilling, providing temporary support and restoring all parallel and intersecting utilities; site preparation; excavation; drainage and dewatering; sheeting and bracing; grading; stockpiling of excess excavated material; test pits to verify location and depth of existing buried utilities and other facilities, care and protection of existing utilities and structures; site restoration; conformance of all state, federal standards and requirements; and all other work required for or incidental to the satisfactory completion of all Work for which payment is not provided under other items in the bid form.

Item 6 – Excavate Soil from Sediment Basin 4 and Stockpile in Surplus Soil Stockpile

1. Measurement: The quantity of Excavate Soil from Sediment Basin 4 and Stockpile in Surplus Soil Stockpile to be paid under this item will be the actual number of cubic yards measured by comparing the topographic survey performed upon the completion of excavation and after completion of stockpiling.
2. Payment: The unit price per cubic yard for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing as shown on the Drawings and specified herein including but not limited to excavating, hauling, stockpiling, providing temporary support and restoring all parallel and intersecting utilities; site preparation; drainage and dewatering; sheeting and bracing; grading; stockpiling of excess excavated material; test pits to verify location and depth of existing buried utilities and other facilities, care and protection of existing utilities and structures; site restoration; conformance of all state, federal standards and requirements; and all other work required for or incidental to the satisfactory completion of all Work for which payment is not

provided under other items in the bid form.

Item 7 – Furnish & Install SB-4 Riser Outlet Structure w/ Skimmer

1. The lump sum price bid for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required to Sediment Pond Riser Outlet Structure w/Skimmer, including precast concrete box, filter diaphragm, skimmer outlet, anti-vortex device, and other items required for the installation of the Sediment Pond Riser Outlet Structure w/ Skimmer for which payment is not provided under other items in the bid form.

Item 8 – Furnish & Install SB-5 Riser Outlet Structure w/ Skimmer

1. The lump sum price bid for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required to Sediment Pond Riser Outlet Structure w/Skimmer, including precast concrete box, filter diaphragm, skimmer outlet, anti-vortex device, and other items required for the installation of the Sediment Pond Riser Outlet Structure w/ Skimmer for which payment is not provided under other items in the bid form.

Item 9 – Sediment Pond Baffles

2. Measurement: The quantity of Sediment Pond Baffles to be paid under this item will be the actual number of linear feet of Sediment Pond Baffles installed.
3. Payment: The unit price bid for this item will be full compensation for vegetation removal, furnishing, installing, and maintaining Sediment Pond Baffles as shown on the Drawings and specified herein, for the duration of the project.

Item 10 – Furnish & Install 36" RCP w/ End Treatment

1. Measurement: The quantity of Sediment Pond Outlet 36" RCP w/ Concrete Endwall to be paid for under these items will be the actual number of linear feet of pipe in place measured horizontally along the centerline of the installed pipe.
2. Payment: The unit price per linear foot for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the RCP pipe as shown on the drawings and specified herein, including, but not limited to, trench excavation and backfill, furnishing and installing pipe, NCDOT Concrete Endwall per Standard Drawing 838.01, fittings, gaskets, testing, and all other appurtenances. RCP shall conform to ASTM C76, Class IV, Wall B with tongue and groove joints with provisions for installation of rubber O-ring gaskets conforming to ASTM C443.

Item 11 – Class A Riprap Energy Dissipater

1. Measurement: The quantity of Class A Riprap Energy Dissipater which will be paid

for under this item will be the actual cubic yard of Sediment Pond Outlet Energy Dissipater installed and accepted by the ENGINEER.

2. Payment: The unit price bid for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required to furnish and install stone and filter fabric as shown on the drawings and specified herein for which payment is not provided under other items in the bid form.

Item 12 – Class B Riprap Energy Dissipater

1. Measurement: The quantity of Class B Riprap Energy Dissipater which will be paid for under this item will be the actual cubic yard of Sediment Pond Outlet Energy Dissipater installed and accepted by the ENGINEER.
2. Payment: The unit price bid for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required to furnish and install stone and filter fabric as shown on the drawings and specified herein for which payment is not provided under other items in the bid form.

Item 13 – Class 2 Riprap Energy Dissipater

1. Measurement: The quantity of Class 2 Riprap Energy Dissipater which will be paid for under this item will be the actual cubic yard of Sediment Pond Outlet Energy Dissipater installed and accepted by the ENGINEER.
2. Payment: The unit price bid for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required to furnish and install stone and filter fabric as shown on the drawings and specified herein for which payment is not provided under other items in the bid form.

Item 14 – Turf Reinforcement Matting

1. Measurement: The quantity of Turf Reinforcement Matting which will be paid for under this item will be the actual number of square yards of Turf Reinforcement Matting as measured in the two-dimensional plan view installed.
2. Payment: The unit price bid for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required to furnish and install the Turf Reinforcement Matting as shown on the drawings and specified herein for which payment is not provided under other items in the bid form.

Item 15 – 6-in. Unimat Fabriform Ditch with 28 oz. Non-woven Geotextile Fabric Underlayment

1. Measurement: The quantity of 6-in. Unimat Fabriform Ditch with 28 oz. Non-woven Geotextile Fabric Underlayment which will be paid for under this item will be the number of square yards of installed 6-in. Unimat Fabriform Ditch with 28 oz. Non-

woven Geotextile Fabric Underlayment, constructed as shown on the Drawings and specified herein and accepted by the ENGINEER as measured in place in the two-dimensional plan view and excluding the anchor trench as measured in the two-dimensional plan view surveyed as required in Section 01050.

2. Payment: The unit price bid for this item will be full compensation for all labor, materials, tools, equipment, certifying surveying, supervision, and incidentals required to furnish and install the 6-in. Unimat Fabriform Ditch with 28 oz. Non-woven Geotextile Fabric Underlayment.

Item 16 – Seeding and Mulching

1. Measurement: The quantity of Seeding and Mulching which will be paid for under this item will be the actual number of acres of Seeding and Mulching as measured in place by computing the two-dimensional plan area of the limits of the Seeded and Mulched area indicated on the post-work survey, as required in Section 01050.
2. Payment: The unit price bid for this item will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required to furnish and install the seeding and mulching work for disturbed areas as shown on the Drawings and specified herein, and the establishment of a sufficient growth of grass as examined and approved by the OWNER.

END OF SECTION

**SECTION 01026
SCHEDULE OF VALUES**

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit to the ENGINEER a Schedule of Values allocated to the various portions of the Work as listed in the bid form, Section 00300, within 7 days after the effective date of the Agreement.
- B. Upon request of the ENGINEER, support the values with data that will substantiate their correctness.
- C. The accepted Schedule of Values shall be used as the basis for the CONTRACTOR'S Applications for Progress Payments.

1.02 RELATED REQUIREMENTS

- A. Section 00300- Bid Form
- B. Section 00700: General Conditions
- C. Section 00800: Supplemental Conditions
- D. Section 01027: Application for Payment

1.03 FORM AND CONTENT OF SCHEDULE OF VALUES

- A. Prepare on an 8.5-in by 11-in size format, Excel file and .pdf on ENGINEER accepted form, identify schedule with:
 - a. Title of PROJECT and location.
 - b. ENGINEER and PROJECT number.
 - c. Name and Address of CONTRACTOR.
 - d. Contract designation.
 - e. Date of submission.
- B. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction and shall include a breakdown of all Lump Sum Bid Items. At a minimum the component parts listed in the bid form shall be used.

- C. For each major line item, list sub-values of major products or operations under the item.
- D. For the various portions of the Work:
- E. Each item shall include a directly proportional amount of the CONTRACTOR'S overhead and profit.
- F. For items on which progress payments will be requested for stored materials, break down the value into:
 - a. The cost of the materials, delivered and unloaded, with taxes paid. Paid invoices are required for materials upon request by the ENGINEER.
 - b. The total installed value.
- G. The sum of all values listed in the schedule shall equal the total Contract Sum.

1.04 SUBSCHEDULE OF UNIT MATERIAL VALUES

- A. Submit a sub-schedule of unit costs and quantities for:
 - 1. Products on which progress payments will be requested for stored products.
- B. The form of submittal shall parallel that of the Schedule of Values, with each item identified the same as the line item in the Schedule of Values.
- C. The unit quantity for bulk materials shall include an allowance for normal waste.
- D. The unit values for the materials shall be broken down into:
 - 1. Cost of the material, delivered and unloaded at the site, with taxes paid.
 - 2. Copies of invoices for component material shall be included with the payment request in which the material first appears.
 - 3. Paid invoices shall be provided with the second payment request in which the material appears or no payment shall be allowed and/or may be deleted from the request.
- E. The installed unit value multiplied by the quantity listed shall equal the cost of that item in the Schedule of Values.

March 2021

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

END OF SECTION

SECTION 01027
APPLICATIONS FOR PAYMENT

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to the ENGINEER in accordance with the schedule established by Conditions of the Contract and Agreement between OWNER and CONTRACTOR.
- B. The accepted Schedule of Values, Section 01026, shall be used as the basis for the CONTRACTOR'S Application for Payment.

1.02 RELATED WORK

- A. Section 00700: General Conditions - Progress Payments, Retainages and Final Payment
- B. Section 01025: Measurement and Payment
- C. Section 01026: Schedule of Values
- D. Section 01036: Change Order Procedures
- E. Section 01050: Field Engineering
- F. Section 01310: Construction Schedules
- G. Section 01380: Construction Photographs
- H. Section 01700: Contract Closeout
- I. Section 01720: Project Record Documents

1.03 SUBMITTALS

- A. CONTRACTOR shall submit sample Application for Payment Form for approval by the OWNER prior to submittal of the first Application for Progress Payment
- B. Submit Application for Payment and continuation sheets in format consistent with Section 01026 – Schedule of Values and approved by the OWNER providing complete documentation of all items for which payments is requested. The Application for Payment form and continuation sheets shall be submitted electronically (portable document format) to the ENGINEER. Each Application for Payment submittal shall include an Excel Spreadsheet file.
- C. Provide a project status report consisting of construction drawing sheets (.pdf) illustrating working areas, progress status, completed areas and tasks. Provide construction photographs in accordance with Section 01380.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
 - 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
 - 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
 - 3. Execute certification with signature of a responsible officer of Contract firm.
- B. Continuation Sheets:
 - 1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.
 - 2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
 - a. Round off values to nearest dollar, or as specified for Schedule of Values.
 - 3. List each Change Order executed prior to date of submission, at the end of the continuation sheets.
 - a. List by Change Order Number and description, as for an

original component item of work.

4. To receive approval for payment on component material stored on site, submit copies of the original paid invoices with the application for payment.

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the OWNER or ENGINEER requires substantiating data, CONTRACTOR shall submit suitable information, with a cover letter identifying:
 1. Project.
 2. Application number and date.
 3. Detailed list of enclosures.
 4. For stored products:
- B. Item number and identification as shown on application.
- C. Description of specific material.
- D. Submit one copy of data and cover letter for each copy of application.
- E. As a prerequisite for payment, CONTRACTOR is to submit a "Surety Acknowledgement of Payment Request" letter showing amount of progress payment which the CONTRACTOR is requesting.
- F. The CONTRACTOR is to maintain an updated set of drawings to be used as record drawings in accordance with Section 01720. As a prerequisite for monthly progress payments, the CONTRACTOR is to exhibit the updated record drawings and surveys in accordance with Section 01050 for review by the OWNER and the ENGINEER.
- G. CONTRACTOR shall maintain an updated construction schedule in accordance with Section 01310. As a prerequisite for monthly progress payments, CONTRACTOR shall submit the updated construction schedule with the applications for progress payments. If the CONTRACTOR fails to submit the required updated schedule within the time prescribed, the ENGINEER may withhold approval of progress payment estimates until such time as the CONTRACTOR submits the required updated schedule. Submit one copy for each copy of application.

- H. The CONTRACTOR shall demonstrate, as a prerequisite for monthly progress payments, compliance with all requirements specified in Section 02276 – Erosion and Sediment Control the erosion and sedimentation control plan and associated drawings, to the ENGINEER. If the CONTRACTOR fails to demonstrate compliance the ENGINEER reserves the right to withhold approval of progress payment estimates until such time as the CONTRACTOR demonstrates to the ENGINEER full compliance with Section 02276 – Erosion and Sedimentation Control, the erosion and sedimentation control plan and associated drawings
- I. Upon request by the OWNER or ENGINEER, the CONTRACTOR shall provide (as a prerequisite for monthly progress payments) an accumulating cost curve (tabular and diagram) indicating schedule, forecast and actual progress.

1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in Application form as specified for progress payments.
- B. Submit all Project Record Documents in accordance with Sections 01050 and 01720.
- C. Follow procedures described in the General Conditions and Section 01700 – Contract Closeout

1.07 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to the ENGINEER at the times stipulated in the Agreement; transmit Applications in the approved format by the approved method (hard copy and quantity, electronic, etc.).
- B. When the ENGINEER finds Application properly completed and correct, ENGINEER will transmit certificate for payment to OWNER, with copy to CONTRACTOR.
- C. Submit one copy of the invoices for all equipment and materials purchased under the Contract with each Application for Payment current through the previous payment period. Invoices shall show the sales tax paid and shall be used by the OWNER for recovery of taxes.

March 2021

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

END OF SECTION

01027-5

**SECTION 01030
SPECIAL PROJECT PROCEDURES**

PART 1: GENERAL

1.01 General

- A. Carefully coordinate and conduct all work in strict accordance with Federal, State, and County requirements and standards.

1.02 LINES AND GRADES

- A. The CONTRACTOR shall be responsible for establishing all lines and measurements necessary for proper prosecution and control of the work. Available horizontal and vertical controls are shown on the Drawings.

1.03 ACCESS AND DRAINAGE

- A. The CONTRACTOR shall provide and maintain adequate access to and throughout the site and shall keep all-natural drainage and water courses unobstructed or provide equal courses effectively placed. Access and drainage facilities shall be maintained in accordance with their original condition. The OWNER assumes no responsibility for the placement, condition or maintenance of any haul roads, access roads or structures that may be used by the CONTRACTOR in the performance of his work.
- B. Truck traffic shall be routed over roads which will result in the least effect on traffic and nuisance to the public and Cleveland County Landfill Operations. All material shall be loaded and hauled in a manner which will prevent the loss of any portion of the load in transit, including covering, if necessary.
- C. **Landfilling operations will continue at the facility.** Proper safety measures, such as signs, barricades, and other means of traffic guidance, shall be implemented to ensure that the safety of these facilities is not jeopardized and that operations are not in any way disrupted.

1.04 RIGHT-OF-WAYS

- A. Work performed in RIGHT-OF-WAYS (R-O-W) shall be subject to the provisions of the R-O-W agreements. In general, these easements provide for restoring the property to the condition existing before construction began, except where otherwise noted on the Plans.

1.05 PROVISIONS FOR THE CONTROL OF DUST

- A. Sufficient precautions shall be taken during construction to minimize and suppress dust. Water or other methods as approved shall be applied as necessary to maintain moist conditions and avoid the generation of dust. **Dust suppression activities shall not be interrupted due to equipment breakdown; backup equipment shall be readily available.**

1.06 LOCATION, PROTECTION AND MAINTENANCE OF EXISTING UTILITIES, STRUCTURES AND PROPERTY

- A. Existing utilities are located and are operating in the construction area. CONTRACTOR shall contact the office of each utility operator and ascertain the extent of specific service areas. CONTRACTOR shall contact the North Carolina 811 – Dig Safely at least 48 hours prior to excavating.
- B. The location of existing utilities across or along the line of the proposed work is not necessarily shown on the Drawings and where shown is only approximately correct. The CONTRACTOR shall locate all underground lines and structures prior to excavation.
- C. The CONTRACTOR shall assume full responsibility for the protection and restoration of all buildings, structures, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. CONTRACTOR shall carefully support and protect all such structures and utilities from injury. Damages resulting from the construction operations shall be repaired by CONTRACTOR.
- D. The CONTRACTOR shall fully cooperate at all times with the utility owners to maintain the operation of existing utilities with the least amount of interference and interruption possible. Continuous service, public health and safety considerations shall exceed all others and the CONTRACTOR'S schedule, plans and work shall at all times be subject to alteration and revision if necessary, for these considerations.
- E. Temporary support, adequate protection and maintenance of all underground and surface utility installations and structures, drains, sewers, and other obstructions encountered shall be provided as required by the CONTRACTOR. Arrange and pay all costs for required support of utility poles and other structures as required by the utility owners prior to excavation.

- F. Trees, shrubbery, fences, poles, signs and all other property shall be protected to the extent practicable.
- G. **Wetland areas shall not be disturbed without written approval from the ENGINEER.**

1.07 RELOCATION OF UTILITIES AND STRUCTURES

- A. The CONTRACTOR shall be responsible for the temporary or permanent relocation of structures and utilities, including but not limited to poles, signs, fences, hydrants, valves, piping, conduits and drains that interfere with the positioning of the Work as shown on the Drawings.
- B. No relocations of utilities shall be made without approval of the owner of the utility.
- C. All valve boxes and manhole frames and covers in intersections and elsewhere shall be adjusted as required to be flush with the final pavement surface.

1.08 CLAIMS FOR PROPERTY DAMAGE

- A. Upon notification by the ENGINEER, the CONTRACTOR shall investigate each claim for property damage and shall file, within ten (10) days of such notification, a statement with ENGINEER setting forth all facts and details relative to such claim.

1.09 CARE AND PROTECTION OF PROPERTY

- A. The CONTRACTOR shall be responsible for the preservation of all public and private property and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the CONTRACTOR, such property shall be restored by the CONTRACTOR, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the ENGINEER.
- B. All driveways, sidewalks, curb, and gutters disturbed by the CONTRACTOR'S operations shall be restored to their original condition in accordance with NCDOT and County requirements.
- C. All fences, signs, mailboxes, and other physical features shall be protected and restored in a workmanlike manner by the CONTRACTOR. Fences and other features removed by the CONTRACTOR shall be replaced as soon as conditions

permit. All grass areas beyond the limits of construction that have been damaged by the CONTRACTOR shall be re-graded and restored to their original condition.

- D. **All highways and roads that become littered or soiled by the CONTRACTOR from hauling equipment and/or project materials to or from the project site shall be maintained clean. Signs indicating construction traffic shall be installed at the entrances to the Project Area.**
- E. During the hauling of off-site borrow material onto the site the entrance road to the landfill shall be cleaned by sweeping as necessary, at direction of the ENGINEER or at minimum at the end of every work week.

1.10 GUARANTEE

- A. Work on this PROJECT shall be guaranteed in accordance with requirements of Article 13 of the General Conditions. Work found to be defective within 1 year after the date of Substantial Completion shall be corrected or replaced in accordance with the General Conditions.

1.11 WEATHER PREPAREDNESS PLANNING

- A. Within fifteen (15) days of the date of Notice to Proceed, the CONTRACTOR shall submit to the ENGINEER a Hurricane Preparedness Plan. The plan should outline the necessary measures which the CONTRACTOR proposes to perform at no additional cost to the OWNER in the event of a hurricane warning. Such measures shall be in accordance with state and local requirements.
- B. In the event of inclement weather, the CONTRACTOR will, and will cause Subcontractors, to protect carefully the Work and materials against damage or injury from the weather at no additional cost to the OWNER. If, in the opinion of the ENGINEER, any portion of the Work or materials shall have been damaged or injured by reason of failure on the part of the CONTRACTOR or Subcontractors to so protect the work, such Work and materials shall be removed and replaced at the expense of the CONTRACTOR.

1.12 DAMAGE DUE TO HIGH WATER

- A. The CONTRACTOR shall hold himself responsible for all damage done to the Work by heavy rains or flood and CONTRACTOR shall take all reasonable precautions to provide against damages in a permissible manner.

