

**TOWN OF  
WARREN, RI**

**CAMPBELL  
STREET SEWER  
REPLACEMENT**

**Bidding Documents  
for  
Construction**

**230216.00  
Town of Warren, RI**

**July 2016**



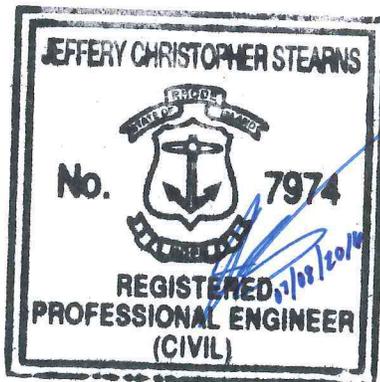
980 Washington Street | Suite 325  
Dedham, Massachusetts 02026  
781-251-0200  
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**TOWN OF WARREN  
CAMPBELL STREET SEWER REPLACEMENT**

**BIDDING DOCUMENTS FOR CONSTRUCTION**



980 Washington Street, Suite 325  
Dedham, MA 02026  
Tel. (781) 251-0200  
July 2016  
230216.00



**DIVISION 00 – BIDDING AND CONTRACT REQUIREMENTS**

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TOWN OF WARREN, RI

CAMPBELL STREET  
SEWER REPLACEMENT

TABLE OF CONTENTS

Page No.

DIVISION 00 - BIDDING AND CONTRACT REQUIREMENTS

00010	Table of Contents .....	00010-1
00015	List of Drawings .....	00015-1
00120	Invitation to Bid .....	00120-1
00200	Information to Bidders .....	00200-1
00411	Bid Form .....	00411-1
00431	Bid Bond .....	00431-1
00455	Non-Collusion Affidavit of Bidder .....	00455-1
00461	Qualifications of Bidder Form .....	00461-1
00521	Agreement .....	00521-1
00611	Performance Bond .....	00611-1
00612	Payment Bond .....	00612-1
00700	General Conditions .....	00700-1
00800	Supplementary Conditions .....	00800-1

DIVISION 01 - GENERAL REQUIREMENTS

01025	Measurement and Payment .....	01025-1
01555	Traffic Control .....	01555-1

DIVISION 02 - SITE WORK

02200	Earthwork .....	02200-1
02210	Temporary Erosion Control .....	02210-1
02531	Temporary Trench Pavement .....	02531-1
02532	Gravity Sewer Pipe .....	02532-1
02533	Relocation/Replacement Of Existing Utilities .....	02533-1
02534	Sewer Manholes .....	02534-1
02535	Maintaining Existing Sanitary Flows .....	02535-1

DIVISION 03 – CONCRETE

03310	Unreinforced Concrete For Utility Work .....	03310-1
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**APPENDICES**

- A. Inland Waters CCTV Inspection Logs
- B. Geotechnical Test Pit Plan
- C. Davis Bacon Wage Rates

**SECTION 00015**

**LIST OF DRAWINGS**

<b>DRAWING NUMBER</b>	<b>DRAWING TITLE</b>
	COVER
C-1	CAMPBELL STREET
C-2	CIVIL DETAILS
C-3	CIVIL DETAILS

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## SECTION 00120

### INVITATION TO BID

The Town of Warren, Rhode Island (Owner) invites bidders to submit bids for Campbell Street Sewer Replacement, which includes, but is not limited to removal and replacement of approximately 850 linear feet of 12-inch sanitary sewer main pipe and reconnection of service laterals and all materials, equipment, services and construction inherent to the Work.

The Work shall be substantially complete within 90 calendar days from the commencement of Contract Time and completed and ready for final payment 120 calendar days from the commencement of Contract Time.

Sealed Bids will be received until 10 A.M. local time on August 3, 2016 at the Town Clerk's office, 514 Main Street, Warren, Rhode Island. Bids will then be taken to the conference room and there be publicly opened and read aloud. Bids received after the time of announced opening will not be accepted. Sealed Bids shall be labeled with the Project name, and bidder's name.

Bid Documents may be obtained by downloading them from the Town's website <http://www.townofwarren-ri.gov/>, on or after July 13, 2016. Addenda, if required, shall also be posted on the Town's website. Bidders are responsible for checking the Town website to determine if Addenda have been posted. Bidders may email the Town Planner at [kmichaud@townofwarren-ri.gov](mailto:kmichaud@townofwarren-ri.gov) to request email notification of Addenda.

Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents or for modifications to the Bidding Documents including electronic conversion.

All questions about the meaning or intent of the Bidding Documents are to be submitted to the Engineer. Submission of questions via email is acceptable.

Woodard & Curran (Engineer)  
980 Washington Street, Suite 325  
Dedham, MA 02026  
Attention: Jason Kreil  
Telephone: 1-781-251-0200  
Email: [jkreil@woodardcurran.com](mailto:jkreil@woodardcurran.com)

The deadline for questions is 7 days prior to the time indicated for receipt of Bids. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Interpretations or clarifications considered necessary in response to such questions will be issued by Addenda.

Bid security in the amount of 5 percent of the Bid must accompany the Bid in accordance with the Instructions to Bidders.

The successful bidder will be required to furnish a Performance Bond and Labor and Materials Payment Bond, each in the amount of 100% of the contract price.

Davis Bacon Minimum wage rates apply to this Project. It is the responsibility of the Bidders, before Bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed Work under the resulting Contract.

Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be eligible or responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project or the public to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

**END OF SECTION**

**INFORMATION TO BIDDERS  
TOWN OF WARREN  
TOWN CLERK'S OFFICE  
(401) 245-7341**

1. PROJECT/BID STRUCTURE AND COORDINATION

Work under these contracts to construct improvements for the Campbell Street Sewer Replacement Project (the "site") is being completed as a project administered by the Town of Warren ("Town"). The Project Manual includes the following primary work sites:

**A. Campbell Street Sewer Replacement Project**

The Campbell Street Sewer Replacement Project shall consist of, but is not limited to removal and replacement of 12-inch sanitary sewer main pipe and reconnection of service laterals and all materials, equipment, services and construction inherent to the Work.

2. EVALUATION OF BIDS

Basis of bid award will be as described in the Bid Form.

3. RECEIPT AND OPENING OF BIDS

Sealed bids/proposals will be accepted and time stamped upon receipt in the location and time described in the Invitation to Bid.

4. SUBMISSION OF BIDS

- Envelopes containing bids must be sealed and addressed to the Town Clerk, Town of Warren, 514 Main Street, Warren, Rhode Island 02885, and must be marked with the name and address of the bidder with the name of the project, "Campbell Street Sewer Replacement" in the lower left hand corner.
- Bidder shall provide ten (10) copies of the bid form.
- The Town Clerk will decide when the specified time has arrived to open bids and no bid thereafter will be considered.
- Any bidder may withdraw his bid by written request at any time prior to the advertised time for opening. Telephone bids, faxed bids, amendments or withdrawals will not be accepted.
- Unless otherwise specified, no bid may be withdrawn for a period of ninety (90) days from the time of bid opening.

- Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawal of the bid after it has been opened.
- Proposals received prior to the time of opening will be securely kept, unopened. No responsibility will be attached to an officer or person for the premature opening of a proposal not properly addressed and identified.

5. FORM OF BID

As described in the Bid Form.

6. RHODE ISLAND SALES TAX

The Town is exempt from the payment of the Rhode Island Sales Tax under 1956 General Laws of the State of Rhode Island, 44-18-30, Paragraph 1, as amended.

7. FEDERAL EXCISE TAXES

The Town is exempt from the payment of any excise tax or federal transportation taxes. The price bid must be exclusive of taxes and will be so constructed.

8. QUALIFICATION OF BIDDERS

The Town may make such investigations as it deems necessary to determine the ability of the bidder to perform the Work. The bidder shall furnish the Town with all such information and data on the forms provided herein.