1.13 EMERGENCIES

- A. The CONTRACTOR shall at all times after regular working hours, including weekend and holidays, maintain a telephone where the CONTRACTOR or his representative can be reached on an emergency basis. The CONTRACTOR shall be prepared to act to correct conditions on the site deemed to constitute an emergency by the ENGINEER, his representative, or the ENGINEER. The CONTRACTOR shall give the ENGINEER prompt written notice of all significant changes in the Work or deviations from the Contract caused thereby. If a condition on the site requires attention after working hours, either the ENGINEER, his representative, or local authority shall call the CONTRACTOR at the emergency telephone number, identify himself and describe the emergency condition. The CONTRACTOR is expected to dispatch men and equipment to adequately institute corrective measures within two (2) hours. If the CONTRACTOR or his representative cannot be reached at the emergency number after a reasonable time (1/2 hour), the ENGINEER shall have the right to immediately initiate corrective measures, and the cost of such measures shall be borne by the CONTRACTOR.
- B. Emergency phone numbers (fire, medical, police) shall be posted at the CONTRACTOR'S phone and its location known to all.
- C. Accidents or incidents shall be reported immediately to the ENGINEER by phone or in accordance with the OWNER'S emergency response plan or procedures.
- D. All accidents or incidents shall be documented and a fully detailed written report, including police reports if produced, submitted to the ENGINEER after each occurrence.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

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END OF SECTION

**SECTION 01036
CHANGE ORDER PROCEDURES**

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Promptly implement change order procedures.
 - 1. Provide full written data required to evaluate changes.
 - 2. Maintain detailed records of work done on a time and material/ force account basis.
 - 3. Provide full documentation to ENGINEER on request.
- B. Designate in writing the member of CONTRACTOR'S organization:
 - 1. Who is authorized to accept changes in the Work.
 - 2. Who is responsible for informing others in the CONTRACTOR'S employ of the authorization of changes in the Work.
- C. OWNER will designate in writing the person who is authorized to execute Change Orders.

1.02 RELATED REQUIREMENTS

- A. Section 00500: Agreement.
- B. Section 00700: General Conditions.
- C. Section 00800: Supplementary Conditions
- D. Section 01027: Application for Payment.
- E. Section 01310: Construction Schedules.
- F. Section 01026: Schedule of Values.
- G. Section 01630: Substitutions and Product Options.

H. Section 01720: Project Record Documents.

1.03 DEFINITIONS

A. See Section 00700 and 00800.

1.04 PRELIMINARY PROCEDURES

A. OWNER or ENGINEER may initiate changes by submitting a Request for Proposal (RFP) to CONTRACTOR. Request will include:

1. Detailed description of the Change, Products, and location of the change in the PROJECT.
2. Supplementary or revised Drawings and Specifications.
3. The projected time span for making the change, and a specific statement as to whether overtime work is, or is not, authorized.
4. A specific period of time during which the requested price will be considered valid.
5. Such request is for information only, and is not an instruction to execute the changes, nor to stop work in progress.

B. CONTRACTOR may initiate changes by submitting a written notice to ENGINEER, containing:

1. Description of the proposed changes.
2. Statement of the reason for making the changes.
3. Statement of the effect on the Contract Sum and the Contract Time.
4. Statement of the effect on the work of separate contractors.
5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

1.05 WORK DIRECTIVE CHANGE (WDC)

A. In lieu of a Request for Proposal (RFP), OWNER or ENGINEER may issue a Work Directive Change (WDC) for CONTRACTOR to proceed with a change for subsequent inclusion in a Change Order.

- B. Each WDC will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change and will designate the method of determining any change in the Contract Sum and any change in Contract Time.
- C. OWNER and ENGINEER will sign and date the WDC as authorization for the CONTRACTOR to proceed with the changes.
- D. CONTRACTOR may sign and date the WDC indicate agreement with the terms therein.

1.06 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump-sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow ENGINEER to evaluate the quotation.
- B. On request, provide additional data to support time and cost computations.
 - 1. Labor required.
 - 2. Equipment required.
 - 3. Products required.
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
 - 4. Taxes, insurance, and bonds.
 - 5. Credit for work deleted from Contract, similarly documented.
 - 6. Overhead and profit.
 - 7. Justification for any change in Contract Time.
- C. Support each claim for additional costs, and for work done on a time-and-material/force account basis, with documentation as required for a lump-sum proposal, plus additional information.
 - 1. Name of the OWNER'S authorized agent who ordered the work, and date of the order.

2. Dates and times work was performed, and by whom.
 3. Time record, summary of hours worked, and hourly rates paid.
 4. Receipts and invoices for:
 - a. Equipment used, listing dates and times of use.
 - b. Products used, listing of quantities.
 - c. Subcontracts.
- D. Document requests for substitutions for Products as specified in Section 01630.

1.07 PREPARATION OF CHANGE ORDERS AND FIELD ORDERS

- A. ENGINEER will prepare each Change Order and Field Order.
- B. Forms: See end of this section for forms.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.
- E. Field Order will describe interpretations or clarifications of Contract Documents, order minor changes in the Work, and/or memorialize trade-off agreements.
- F. Field Order work will be accomplished without change in the Contract Sum, Contract Time, and/or claims for other costs.

1.08 LUMP-SUM/FIXED PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
 1. ENGINEER'S Proposal Request and CONTRACTOR'S responsive Proposal as mutually agreed between OWNER and CONTRACTOR.
 2. CONTRACTOR'S Proposal for a change, as recommended by ENGINEER.

- B. OWNER and ENGINEER will sign and date the Change Order as authorization for the CONTRACTOR to proceed with the changes.
- C. CONTRACTOR will sign and date the Change Order to indicate agreement with the terms therein.

1.09 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
 - 1. ENGINEER'S definition of the scope of the required changes.
 - 2. CONTRACTOR'S Proposal for a change, as recommended by ENGINEER.
 - 3. Survey of completed work.
- B. The amounts of the unit prices to be:
 - 1. Those stated in the Agreement.
 - 2. Those mutually agreed upon between OWNER and CONTRACTOR.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:
 - 1. OWNER and ENGINEER will sign and date the Change Order as authorization for CONTRACTOR to proceed with the changes.
 - 2. CONTRACTOR will sign and date the Change Order to indicate agreement with the terms therein.
- D. When quantities of the items cannot be determined prior to start of the work:
 - 1. ENGINEER or OWNER will issue a WDC directing CONTRACTOR to proceed with the change on the basis of unit prices, and will cite the applicable unit prices.
 - 2. At completion of the change, ENGINEER will determine the cost of such work based on the unit prices and quantities used.

- a. CONTRACTOR shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
3. ENGINEER will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
4. OWNER and CONTRACTOR will sign and date the Change Order to indicate their agreement with the terms therein.

1.10 TIME AND MATERIAL/FORCE ACCOUNT CHANGE ORDER/WORK DIRECTIVE CHANGE

- A. ENGINEER and OWNER will issue a WDC directing CONTRACTOR to proceed with the changes.
- B. At completion of the change, CONTRACTOR shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of this Section.
- C. ENGINEER will determine the allowable cost of such work, as provided in General Conditions and Supplementary Conditions.
- D. ENGINEER will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- E. OWNER and CONTRACTOR will sign and date the Change Order to indicate their agreement therewith.

1.11 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Sum.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time.
 1. Revise sub-schedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

March 2021

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

**SECTION 01050
FIELD ENGINEERING**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall retain the services of a registered land surveyor licensed in the State of the Project.
 - 1. Identify existing control points and property line corner stakes indicated on the Drawings, as required.
 - 2. Verify all existing structure locations and all proposed equipment locations.
 - 3. Maintain an accurate location of all buried piping.

1.02 RELATED WORK

- A. Section 01010 - Summary of Work
- B. Section 01025 - Measurement and Payment

1.03 SUBMITTALS

- A. Submit name and address of registered land surveyor to be used on this PROJECT to the ENGINEER within 15 days of the Notice to Proceed.
- B. On request of the ENGINEER, submit documentation to verify accuracy of field engineering work.
- C. The CONTRACTOR is required to perform surveys signed and sealed by the registered land surveyor. All surveys shall be tied to the existing permanent survey monuments at the site, as identified on the drawings. These drawings shall be included with, and made a part of, the PROJECT record documents. The CONTRACTOR shall also submit each survey in AutoCAD 2000 or newer and/or Terramodel software format; surveyor to otherwise provide digital data in a format agreeable with the ENGINEER. All elevation information in the file must be at appropriate 3-D elevation. All entities shall be placed on layer names which adequately describe the entity being mapped.

- D The CONTRACTOR is required to perform the following surveys and submit to the ENGINEER.
1. The CONTRACTOR shall provide certified topographic map surveys and Digital Terrain Models (DTM) of the following:
 - a. **Pre-Work Survey:** Immediately following clearing and grubbing and stripping and prior to starting excavation and/or backfill. Pre-Work Survey shall include surveys of existing surface and utilities.
 - b. **Excavation and Backfill Survey:** Immediately following completion of excavation and backfill of the Project Area. Excavation and Backfill Survey shall include all earthwork associated with erosion & sedimentation control features and sediment pond construction.
 - c. **Stockpile Survey:** Immediately following completion of stockpiling activities.
 2. Certified survey of the limits of work, and surface and subsurface structures installed by CONTRACTOR shall be provided after completion of the PROJECT and at a minimum, shall include the following:
 - a. **Surface Facilities** – Limits of clearing and grubbing, limits of stripping, area of excavation and backfill, turf reinforcement matting, diversion ditches, rip-rap energy dissipaters, roads, limits of seeding and mulching, and sediment and erosion control structures.
 - b. **Subsurface Facilities** - piping, location of drop inlets (including grate elevation), buried valves, valve boxes, meter vault, and electrical conduit.
 3. As required, provide before and after certified topographic map survey(s) and Digital Terrain Models (DTM) of the limits of backfill and excavation. The initial condition survey shall define the elevations of the area prior to initiating pay item work. The final condition survey shall define the elevations of the area after completion of pay item work. The topographic map survey(s) must be AutoCAD 2000 compatible and produced at national map accuracy standards for 1" = 100' scale maps with 2' contour interval.

The DTM model must provide a 2-D polyline defining the limits of the area surveyed and contain adequate 3-D points and 3-D breaklines required to accurately model the surveyed surface to within above stated accuracy.

1.04 QUALIFICATIONS OF SURVEYOR and EQUIPMENT

- A Registered land surveyor of the discipline required for the specific service on the PROJECT, currently licensed in the State of the Project.
- B All survey instruments should be capable of reading to a precision of 0.01 ft and with a setting accuracy of 20 sec. (5.6×10^{-3} degrees).

1.05 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the PROJECT are those designated on Drawings.
- B. Locate and protect control points prior to starting site work and preserve all permanent reference points during construction.
 - 1. Make no changes or relocations without prior written notice to the ENGINEER.
 - 2. Report to the ENGINEER when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 - 3. Require surveyor to correctly replace PROJECT control points which may be lost or destroyed.
 - 4. Establish replacements based on original horizontal and vertical survey control.

1.06 PROJECT SURVEY REQUIREMENTS

- A. Establish a minimum of ONE permanent benchmarks on site, referenced to data established by survey control points.
 - 1. Record locations, with horizontal and vertical data, on PROJECT Record Documents.

- B. Establish lines and levels, locate and lay out, by instrumentation and similar appropriate means:
 - 1. Site improvements
 - a. Stakes for grading, fill and topsoil placement.
 - b. Utility slopes and invert elevations.
- C. From time to time, verify layouts by same methods.
- D. Establish all lines and grades prior to construction of line work for all pipelines at 100-ft increments and at defined breaks in grade.

1.07 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.
- B. Update the PROJECT Record Drawings on a monthly basis based on the work performed during the month ending at the pay request as a condition for approval of monthly progress payment requests.
- C. Maintain an accurate record of piping changes, revisions, and modifications.
- D. All field survey notes will be retained by the Surveyor. The results from the field surveys will be documented on a set of Survey Record Drawings signed and sealed by a registered Professional Engineer or Professional Land Surveyor licensed in the State of the Project for submittal to the ENGINEER. The CONTRACTOR shall certify to the ENGINEER that the results of the survey demonstrate compliance with the Contract Documents. These drawings shall, at a minimum, show the final elevations and locations of all surfaces and appurtenances surveyed.
- E. A final a-built drawing shall be provided to include surveyed constructed quantities to include but not limited to clearing area, excavation and backfill, erosion and sedimentation control features, seeding, and erosion control matting(s) areas.
- F. All certifying surveys shall be approved by the ENGINEER for the project to be considered Substantially Complete.

March 2021

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

**SECTION 01200
PROJECT MEETINGS**

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The ENGINEER shall schedule and administer a Pre-Construction Meeting, progress meetings, and meetings to address specific items, throughout progress of the work.
- B. The ENGINEER shall coordinate physical arrangements for meetings.
- C. The CONTRACTOR's Project Manager shall attend this and all meetings; *subcontractors and suppliers shall attend meetings only upon invitation and/or permission by the ENGINEER.* Those attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- D. The CONTRACTOR shall provide copies of a current schedule at each PROJECT meeting.

1.02 RELATED REQUIREMENTS

- A. Section 00700: General Conditions.
- B. Section 00800: Supplementary Conditions.
- C. Section 01310: Construction Schedules.

1.03 PRE-CONSTRUCTION MEETING

- A. The ENGINEER will schedule a pre-construction meeting in accordance with Article 2.8 of the General Conditions.
- B. Location: A central site, convenient for all parties, designated by the OWNER.
- C. Required attendance (others by invitation of the ENGINEER):
 - 1. ENGINEER
 - 2. OWNER Representative
 - 3. ENGINEER Representative(s).
 - 4. CONTRACTOR'S Project Manager
 - 5. CONTRACTOR'S Superintendent
- D. Typical Agenda:
 - 1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers
 - b. Projected Construction Schedules

2. Sequence of Work
3. Major equipment deliveries and priorities
4. Project Coordination
 - a. Designation of responsible personnel.
5. Procedures and processing of:
 - a. Field decisions
 - b. Proposal requests
 - c. Submittals
 - d. Change Order procedures
 - e. Applications for Payment
6. Distribution of Contract Documents, construction plans and specifications
7. Procedures for maintaining Record Documents
8. Use of premises:
 - a. Office, work and storage areas
 - b. Laydown and stockpile locations
 - c. Allowable and preferred traffic routing
 - d. ENGINEER'S requirements
9. Construction facilities, controls and construction aids
10. Utilities
11. Housekeeping procedures
12. Safety and security
13. Incident reporting

1.04 PROGRESS MEETINGS

- A. The ENGINEER will schedule regular progress meetings. The progress meetings will be held approximately every other week with the first meeting 15 days after the pre-construction meeting or no later than 30 days after the date of Notice to Proceed.
- B. CONTRACTOR shall have capability to attend/participate fully in video conference meetings with appropriate equipment to include computer, video monitor, high-resolution webcam, sufficient network bandwidth, microphone and speaker, and video conferencing software.**
- C. OWNER, ENGINEER or CONTRACTOR may hold or request additional meetings as required by progress of the work.
- D. Location of the meetings: PROJECT field office of the CONTRACTOR unless otherwise identified by the ENGINEER.
- E. Attendance:

1. OWNER'S Representative(s)
 2. ENGINEER
 3. CONTRACTOR'S Project Manager
 4. CONTRACTOR'S Superintendent
 5. *Subcontractors by invitation of the ENGINEER*, as appropriate to the agenda.
 6. *Suppliers by invitation of the ENGINEER*, as appropriate to the agenda.
 7. *Others as appropriate only by invitation of the ENGINEER*
- F. Meeting agendas will generally address the following items, at minimum:
1. Safety and security items
 2. Review of work progress since previous meeting
 3. Construction quality assurance and quality control
 4. Review field observations, issues and initiate resolutions
 5. Shop drawings and submittals
 6. Construction schedule, immediate and long-term
 7. Review of revisions, changes or change order items
 8. Other business / housekeeping items
- G. The CONTRACTOR shall attend progress meetings and shall prepare for detailed discussion of current agenda items, and be prepared to discuss pertinent topics such as critical path work, work sequence, work performed to date, surveying, QA/QC, etc.
- H. The CONTRACTOR is to provide a status report of the current construction schedule at each progress meeting and discuss any items potentially impacting the schedule. A paper copy of the CONTRACTOR's current updated schedule shall be distributed at the meeting.

END OF SECTION

**SECTION 01310
CONSTRUCTION SCHEDULES**

PART 1: GENERAL

1.01 WORK INCLUDED

- A Promptly following award of the Contract prepare and submit to the ENGINEER construction progress schedules for the Work, with sub-schedules of related activities which are essential to its progress.
- B Submit progress schedules electronically in .pdf on a monthly basis, at minimum.
- C Submit once per week via email, short-term forecast detailing work tasks planned, update on work performed to date and task performed previous week.

1.02 RELATED REQUIREMENTS

- A. Section 00700: General Conditions.
- B. Section 00800: Supplemental Conditions
- C. Section 01010: Summary of Work.
- D. Section 01027: Application for Payment
- E. Section 01200: Project Meetings.
- F. Section 01340: Shop Drawings, Product Data and Samples.
- G. Section 01026: Schedule of Values

1.03 FORM OF SCHEDULES

- A Prepare schedules in the form of a horizontal bar chart.
 - 1. Provide separate horizontal bar for each task or operation for each item of work at minimum, in order corresponding to the Bid Form sub-schedules of work items may be necessary and shall be provided upon request.
 - 2. Horizontal time scale: In weeks from start of construction and identify the first workday of each month.
 - 3. Scale and spacing: To allow space for notations and future revisions.
- B Identification of listings: By construction bid item.

1.04 CONTENT OF SCHEDULES

- A Construction Progress Schedule:
 - 1. Show the complete sequence of construction by activity.
 - 2. Show the dates for the beginning and completion of each contract bid item, at minimum, and phase of construction in no more than a one-week increment scale. List all contract items and benchmark dates, but not limited to these specifically:

- a. Notice to Proceed
 - b. Mobilization
 - c. Sub-contracted Work Items
 - d. Surveying
 - e. Submittals
 - f. Erosion and Sedimentation Control Measures
 - g. Excavation and Backfill Installation
 - h. Major Material Deliveries
 - i. Stormwater Management Features
 - j. Substantial Completion
 - k. Seeding and Mulching
 - l. Miscellaneous Work and Cleanup
 - m. Restoration
 - n. Final Completion
 - o. Demobilization
3. Show percentage of completion for each item, as of the first day of each month
 4. Upon request, provide cash flow projections (forecast of monthly pay applications) to correspond with the most current construction progress schedule
 5. Highlight all activities on the critical path
- B. Submittals Schedule for Shop Drawings, Product Data and Samples in accordance with Section 01340. Show:
1. The dates for CONTRACTOR'S submittals.
 2. The date submittals will be required for OWNER-furnished products, if applicable.
 3. The dates approved submittals will be required from the ENGINEER.
- C. A list of all long lead items (equipment, materials, etc.)
- 1.05 PROGRESS REVISIONS
- A Indicate progress of each activity to date of submission.
- B Show changes occurring since previous submission of schedule:
1. Major changes in scope.
 2. Activities modified since previous submission.
 3. Revised projections of progress and completion.
 4. Other identifiable changes.
- 1.06 SUBMISSIONS

- A Submit initial schedules to the ENGINEER within 5 days after the effective date of the Agreement for review. Re-submit revised schedules within 5 days after receiving review comments.
- B Submit an updated progress schedule at the frequency provided by the ENGINEER at the Pre-Construction Conference.
CONTACTOR should be prepared at minimum, to submit a progress schedule:
 - 1. With each progress application for payment,
 - 2. For review at project meetings.
 - 3. Submit and update progress schedule at every identifiable impact to then completion date, provide an updated construction progress schedule.
- C Submit to the ENGINEER once per week via email, short-term forecast detailing work tasks planned, update on work performed to date and task performed previous week. Project status reports shall include construction drawing sheets (.pdf) illustrating working areas, progress status and completed areas and tasks.
- D At minimum twice per week, submit to the ENGINEER, electronic photographs via email or file hosting service.

1.07 DISTRIBUTION

- A Distribute copies electronically of the reviewed schedules to:
 - 1. ENGINEER
 - 2. CONTRACTOR'S job site file
 - 3. Subcontractors as applicable; others as directed by the ENGINEER
- B Instruct recipients to report promptly to the CONTRACTOR, in writing, any problems anticipated by the projections shown in the schedules.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION

3.01 RESPONSIBILITY FOR SCHEDULE COMPLIANCE

- A The CONTRACTOR agrees that whenever it becomes apparent from the current monthly schedule that delays to the project schedule have resulted, and hence, that the contract completion date will not be met, he will take some or all of the following actions at no additional cost to the ENGINEER, submitting to the ENGINEER for approval, a written statement of the steps he intends to take to remove or arrest the delay in the approved schedule.
 - 1. Increased construction manpower in such quantities and crafts as will substantially eliminate the backlog of work.
 - 2. Increase the number of working hours per shift, shifts per working days per week, the amount of construction equipment, or any combination of the foregoing, sufficiently to substantially eliminate the backlog of work.

3. Re-schedule activities to achieve maximum practical concurrency of accomplishment of activities and comply with the revised schedule.
4. Costs incurred by the OWNER arising from such lengthening of hours, including extended time for the RPR or furnishing of Inspectors, shall be the CONTRACTOR'S responsibility and shall be deducted from monies due him. Failure of the CONTRACTOR to comply with these requirements may be grounds for determination by the ENGINEER that the CONTRACTOR is not progressing at such rates as will ensure completion within the specified time and may result in the termination of the right of the CONTRACTOR to continue the work.

3.02 ADJUSTMENT OF CONTRACT SCHEDULE AND COMPLETION TIME

- A If the CONTRACTOR desires to make changes in his method of operating which affect the approved schedule, he shall notify the ENGINEER in writing, stating what changes are proposed and the reason for the change. If the ENGINEER approves these changes, the CONTRACTOR shall revise and submit for approval, without additional cost to the OWNER, all of the affected portion of the schedule. The schedule shall be adjusted by the CONTRACTOR only after prior approval of his proposed changes by the ENGINEER.
- B The contract completion time will be adjusted only for causes specified in this contract. In the event the CONTRACTOR requests an extension of any contract completion date, he shall furnish such justification and supporting evidence as the ENGINEER may deem necessary for a determination as to whether the CONTRACTOR is entitled to an extension of time under the provisions of this contract. ENGINEER will, after receipt of such justification and supporting evidence make findings of fact and will advise the CONTRACTOR in writing therefore if the ENGINEER finds that the CONTRACTOR is entitled to any extension of any contract completion date under the provisions of this contract, the ENGINEER'S determination as to the total number of days extension shall be based upon the currently approved schedule and on all data relevant to the extension. Such data shall be included in the next monthly updating of the schedule. The CONTRACTOR acknowledges and agrees that actual delays in activities which, according to the schedule, do not affect any contract completion date shown by the critical path in the schedule do not have any effect on the contract completion date or dates, and therefore, will not be the basis for a change.

3.03 ADJUSTMENT BY ENGINEER

- A From time to time it may be necessary for the Contract schedule and/or completion time to be adjusted by the ENGINEER due to the effects of job conditions, acts or omissions of other CONTRACTORS not directly associated with this contract, weather, technical difficulties, unavoidable delays and other enforceable conditions which may indicate schedule adjustments and/or completion time extension. Under such conditions, the ENGINEER shall direct

the CONTRACTOR to reschedule the work to reflect the changed conditions, and the CONTRACTOR shall revise his schedule accordingly. Schedule extensions affecting the Contract completion time shall be granted only by the ENGINEER in writing. No additional compensation shall be made to the CONTRACTOR for such schedule changes except for unavoidable overall Contract time extensions beyond the actual completion of all unaffected Work in the Contract, in which case the CONTRACTOR shall take all possible action to minimize any time extension and any additional cost to the Owner.

3.04 COORDINATING SCHEDULES WITH OTHER CONTRACT SCHEDULES

- A Where work is to be performed under this contract concurrently with and/or contingent upon work performed on the same facilities or area under other contracts, the CONTRACTOR'S schedule shall be coordinated with the schedules of the other contracts. The CONTRACTOR shall obtain the schedules of the other appropriate contracts for the preparation and updating of his schedule and shall make the required changes in his schedule when indicated by changes in corresponding schedules.
- B The OWNER controls the float time in the approved schedule and, therefore, without obligation to extend either the overall completion date or any intermediate completion dates set out in the schedule, the OWNER may initiate changes to the work that absorb float time only. OWNER initiated changes that affect the Critical Path on the approved schedule shall be the sole grounds for extending said completion dates. CONTRACTOR-initiated changes that encroach on the float time identified in the approved schedule may be accomplished with the OWNER'S concurrence. Such changes, however, shall give way to OWNER-initiated changes competing for the same float time.

END OF SECTION

SECTION 01340
SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

PART 1: GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A This Section specifies the general methods and requirements of submissions applicable to the following work-related submittals: Shop Drawings, Product Data and Samples. Detailed submittal requirements are specified in the technical specification sections.
- B All submittals shall be clearly identified by reference to Specification Section, Paragraph, Drawing No. or Detail as applicable. Submittals shall be clear and legible and of sufficient size for sufficient presentation of data.
- C All CONTRACTOR submittals shall be submitted directly from the CONTRACTOR, thoroughly reviewed and include signature of the CONTRACTOR stating as such.

1.02 SHOP DRAWINGS, PRODUCT DATA, SAMPLES

A Shop Drawings

- 1. Shop drawings as specified in individual work Sections include, but are not necessarily limited to, custom-prepared data such as fabrication and erection/installation (working) drawings, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications, as applicable to the Work.
- 2. All shop drawings submitted by subcontractors for approval shall be sent directly to the CONTRACTOR for review. The CONTRACTOR shall be responsible for their submission at the proper time to prevent delays in delivery of materials.
- 3. The CONTRACTOR shall review and check for accuracy and adequacy all subcontractor's shop drawings regarding measurements, size of members, materials, and details to satisfy himself that they conform to the intent of the Drawings and Specifications. Shop drawings found to be inaccurate or otherwise in error should be returned to the subcontractors for correction before submission thereof.
- 4. All details on shop drawings submitted for approval shall show clearly the relation of all parts to the main members and lines of the structure. Where correct fabrication of the work depends upon field measurements, such

measurements shall be made and noted on the drawings before being submitted for approval.

B Product Data

1. Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing and printed product warranties, as applicable to the Work.

C Working Drawings

1. When used in the Contract Documents, the term "working drawings" shall be considered to mean the CONTRACTOR'S plans for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and false work; and for such other work as may be required for construction but does not become an integral part of the PROJECT.
2. Working drawings shall be prepared and sealed by a registered Professional Engineer, currently licensed to practice in the State of North Carolina. The CONTRACTOR shall submit a letter of certification from the Professional Engineer stating that he/she has prepared the designs and has verified that the materials/equipment have been installed as designed. No working drawings or calculations/computations relating to the working drawings shall be submitted to the ENGINEER unless specifically requested in writing.

D Samples

1. Samples specified in individual Sections, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols and units of work to be used by the ENGINEER for independent inspection and testing, as applicable to the Work.

1.03 CONTRACTOR'S RESPONSIBILITIES

A **The CONTRACTOR shall thoroughly review shop drawings, product data and samples, including those by sub-contractors, prior to submission to determine and verify the following:**

1. Field measurements
2. Field construction criteria
3. Catalog numbers and relative data
4. Conformance with the Specifications

B Each shop drawing, sample and product data submitted by the CONTRACTOR shall have affixed to it the following Certification Statement including the CONTRACTOR'S Company name and signed by the CONTRACTOR:

"Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements."

Shop drawings and product data sheets shall be bound together (electronic .pdf) in an orderly fashion and bear the above Certification Statement on the cover sheet. The cover sheet shall fully describe the packaged data and include a listing of all items within the package. Provide the ENGINEER a copy of each submittal transmittal sheet for shop drawings, product data and samples at the time of submittal of said drawings, product data and samples to the ENGINEER.

C The CONTRACTOR shall utilize a 10-character submittal identification numbering system in the following manner:

1. The first character shall be a **D, S, P, M, or R**, which represents Shop/Working Drawing and other Product Data (D), Sample (S), Preliminary Submittal (P), Operating/Maintenance Manual (M), or Request for Information (R).
2. The next five digits shall be the applicable Specification Section Number.
3. The next three digits shall be the numbers 001-999 to sequentially number each initial separate item or drawing submitted under each specific Section number.
4. The last character shall be a letter, A-Z, indicating the submission, or resubmission of the same Drawing, i.e., "A=1st submission, B=2nd submission, C=3rd submission, etc. A typical submittal number would be as follows:

D-03300-008-B

D – Shop Drawing

03300 – Specification Section for Concrete

008 – The eighth initial submittal under this specification section

B – The second submission (first resubmission) of that particular shop drawing

- D Notify the ENGINEER in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents.
- E The review and approval of shop drawings, samples or product data by the ENGINEER shall not relieve the CONTRACTOR from his/her responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the CONTRACTOR and the ENGINEER or OWNER will have no responsibility therefore.
- F No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the CONTRACTOR'S risk. The OWNER will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
- G PROJECT work, materials, fabrication, and installation shall conform with Contract Documents and approved shop drawings, applicable samples, and product data.

1.04 SUBMISSION REQUIREMENTS

- A Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other CONTRACTOR.
- B Each submittal, appropriately coded, will be returned within 14 calendar days following receipt of submittal by the ENGINEER.
- C Number of submittals required:
 - 1. Shop Drawings and Product Data as defined in Paragraph 1.02:
Generally, electronic submittals (.pdf, email) are suitable unless otherwise noted or as determined in the Pre-Construction Meeting.
 - 2. Samples: Submit the number stated in the respective Specification Sections or as otherwise requested by the ENGINEER.
 - 3. Quality Control Data: Submit the number stated in the respective Specification Sections or as otherwise requested by the ENGINEER. At minimum, CONTRACTOR shall provide electronic,

signed copies of all QC data in addition to signed certified hard copies for Certification Reporting once approved and accepted.

D Submittals shall contain:

1. The date of submission and the dates of any previous submissions.
2. The PROJECT title and number.
3. CONTRACTOR identification.
4. The names of:
 - a. CONTRACTOR
 - b. Supplier
 - c. Manufacturer
 - d. Sub-contractor or installer if not CONTRACTOR
5. Identification of the product, with the specification section number, page and paragraph(s).
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the Work or materials.
8. Applicable standards, such as ASTM or Federal Specification numbers.
9. Identification of deviations from Contract Documents.
10. Identification of revisions on re-submittals.
11. A blank space for CONTRACTOR and ENGINEER signatures.

1.05 REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

A The review of shop drawings, data, and samples will be for general conformance with the design concept and Contract Documents. They shall not be construed:

1. as permitting any departure from the Contract requirements;
2. as relieving the CONTRACTOR of responsibility for any errors, including details, dimensions, and materials;
3. as approving departures from details furnished by the ENGINEER, except as otherwise provided herein.

B The CONTRACTOR remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.

C If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which ENGINEER finds to be in the

interest of the OWNER and to be so minor as not to involve a change in Contract Price or time for performance, the ENGINEER may return the reviewed drawings without noting an exception.

D Submittals will be returned to the CONTRACTOR under one of the following codes.

- Code 1: "REVIEWED" is assigned when there are no notations or comments on the submittal. When returned under this code the CONTRACTOR may release the equipment and/or material for manufacture.
- Code 2: "FURNISH AS CORRECTED". This code is assigned when a confirmation of the notations and comments IS NOT required by the CONTRACTOR. The CONTRACTOR may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.
- Code 3: "REVISE AND RE-SUBMIT". This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the package. The CONTRACTOR may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This resubmittal is to address all comments, omissions and non-conforming items that were noted. Resubmittal is to be received by the ENGINEER within 10 calendar days of the date of the ENGINEER'S transmittal requiring the resubmittal.
- Code 4: "REJECTED" is assigned when the submittal does not meet the intent of the Contract Documents. The CONTRACTOR must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the Contract Documents.
- Code 5: "SUBMIT SPECIFIC ITEM" is assigned where there are comments attached to the returned submittal which provide additional data to aid the CONTRACTOR.

Codes 1 through 4 designate the status of the reviewed submittal with Code 5 showing there has been an attachment of additional data.

In each case above, ENGINEER does not assume responsibility for accuracy of the product referenced on the submittal. CONTRACTOR is responsible for complying with the Contract Documents in all submittals unless so stated by the ENGINEER.

E Re-submittals will be handled in the same manner as first submittals. On re-submittals the CONTRACTOR shall direct specific attention, in writing on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the ENGINEER, on previous submissions. Any such revisions which are not clearly

identified shall be made at the risk of the CONTRACTOR. The CONTRACTOR shall make corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the ENGINEER.

F Partial submittals may not be reviewed. The ENGINEER will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the CONTRACTOR, and will be considered "Rejected" until resubmitted. The ENGINEER may at his/her option, provide a list or mark the submittal directing the CONTRACTOR to the areas that are incomplete.

G Repetitive Review

1. Shop drawings and other submittals will be reviewed no more than twice at the OWNER's expense. All subsequent reviews will be performed at times convenient to the ENGINEER and at the CONTRACTOR'S expense, based on the ENGINEER'S then prevailing rates. The CONTRACTOR shall reimburse the OWNER for all such fees invoiced to the OWNER. Submittals are required until approved.

2. Any need for more than one resubmission, or any other delay in obtaining ENGINEER'S review of submittals, will not entitle CONTRACTOR to extension of the Contract Time.

H If the CONTRACTOR considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the CONTRACTOR shall give written notice thereof to the ENGINEER at least seven working days prior to release for manufacture.

I When the shop drawings have been completed to the satisfaction of the ENGINEER, the CONTRACTOR shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the ENGINEER.

1.06 DISTRIBUTION

A Distribute reviewed shop drawings and copies of reviewed product data and samples, where required, to the job site file and elsewhere as directed by the OWNER or ENGINEER.

1.07 PROFESSIONAL ENGINEER (P.E.) CERTIFICATION FORM

A If specifically required in other Sections of these Specifications, the CONTRACTOR shall submit a P.E./RLS Certification for each item required, in the form attached to this Section, completely filled in and stamped.

1.08 GENERAL PROCEDURES FOR SUBMITTALS

- A Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections, of the Specifications, so that the installation will not be delayed by processing times including disapproval and re-submittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the CONTRACTOR'S failure to transmit submittals sufficiently in advance of the Work.
- B At the direction of the ENGINEER only, all submittals, responses and correspondence relating to submittals may be transmitted electronically other than samples and in QC Documentation.

P.E./R.L.S. CERTIFICATION FORM

The undersigned hereby certifies that he/she is a Professional Engineer/Registered Land Surveyor registered in the State of North Carolina and that he/she has been employed by

_____ (Name of Contractor)
to design

_____ in accordance with Specification Section _____ for the

_____ (Name of Project)

The undersigned further certifies that he/she has performed the design of the

_____ ,

that said design is in conformance with all applicable local, state and federal codes, rules, and regulations, and that his/her signature and P.E./R.L.S. stamp have been affixed to all calculations and drawings used in, and resulting from, the design.

The undersigned hereby agrees to make all original design drawings and calculations available to the

_____ (Insert Name of Owner)

or OWNER'S representative with five working days following written request therefore by the OWNER.

P.E./R.L.S. Name

Signature

Address

Contractor's Name

Signature

Title

Address

March 2021

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END OF SECTION

01340-10

SECTION 01380

CONSTRUCTION PHOTOGRAPHS

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Employ competent photographer to take construction record photographs periodically during course of the Work.

1.02 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work.
- B. Section 01720: PROJECT Record Documents.

1.03 PHOTOGRAPHY REQUIRED

- A. Provide photographs of the general construction area prior to starting construction.
- B. Provide photographs taken on cutoff date for each scheduled Application for Payment.
- C. Provide photographs taken at each stage of construction and a minimum:
 - 1. Prior to initiation of construction.
 - 2. Completion of temporary erosion controls.
 - 3. Completion of stripping.
 - 4. Completion of excavations/grading.
 - 5. During installation of stormwater collection and conveyance structures
 - 6. Upon completion of stabilization
- D. Views and Quantities Required:
 - 1. At each specified time, photograph PROJECT from a minimum of five different locations, as approved and/or requested by the ENGINEER.
 - 2. Provide digital photos of each view.
 - 3. Digital copies of photographs may be provided by the CONTRACTOR in lieu of paper copies. All digital photographs shall be submitted on a compact disc (CD) and shall be a resolution of 8 megapixels or greater or *submitted via electronic file sharing method*.
- E. Negatives & Original Digital Copies:
 - 1. Remain property of photographer.

2. Require that photographer maintain digital originals for a period of two years from Date of Completion of entire PROJECT.
3. Photographer shall agree to furnish additional copies or prints to the ENGINEER at commercial rates applicable at time of purchase.

1.04 COSTS OF PHOTOGRAPHY

A. CONTRACTOR TO Pay costs for specified photography and prints.

1. Parties requiring additional photography or prints will pay photographer directly.

PART 2: PRODUCTS

2.01 PRINTS

- ##### A. Upon request, provide hard copy prints

PART 3: EXECUTION

3.01 TECHNIQUE

- ##### A. Factual presentation.
- ##### B. Correct exposure and focus.
1. High resolution and sharpness.
 2. Maximum depth-of-field.
 3. Minimum distortion.

3.02 VIEWS REQUIRED

- ##### A. Photograph from locations to adequately illustrate condition of construction and state of progress.
1. At successive periods of photography, take at least one photograph from the same overall view as previously.
 2. Consult with the ENGINEER at each period of photography for instructions concerning views required.

3.03 ASSEMBLY OF PHOTOS

- ##### A. Provide electronic file (compact disc) of photographs or other acceptable means of file sharing.

3.04 DELIVERY OF PRINTS

- ##### A. At minimum, deliver prints to the ENGINEER to accompany each Application for Payment.
1. Engineer may request delivery of electronic photos daily
- ##### B. Distribution of prints, is anticipated to be as follows:
1. OWNER (one electronic set).
 2. ENGINEER (one electronic set).
 3. PROJECT Record File (maintained by the CONTRACTOR).

END OF SECTION

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**SECTION 01410
TESTING AND TESTING LABORATORY SERVICES**

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The CONTRACTOR will employ and pay for the services of an independent Construction Quality Control (CQC) ENGINEER to perform testing indicated in the Contract Documents and may at any other time elect to have materials and equipment tested for conformity with the Contract Documents. See Section 1.05 herein.
 - 1. Employment of the CQC ENGINEER shall in no way relieve CONTRACTOR'S obligations to perform the Work of the Contract.
- B. OWNER will employ and pay for the services of an independent Construction Quality Assurance (CQA) ENGINEER to conduct testing as required in the specifications.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.
- B. Respective sections of specifications: Certification of products.
- C. Each specification section listed: Laboratory tests required and standards for testing.
- D. Testing Laboratory inspection, sampling and testing is required for but not limited to the following:
 - 1. Section 02200: Excavation, Backfill, and Compaction

1.03 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. CQC ENGINEER is not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of Contract Documents.
 - 2. Approve or accept any portion of the Work other than those specified in these documents.

3. Perform any duties of the CONTRACTOR.

1.04 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel, provide access to work, to manufacturer's operations.
- B. Secure and deliver to the CQC ENGINEER adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the CQC ENGINEER the preliminary design mix proposed to be used for concrete and other materials mixes which require control by the testing laboratory.
- D. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard specifications for quality and workmanship are indicated in the Contract Documents. The CQA ENGINEER may require the CONTRACTOR to provide statements or certificates from the manufacturers and fabricators that the materials and equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the CONTRACTOR, and no extra charge to the Owner shall be allowed on account of such testing and certification.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to work to be tested.
 - 2. To obtain and handle samples at the PROJECT site or at the source of the product to be tested.
 - 3. To facilitate inspections and tests.
 - 4. For storage and curing of test samples.
- F. Notify CQC and CQA ENGINEERS sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

1. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to CONTRACTOR'S negligence.
- G. Employ and pay for the services of the same or a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required for the CONTRACTOR'S convenience.

1.05 DEFINITIONS RELATING TO CONSTRUCTION QUALITY ASSURANCE

- A. Construction Quality Assurance and Construction Quality Control (CQA/CQC): This CQA/CQC Plan is devoted to construction quality assurance/quality control regarding the low permeability soil infiltration layer of the cap liner system. In the context of this Plan, construction quality assurance and construction quality control are defined as follows:
 - B. Construction Quality Assurance (CQA): A planned and systematic procedure for means and actions required to provide reasonable confidence that items or services involved in final closure meet contractual and regulatory requirements and will perform satisfactorily when installed.
 - C. Construction Quality Control (CQC): Those actions which provide a means to measure and regulate the materials and workmanship of an item or service to contractual and regulatory requirements.
- B. Use of the Terms in this Plan
 1. Construction Quality Assurance refers to the means and methods employed by the Owner to assure conformity of final cap system materials, workmanship, and installation with this CQA/CQC Plan, Contract Drawings, and the Specifications. CQA is provided by the CQA ENGINEER as a representative of the Owner and independent from construction and installation.
 2. Construction Quality Control refers to those actions taken by manufacturers, installers, Quality Control Agency, or CONTRACTOR to ensure that the materials and the workmanship meet the requirements of this CQA/CQC Plan and the Specifications. In the case of soils, CQC is provided by the CONTRACTOR'S CQC ENGINEER.