9. ADDENDA AND INTERPRETATIONS

No interpretation on the meaning of the Plans, Specifications, or other Contract Document will be made to any bidder orally. Every request for such interpretation should be in writing, addressed to Jason Kreil, P.E., Project Engineer, Woodard & Curran, 980 Washington Street, Suite 325, Dedham, MA 02026, and to be given consideration must be received at least seven (7) days prior to the date fixed for the opening of the bids. Email transmissions will be accepted.

Any and all interpretations, and supplemental instructions which, if issued, will be mailed by regular mail to all perspective bidders (at the respective address furnished by the bidder for such purpose), not later than 48 hours prior to the date fixed for the opening of the bids (unless such addenda postpones the opening of the bids). Failure of bidder to receive any such addendum or interpretations shall not relieve any bidder from obligation under his bid as submitted. All addenda so issued shall become part of the Contract Document.

10. DELIVERY OF BIDS

No extra charges for delivery, handling or other services will be honored. Only inside delivery and set-up, where required, will be accepted. Deliveries must be made during normal working hours.

11. Bidders shall recognize and agree to Project milestone and completion dates and provisions for liquidated damages specified in the Project Manual.

12. Bidders must comply with all State Labor Laws for Public Works projects.

13. The successful bidder must have all current taxes paid which are owed to the Town of Warren.

14. In accordance with Rhode Island General Law 37-13-7, contracts in *excess of \$1,000.00* shall require compensation based on *prevailing wages* for construction, alteration and/or repair, painting & decorating. The rates as of June 26, 2016 are included as Exhibit C. The Bidders and Contractor shall confirm that they are using the most recent rates. The rates are available from the Rhode Island Department of Labor at (401) 462-8539 or 462-8441, or access on the internet:

[www.access.gpo.gov/davisbacon/allstates.html](http://www.access.gpo.gov/davisbacon/allstates.html) for the State forms.

15. In accordance with Rhode Island General Law 37-13-14, bidders for public works/public building contracts in *excess of \$5,000.00 shall furnish a performance bond, upon conditional award of the contract*, at 100% of the contract price, conditioned upon faithful performance of the contract. A Labor and Materials Bond (Payment Bond), at full contract value, is required upon conditional award of the contract. All surety companies must be listed with the Department of the Treasure, Fiscal Services, Circular 570, (Latest Revision published by the Federal Register).

16. The Town of Warren is an equal opportunity provider and employer.

**END OF SECTION**

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**SECTION 00411**

**BID FORM**

**CONTRACT IDENTIFICATION:**

Campbell Street Sewer Replacement Project  
Warren, RI 02885

**ARTICLE 1 – BID RECIPIENT**

1.1 This Bid is submitted to:

Town of Warren  
514 Main Street  
Warren, RI 02885

1.2 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

**ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS**

2.1 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 calendar days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

**ARTICLE 3 – BIDDER’S REPRESENTATIONS**

3.1 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all federal, State and local Laws and Regulations that may affect cost, progress and performance of the Work.
- D. Bidder has carefully studied all:
  - 1. reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions (00800), part 4.02 (SC-4.02).
- E. Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- I. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- K. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

**ARTICLE 4 – FURTHER REPRESENTATIONS**

- 4.1 Bidder further represents that:
- A. this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation;
  - B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
  - C. has not solicited or induced any individual or entity to refrain from bidding; and
  - D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

**ARTICLE 5 – BASIS OF BID**

- 5.1 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):
- A. Total Contract Base Bid:
    - 1. Item Nos. 1 through 14.
  - B. The following Work is incidental to All Items:
    - 1. Site Restoration
    - 2. Traffic Management
  - C. Except where the Owner exercises its right to reject any or all Bids, the Contract will be awarded to the lowest responsible and qualified Bidder. The Owner will award the bid based on the Base Bid Price.