- C. Discrepancies Between Documents - The CQA/CQC Plan is intended to be a supporting document to improve the overall implementation of the closure work. The CONTRACTOR is instructed to bring discrepancies between Technical Specifications and CQA/CQC Plan to the attention of the Design ENGINEER or CQA ENGINEER for resolution. The Design ENGINEER has the sole authority to determine resolution of discrepancies existing within the Contract Documents. Unless otherwise directed by the Design ENGINEER, the more stringent requirement shall be the controlling resolution.

1.06 PARTIES TO CONSTRUCTION QUALITY ASSURANCE

- A. Description of the Parties - The parties to Construction Quality Assurance and Quality Control include the OWNER, Design ENGINEER, CONTRACTOR, CQA ENGINEER, and CQC ENGINEER.
1. Design ENGINEER - The Design ENGINEER is responsible for the engineering design, drawings, plans and specifications for the PROJECT.
 2. CONTRACTOR - The CONTRACTOR is generally responsible for the construction of the PROJECT. The CONTRACTOR is responsible for submittal coordination and the overall Construction Quality Control (CQC) on the PROJECT.
 3. Construction Quality Assurance (CQA) ENGINEER - The CQA ENGINEER is a party, independent from the CONTRACTOR, that is responsible for observing, testing, and documenting activities related to the construction quality assurance of the earthworks at the site. The CQA ENGINEER is also responsible for issuing a certification report, sealed by a Professional Engineer registered in the State of North Carolina. The CQA ENGINEER may be the Design ENGINEER.
 4. Construction Surveyor - The Construction Surveyor, also referred to as the CQC Surveyor, is a subcontractor of the CONTRACTOR and responsible for all stakeout and survey control as outlined in Section 01050, Surveying Construction Quality Control.

March 2021

5. Construction Quality Control (CQC) ENGINEER - The CQC ENGINEER is a representative of the CONTRACTOR and responsible for the portion of the earthwork and soils cap CQC testing required by the Contract Documents.
6. OWNER - The OWNER is defined in the Section 00500 - Agreement and is responsible for the facility.

B. Qualifications of the Parties

The following qualifications are required of specific parties involved with the design, installation, transportation, and CQA/CQC of all materials for the PROJECT. These qualifications must be submitted to the Design ENGINEER'S Project Manager for review and approval.

1. CONTRACTOR - Qualifications of the CONTRACTOR are specific to the construction contract and independent of this CQA/CQC Plan. It is the CONTRACTOR'S responsibility to ensure that the soils used meet the Specifications of the PROJECT.
2. CQC ENGINEER - The CQC ENGINEER will have experience in soils testing, meet all regulatory requirements, and be familiar with ASTM standards. The CQC ENGINEER will be capable of providing test results in accordance with the Specifications.
3. CQA ENGINEER - The CQA ENGINEER will have experience in soils testing, meet all regulatory requirements, and be familiar with ASTM standards. The CQA ENGINEER will be capable of providing test results in accordance with the Specifications.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

END OF SECTION

**SECTION 01600
MATERIAL AND EQUIPMENT**

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Material and equipment incorporated into the Work:
 - 1. Conform to applicable specifications and standards.
 - 2. Comply with size, make, type and quality specified, or as specifically approved in writing by the ENGINEER.
 - 3. Manufactured and Fabricated Products
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
 - 4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

1.02 RELATED REQUIREMENTS

- A. Section 00700: General Conditions
- B. Section 00800: Supplementary Conditions
- C. Section 01010: Summary of Work
- D. Section 01030: Special Project Procedures

H. Section 01740: Warranties and Bonds

1.03 APPROVAL OF MATERIALS

- A. Only new materials and equipment shall be incorporated in the work. All materials and equipment furnished by the CONTRACTOR shall be subject to the inspection and approval of the Engineer. No material shall be incorporated into the work without prior approval of the Engineer.
- B. The CONTRACTOR shall submit data and samples sufficiently early to permit consideration and approval before materials are necessary for incorporation in the work. Any delay of approval resulting from the CONTRACTOR'S failure to submit samples or data promptly shall not be used as a basis of claim against the OWNER or the ENGINEER.
- C. In order to demonstrate the proficiency of workmen or to facilitate the choice among several textures, types, finishes, and surfaces, the CONTRACTOR shall provide such samples of workmanship or finish as may be required.
- D. The materials and equipment used on the work shall correspond to the approved samples or other data.

1.04 MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including five copies to the ENGINEER.
 - 1. Maintain one set of complete instructions at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with ENGINEER for further instructions.
 - 2. Do not proceed with work without clear instructions.

- C. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.05 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of Products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that Products are properly protected and undamaged.
- B. Provide equipment and personnel to handle Products by methods to prevent soiling or damage to Products or packaging.

1.06 STORAGE AND PROTECTION

- A. The CONTRACTOR shall furnish a covered, weather-protected storage structure providing a clean, dry, non-corrosive environment for all mechanical equipment, valves, and special equipment and materials to be incorporated into this project. Storage of materials shall be in strict accordance with the "instructions for storage" of each supplier and manufacturer. The CONTRACTOR shall furnish a copy of the manufacturer's instructions for storage to the ENGINEER prior to storage of all equipment and materials. Corroded, damaged or deteriorated equipment and parts shall be replaced before acceptance of the project. Equipment and materials not properly stored will not be included in a payment estimate.
- B. Store Products in accordance with manufacturer's instructions, with seals and labels intact and legible.
 - 1. Store products subject to damage by the elements in weathertight enclosures.
 - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
 - 3. Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to

deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.

4. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. All materials and equipment to be incorporated in the work shall be handled and stored by the CONTRACTOR before, during, and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, theft or damage of any kind whatsoever to the material or equipment.
 - D. Cement, sand and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. Brick, block and similar masonry products shall be handled and stored in a manner to reduce breakage, chipping, cracking, and spalling to a minimum.
 - E. All materials which, in the opinion of the ENGINEER, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the work, and the CONTRACTOR shall receive no compensation for the damaged material or its removal.
 - F. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free from damage or deterioration.
 - G. Protection After Installation
 1. Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove covering when no longer needed.
 - H. The CONTRACTOR shall be responsible for all material, equipment, and supplies sold and delivered to the OWNER under this Contract until final inspection of the work and acceptance thereof by the OWNER. In the event any such material, equipment, and supplies are lost, stolen, damaged, or destroyed prior to final inspection and acceptance, the CONTRACTOR shall replace same without additional cost to the OWNER.
 - I. Should the CONTRACTOR fail to take proper action on storage and handling of equipment supplied under this Contract within seven days after written notice to do so has been given, the OWNER retains the right to correct all deficiencies noted in previously transmitted written notice and

deduct the cost associated with these corrections from any amounts due and payable to the CONTRACTOR. These costs may be comprised of expenditures for labor, equipment usage, administrative, clerical, engineering and any other costs associated with making the necessary corrections.

1.07 SPECIAL TOOLS

- A. Manufacturers of equipment and machinery shall furnish any special tools required for normal adjustment, operations and maintenance, together with instructions for their use. The CONTRACTOR shall preserve and deliver to the OWNER these tools and instructions in good order upon receipt but no later than ten (10) days prior to equipment start-up.

1.08 STORAGE AND HANDLING OF EQUIPMENT ON SITE

- A. Because of the long period allowed for construction, special attention shall be given to the storage and handling of equipment on site. As a minimum, the procedure outlined below shall be followed.
 - 1. Equipment shall not be shipped until approved by the ENGINEER. The intent of this requirement is to reduce on-site storage time prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the ENGINEER. Operation and maintenance data as described in Section 01730 shall be submitted to the ENGINEER for review prior to shipment of equipment.
 - 2. All equipment having moving parts such as gears, electric motors, etc. and/or instruments shall be stored in a temperature and humidity controlled building approved by the Engineer, until such time as the equipment is to be installed.
 - 3. All equipment shall be stored fully lubricated with oil, grease, etc. unless otherwise instructed by the manufacturer.
 - 4. A copy of the manufacturer's storage instructions shall be given to the ENGINEER and shall be carefully studied by the CONTRACTOR and reviewed with the ENGINEER by him. These instructions shall be carefully followed and a written record of this kept by the CONTRACTOR.

5. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the CONTRACTOR shall start the equipment, at least half load, once weekly for an adequate period of time to insure that the equipment does not deteriorate from lack of use.
6. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. Mechanical equipment to be used in the work, if stored for longer than ninety (90) days, shall have the bearings cleaned, flushed and lubricated prior to testing and startup, at no extra cost to the OWNER.
7. Prior to acceptance of the equipment, the CONTRACTOR shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guarantee the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the CONTRACTOR's expense.

1.09 WARRANTY

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer as specified in Section 01740.

1.10 SPARE PARTS

- A. The CONTRACTOR shall collect and store all spare parts as required by the manufacturer in accordance with paragraph 1.08 of this Section. In addition, the CONTRACTOR shall furnish to the ENGINEER an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost. The CONTRACTOR shall deliver the spare parts to the OWNER not more than thirty (30) nor less later than ten (10) days prior to plant start-up.
- B. All spare parts shall be the products of the original equipment manufacturer.

1.11 GREASE, OIL, AND FUEL

- A. All grease, oil, and fuel required for testing of equipment shall be furnished with the respective equipment. The OWNER shall be furnished with a year's supply of required lubricants including grease and oil of the type recommended by the manufacturer, and approved by the OWNER, with each item of equipment supplied under Divisions 11, 12, 13, 14, 15 and 16. Refer to paragraph 2.01 for additional requirements for lubricants.
- B. The CONTRACTOR shall be responsible for furnishing and changing the oil in all drives and intermediate drives of each piece of mechanical equipment after initial break-in of the equipment, which in no event shall be any longer than three weeks of operation.

PART 2: PRODUCTS

2.01 LUBRICANTS

- A. All lubricants furnished on this Project shall be 100 percent paraffin based lubricants, that contain Monolec or Amosol, such as the products offered by Lubrication Engineers, Inc. (LE), Fort Worth, TX. Only LE lubricants, or approved equal paraffin based lubricants shall be used for factory testing of equipment. In the event that other lubricants are used for factory testing or furnished with the delivered equipment, the CONTRACTOR shall be responsible for draining, flushing and replacing the unapproved lubricants with acceptable products. Shop drawings shall indicate the manufacturer's recommended LE products, or proposed equal.

PART 3: EXECUTION (Not Used)

March 2021

END OF SECTION

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01600-8

**SECTION 01630
SUBSTITUTIONS AND PRODUCT OPTIONS**

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish and install Products specified, under options and conditions for substitutions stated in this Section.
- B. Whenever a product, material or item of equipment is specified or described by using the name of a proprietary product or the name of a particular manufacturer or vendor, followed by the phrase "or equal," the specific item mentioned shall be the basis upon which bids are to be prepared, and shall be understood as establishing the type, function, dimension, appearance and quality desired. Other manufacturer's or vendor's products not named will be considered as substitutions, provided the required information is submitted in the manner set forth in this section and provided the substitution will not require substantial revision to the Contract Documents.

1.02 RELATED REQUIREMENTS

- A. Section 00100: Instruction to Bidders.
- B. Section 00300: Bid Form.
- C. Section 00460: Substitute Suppliers.
- D. Section 00700: General Conditions.
- E. Section 00800: Supplementary Conditions.
- F. Section 01153: Change Order Procedures.
- G. Section 01600: Material and Equipment.

1.03 SUBMITTALS

- A. Bidders shall submit their list of proposed substitutions and the proposed monetary changes associated therewith to the OWNER on the standard form (Section 00460) provided together with their bids.

1.04 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standard, select product meeting that standard, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any one of products and manufacturers named which complies with Specifications.

- C. For products specified by naming one or more products or manufacturers and stating "or equal," submit a request as for substitutions, for any product or manufacturer which is not specifically named.
- D. For products specified by naming only one product and manufacturer, there is no option and no substitution will be allowed.

1.05 SUBSTITUTIONS

- A. In order for substitutions to be considered, the CONTRACTOR shall submit, within 30 days of issuance of Notice of Award, complete data as set forth herein to permit complete analysis of all proposed substitutions noted on his/her substitutions list. No substitution shall be considered unless the CONTRACTOR provides the required data in accordance with the requirements of this Section within the 30-day period.
- B. Submit separate request for each substitution. Support each request with:
 - 1. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - 2. Product description.
 - 3. Reference standards.
 - 4. Performance and test data.
 - 5. Operation and maintenance data.
 - a. Samples, as applicable.
 - b. Name and address and contact with phone number of similar projects on which product has been used and date of each installation.
 - 6. Itemized comparison of the proposed substitution with product specified; list significant variations. Substitution shall not change design intent and shall perform equal to that specified.
 - 7. Data relating to impact on construction schedule occasioned by the proposed substitution.
 - 8. Any effect of substitution on separate contracts.
 - 9. List of changes required in other work or products.
 - 10. Accurate cost data comparing proposed substitution with product specified.

- a. Amount of any net change to Contract Sum.
- 11. Designation of required license fees or royalties.
- 12. Designation of availability of maintenance services, sources of replacement materials.
- C. Substitutions will not be considered for acceptance when:
 - 1. They are indicated or implied on shop drawings or product data submittals without a formal request from CONTRACTORS.
 - 2. They are requested directly by a subcontractor or supplier.
 - 3. Acceptance will require substantial revision of Contract Documents.
- D. Requests for substitutions submitted after Notice of Award will not be considered unless evidence is submitted to the Engineer that all of the following circumstances exist:
 - 1. The specified product is unavailable for reasons beyond the control of the CONTRACTOR. Such reasons shall consist of strikes, bankruptcy, discontinuance of manufacturer, or acts of God.
 - 2. The CONTRACTOR placed, or attempted to place, orders for the specified products within ten days after Notice of Award.
 - 3. Request for substitution is made in writing to the ENGINEER within ten days of the date on which the CONTRACTOR ascertains that he/she cannot obtain the item specified.
 - 4. Complete data as set forth herein to permit complete analysis of the proposed substitution is submitted with the request.
- E. The ENGINEER'S decision regarding evaluation of substitutions shall be considered final and binding. Requests for time extensions and additional costs based on submission of, acceptance of, or rejection of substitutions will not be allowed. All approved substitutions will be incorporated into the Agreement by Change Order.

1.06 CONTRACTOR'S REPRESENTATION

- A In making formal request for substitution, CONTRACTOR represents that:
 - 1. He has investigated proposed product and has determined that it is equal to or superior in all respects to that specified.
 - 2. He will provide same warranties or bonds for substitution as for product specified.

March 2021

3. He will coordinate installation of accepted substitution into the Work and will make such changes as may be required for the Work to be complete in all respects.
4. He waives claims for additional costs caused by substitution which may subsequently become apparent.
5. Cost data is complete and includes related costs under his/her Contract, but not:
 - a. Costs under separate contracts.
 - b. ENGINEER'S costs for redesign or revision of Contract Documents.

1.07 ENGINEER DUTIES

- A. Review CONTRACTOR'S requests for substitutions with reasonable promptness.
- B. Notify CONTRACTOR, in writing, of decision to accept or reject requested substitution.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

**SECTION 01700
CONTRACT CLOSEOUT**

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

1.02 RELATED REQUIREMENTS

- A. Section 00700: General Conditions.
- B. Section 00800: Supplementary Conditions.
- C. Section 01710: Cleaning.
- D. Section 01720: Project Record Documents.
- E. Section 01740: Warranties and Bonds.
- F. The respective sections of Specifications: Closeout Submittals Required of Trades, Vendors, Suppliers, and Manufacturers.

1.03 FINAL INSPECTION

- A. When CONTRACTOR considers the Work is complete, he shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested in the presence of the OWNER'S representative and are operational.
 - 5. Work is completed and ready for final inspection.
- B. The ENGINEER will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.

- C. Should the ENGINEER consider that the Work is incomplete or defective:
 - 1. The ENGINEER will promptly notify the CONTRACTOR in writing, listing the incomplete or defective work.
 - 2. CONTRACTOR shall take immediate steps to remedy the stated deficiencies and send a second written certification to the ENGINEER that the Work is complete.
 - 3. The ENGINEER will re-inspect the Work.
- D. When the ENGINEER finds that the Work is acceptable under the Contract Documents, he shall request the CONTRACTOR to make closeout submittals.

1.04 REINSPECTION FEES

- A. Should the ENGINEER perform re-inspections due to failure of the Work to comply with the claims of status of completion made by the CONTRACTOR:
 - 1. OWNER will compensate the ENGINEER for such additional services.
 - 2. OWNER will deduct the amount of such compensation from the final payment to the CONTRACTOR.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. Evidence of compliance with requirements of governing authorities.
- B. Project Record Documents: To requirements of Section 01720.
- C. Warranties and Bonds: To requirements of Section 01740.
- D. Evidence of Payment and Release of Liens: To requirements of General and Supplementary Conditions.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the ENGINEER.
- B. Statement shall reflect all adjustments to the Contract Sum.

1. The original Contract Sum.
2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Allowances.
 - c. Unit Prices.
 - d. Deductions for uncorrected Work.
 - e. Deductions for liquidated damages.
 - f. Deductions for re-inspection payments.
 - g. Other adjustments.
3. Total Contract Sum, as adjusted.
4. Previous payments.
5. Sum remaining due.

C. ENGINEER will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.07 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the General Conditions of the Contract.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

March 2021

END OF SECTION

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01700-4

**SECTION 01720
PROJECT RECORD DOCUMENTS**

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintain at the site for the OWNER one record copy of:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. ENGINEER'S Field Orders or written instructions.
 - 6. Approved Shop Drawings, Working Drawings and Samples.
 - 7. Field Test records.
 - 8. Construction photographs.
 - 9. All other construction related permits.

1.02 RELATED REQUIREMENTS

- A. Section 01050: Field Engineering.
- B. Section 01200: Project Meetings.
- C. Section 01340: Shop Drawings, Product Data, Working Drawings, and Samples.
- D. Section 01380: Construction Photographs.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in CONTRACTOR'S field office apart from documents used for construction.

1. Provide files and racks for storage of documents.
 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format.
- C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by the ENGINEER.
- E. As a prerequisite for monthly progress payments, the CONTRACTOR is to exhibit the currently updated "Project Record Documents" and survey data in accordance with Section 01050 for review by the ENGINEER and OWNER.

1.04 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by the ENGINEER.

1.05 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information concurrently with construction progress.
1. Do not conceal any work until required information is recorded.
- C. Drawings: Legibly mark to record actual construction:
1. Depths of various elements of foundation in relation to grade elevation.
 2. All underground piping with elevations and dimensions. Changes to piping location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed pipe material, class, etc.
 3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

4. Field changes of dimension and detail.
5. Changes made by Field Order or by Change Order.
6. Details not on original contract drawings.
7. Equipment and piping relocations.
8. Major architectural and structural changes including relocation of doors, windows, etc.
9. Architectural schedule changes according to CONTRACTOR'S records and shop drawings.

D. Specifications and Addenda; legibly mark each Section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
2. Changes made by Field Order or by Change Order.

E. Shop Drawings (after final review and approval):

1. Five sets of record drawings for each process equipment, piping, electrical system, and instrumentation system.

1.06 SUBMITTAL

F. At Contract close-out, deliver Record Documents to the ENGINEER for the OWNER.

G. Accompany submittal with transmittal letter in duplicate, containing:

1. Date.
2. PROJECT title and number.
3. CONTRACTOR'S name and address.
4. Title and number of each Record Document.
5. Signature of CONTRACTOR or his authorized representative.

March 2021

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

01720-4

**SECTION 01740
WARRANTIES AND BONDS**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

1.02 RELATED WORK

- A. Instructions to Bidders: Bid or Proposal Bonds.
- B. Section 00700: General Conditions.
- C. Section 00800: Supplementary Conditions.
- D. Section 01030: Special Project Procedures.
- E. Section 01700: Contract Closeout.
- F. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Division 2 through 16.
- G. Certifications and other commitments and agreements for continuing services to OWNER are specified elsewhere in the Contract Documents.

1.03 SUBMITTALS

- A. Submit written warranties to the OWNER prior to the date fixed by the ENGINEER for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the OWNER.
- B. When a designated portion of the Work is completed and occupied or used by the OWNER, by separate agreement with the CONTRACTOR during the construction period, submit properly executed warranties to the OWNER within fifteen days of completion of that designated portion of the Work.

- C. When a special warranty is required to be executed by the CONTRACTOR, or the CONTRACTOR and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the OWNER for approval prior to final execution.
- D. Refer to individual Sections of Divisions 2 through 16 for specific content requirements, and particular requirements for submittal of special warranties.

1.04 WARRANTY REQUIREMENT

- A. **Related Damages and Losses:** When correcting warranted Work that has failed, remove, and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B. **Reinstatement of Warranty:** When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. **Replacement Cost:** Upon determination that Work covered by a warranty has failed, replace, or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The CONTRACTOR is responsible for the cost of replacing or rebuilding defective Work regardless of whether the OWNER has benefited from use of the Work through a portion of its anticipated useful service life.
- D. **OWNER's Recourse:** Written warranties made to the OWNER are in addition to implied warranties, and shall not limit the duties, obligations, rights, and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the OWNER can enforce such other duties, obligations, rights, or remedies.
- E. **Rejection of Warranties:** The OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the contract Documents.
- F. The OWNER reserves the right to refuse to accept Work for the PROJECT where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

- G. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the CONTRACTOR of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the CONTRACTOR.
- H. Separate Prime Contracts: Each Prime CONTRACTOR is responsible for warranties related to its own Contract.

1.05 DEFINITIONS

- A. Standard Product Warranties are pre-printed written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the OWNER.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the OWNER.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

March 2021

END OF SECTION

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**SECTION 02100
SITE PREPARATION**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, and equipment required and perform all clearing and grubbing complete as shown on the Drawings and as specified herein. Site Preparation work includes but is not limited to protection of tress outside the working area or as designated, removal of trees and vegetation within the site clearing limits, grubbing within the site clearing limits, stripping topsoil and removal of debris on the site.
- B. Obtain all permits required for site preparation work prior to proceeding with the work, including clearing and grubbing.

1.02 RELATED WORK

- A. Section 02200: Excavation Backfill, and Compaction
- B. Section 02276: Erosion and Sedimentation Control
- C. Section 02985: Stabilization

1.03 SUBMITTALS

- A. Submit in accordance with Section 01030 copies of all permits required prior to clearing and grubbing work.
- B. CONTRACTOR shall supply grid elevations (pre-work survey) immediately after Vegetation Removal by a Registered Land Survey in accordance with Section 01050.

PART 2: PRODUCTS - Not Used

PART 3: EXECUTION

3.01 SURVEY

- A. **The CONTRACTOR shall locate and mark the limits of the clearing and grubbing and project area.**

3.02 CLEARING

- A. Complete clearing of only those areas required to install the erosion control measures as shown on the plans prior to initiating additional clearing operations.

- B. Cut and remove timber, trees, stumps, brush, shrubs, roots, grass, weeds, rubbish, and any other objectionable material resting on or protruding through the surface of the ground.
- C. Trees and other vegetation designated on the Drawings or directed by the ENGINEER to remain shall be preserved and protected as specified. Cut and remove timber, trees, stumps, brush, shrubs, roots, grass, weeds, rubbish, and any other objectionable material resting on or protruding through the surface of the ground.

3.03 GRUBBING

- A. Grubb only those areas required to install the erosion control measures as shown on the plans prior to initiating additional clearing operations.
- B. Grub and remove all stumps, roots in excess of 1-1/2 inches in diameter, matted roots, brush, timber, logs, concrete rubble, and all other debris encountered.
- C. All grubbing holes and depressions excavated below the original ground surface shall be refilled with common fill and compacted to a density conforming to the surrounding ground surface.

3.04 STRIPPING

- A. Remove existing soil material in areas as shown on the plans; stockpile soils at the ENGINEER approved location only.
- B. CONTRACTOR shall make every effort to segregate topsoils from large vegetative debris. Soil materials may be used in construction if requested and accepted by the ENGINEER.

3.05 DISPOSAL

- A. The CONTRACTOR shall dispose of all material and debris from the clearing and grubbing operation at an approved location or as approved by the OWNER.
- B. Onsite disposal of cleared and grubbed materials by burning is allowed if approved by the OWNER and federal, state, and local agencies.

3.06 PROTECTION

- A. Trees and other vegetation designated on the Drawings or directed by the ENGINEER to remain shall be protected from damage by all construction operations by erecting suitable barriers, guards, and enclosures, or by other approved means. Clearing operations shall be conducted in a manner to prevent falling trees from damaging trees and vegetation designated to remain and to the work being constructed and so as to provide for the safety of employees and others.

- B. Protection shall be maintained until all work in the vicinity of the work being protected has been completed.
- C. Heavy equipment operation or stockpiling of materials shall not be permitted within the branch spread of existing trees.
- D. Any damage to existing tree crowns, trunks, or root systems shall be repaired immediately. Roots exposed and/or damaged during the work shall immediately be cut off cleanly inside the exposed or damaged area. Cut surfaces shall be treated with an acceptable tree wound paint, and topsoil spread over the exposed root area.
- E. When work is completed, all dead and downed trees shall be removed. Live trees shall be trimmed of all dead and diseased limbs and branches. All cuts shall be cleanly made at their juncture with the trunk or preceding branch without injury to the trunk or remaining branches. Cuts over 1-in in diameter shall be treated with an acceptable tree wound paint.
- F. Construction activities shall be restricted to those areas within the limits of construction designated on the Drawings, within public rights-of-way, and within easements provided by the OWNER. Adjacent properties and improvements thereon, public or private, which become damaged by construction operations shall be promptly restored to their original condition, to the full satisfaction of the property owner.

END OF SECTION

**SECTION 02200
EXCAVATION, BACKFILL, AND COMPACTION**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals necessary to perform all excavation, backfill, compaction and grading required to complete the work shown on the Drawings and specified herein. The work shall include, but not necessarily be limited to excavation, backfilling, grading, compaction, disposal of waste and surplus materials, placing crushed stone, construction of berms, and all related work such as sheeting, bracing and dewatering.
- B. All excavation, trenching, and related sheeting, bracing, etc. shall comply with the requirements of OSHA excavation safety standards 29 CFR Part 1926.650 Subpart P and State requirements. Where conflict between OSHA and State regulations exists, the more stringent requirements shall apply.
- C. Excavated topsoil and excess cut material will be stockpiled in locations approved by the ENGINEER.

1.02 RELATED WORK

- A. Section 01050: Field Engineering
- B. Section 01410: Construction Quality Assurance / Quality Control
- C. Section 02276: Erosion and Sedimentation Control
- D. Section 02985: Seeding and Mulching

1.03 SUBMITTALS

- A. The CONTRACTOR shall furnish the ENGINEER for approval, a representative sample weighing approximately 75 pounds of each fill material, stone and crushed stone, at least 15 calendar days prior to the date of anticipated use of such material.
- B. Daily work plans shall be submitted a minimum of one day prior for review by the ENGINEER.
- C. The CONTRACTOR's CQC Firm Daily Field Report shall be submitted to the ENGINEER on the day following.

1.04 QUALITY CONTROL/ASSURANCE

- A. CONTRACTOR shall employ a CQC Firm to perform soils inspection and testing services for quality control of the placement of fill material. OWNER shall employ

a CQA Firm to perform soils observation and testing services for quality assurance of the fill material. The ENGINEER may perform the duties of the CQA Firm.

1.05 PROTECTION

A. Sheeting and Bracing (if required)

1. Furnish, put in place and maintain such sheeting and bracing as may be required by Federal, State and local safety requirements to support the sides of excavations; to prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction; and to protect adjacent structures from undermining or other damage. If the OWNER is of the opinion that at any location sufficient or proper supports have not been provided, he/she may order additional supports put in, and compliance with such order shall not relieve or release the Contractor from his/her responsibility for the sufficiency of such supports. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed. Where soil cannot be properly compacted to fill a void, lean concrete shall be used as backfill. All voids shall be filled to the satisfaction of the ENGINEER.
2. Construct the sheeting outside the neat lines of the foundation, unless indicated otherwise, to the extent deemed desirable for the method of operation. Sheeting shall be plumb and securely braced and tied in position. Sheeting and bracing shall be adequate to withstand all pressures to which the structure or trench will be subjected. Any movement or bulging which may occur shall be corrected to provide the necessary clearances and dimensions.
3. All sheeting and bracing shall be carefully removed in such manner as not to endanger the construction or other structures, utilities, or property. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand, which must be approved by the ENGINEER, by ramming with tools especially adapted to that purpose, or otherwise as may be directed.
4. The right of the OWNER to order sheeting and bracing left in place shall not be construed as creating any obligation on his/her part to issue such orders and his/her failure to exercise his/her right to do so shall not relieve the CONTRACTOR from liability for damages to persons or property occurring from or upon the work occasioned by negligence or otherwise, growing out of a failure on the part of the CONTRACTOR to leave in place sufficient sheeting and bracing to prevent any caving or moving of the ground.
5. No sheeting is to be withdrawn if driven below mid-diameter of any pipe and under no circumstances shall any sheeting be cut off at a level lower than 1-ft above the top of any pipe.

B Drainage and Dewatering

1. Dewatering shall be performed as specified during the excavation of organics and unstable soils from the site. Limited dewatering may be required during the excavation and filling of ponds, ditches and where the topsoil layer extends below the water table.

2. At all times during construction provide and maintain proper equipment and facilities to remove all water entering excavations and keep such excavations dry so as to obtain a satisfactory undisturbed subgrade condition until the fills, structures or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water into the excavated areas. Groundwater shall be lowered to at least 1 foot below the bottom of excavations.
3. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation. Well or sump installations shall be constructed with proper sand filters to prevent drawing of finer grained soil from the surrounding ground.
4. Surface runoff shall be collected, drained to sumps and pumped from the disposal unit to maintain a excavation bottom free from standing water.
5. Dewatering of ponds or ditches filled with water shall be performed in such a manner as to control discharge water by use of sediment basins and/or check dams or other erosion control structures approved by NCDENR.
6. Take all additional precautions to prevent uplift of any structure during construction.
7. Drainage shall be disposed of so that flow or seepage back into the excavated area will be prevented.
8. Flotation shall be prevented by maintaining a positive and continuous operation of the dewatering system. The CONTRACTOR shall be fully responsible and liable for all damages which may result from failure of this system.
9. Remove the dewatering equipment after the system is no longer required.
10. Take all necessary precautions to preclude the accidental discharge of fuel, oil, etc in order to prevent adverse effects on groundwater or surface water quality.

C. SLOPE STABILITY

1. The CONTRACTOR shall be solely responsible for the stability of roadway embankments, unbalanced fills, stockpiles, and all other construction operations.

1.06 SOIL TESTING

- A. Previous to the general placement of the fill and during such placement, the CQA Firm may select areas within the limits of the fill for testing. The CONTRACTOR shall cooperate fully in obtaining the information desired.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Materials for use as fill shall be as described below. The CONTRACTOR shall notify the ENGINEER of the source of each material. Backfill materials shall be furnished by CONTRACTOR from approved sources and hauled to the site.
- B. Backfill shall consist of mineral soil free from organic materials, loam, wood, trash and other objectionable materials which may be compressible or which cannot be properly compacted. Backfill shall not contain stones larger than 4 inches in largest diameter and shall have at least 60 percent passing the No. 4 sieve, a maximum of 60 percent passing No. 200 Sieve, a maximum liquid limit of 60, and a maximum plasticity index of 25. Backfill shall not contain granite blocks, broken concrete, masonry rubble or other similar materials. It shall have physical properties such that it can be readily spread and compacted during filling. Snow, ice and frozen soil will not be permitted. Backfill shall be compacted to at least 95% of the standard Proctor (ASTM D698) maximum dry density or as otherwise shown on the drawings.
- C. NOT USED
- D. The soils shall be wetted or dried as necessary so that the moisture content during compaction is within 3% of the optimum moisture content as determined by ASTM D698.
- E. Highly micaceous and elastic silts shall not be used for Backfill.
- F. Crushed Stone
 - 1. All crushed stone shall be silica material that is sound, hard, durable, resistant to weathering, as defined by ASTM D2488 and shall be free of overburden, spoil, shale, limestone and organic material. The stone shall be free of deleterious materials such as flat, elongated, friable, decomposed, or micaceous pieces. Broken pieces of concrete, asphalt, or brick are not acceptable. Crushed stone shall be of the size and type shown on the drawings.

2.02 CONFORMANCE TESTING

Conformance testing shall be performed by the CONTRACTOR's CQC Firm on samples from the soil source for the backfill materials. Material identified for use as backfill shall be tested at the specified frequency for the following:

<u>Test</u>	<u>Method</u>	<u>Frequency</u>
Grain Size	ASTM D422	Every 10,000 CY, and at changes in material
Atterberg Limits	ASTM D4318	Every 10,000 CY, and at changes in material
Moisture/Density	ASTM D698	Every 20,000 CY, and at changes in material

Natural Moisture

ASTM D2216

Every 10,000 CY, and at
changes in material

Results of the tests will be submitted to the ENGINEER within 24 hours of test completion. The ENGINEER reserves the right to reject material based on the results of the conformance tests.

PART 3: EXECUTION

3.01 GENERAL EXCAVATION

- A. General excavation is expected to consist of removing unsuitable soils identified during proofrolling (Section 3.01.E). The bottom of the excavations shall be rendered firm and dry and, in all respects, acceptable to the ENGINEER.
- B. Excavation and dewatering shall be accomplished by methods that preserve the undisturbed state of subgrade soils. Soils which become soft, loose, "quick", or otherwise unsatisfactory for support of structures, earthen or man-made, as a result of inadequate excavation, dewatering, proofrolling, or other construction methods shall be removed and replaced as required by the ENGINEER at the CONTRACTOR's expense.
- C. Dewatering shall lower the groundwater to at least 1-foot below excavation subgrade and prevent "boiling" condition or detrimental underseepage at the base of the excavation as specified herein.
- D. Excavation equipment shall be satisfactory for carrying out the work in accordance with the Specifications.
- E. Proofroll exposed subgrades after stripping topsoil and organics with a minimum of two complete passes of a rubber tired heavy vehicle as approved by the ENGINEER. All proofrolling shall be conducted in the presence of the ENGINEER. Areas that indicate excessive rutting, pumping, shoving, or movement during proofrolling may require repair. The repair procedure shall be determined by the ENGINEER and will consist of, but not be limited to, removal and replacement of subgrade soils, or replacement with the inclusion of a geotextile fabric, as directed by the ENGINEER. CONTRACTOR is required to notify the ENGINEER a minimum of 3-days prior to a scheduled proof-roll.

3.02 TRENCH EXCAVATION

- A. Excavation for all trenches required for the installation of pipes shall be made to the depths indicated on the Drawings and in such a manner and to such widths as will give suitable room for laying the pipe within the trenches, for bracing and supporting the trench sides and for pumping and drainage facilities. CONTRACTOR shall render the bottom of the excavations firm and stable and in all respects acceptable to the OWNER
- B. The trench may be excavated by machinery to, or just below the designated subgrade provided that the material remaining in the bottom of the trench is not disturbed.

- C. Where pipe is to be installed in fill, fill shall be placed and compacted to at least 2 ft. above the top of the pipe (rough grade elevation) and then trenches re-excavated for pipe installation.

3.03 MISCELLANEOUS EXCAVATION

- A. The CONTRACTOR shall perform all excavations necessary for the placing of seeding and plants, for constructing roadways, and any other miscellaneous earth excavation required under this Contract.

3.04 GENERAL BACKFILL

- A. Materials placed in fill areas shall be placed to the lines and grades shown on the Drawings or as directed by the ENGINEER.
- B. Fill shall be placed in accordance with the Contract Document.
- C. Material conforming to the requirements of Backfill shall be placed in layers having a maximum compacted thickness of 8-inches measured before compaction and shall be compacted to at least 95 percent of its maximum density as determined by ASTM D698. The minimum frequency of testing shall be 1 test per lift per 5,000 square feet or as directed by the ENGINEER in irregular-shaped fill areas. **CQC Firm personnel shall perform testing of Backfill.**
- D. Not used.
- E. Not used.
- F. The surfaces of filled areas shall be graded to smooth true lines, conforming to grades indicated on the grading plan and no soft spots or uncompacted areas will be allowed in the work.
- G. No compacting shall be done when the material is covered with frost or is frozen or is too wet either from rain or from excess application of water. At such times, work shall be suspended until the previously placed and new materials have thawed and/or dried sufficiently to permit proper compaction.
- H. All backfill shall be placed at a moisture content within 3% of Standard Proctor (ASTM D698) optimum moisture content.

3.05 TRENCH BACKFILL

- A. Backfilling over pipes shall begin as soon as practicable after the pipe has been laid, jointed, and inspected. All backfilling shall be performed expeditiously.
 - 1. Backfill shall be placed around the lower half of the pipe and thoroughly rodded and tamped to fill all voids and provide uniform support of the pipe in the bedding zone. Backfill shall be thoroughly compacted by machine tamping in 6-inch layers as required to provide 98% of the Standard Proctor maximum dry density per ASTM D-698.

2. Backfill shall be placed around the upper half of the pipe and to a minimum depth of 12-inches over the top of the pipe. Backfill shall be thoroughly compacted by machine tamping in 6-inch layers as required to provide 98% of the Standard Proctor maximum dry density per ASTM D-698.
3. The remainder of the trench shall be backfilled with Backfill in loose layers not to exceed 8-inches and thoroughly compacted with mechanical tampers as required to obtain the specified 95% compaction.
4. Backfilling under haunches shall be performed manually by tamping rods or similar hand equipment to eliminate voids underneath sides of the pipe or haunch.
5. The minimum frequency for density tests shall be 1 test per lift per 50 feet of trench for all material types or as specified by the ENGINEER. **CQC Firm personnel shall perform testing of Trench Backfill**

3.06 ROAD SUBGRADE

- A. The road subgrade for bituminous, concrete, and crushed stone pavement areas in fill sections shall consist of a two-foot thick layer of Backfill compacted to a minimum 98% of the Standard Proctor maximum dry density per ASTM D-698. **CQC Firm personnel shall perform testing of Road Subgrade Backfill.** The minimum frequency of density testing for the Road Subgrade shall be 1 test per lift per 10,000 square feet.”
- B. The road subgrade for bituminous, concrete, and crushed stone pavement areas in cut sections shall consist of firm natural soils as approved by the ENGINEER.
- C. Road subgrades shall be proofrolled as described in Section 02200, 3.01 E.

3.07 HANDLING OF SURPLUS MATERIAL

- A. Excavated materials shall not be removed from the site except as specified by the ENGINEER. Materials shall be neatly stockpiled on-site at locations directed by the ENGINEER. Excess materials shall be compacted and stockpiled in accordance with the CONTRACTOR’s fill placement plan. CONTRACTOR shall provide erosion and sedimentation control measures as shown on the drawings and specified in the Contract Documents.

3.08 GRADING

- A. Grading in preparation for placing operational cover shall be performed to the elevations shown and otherwise as directed by the ENGINEER. During the process of grading, the subgrade shall be maintained in such condition that it will be well drained at all times. When required, temporary drains and drainage ditches shall be installed to intercept or divert surface water that may affect the performance or condition of the work.
- B. If at the time of grading it is not possible to place material in its final location, it shall be stockpiled in approved areas. Stockpiled material shall be placed, compacted and smooth-rolled at the end of each day to deter water infiltration.

No extra payment will be made for the stockpiling or double handling of excavated material.

- C. ENGINEER reserves the right to make minor adjustments in lines or grades if deemed necessary as the work progresses, in order to obtain satisfactory construction.
- D. Stones or rock fragments larger than 4-inches in their greatest dimensions will not be permitted in the top 6-inches of the finished subgrade of all fills or embankments.

3.09 INSPECTION/TESTING

- A. CQA Plan: Inspection/testing will be a joint effort between the CONTRACTOR and the OWNER.
- B. Testing and Inspection Services: CONTRACTOR shall employ CQC Firm to perform soils inspection and testing services for quality control of the placement of fill material. OWNER shall employ a CQA Firm to perform soils observation and testing services for quality assurance of the fill material. The ENGINEER may perform the duties of the CQA Firm. CONTRACTOR shall factor this quality assurance verification and testing and quality control testing into its schedule and sequence of operations.
- C. Coordination: CONTRACTOR shall be responsible for coordination of field services with the CONTRACTOR's CQC Firm and with the CQA Firm.
- D. Initial Observation: Compacted fill and backfill operations shall be performed after the surface has been properly prepared and has been observed and approved by CQA Firm. No Compacted fill shall be placed unless the CQA Firm approves the operation. Any fills placed without CQA Firm's observation and prior approval shall be removed in a manner to avoid damage or disturbance to the existing approved work, and the excavation shall be filled as specified herein, at no additional cost to OWNER.
- E. Field Control: The minimum testing frequencies for field tests to be performed by the CONTRACTOR's CQC Firm personnel are identified in Sections 3.04, 3.05, and 3.06. The intent of the field tests is to insure that the specified density and moisture contents are being obtained.