**Base Bid Items**

<u>Item No.</u>	<u>Item Description</u>	<u>Unit</u>	<u>Unit Price Words &amp; Figures</u>	<u>Quantity</u>	<u>Amount</u>
1	<b>Mobilization/ Demobilization</b>	LS	_____ _____ Dollars and _____ Cents (\$ _____)	1	\$ _____
2	<b>Remove and Replace 12-Inch Sewer</b>	LF	_____ _____ Dollars and _____ Cents (\$ _____)	950	\$ _____
3	<b>Remove and Replace 6-Inch Sewer Laterals with Cleanout and Backwater Valve (Complete)</b>	EA	_____ _____ Dollars and _____ Cents (\$ _____)	20	\$ _____
4	<b>Precast Concrete Manhole with Frame and Cover (Complete)</b>	EA	_____ _____ Dollars and _____ Cents (\$ _____)	2	\$ _____
5	<b>Temporary 2” Sidewalk Trench Pavement</b>	SY	_____ _____ Dollars and _____ Cents (\$ _____)	100	\$ _____
6	<b>Temporary 3” Road Trench Pavement</b>	SY	_____ _____ Dollars and _____ Cents (\$ _____)	575	\$ _____
7	<b>Sewer Bypass Pumping</b>	LS	_____ _____ Dollars and _____ Cents (\$ _____)	1	\$ _____
8	<b>Sediment and Silt Barrier</b>	LF	_____ _____ Dollars and _____	140	\$ _____

<u>Item No.</u>	<u>Item Description</u>	<u>Unit</u>	<u>Unit Price</u> <u>Words &amp; Figures</u> Cents (\$ _____ )	<u>Quantity</u>	<u>Amount</u>
9	<b>Replace Unsuitable Material</b>	CY	_____	125	\$ _____
			_____ Dollars and _____ Cents (\$ _____ )		
10	<b>Test Pits</b>	CY	_____	100	\$ _____
			_____ Dollars and _____ Cents (\$ _____ )		
11	<b>Utility Relocation</b>	LF-IN. Dia.	_____	100	\$ _____
			_____ Dollars and _____ Cents (\$ _____ )		
12	<b>Dewatering</b>	LS	_____	1	\$ _____
			_____ Dollars and _____ Cents (\$ _____ )		
13	<b>Bentonite Clay Trench Dam</b>	EA	_____	4	\$ _____
			_____ Dollars and _____ Cents (\$ _____ )		
14	<b>Compaction Testing</b>	Allow.	_____	\$2,500	\$2,500 _____
			_____ Dollars and _____ Cents (\$ _____ )		

**TOTAL OF BASE BID:** The total amount Bid based on ENGINEER's estimate of quantities for Bid Items 1 through 14:

\_\_\_\_\_ Dollars

(Amount in Words)

\$ \_\_\_\_\_.

(Amount in Figures)

- D. Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions. The above unit prices include all labor, materials, tools, equipment, overhead, profit, insurances, etc. to cover the finished work of the several kinds called for.
- E. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.
- F. All quantities listed are indeterminate and will be used for comparison of Bids only.

#### **ARTICLE 6 – TIME OF COMPLETION**

- 6.1 Bidder agrees that the Work will be substantially complete within 90 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 14.07.B of the General Conditions within 30 calendar days after the date when the Contract Times commence to run.
- 6.2 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

#### **ARTICLE 7 – ATTACHMENTS TO THIS BID**

- 7.1 The following completed documents are attached to and made a condition of this Bid:
  - A. Required Bid security in the form of Bid Bond (00431).
  - B. Non-Collusion Affidavit of Bidder (00455).
  - C. Qualifications of Bidder (00461).