One-point compaction tests shall be performed to interpolate between laboratory compaction (ASTM D 698) curves for at least every 5 in-place density tests or per change in material. The one-point compaction tests shall be performed on either the field density test sample or soil from a location immediately adjacent to the field density test sample, using the ASTM D 698 procedure. The results of the one-point tests shall then be compared with the full compaction curves of similar soils to estimate the maximum dry density applicable to the field density test sample.

Note: A nuclear density test gauge can be used to provide the required density testing. However, the in-situ density shall be determined using the sand cone method (ASTM D 1556) and/or the drive cylinder method (ASTM D 2937) of a minimum of one test per ten nuclear density tests or one per day, whichever is greater. The sand cone and/or drive cylinder test should

March 2021

be performed at the same location as a nuclear density test. The sand cone and/or drive cylinder tests shall be continued until a correlation between the density and moisture contents obtained by the nuclear density gauge and the sand cone and/or drive cylinder tests has been demonstrated.

- F. The CONTRACTOR's CQC Firm shall provide a final Construction Quality Control Report for the Backfill at the end of the project. The report shall certify that the Backfill construction was performed in accordance with the Contract Documents and be prepared and sealed by a Professional ENGINEER registered in the State of North Carolina. The report shall include a narrative of Backfill construction, summary tables of all field test results, including location and notations regarding any rework performed, identification of failed tests, and documentation of reworked areas with passing tests, as appropriate, and all laboratory test reports.

END OF SECTION

**SECTION 02272
FILTER FABRIC**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A Furnish all labor, materials, equipment, and incidentals required to install filter fabric complete as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A Section 02200: Excavation, Backfill and Compaction
- B Section 02276: Erosion and Sedimentation Control
- C Section 02505: Crushed Stone Paving

1.03 SUBMITTALS

- A At least 30 calendar days prior to filter fabric installation, submit the following information in accordance with Section 01340:
 - 1. Manufacturer's background information.
 - 2. List of material properties and samples of filter fabric with attached certified test results.
 - 3. Manufacturer's quality control program and manual including description of laboratory facilities.
 - 4. Manufacturers recommended installation procedures
 - 5. Locations of areas designated for installation
 - 6. A manual that specifically defines the quality control and quality assurance program during installation including manufacturer's installation guidelines.
 - 7. Copy of quality control certificates in conformance with Paragraph 2.02.

1.04 REFERENCE STANDARDS

- A American Society for Testing and Materials (ASTM)

1. ASTM D5199 - Standard Test Method for Measuring Thickness of Textile Materials.
2. ASTM D5261 - Standard Test Method for Mass per Unit Area (Weight) of Woven Fabric.
3. ASTM D3786 - Standard Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics - Diaphragm Bursting Strength Tester Method.
4. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
5. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
6. ASTM D4632 - Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method).
7. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.
8. ASTM D4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products.

B Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 FABRIC APPLICATIONS

The filter fabric is to be used for placement beneath erosion control stone and structures and beneath crushed stone paving where called for. The unit weights of the filter fabric for each use are specified herein.

1.06 DELIVERY, STORAGE AND HANDLING

A The filter fabric shall be shipped, stored, and handled in accordance with manufacturer's recommendations and as specified herein.

B The fabric shall be stored with a cover so that it is protected from exposure to sunlight and shall be elevated from the ground (a minimum of 3-inches) to protect the fabric from stones and other sharp objects and saturation.

1.07 REQUIREMENTS PRIOR TO INSTALLATION

- A For use in erosion control structures, the subgrade shall be inspected and approved by the CQA Officer (RPR) prior to installation of the filter fabric. The subgrade shall be smooth, uniform and compacted for the installation of the fabric.

1.08 MATERIAL WARRANTY

- A The manufacturer shall warrant the material, against manufacturing defects and material degradation for a period of five years from the date of installation. The manufacturer shall replace any material which fails within the warranty period. The manufacturer shall furnish a written warranty covering the requirements of this Paragraph.

1.09 GUARANTEE

- A The Contractor shall guarantee the filter fabric against defects in installation and workmanship for the period of two years commencing with the date of Final Acceptance. The guarantee shall include the services of qualified service technicians and all materials required for the repairs at no expense to the Owner.

PART 2: PRODUCTS

2.01 GENERAL

- A The use of a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration.

2.02 MATERIALS

A Nonwoven Fabric

1. All fabric shall be a nonwoven needle punched polypropylene fabric consisting of filaments formed into a stable network.
2. A nominal 8 oz/yd² unit weight fabric shall be used as bedding for rip-rap lined stormwater structures, ditches, outlets, and operational cover.
3. The fabric shall be non-biodegradable, nonreactive within a pH range of 2 to 13, resistant to ultraviolet light exposure, and resistant to insects and rodents. Test results from any sampled roll in the lot, when tested in accordance with ASTM D4759, shall meet or exceed the values listed in Table 1 on the following page.

2. TABLE 1
MINIMUM AVERAGE ROLL VALUES (MARV)
GEOTEXTILE FABRICS

PROPERTIES	TEST METHOD	UNIT	MARV	
			6 OZ.	8 OZ.
Fabric Weight	ASTM D5261	oz./yd ²	5.7	7.3
Thickness	ASTM D5199	mils	80	90
Grab Tensile Strength	ASTM D4632	lbs	150	205
Grab Elongation	ASTM D4632	%	50	50
Puncture Resistance	ASTM D4833	lbs	85	110
Mullen Burst Strength	ASTM D3786	PSI	220	320
Permittivity	ASTM D4491	gal/min/ft ²	110	110
Apparent Opening Size	ASTM D4751	US Sieve	70	80

2.03 QUALITY CONTROL DOCUMENTATION

A Prior to installation, the Contractor shall provide to the Owner the following information certified by the manufacturer for the delivered fabric.

1. Each roll delivered to the Project site shall have the following identification information:
 - Manufacturer's name
 - Product identification
 - Thickness
 - Roll number
 - Roll dimensions

2. Quality control certificates signed by the manufacturer's quality assurance manager. Each certificate shall have roll identification number, sampling procedures, testing frequency and test results. At a minimum the following test results shall be provided every 50,000 square feet of manufactured fabric in accordance with test requirements specified in Paragraph 2.02.
 - Thickness
 - Grab Tensile Strength

- Grab Elongation
- Puncture Resistance
- Mullen Burst Strength

2.04 CONFORMANCE TESTING

A Conformance testing may be performed at the discretion of the ENGINEER. An independent Quality Assurance Laboratory (QAL) approved by the Owner will test samples obtained by the CQA Officer from the material proposed. The machine direction and identification number will be identified. For every change in Lot number, the Contractor shall perform conformance testing on the initial roll at the Contractor's expense. The samples shall be taken across the entire roll width and shall not include the first 3-ft. The following conformance tests shall be conducted at the laboratory.

1. Mass per unit area (ASTM D5261)
2. Mullen burst strength (ASTM D3786)
3. Puncture resistance (ASTM D4833)
4. Grab tensile (ASTM D4632)
5. Permittivity (ASTM D4491)
6. Apparent opening size (ASTM D4751)

B These conformance tests shall be performed in accordance with test requirements Paragraph 2.02.

C All conformance test results shall be reviewed by the ENGINEER and accepted, prior to the deployment of the fabric. All test results shall meet, or exceed, the property values listed in Paragraph 2.02.

D The manufacturer may obtain samples from rolls manufactured immediately before and after the failing roll and request testing by the QAL at the manufacturer's expense. If these rolls pass, then only the failing roll will be rejected. If they fail, then the entire lot will be rejected.

E The cost of a first-run conformance testing shall be borne by the Owner and shall be performed by the CQA Officer or his/her representative and an independent Quality Assurance Laboratory (QAL) selected by the Owner. If the fabric fails the first-run unit conformance tests, the contractor shall pay for the cost of subsequent conformance testing until all conformance tests are passed and the fabric is accepted by the CQA Officer.

PART 3: EXECUTION

3.01 PREPARATION

A General

1. Preparation of the subgrade shall be in accordance with Section 02200, or otherwise depending on the specific application.
2. The subgrade shall be inspected by the CQA Officer (RPR) prior to installation of the filter fabric.

3.02 INSTALLATION

A Fabric Placement

1. The subgrade shall be maintained in a smooth, uniform and compacted condition during installation of the filter fabric beneath the erosion control stone.
2. No mechanical equipment shall be driven directly on top of the filter fabric.
3. Damage to the filter fabric occurring during the placement Shall be repaired immediately at no additional expense to the Owner.

B Field Overlap

1. The fabric shall be overlapped according to the manufacturers recommended installation guidelines for a particular application.

3.03 FIELD QUALITY CONTROL

A The filter fabric installation and related work shall be inspected by the ENGINEER / RPR. All work in the system therein being inspected shall be complete, clean and ready for use. All work shall meet the requirements of cleanliness and workmanship, as determined by the ENGINEER/RPR.

B Discrepancies shall be noted and repaired at no additional expense. Final acceptance of the system shall be contingent upon the approval of the ENGINEER.

END OF SECTION

**SECTION 02276
EROSION AND SEDIMENTATION CONTROL**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A The work specified in this Section consists of providing, installing and maintaining erosion and sedimentation controls as necessary during construction. The CONTRACTOR is responsible for providing effective erosion and sediment control measures throughout construction.
- B Erosion controls include, but are not limited to, surface stabilization which shall be accomplished with vegetation and mulch, erosion control matting, earthen diversion berms and ditches, and minimization of disturbed areas. CONTRACTOR is responsible for preventing on-site erosion during construction.
- C Sedimentation controls include, but are not limited to, silt fences, sediment traps, temporary earthen diversion berms and ditches, check dams and appurtenances at the foot of sloped surface. **Sedimentation pollution shall be prevented from migration from the Project area.**
- D CONTRACTOR shall be responsible for maintaining all existing erosion control structures in their existing conditions as they exist on the date of the Notice to Proceed for the duration of the PROJECT through stabilization. This work includes, but is not limited to, all existing sedimentation ponds, discharge points and outlets, rock check dams, and diversion ditches and berms. Maintenance shall include but not be limited to making all repairs necessary to maintain the structures as well as remove all accumulated sediment as necessary to maintain the structures in proper working condition.
- E CONTRACTOR shall be responsible for maintaining all new erosion control structures including but not limited to, all sedimentation ponds, downdrain pipes and outlets, terrace berms, diversion ditches, rock check dams, and silt fence. Maintenance shall include but not be limited to making all repairs necessary to maintain the structures as well as remove all accumulated sediment as necessary to maintain the structures as to not compromise performance and intent. **The frequency of sediment removal from all on-site erosion control structures shall be bi-weekly at minimum and in accordance with the Project Drawings and relevant notes therein. All erosion control measures shall be inspected following each rainfall event.** CONTRACTOR shall be responsible for constructing whatever diversion structures are necessary to ensure that all disturbed on-site drainage/run-off (within the limits described above) is routed through one of the existing on-site rock check dams, sediment traps, or sediment

ponds. Silt fence shall be installed as needed to prohibit off-site runoff as well as well migration of soils and residual materials from access roads and working area.

- F Any stockpiles established shall be protected from erosion by providing silt fences along the toe of the slopes, seeding the side slopes and by maintaining stable slopes. In some cases, double-rows may be necessary.

1.02 REFERENCE DOCUMENTS

- A The SEQUENCE OF CONSTRUCTION as described on the Plan Drawings
- B North Carolina Erosion and Sediment Control Planning and Design Manual
- C EPA Storm Water Management for Industrial Activities

PART 2: PRODUCTS

2.01 EROSION AND SEDIMENT CONTROL

- A Erosion and sedimentation controls shall include all materials installed or constructed controls, shown on the plans and or as implemented by the CONTRACTOR to appropriately route stormwater, protect the work and stabilize by vegetation, to include but not limited to the following:
 1. Temporary seeding
 2. Permanent stabilization by seeding and mulching
 3. Erosion control and turf reinforcement mattings
 4. Rip-rap and washed stone
 5. Silt fence
 6. Temporary earthen diversion berm and ditches
 7. Sediment traps, check dams and energy dissipaters
 8. Sediment ponds, outlet structures and spillways
 9. Temporary piping

PART 3: EXECUTION

3.01 EROSION CONTROL

- A Maintain all existing erosion and sediment control structures and appurtenances as detailed on the plans.
- B Install and maintain new erosion and sediment control structures and appurtenances as detailed on the plans and otherwise as necessary.

- C Install and maintain temporary erosion and sediment control structures and appurtenances as necessary to prevent erosion from CONTRACTOR'S work.

3.02 PERFORMANCE

- A CONTRACTOR shall immediately take whatever steps are necessary to maintain any existing erosion and sediment control structures and appurtenances in the condition as they existed on the date of the Notice to Proceed.
- B CONTRACTOR shall construct all new erosion and sediment control structures and appurtenances as detailed on the plans in a manner that minimizes erosion from areas of the CONTRACTOR'S work.
- C Should any temporary erosion and sediment control measures employed by the CONTRACTOR fail to produce results which comply with the State and local enforcement requirements, CONTRACTOR shall immediately take whatever steps are necessary to correct the deficiency at his own expense.
- D CONTRACTOR shall inspect all erosion and sediment control devices for each period of precipitation to ensure proper operation. Any erosion and sediment control devices found not to be properly functioning, shall be immediately corrected.

END OF SECTION

**SECTION 02605
PRECAST CONCRETE MANHOLES AND STRUCTURES**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials and equipment required to install precast concrete structures, frames and covers, access hatches, and appurtenances as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Earthwork and backfill are included in Section 02200.

1.03 SUBMITTALS

- A. Shop drawings, product data, materials of construction, and details of installation shall be submitted in accordance with Section 01340. Submittals shall include the following:
 - 1. Base sections, riser sections, eccentric and concentric conical top sections, flat slab tops, and grade rings with notarized certificate indicating compliance with ASTM C478.
 - 2. Pipe connections.
 - 3. Frame and cover with notarized certificate indicating compliance with ASTM A48, Class 30.
 - 4. Method of repair for minor damage to precast concrete sections.
 - 5. Building brick with notarized certificate indicating compliance with ASTM C62.
 - 6. Layout drawings of all pipe trenches which shall include component part outline dimensions location of each part in the system, intended loading (pedestrian or H-20), the number, identification, and location of each pipe within trenches, and a complete bill of material.
- B. Design Data
 - 1. Precast concrete structures:
 - a. Six copies of sectional plan(s) and elevations showing dimensions and reinforcing steel placement.

- b. Six copies of structural calculations including assumptions.
 - c. Six copies of concrete design mix.
- C. Test Reports
- 1. Precast concrete structures:
 - a. Six copies of concrete test cylinder reports from an approved testing laboratory certifying conformance with specifications.

1.04 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
- 1. ASTM A48 - Specification for Gray Iron Castings.
 - 2. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 3. ASTM C32 - Specification for Sewer and Manhole Brick (Made from Clay or Shale).
 - 4. ASTM C33 - Specification for Concrete Aggregates.
 - 5. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)
 - 6. ASTM C150 - Standard Specification for Portland Cement
 - 7. ASTM C207 - Specification for Hydrated Lime for Masonry Purposes
 - 8. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
 - 9. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections
 - 10. ASTM D4101 - Specification for Propylene Plastic Injection and Extrusion Materials.
- B. American Concrete Institute (ACI)
- 1. ACI 318 - Building Code Requirements for Reinforced Concrete
 - 2. ACI 350R - Concrete Sanitary Engineering Structures
- C. American Association of State Highway and Transportation Officials (AASHTO)

1. Standard Specifications for Highway Bridges

- D. Occupational Safety and Health Administration (OSHA)
- E. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. All material shall be new and unused.
- B. Materials' quality, manufacturing process and finished sections are subject to inspection and approval by Engineer or other Owner representative. Inspection may be made at place of manufacture, at work site following delivery, or both.
- C. Materials will be examined for compliance with ASTM specifications, these Specifications and approved manufacturer's drawings. Additional inspection criteria shall include: appearance, dimensions(s), blisters, cracks and soundness.
- D. Materials shall be rejected for failure to meet any Specification requirement. Rejection may occur at place of manufacture, at work site, or following installation. Mark for identification rejected materials and remove from work site immediately. Rejected materials shall be replaced at no cost to Owner.
- E. Repair minor damage to precast concrete sections by approved method, if repair is authorized by Engineer.

PART 2: PRODUCTS

2.01 GENERAL

- A. Reference to a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.
- B. Like items of materials/equipment shall be the end products of one manufacturer in order to provide standardization for appearance, operation, maintenance, spare parts and manufacturer's service.
- C. Provide lifting lugs or holes in each precast section for proper handling.

2.02 PRECAST CONCRETE MANHOLE SECTIONS

- A. Precast concrete base sections, riser sections, transition top sections, flat slab tops and grade rings shall conform to ASTM C478 and meet the following requirements:
1. Bottom slab thickness shall equal the riser wall thickness or flat slab top thickness, whichever is greater.
 2. Top section shall be eccentric cone or concentric cone as shown on the drawings where cover over pipe exceeds 4 feet; top section shall be flat slab where cover over top of pipe is 4 feet or less.
 3. Base, riser and transition top sections shall have tongue and groove joints.
 4. Sections shall be cured by an approved method.
 5. Precast concrete sections shall be shipped after concrete has attained 3,000 psi compressive strength.
 6. Design precast concrete base, riser, transition top, flat slab top and grade ring for a minimum H-20 loading.
 7. Mark date of manufacture, name and trademark of manufacturer on the inside of each precast section.
 8. Construct and install precast concrete base as shown on the Drawings.
 9. Provide integrally cast knock-out panels in precast concrete manhole sections at locations, and with sizes shown on Drawings. Knock-out panels shall have no steel reinforcing.

2.03 PRECAST CONCRETE STRUCTURES

- A. Precast reinforced concrete structures shall be manufactured by Tindall Concrete, NC Products, Stay-right Tank Co., or equal. Refer to Drawings for inside dimensions, headroom requirements and minimum thickness of concrete.
- B. Manufacturer shall notify Engineer at least five working days prior to placing concrete during manufacturing process. Engineer may inspect reinforcing steel placement prior to placing concrete.
- C. Structural design calculations and Drawings shall be prepared and stamped by a Professional Engineer registered in North Carolina.

D. Design Criteria

1. Precast concrete

- a. Minimum compressive strength shall be 5,000 psi at 28 days.
- b. Maximum water content shall be six gallons per 94 pound sack of cement.
- c. Minimum cement content shall be six 94 pound sacks of cement per cubic yard of concrete.

2. Manufactured products

- a. Conform to ACI 318 and ACI 350R.
- b. Analyze walls and slabs using accepted engineering principals.
- c. When "fy" exceeds 40,000 psi, "z" (ACI 318) shall not exceed 95,000 psi. "fs" shall not exceed 50 percent of "fy".
- d. Design products to support their own weight, weight of soil at 130 pcf, and a live load equal to AASHTO HS-20 or 300 psf, whichever is applicable, applied to top slab.
- e. Cast base slab and walls together to form a monolithic base section.
- f. Design structure walls for a water pressure of 90 psf. Originate pressure diagram at finished ground surface. Include lateral pressure from vehicles in accordance with AASHTO.
- g. Consider discontinuities in structure produced by openings and joints. Provide additional reinforcing around openings. Frame openings to carry full design loads to support walls.
- h. Prevent flotation, with ground water level at finished ground surface, by dead weight of structure and soil load above structure. Do not consider skin friction, soil friction, or weight of equipment in structure.
- i. Locate horizontal wall joints 18-in. minimum from horizontal centerline of wall openings.

- j. Design structure with a minimum number of joints. Maximum number of structure sections, including top slab, shall be four.
- k. Provide lifting hooks for top slab.
- l. Locate access openings, wall sleeves and pipe penetrations as shown on Drawings.
- m. Wall sleeves shall be provided to the precast concrete manufacturer.

2.04 BRICK MASONRY

- A. Bricks shall be sound, hard, uniformly burned, regular and uniform in shape and size. Underburned or salmon brick shall not be acceptable. Only whole brick shall be used.
 - 1. Bricks for channels and shelves shall conform to ASTM C32, Grade SS except that the mean of five tests for absorption shall not exceed 8 percent and no individual brick exceed 11 percent.
 - 2. Bricks for raising manhole frames to finished grade shall conform to ASTM C62.
- B. Mortar shall be composed of one part portland cement, two parts sand, and hydrated lime not to exceed 10 lbs to each bag of cement. Portland cement shall be ASTM C150, Type II; hydrated lime shall conform to ASTM C207.
- C. Sand shall be washed, cleaned, screened, well graded with all particles passing a No. 4 sieve and conform to ASTM C33.

2.05 JOINTING PRECAST SECTIONS

- A. Seal tongue and groove joints of precast manhole [and structure] sections with either rubber "O"-ring gasket or preformed flexible joint sealant. "O"-ring gasket shall conform to ASTM C443. Preformed flexible joint sealant shall be Kent Seal No. 2 as manufactured by Hamilton-Kent; Ram-Nek as manufactured by K.T. Snyder Company or equal.
- B. Completed joint shall withstand 15 psi internal water pressure without leakage or displacement of gasket or sealant.

2.06 MANHOLE RUNGS

- A. Manhole rungs shall be either of the following types:

1. Cast aluminum alloy 6061-T6, drop front design, 16-in wide with an abrasive step surface conforming to OSHA requirements.
2. Steel reinforced, copolymer polypropylene, 14-in wide, M.A. Industries Inc, PF Series or equal. Copolymer polypropylene shall conform to ASTM D4101 Classification PP200 B33450 Z02. Steel reinforcing shall be 2-in diameter, conforming to ASTM A615, Grade 60 and shall be continuous throughout rung.

2.07 ALUMINUM HATCHES

- A. Prefabricated checkerplate aluminum floor hatches shall be Bilco Co., Type J or Type JD; equal by Halliday Products, Inc., or equal, sized as shown. Hatches with either dimension over 3-feet 6-inches tall shall be double leaf type. Hatches shall be designed for AASHTO H20 loading in all roadways, parking lots, or areas subjected to vehicular traffic, and a live load of 300 lbs per sq ft in all other locations. Heavy duty stainless steel hardware shall be used throughout the fabrication. Doors shall be equipped with heavy duty stainless steel hinges, stainless steel pins, spring operators and automatic hold open arm having a vinyl covered release handle. Hinges shall be through-bolted to the cover and frame with tamperproof stainless steel lock bolts and stainless steel bolt and lock nut, respectively.

2.08 PIPE CONNECTIONS TO MANHOLE

- A. Connect pipe to manhole in the following ways:
 1. Grout in place - Precast manhole section shall have a formed, tapered circular opening larger than the pipe outside diameter. Grout shall be non-shrink and waterproof equal to Hallemite; Waterplug or Embeco. Plastic pipe shall have a waterstop gasket secured to pipe with a stainless steel clamp.
 2. Flexible sleeve - Integrally cast sleeve in precast manhole section or install sleeve in a formed or cored opening. Fasten pipe in sleeve with stainless steel clamp(s). Coat stainless steel clamp(s) with bituminous material to protect from corrosion. Flexible sleeve shall be Lock Joint Flexible Manhole Sleeve; Kor-N-Seal connector; PSX Press-Seal Gasket or equal.

3. Compression gasket - Integrally cast compression gasket in precast manhole section. Insert pipe into compression gasket. Compression gasket shall be A-Lok, or equal.

PART 3: EXECUTION

3.01 INSTALLATION

A. Manhole and Vault Installation

1. Manholes and vaults shall be constructed to the dimensions shown on the Drawings and as specified in these Specifications. Protect all work against flooding and flotation. Construct cast-in-place bases in accordance with the requirements of Division 3 and the details shown on the Drawings.
2. Place base on a bed of 12-in screened gravel as shown on the Drawings. Set manhole base grade so that a maximum grade adjustment of 8-in is required to bring the manhole frame and cover to final grade.
3. Use precast concrete grade rings or brick and non-shrink mortar to adjust manhole frame and cover to final grade.
4. Set precast concrete barrel sections and structures plumb with a 1/4-in maximum out of plumb tolerance allowed. Seal joints of precast barrel sections with either a rubber "O" ring set in a recess or preformed flexible joint sealant in sufficient quantity to fill 75 percent of the joint cavity. Fill the outside and inside joint with non-shrink mortar and finished flush with the adjoining surfaces. Caulk the inside of any leaking barrel section joint with lead wool or non-shrink grout to the satisfaction of the Engineer.
5. Allow joints to set for 14 hours before backfilling unless a shorter period is specifically approved by the Engineer.
6. Plug holes in the concrete barrel sections required for handling with a non-shrinking grout or non-shrinking grout in combination with concrete plugs. Finish flush on the inside.
7. Cut holes in precast sections to accommodate pipes prior to setting manhole sections in place to prevent jarring which may loosen the mortar joints.

8. Backfill carefully and evenly around manhole and vault sections.

B. Manhole Pipe Connections

1. Construct manhole pipe connections, including pipe stubs, as specified above. Close or seal pipe stubs for future connections with a gasketed watertight plug.

C. Manhole Rung Installation

1. Aluminum Manhole Rungs

- a. Grout aluminum manhole rungs into precast sections, on 12-in centers. Preform holes in riser and cone sections for rungs during casting. Holes for rungs shall be 1-1/8-inch in diameter and a minimum of 3-1/2-in deep.
- b. Grout rungs into precast sections immediately after casting and placing in the curing area, or immediately after coring holes for manhole rungs into base section. Fill holes with grout consisting of Portland Type II cement and mortar sand in a 1 to 2 ratio mixed to a putty consistency.
- c. Paint those parts of the rungs which are embedded with a heavy coating of zinc chromate or other approved paint.

2. Steel Reinforced Polypropylene Plastic Manhole Rungs

- a. Preform holes for manhole rungs during casting of the riser and cone sections, using tapered form pins specifically made for preforming manhole rung holes.
- b. Drive manhole rungs into preformed holes after concrete has developed a compressive strength of 3,000 psi.
- c. Alternatively, cast manhole rungs into riser and cone sections when concrete is placed.
- d. Drilling holes for manhole rungs may be used to accommodate field conditions when approved by the Engineer. Drill holes of diameter, spacing and depth required by manhole rung manufacturer.

3. Pull-out resistance test

- a. All manhole rung installation methods shall withstand a pull-out resistance test of 1,500 pounds.

D. Setting Manhole Frame and Cover

1. Set manhole covers and frames in a full mortar bed. Utilize bricks or precast concrete grade rings, a maximum of 8-in thick, to assure frame and cover are set to the finished grade. Set manhole frame and cover to final grade prior to placement of permanent paving.

E. Aluminum Hatch Installation

1. Where aluminum contacts a dissimilar metal, apply a protective paint to the aluminum and to the dissimilar metal.
2. Where aluminum contacts masonry or concrete, apply a heavy coat of approved alkali resistant paint to the masonry or concrete.
3. Where items are cast into concrete, backpaint contact areas before setting.

3.02 LEAKAGE TESTS

- A. Test each manhole or vault for leakage. Engineer shall observe each test. Perform exfiltration test as described below:
- B. Assemble manhole in place; fill and point all lifting holes and exterior joints within six feet of the ground surface with an approved non-shrinking mortar. Test prior to placing the shelf and invert and before filling and pointing the horizontal joints below 6-ft of depth. Lower ground water table below bottom of the manhole for the duration of the test. Plug all pipes and other openings into the manhole and brace to prevent blow out.
- C. Fill manhole with water to the top of the cone section. If the excavation has not been backfilled and no water is observed moving down the surface of the manhole, the manhole is satisfactorily water-tight. If the test, as described above is unsatisfactory as determined by the Engineer, or if the manhole excavation has been backfilled, continue the test. A period of time may be permitted to allow for absorption. Following this period, refill manhole to the top of the cone, if necessary and allow at least eight hours to pass. At the end of the test period, refill the manhole to the top of the cone again, measuring the volume of water added. Extrapolate the refill amount to a 24-hour leakage rate. The leakage for each manhole shall not

exceed one gallon per vertical foot for a 24-hour period. If the manhole fails this requirement, but the leakage does not exceed three gallons per vertical foot per day, repairs by approved methods may be made as directed by the Engineer. If leakage due to a defective section of joint exceeds three gallons per vertical foot per day, the manhole shall be rejected. Uncover the rejected manhole as necessary and to disassemble, reconstruct or replace it as directed by the Engineer. Retest the manhole and, if satisfactory, fill and paint the interior joints.

- D. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorptions, etc. It will be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete.
- E. An infiltration test may be substituted for an exfiltration test if the ground water table is above the highest joint in the manhole. If there is no leakage into the manhole as determined by the Engineer, the manhole will be considered water-tight. If the Engineer is not satisfied, testing shall be performed as described hereinbefore.
- F. Leakage Tests for Structures
 - 1. The Engineer will visually inspect structure(s) for possible leaks before backfilling of structures is allowed. Seal all joints to the satisfaction of the Engineer.
 - 2. The Engineer may require an exfiltration test as described for manholes on any structure for which he/she deems the test appropriate.

3.03 CLEANING

- A. Thoroughly clean all new manholes of all silt, debris and foreign matter of any kind, prior to final inspections.

END OF SECTION

March 2021

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02605-12

**SECTION 02612
REINFORCED CONCRETE PIPE AND FITTINGS**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall furnish all labor, equipment, materials and incidentals necessary to install and test reinforced concrete pipe fittings for storm drain complete as shown on the Drawings and as specified herein.
- B. All pipes shall be manufactured for this project and no pipe shall be furnished from stock.
- C. This work shall include, but not be limited to installing reinforced concrete pipe including all excavation, backfilling, sheeting, slope protection, drainage, concrete work, riprap, grading and all other work necessary to complete the construction, installation and testing of the reinforced concrete pipe.

1.02 RELATED WORK

- A. Excavation, backfill and grading, including bedding material is included in Section 02200.

1.03 QUALIFICATIONS

- A. All reinforced concrete pipe and fittings shall be furnished by a single manufacturer who is fully experienced, reputable and qualified to manufacture the pipe to be furnished.
- B. Reinforced concrete pipe and fittings shall conform to all Applicable ASTM Standards and these specifications.

1.04 SUBMITTALS

- A. At least 45 days prior to Reinforced Concrete Pipe installation submit the following to in accordance with Section 01340:
 - 1. The names of the suppliers

2. Shop Drawings of pipe and fittings including: pipe class or design, backup computations including reinforcement, class coding, joints, list of abbreviated terms with meaning.
- B. The locations of all pipes shall conform to the locations indicated on the Drawings. In most cases, a certain amount of flexibility in positioning of pipes will be allowed, especially where new pipes will connect to existing structures or piping. Horizontal and vertical deflections may require beveled, special deflection, or short pipe. The deflection of joints shall not exceed 75 percent of that recommended by the manufacturer.
 - C. The pipe manufacturer shall inspect all pipe joints for out-of-roundness and pipe ends for squareness. The manufacturer shall furnish to the ENGINEER a notarized affidavit stating all pipe meets the requirements of ASTM, ASCE, ANSI, AWWA, etc., these Specifications, and the joint design with respect to square ends and out-of-round joint surfaces.
 - D. Furnish in duplicate to the ENGINEER sworn certificates that all tests and inspections required by the Specifications under which the pipe is manufactured have been satisfied.

1.05 INSPECTION

- A. All pipe and fittings to be installed under this contract may be inspected at the site of manufacture for compliance with these Specifications by an independent laboratory selected by the OWNER. The manufacturer's cooperation shall be required in these inspections. The cost of inspection by an independent laboratory, will be borne by the OWNER.

PART 2: PRODUCTS

2.01 REINFORCED CONCRETE PIPE

- A. Except as otherwise specified herein or as indicated on the Drawings, pipe shall conform to ASTM Standard Specifications for Storm Drain, and Designation C76, Class IV Wall B. Reinforcement shall be full circular cage. Neither elliptical nor quadrant reinforcement will be allowed.
- B. The pipe shall be capable of withstanding construction equipment loading which may be encountered during the progress of the work. Any pipe damage during construction operations shall be promptly and satisfactorily repaired or replaced at the CONTRACTOR's expense.

- C Non-air-entraining portland cement conforming to ASTM Specification C150, Type II shall be used, except as otherwise approved in writing by the ENGINEER. The use of any other admixture will not be permitted.
- D Fine aggregate shall consist of washed inert natural sand conforming to the requirements of ASTM Specifications C33, except for gradation, with a maximum loss of 8 percent when subjected to five cycles of the soundness test using magnesium sulfate.
- E Coarse aggregate shall consist of well-graded crushed stone or washed gravel conforming to the requirements of ASTM Specification C33, except for gradation, with a maximum loss of 8.0 percent when subjected to five cycles of the soundness test using magnesium sulfate.
- F The 28-day compressive strength of the concrete shall be not less than 4,000 psi. The pipe interior shall comprise a continuous integral cement skin and shall be smooth and even, free from roughness, projections, indentations, offsets or irregularities. The concrete mass shall be dense and uniform. The average absorption for the drainage pipe shall not exceed 5.0 percent of the dry weight and no specimen shall exceed 9.0 percent. Reinforcement in the bell and spigot shall be adequate to prevent damage to concrete during shipping, handling and installation.
- G The pipe shall be clearly marked as required by ASTM C76 in a manner acceptable to the ENGINEER. The markings may be at either end of the pipe for the convenience of the manufacturer, but for any one size shall always be at the same end of each pipe length. Pipe shall not be shipped until the compressive strength of the concrete has attained 3,000 psi and not before five (5) days after manufacture, and/or repair, whichever is the longer.
- H Piping shall have a minimum laying length of approximately 8 feet, except for closure and other special pieces as approved by the ENGINEER. The length of the concrete pipe at each structure shall be as shown but in any case, shall not exceed 3 feet.
- I Unsatisfactory or damaged pipe will be either permanently rejected or returned for minor repairs. All pipe which has been damaged after delivery will be rejected. If damaged pipe already has been laid in the trench it shall be acceptably repaired or removed and replaced at the sole discretion of the ENGINEER entirely at the CONTRACTOR's expense. Pipe may be rejected for any of the following reasons:

1. Exposure of any wires and positioning spacers or chairs used to hold the reinforcement cage in position, or steel reinforcement in any surface of pipe, except for ends of longitudinal reinforcing. Type 304 stainless steel chairs and spacers may be used in lieu of this requirement.
2. Transverse reinforcing steel found to be in excess of 1/4-inch out of specified position after the pipe is molded.
3. Any shattering or flaking of concrete at a crack.
4. Air bubble voids (bugholes) on the interior and exterior surfaces of the pipe exceeding 1/4-inch in depth unless properly and soundly filled with mortar or other approved material.
5. Unauthorized application of any wash coat of cement or grout.
6. A hollow spot (identified by tapping the internal surface of the pipe) which is greater than 30 inches in length or wider than 3 times the specified wall thickness. Repair of such defective areas not exceeding these limitations may be made.
7. Defects that indicate imperfect molding of concrete; or any surface defect indicating honeycomb or open texture (rock pockets) greater in size than an area equal to a square with a side dimension of 2-1/2 times the wall thickness or deeper than two times the maximum graded aggregate size or local deficiency of cement resulting in loosely bonded concrete, the area of which exceeds in size the limits or area described in Paragraph 6 above, when the defective concrete is removed. Repair of such defects not exceeding these limits may be made as provided in Paragraph 6 above.
8. Any of the following cracks:
 - a. A crack having a width of 0.005 inch to 0.01 inch throughout a continuous length of 36 inches or more.
 - b. A crack having a width of 0.01 inch to 0.03 inches or more throughout a continuous length of 1 foot or more.
 - c. Any crack greater than 0.005 inch extending through the wall of the pipe and having a length in excess of the wall thickness.

- d. Any crack showing two visible lines of separation for a continuous length of 2 feet or more, or an interrupted length of 3 feet or more anywhere in evidence, both inside and outside.
 - e. Cracks anywhere greater than 0.03 inch in width.
 - 9. Transverse reinforcing steel found to be in excess of 1/4-inch out of specified position after the pipe is molded.
 - 10. A deficiency greater than 1/4-inch from the specified wall thickness of pipe.
 - 11. A deficiency greater than 1/4-inch from the specified wall thickness of pipe 30 inches or smaller in internal diameter.
 - 12. A deficiency greater than 6 percent from the specified wall thickness of pipe larger than 30 inches in internal diameter, except that the deficiency may be 8 percent adjacent to the longitudinal form joint, provided that the additional deficiency does not lie closer than 20 percent of the internal diameter of the pipe. The deficiencies in wall thickness permitted herein do not apply to gasket contact surfaces in gasketed joint pipe.
 - 13. A variation from the specified internal diameter in excess of 1 percent, or interior surfaces which have been reworked after placing of concrete. The variation in internal diameter permitted herein does not apply to gasket contact surface in gasketed joint pipe.
- J Pits, blisters, rough spots, breakage, and other imperfections may be repaired, subject to the approval of the ENGINEER, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval. Non-shrink cement mortar used for repairs shall have a minimum compressive strength of 6,000 psi at the end of 7 days and 7,000 psi at the end of 28 days, when tested in 3-inch cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the ENGINEER.
- K Joints for concrete pipe shall be the tongue and groove type of joint with provisions for using a round rubber "O-Ring" gasket in a recess in the spigot end of the pipe. The bevel on the bell of the pipe shall be between 1-1/2 degree and 2-1/2 degree and the annular open space at the gasket when the joint is made up and pipes are centered and in line shall not exceed

3/16-inch. The faces of pipe in contact with the gasket shall be true, and free of irregularities.

1. The round rubber "O-Ring" gaskets shall conform to ASTM C443 Specifications for Joints for Circular Concrete Sewer and Culvert Pipe using Rubber Gaskets.
2. The manufacturer shall supply test data and affidavits showing compliance with these requirements. Tests shall have been conducted within six months of the start of manufacture of the pipe.
3. The pipe manufacturer shall furnish information and supervise the installation of at least the first five joints installed by the CONTRACTOR. The ends of the pipe shall be made true to form and dimension by casting against steel forms.

L Reinforced concrete bends shall be cast to the degree of curvature required or fabricated by cutting the pipe at the required angle and then rejoining the sections. Bends may be smooth or mitered providing mitered angles do not exceed 22-1/2 degrees and bends have a radius divided by the pipe diameter greater or equal to one.

M Joints for concrete pipe 48 inches in diameter and larger shall be of the rubber and steel joint design utilizing a steel bell, a steel spigot, a round rubber gasket and meeting the requirements of ANSI/AWWA C301. Steel skirts shall be welded to the spigot ring and adequately welded to internal reinforcing. The steel in the bells shall be adequate to resist cracking the concrete during installation. Before the first pipe is shipped the manufacturer shall make a fit-up test in the presence of the ENGINEER.

N Joints for concrete pipe less than 48 inches in diameter shall be the tongue and groove or bell and spigot type of joint with provisions for using a round rubber "O-Ring" gasket in a recess in the spigot end of the pipe. The bevel on the bell of the pipe shall be between 1-1/2 degrees and 2-1/2 degrees. The diameters of the joint surfaces which compress the gasket shall not vary from the true diameters by more than 1/16-inch.

PART 3: EXECUTION

3.01 GENERAL

- A. Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe or coatings. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before laying, and no piece shall be installed which

is found to be defective. Any damage to the pipe coatings shall be repaired as directed by the ENGINEER.

- B. All pipe and fittings shall be subjected to a careful inspection and hammer test just prior to being laid or installed. If any defective pipe is discovered after it has been laid it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional expense to the OWNER. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work, and when installed or laid, shall conform to the lines and grades required.
- C. All buried piping shall be installed to the lines and grades as shown on the Drawings. All underground piping shall slope uniformly between joints where elevations are shown.
- D. All pipe shall be sound and clean before laying. When laying is not in progress, including lunchtime, the open ends of the pipe shall be closed by watertight plugs or other approved means.
- E. Bevel and short pipe shall be used as necessary to meet site conditions and to provide a pipe installation as shown in the Drawings. The cost of all such pipe shall be included within the bid price for the pipe.