#### **ARTICLE 8 – DEFINED TERMS**

- 8.1 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

**BID SUBMITTAL**

9.1 This Bid submitted by:

If Bidder is:

AN INDIVIDUAL

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_

(SEAL)

*(Individual's signature)*

Doing business as: \_\_\_\_\_

Business address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

A PARTNERSHIP

Partnership Name: \_\_\_\_\_

(SEAL)

By: \_\_\_\_\_

*(Signature of general partner -- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Business address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

A CORPORATION

Corporation Name: \_\_\_\_\_  
(SEAL)

State of Incorporation: \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability): \_\_\_\_\_

By: \_\_\_\_\_  
(Signature -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_ (CORPORATE SEAL)

Attest \_\_\_\_\_  
(Signature of Corporate Secretary)

Business address: \_\_\_\_\_  
\_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_.

A JOINT VENTURE

Joint Venturer Name: \_\_\_\_\_  
(SEAL)

By: \_\_\_\_\_  
*(Signature of joint venture partner -- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_  
\_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Joint Venturer Name: \_\_\_\_\_  
(SEAL)

By: \_\_\_\_\_  
*(Signature -- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_  
\_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Phone and FAX Number, and Address for receipt of official communications:

\_\_\_\_\_  
\_\_\_\_\_

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

SUBMITTED on \_\_\_\_\_, 20\_\_\_\_.  
State Contractor License No. \_\_\_\_\_

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**SECTION 00431**

**BID BOND**

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

---

BIDDER (Name and Address):

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

OWNER (Name and Address):

BID

Bid Due Date:

Project (Brief Description Including Location):

BOND

Bond Number:

Date (Note later than Bid due date):

Penal sum

\_\_\_\_\_

(Words)

\_\_\_\_\_

(Figures)

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

BIDDER  
\_\_\_\_\_  
Bidder's Name and Corporate Seal (Seal)

SURETY  
\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature and Title

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

Attest: \_\_\_\_\_  
Signature and Title

Attest: \_\_\_\_\_  
Signature and Title

Note: Above addresses are to be used for giving required notice.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety's liability.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
  - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2 All Bids are rejected by Owner, or
  - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 150 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

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SECTION 00455

NON-COLLUSION AFFIDAVIT OF BIDDER

State of: \_\_\_\_\_

County of: \_\_\_\_\_, (SS)

\_\_\_\_\_; being first duly sworn, deposes and says that:

- 1) He is (owner, partner, officer, representative or agent) of \_\_\_\_\_, the Bidder that has submitted the attached Bid:
- 2) He is fully informed regarding the preparation and contents of the attached Bid and of all pertinent circumstances regarding such Bid:
- 3) Such Bid is genuine and is not a collusive or sham Bid:
- 4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any Bidder, or to fix any overhead, profit or cost element of the bid price or the bid price of any other Bidder or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage with the Owner or any person interested in the proposed Contract.
- 5) The price quoted in the attached Bid is fair and proper and is not tainted by collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest.

Signed: \_\_\_\_\_

Title: \_\_\_\_\_

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Notary Public: \_\_\_\_\_

My Commission expires: \_\_\_\_\_, 20\_\_\_\_

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SECTION 00461

QUALIFICATIONS OF BIDDER FORM

Bidder's Name: \_\_\_\_\_

Each Bidder is required to submit information that exemplifies their qualifications to successfully implement the scope of work required by the Contract Documents. At a minimum, the information submitted shall include information requested on the forms below. Attach additional sheets if necessary.

Previous Experience Similar to this Bid

Provide written descriptions of at least 3 and no more than 10 previous projects with similar work efforts and similar dollar value. Project descriptions shall include the following:

1. Project Name: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Brief Scope of Work: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_  
Approximate Dollar Value: \_\_\_\_\_  
Owner's Representative: \_\_\_\_\_  
Owner's Telephone: \_\_\_\_\_
  
2. Project Name: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Brief Scope of Work: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_  
Approximate Dollar Value: \_\_\_\_\_  
Owner's Representative: \_\_\_\_\_  
Owner's Telephone: \_\_\_\_\_
  
3. Project Name: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Brief Scope of Work: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_  
Approximate Dollar Value: \_\_\_\_\_  
Owner's Representative: \_\_\_\_\_  
Owner's Telephone: \_\_\_\_\_