3.02 REINFORCED CONCRETE PIPE

- A. As soon as the excavation is completed to the normal grade required, the CONTRACTOR shall immediately place screened gravel bedding material in the trench, and then the pipe shall be firmly bedded in this gravel to conform accurately to the lines and grades indicated on the Drawings. Bedding material for bedding the pipe shall conform to the specifications under Section 02200.
- B. Bedding material, as specified, shall be placed and compacted to give complete vertical and lateral support for the lower section of the pipe. A depression shall be left in the bedding material at the joint to prevent bedding material from entering the bell and interfering with seating the spigot.
- C. The pipe bedding shall be compacted to give complete vertical and lateral support for the lower half of the pipe. A depression shall be left in the supporting materials at the joint to prevent contamination of the rubber gasket immediately before being forced home. Before the pipe is lowered into the trench, the bell and spigot must be cleaned and free from dirt. The gasket and bell shall be lubricated by a vegetable lubricant, which is not

soluble in water, furnished by the pipe manufacturer and harmless to the rubber gasket. As soon as the spigot is centered in the bell of the previously laid pipe, it shall be brought fully home. Each gasket shall be carefully checked for proper positioning around the full circumference of the joint. Special measures shall be taken to ensure that the gaskets are properly positioned. For example, steel inserts may be required to prevent the pipe from going home until a feeler gauge is used to check the final position of the gasket, with special attention being given to the bottom half of the pipe. The CONTRACTOR shall be responsible for the means of forcing the pipe home and shall take care to prevent damage to the pipe ends. Any pipe so damaged shall be repaired or replaced at no cost to the OWNER. If necessary, the CONTRACTOR shall employ hand methods of pipe joining. For example, the pipe may be forced home by using jacks or come-alongs which shall be anchored sufficiently back along the pipeline so that the pulling force will not dislodge the pieces of pipe already in place, or by the proper manipulation of a backbone and cable sling.

- D. It is the contractor's responsibility to lay the pipe to the lines and grades shown on the Drawings.
- E. All joint gaskets are to be checked for position prior to full insertion in the bell in order to assure final correct jointing. Following full joint insertion, the space outside of the gasket shall be immediately filled with grout, followed by full joint grouting in accordance with the pipe manufacturer's recommendations.
- F. A cloth joint band or diaper held with wires shall be placed to cover the outside joint and prevent the entrance of dirt. Grout composed of one part cement to two parts of well-graded mason's sand shall be poured into the outside joint on one side of the pipe to at least the springline. Placing mortar with hand tools may be done with the upper half of the joint. Grout must fill the entire joint. All exposed metal surfaces of appurtenances shall be covered with a minimum of 3/4-inch of cement grout all around.
- G. The CONTRACTOR shall have the option of using a joint filler approved by the ENGINEER in place of the diaper-grout operation, except for restrained joints.

3.03 STRUCTURE AND MANHOLE CONNECTIONS

- A. Pipe stubs for all structure and manhole connections shall not exceed 2 feet in length.

3.04 TESTING

A All pipelines shown as reinforced concrete pipe on the Drawings shall be subjected to gravity pipeline testing as specified herein. This requirement will remain unchanged if ductile iron or prestressed concrete cylinder pipe is substituted for reinforced concrete pipe. All other pipe including ductile iron pipe specifically called out of the Drawings shall be subjected to a pressure test.

B Infiltration Test

1. Pipe shall be tested for infiltration wherever the groundwater level as measured through observation wells installed and removed by the CONTRACTOR is above the crown elevation of the pipe and shall be made after the backfill has been placed and the ground water allowed to return to normal elevation.

Infiltration tests shall be made under the supervision of the ENGINEER, and the length of line to be tested shall be not less than the length between adjacent manholes and not more than the total length of each size of pipe. The allowable infiltration shall be 200 gallons per inch of diameter per day per mile of pipe in each Section tested. There shall be no visible flowing or dripping.

2. If an inspection of the completed pipeline or any part thereof shows pipes or joints which allow noticeable infiltration of water, the defective work or material shall be replaced or repaired as directed.
3. Rates of infiltration shall be determined by means of V-Notch weirs, pipe spigots, or by plugs in the end of the pipe to be furnished and installed by the CONTRACTOR in an approved manner and at such times and locations as may be directed by the ENGINEER.

C Exfiltration Test

1. Leakage tests by exfiltration shall be made on any pipe that is founded in an area where the ground water level is below the crown of the pipe as measured through observation wells. Leakage tests by exfiltration shall be made before or after backfilling at the discretion of the ENGINEER. The length of pipe to be tested shall be such that the head over the crown at the upstream crown is not less than 2 feet and the head over the downstream crown is not more than 6 feet. The pipe shall be plugged by pneumatic bags or mechanical plugs in such a manner that the air can be released from the pipe while it is being filled with water. Before any measurements

are made, the pipe shall be kept full of water long enough to allow absorption and the escape of any trapped air to take place. Following this, a test period of at least one (1) hour shall begin. Provisions shall be made for measuring the amount of water required to maintain the water at a constant level during the test period.

2. If any joint shows an appreciable amount of leakage, the jointing material shall be removed and the joint repaired. If any pipe is defective, it shall be removed and replaced. If the quantity of water required to maintain a constant level in the pipe does not exceed 200 gallons per inch of diameter per day per mile of pipe and if all the leakage is not confined to a few joints, workmanship shall be considered satisfactory. If the amount of leakage indicates defective joints or broken pipes, they shall be corrected or replaced.

D Air Testing

1. The CONTRACTOR may use an air test in lieu of the exfiltration test. If he elects to do this, he shall submit his proposed method of testing to the ENGINEER for approval. Air testing shall be performed in accordance with the procedures described in ASTM C828. The equipment shall be specifically designed and manufactured for testing pipelines with low-pressure air and shall be provided with an air regulator valve or air safety valve set to prevent the air pressure in the pipeline from exceeding 8 psig. If the results of the air test are unsatisfactory, the CONTRACTOR shall perform the exfiltration test as outlined above.

3.05 CLEANING

- A At the conclusion of the work, thoroughly clean all pipelines by flushing with water or other means to remove all dirt, stones, pieces of wood, or other material which may have entered the pipes during the construction period. Debris cleaned from the lines shall be removed from the low end of the pipeline. If after this cleaning, obstructions remain, they shall be removed. After the pipelines are cleaned and if the groundwater level is above the pipe or following a heavy rain, the ENGINEER will examine the pipes for leaks. If any defective pipes or joints are discovered, they shall be repaired.

END OF SECTION

**SECTION 02901
MISCELLANEOUS WORK AND CLEANUP**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A Furnish all labor, materials, equipment and incidentals required to do the miscellaneous work not specified in other sections but obviously necessary for the proper completion of the work as shown on the Drawings.

- B When applicable the CONTRACTOR shall perform the work in accordance with other sections of this Specification. When no applicable specification exists the CONTRACTOR shall perform the work in accordance with the best modern practice and/or as directed by the OWNER.

- C The work of this Section includes, but is not limited to, the following:
 - 1. Crossing, relocating, and marking existing utilities.
 - 2. Restoring of driveways and sidewalks.
 - 3. Cleaning-up; regular removal and disposal of waste material
 - 4. Incidental work.
 - 5. Project photographs.
 - 6. Protection and/or removal and reinstallation of signs.
 - 7. Restoration of and replacement of curbing.
 - 8. Protection and bracing of utility poles.
 - 9. Restoring easement and right-of-ways.
 - 10. Temporary facilities and removal
 - 11. Removal of existing piping and structures as shown on the Drawings

PART 2: PRODUCTS

2.01 MATERIALS

- A Materials required for this Section shall be the same quality of materials that are to be restored. Where possible, the CONTRACTOR may re-use existing materials that are removed.

PART 3: EXECUTION

3.01 CROSSING AND RELOCATING EXISTING UTILITIES

- A This Item includes any extra work required in crossing culverts, water courses, including brooks and drainage ditches, storm drains, gas mains, water mains, electric, telephone, gas and water services and other utilities. This work shall include but is not limited to the following: bracing, hand excavation and backfill (except screened gravel) and any other work required for crossing the utility or obstruction not included for payment in other items of this specification.
- B In locations where existing utilities cannot be crossed without interfering with the construction of the work as shown on the Drawings, the CONTRACTOR shall remove and relocate the utility as directed by the OWNER or cooperate with the Utility Companies concerned if they relocate their own utility.
- C At pipe crossings and where designated by the OWNER, the CONTRACTOR shall furnish and place screened gravel bedding so that the existing utility or pipe is firmly supported for its entire exposed length. The bedding shall extend to the mid-diameter of the pipe crossed. Payment for screened gravel at pipe crossings will be made according to the unit price bid established in the Bid Form.

3.02 CLEANING UP DURING CONSTRUCTION

- A Execute periodic cleaning to keep the Work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.
- B Provide on-site containers for the collection of waste materials, debris and rubbish.
- C Remove waste materials, debris and rubbish from the site periodically and dispose of at an approved facility. Upon approval of the OWNER, selected waste may be disposed at the active facility disposal area (on-site).

3.03 FINAL CLEANING

- A The CONTRACTOR shall remove all construction material, excess excavation, buildings, equipment and other debris remaining on the job as a result of construction operations and shall restore the site of the work to a neat and orderly condition.
- B Prior to final completion, OWNER shall conduct an inspection of all work areas to verify that the entire work area is clean.

3.04 INCIDENTAL WORK

- A Do all incidental work not otherwise specified, but obviously necessary to the proper completion of the Contract as specified and as shown on the Drawings.

3.05 TEMPORARY FACILITIES

- A The CONTRACTOR shall furnish, install, maintain and remove all temporary facilities required for construction or called for in the specifications.

END OF SECTION

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**SECTION 02985
STABILIZATION**

PART 1: GENERAL

1.01 WORK INCLUDED

- A. The CONTRACTOR shall furnish all labor, materials, equipment, and incidentals necessary and finish grade, seed, and maintain all seeded areas as specified herein including all areas disturbed by the CONTRACTOR'S operations. **Contractor shall prepare a recommended seeding plan that includes all rates of application necessary to produce the required stand of grass.**

1.02 SUBMITTALS

- A. **Submit to the OWNER for review complete shop drawings for all materials and equipment furnished under this Section, including seed mixtures and product label information.**
- B. Samples of all materials shall be submitted for inspection and acceptance upon OWNER'S request.
- C. The CONTRACTOR shall submit a certified survey in accordance with Section 01050.
- D. Certification of grass seed from seed vendor for each grass-seed mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
- E. Certification by Limestone and Fertilizers manufacturer that the products supplied comply with requirements:

1.03 TESTING

- A. Not Applicable

PART 2: PRODUCTS

2.01 MATERIALS

- A. Fertilizer shall be complete commercial fertilizer, 10-10-10 grade. It shall be delivered to the site in the original unopened containers each showing the manufacturer's guaranteed analysis. Store fertilizer so that when used it shall be dry and free flowing.
- B. Lime: ASTM C 602, Class T, agricultural limestone in the form of dolomitic limestone containing a minimum 80 percent calcium carbonate equivalent, with a minimum 99 percent passing a No. 8 sieve and a minimum 75 percent passing a No. 60 sieve.

- C. Seed shall be from the same or previous year's crop; each variety of seed shall have a percentage of germination not less than 90, a percentage of purity not less than 85, and shall have not more than one percent weed content.
- D. The seed shall be furnished and delivered premixed in the proportions specified in Paragraph 3.02 E. A manufacturer's certificate of compliance to the specified mixes shall be submitted by the manufacturer for each seed type. These certificates shall include the guaranteed percentages of purity, weed content and germination of the seed, and also the net weight and date of shipment. No seed may be sown until the CONTRACTOR has submitted the certificates.
- E. Seed shall be delivered in sealed containers bearing the dealer's guaranteed analysis.
- F. Mulch shall be one of the following:
 - 1. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
 - 2. Peat Mulch: Provide peat moss in natural, shredded, or granulated form, of fine texture, with a pH range of 4 to 6 and a water-absorbing capacity of 1100 to 2000 percent.
 - 3. Fiber Mulch: Biodegradable dyed-wood cellulose-fiber mulch, nontoxic, free of plant growth- or germination-inhibitors, with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- G Tackifier shall be one of the following:
 - 1. Asphalt Emulsion Tackifier: Asphalt emulsion, ASTM D 977, Grade SS-1, nontoxic and free of plant growth- or germination-inhibitors.
 - 2. Non-asphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application, nontoxic and free of plant growth- or germination-inhibitors.

PART 3: EXECUTION

3.01 APPLICATION

- A. Lime shall be applied at the rate of 4000 lbs per acre, or as recommended in reports from a qualified soil testing agency in accordance with the soils analysis described in item 1.03A.
- B. Fertilizer shall be applied at the rate of 1000 pounds per acre, or as recommended in reports from a qualified soil testing agency in accordance with the soils analysis described in item 1.03A.

3.02 SEEDING

- A. Seed all disturbed areas of construction (excluding rip-rap lined areas)

- B. No seeding should be undertaken in windy or unfavorable weather, when the ground is too wet to rake easily, when it is in a frozen condition, or too dry.
- C. The subgrade of all areas to be seeded shall be raked and all rubbish, sticks, roots, and stones larger than 2 inches shall be removed.
- D. Fertilizer shall be uniformly spread and disked or roto-tilled to a depth of at least 4 inches.
- E. Immediately following this preparation, the seed shall be uniformly applied and lightly raked into the surface. Lightly roll the surface and water with fine spray. Seed shall be applied, depending on the period of year, as shown on the engineering drawings.
- F. All seeded areas shall be mulched with clean small-grain straw at a rate of 1-1/2 to 2 tons per acre. Asphalt emulsion shall be applied uniformly at a rate of 300 gallons per acre to tack the mulch, unless otherwise shown on the plans. Mechanical tacking will be considered on a case-by-case basis as approved by the ENGINEER.
- G. The CONTRACTOR shall keep all seeded areas watered and in good condition. Reseeding shall be done if and when necessary until a good, healthy, uniform growth is established over the entire area seeded.
- H. On slopes, the CONTRACTOR shall provide against washouts by an approved method. Any washout which occurs shall be re-graded and reseeded at the CONTRACTOR'S expense until sufficient vegetation is established.
- I. CONTRACTOR is responsible for installing temporary seeding and mulching as required to protect the work prior to the establishment of grass from permanent seeding and mulching.

3.03 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogenous slurry suitable for hydraulic application.
 - 1. Mix slurry with nonasphaltic tackifier.
 - 2. Apply slurry uniformly to all areas to be seeded in a 1-step process. Apply mulch at the minimum rate of 1500 lb per acre dry weight but not less than the rate required to obtain specified seed-sowing rate.
 - 3. Apply slurry uniformly to all areas to be seeded in a 2-step process. Apply first slurry application at the minimum rate of 500 lb per acre dry weight but not less than the rate required to obtain specified seed-sowing rate. Apply slurry cover coat of fiber mulch at a rate of 1000 lb per acre.

3.04 MAINTENANCE

- A. The CONTRACTOR shall maintain all seeded areas in a condition approved by the ENGINEER until final acceptance of the Contract. Maintenance shall include, but not be limited to, repair of seeded areas, irrigation, and weed control. Protection shall be provided for all seeded areas against trespassing and damage. Slopes shall be protected from damage due to erosion, settlement, and other causes and shall be repaired promptly.
- B. All seeded areas shall be inspected on a regular basis and any necessary repairs or re-seedings made within the planting season, if possible.

END OF SECTION

**SECTION 03350
FABRIC-FORMED CONCRETE REVETMENT**

PART 1: GENERAL

1.01 SCOPE OF WORK

- A Furnish all labor, materials, equipment, and incidentals required for installing of fabric formed concrete revetment (uniform section mat) as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A Section 02700 Protective Cover Layer
- B Section 02776 Textured High-Density Polyethylene (HDPE) Liner
- C Section 02623 HDPE Pipe

1.03 CONTRACTOR QUALIFICATIONS

- A The CONTRACTOR shall furnish records of past successful experience in performing this type of work.
- B The CONTRACTOR shall provide a construction superintendent who is thoroughly familiar with the specified requirements, trained and experienced in the necessary skills, and who shall be present at the site for the duration of the installation and shall direct all work performed under this section.

PART 2: PRODUCTS

2.01 FABRIC FORMWORK

- A Fabric formwork material shall be constructed of permeable, continuously woven panels of double-layer, open-salvage synthetic fabric jointed together to form a formwork for placing fine aggregate concrete slurry. The fabric shall consist of synthetic yarns formed into a stable network such that the yarns retain their relative position to each other and withstand the pressure of the grout injection pump without breaking the layers of fabric.
- B The fabric formwork shall be furnished as six-inch uniform section mat.
- C Individual mill width panels shall be cut to the length required and the two layers of fabric separately joined edge-to-edge by means of sewing thread to form multiple -mill width panels. Multiple-mill width panels shall be field joined edge-to-edge to adjacent panels by means of sewing thread, zippers or hook

and loop-type fasteners. The grab tensile strength of all joints shall be not less than 100 lbs. per inch when tested in accordance with ASTM D-1682-75.

- D Immediately following receipt of fabric to the jobsite, fabric shall be inspected and stored in a clean, dry area where it will not be subject to mechanical damage, exposure to moisture or direct sunlight.
- E Not used
- F The average compressive strength of cast test cylinders shall be at least 20 percent higher at 7 days than that of companion test cylinders made in accordance with ASTM C-31, and not less than 2,500 psi at 28 days.

2.02 MORTAR GROUT

- A Fine aggregate concrete shall consist of a mixture of Portland cement, fine aggregate and water so proportioned and mixed as to provide a pumpable slurry. Admixtures and/or a pozzolan may be used with the approval of the ENGINEER.
- B Portland cement shall conform to ASTM C-150, Type I or Type II.
- C Fine aggregate shall conform to ASTM C-33, except as to grading. Aggregate grading shall be reasonably consistent and shall be well graded from the maximum size which can be conveniently handled with available pumping equipment.
- D Water for mixing shall be clean and free from injurious amounts of oil, acid, salt, alkali, organic matter or other deleterious substances.
- E Pozzolan, if utilized, shall conform to ASTM C-618 Type N, F or C.
- F Admixtures, if utilized, shall contribute to the nature of the specifications. a water reducer conforming to ASTM C-494 may be used to reduce segregation, increase workability and pumpability, improve strength and increase water tightness. If an air entraining agent is used, it shall conform to ASTM C-260, and it shall improve resistance to freezing and thawing. The air content shall not exceed seven percent of the volume of the grout.
- G Materials shall be proportioned to produce a hardened concrete with a minimum compressive strength of 2,500 psi at 28 days when specimens are made and tested in accordance with ASTM C-31 and C-39.

PART 3: EXECUTION

3.01 SLOPE PREPARATION

- A Areas on which fabric formwork is to be placed shall be constructed to the lines and grades shown on the Drawings.
- B Excavation and preparation of anchor trenches, side trenches, and toe trenches or aprons shall be done in accordance with the lines, grades, and dimensions shown on the Drawings.

3.02 FABRIC FORMWORK PLACEMENT

- A Position fabric loosely before grout injection; place an appropriate amount of weight at predetermined locations to allow for fabric compaction. ~~STAKING OF FABRIC WITHIN THE LIMITS OF THE LINER WILL NOT BE PERMITTED.~~ Do not approximate fabric locations.
- B Fabric panels are jointed in the field with a bag closer (portable sewing machine). Lay out the first panel and fold back the leading edge. Invert the adjacent abutting panel. Join the top layers of fabric. Join the bottom layers of fabric. Fold the jointed panels back of the bank with seams down.
- C To avoid field sewing as much as possible, prepare fabric assembly sketches in such detail that the great majority of the sewing can be done prior to delivery.
- D Provide a small quantity of uncut, unassembled fabric for special field tailoring.

3.03 MORTAR GROUT PLACEMENT

- A Following panel placement, small cuts shall be made in the top layer of the fabric formwork to allow for the insertion of the injection hose or nozzle. Fine aggregate concrete slurry shall be injected between the top and bottom layers of fabric, inflating the panel to the recommended thickness and configuration.
- B Fine aggregate concrete slurry shall be injected in such a way that excessive pressure on the fabric formwork and cold joint within any one panel are avoided.
- C Holes in the fabric left by the removal of the injection hose shall be temporarily closed by inserting a piece of burlap similar material. The burlap shall be removed when the concrete is no longer fluid, and the surface firm is to the hand. Foot traffic on the filled mat shall be restricted to an absolute minimum for one hour after pumping.
- D Upon completion of the concrete placement, all the anchor trenches, side trenches, and toe trenches shall be backfilled, compacted, and completed as specified. All spilled mortar shall be cleaned up by hand. The mat shall be washed down with a water hose.

3.04 QUALITY CONTROL

- A One set of three test cylinders shall be taken each day: one cylinder shall be tested at seven days, two cylinders at 28 days. Copies of the test results shall be furnished to the Engineer.
- B The concrete for the test cylinders shall be taken from the injection hose after the fine aggregate concrete has passed through the pump. Test cylinder to consist of nylon fabric in the form of a test sock to give an accurate in-place test result.

END OF SECTION