4. Project Name: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Brief Scope of Work: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_  
Approximate Dollar Value: \_\_\_\_\_  
Owner's Representative: \_\_\_\_\_  
Owner's Telephone: \_\_\_\_\_
5. Project Name: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Brief Scope of Work: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_  
Approximate Dollar Value: \_\_\_\_\_  
Owner's Representative: \_\_\_\_\_  
Owner's Telephone: \_\_\_\_\_

List of Subcontractors

1. Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_  
Work Efforts by Subcontractor for this Bid: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_  
Work Efforts by Subcontractor for this Bid: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_  
Work Efforts by Subcontractor for this Bid: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Bank Reference

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Contact: \_\_\_\_\_  
Phone: \_\_\_\_\_

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**AGREEMENT  
BETWEEN OWNER AND CONTRACTOR FOR  
CONSTRUCTION CONTRACT**

THIS AGREEMENT is by and between  
the

Town of Warren, Rhode Island

(Owner) and

(Contractor).

Owner and Contractor, in consideration of the mutual covenants set forth herein, agree as follows:

**ARTICLE 1 - WORK**

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

Removal and replacement of 12-inch sanitary sewer main pipe and reconnection of service laterals and all materials, equipment, services and construction inherent to the Work.

**ARTICLE 2 - ENGINEER**

2.1 Woodard & Curran ("Engineer") who will act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

**ARTICLE 3 - CONTRACT TIMES**

3.1 Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

3.2 Days to Achieve Substantial Completion and Final Payment

A. The Work will be substantially completed within 90 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 120 days after the date when the Contract Times commence to run.

3.3 Liquidated Damages

- A. Contractor and Owner 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 times specified in Paragraph 3.2 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration 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 \$ 500 for each day that expires after the time specified in Paragraph 3.2 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$ 500 for each day that expires after the time specified in Paragraph 3.2 above for completion and readiness for final payment until the Work is completed and ready for final payment.

**ARTICLE 4 - CONTRACT PRICE**

- 4.1 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraph below:

- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

- B. The Contract Price shall be \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (\$ \_\_\_\_\_),  
subject to additions and deductions as provided in the Contract Documents.

- C. The Contract Price includes the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ARTICLE 5 - PAYMENT PROCEDURES**

- 5.1 Submittal and Processing of Payments

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

## 5.2 Progress Payments; Retainage

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the first day of each month during performance of the Work as provided in Paragraphs 5.2.A.1 and 5.2.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:
1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:
    - a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, Owner, on recommendation of Engineer, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage; and
    - b. 50 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
  2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 98 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

## 5.3 Final Payment

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07 of the General Conditions.

## ARTICLE 6 – CONTRACTOR'S REPRESENTATIONS

6.1 In order to induce Owner to enter into this Agreement Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, State, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions.
- E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
- F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## ARTICLE 7 - CONTRACT DOCUMENTS

### 7.1 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 7, inclusive).
2. Performance bond (page 1, inclusive).
3. Payment bond (pages 1 to 2, inclusive).
4. General Conditions (pages i to 36, inclusive).
5. Supplementary Conditions (pages 1 to 13 inclusive).
9. Specifications as listed in the Table of Contents of the Project Manual.
10. Drawings consisting of the sheets listed in the List of Drawings of this Project Manual.
11. Addenda (numbers to inclusive).
12. Exhibits to this Agreement (enumerated as follows):
  - a. Contractor's Bid (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive).
  - b. Documentation submitted by Contractor prior to Notice of Award (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive).
13. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
  - a. Notice to Proceed (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive).
  - b. Work Change Directives.
  - c. Change Order(s).

B. The documents listed in Paragraph 7.1.A above are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 7.

- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

## ARTICLE 8 - MISCELLANEOUS

### 8.1 Terms

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

### 8.2 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

### 8.3 Successors and Assigns

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

### 8.4 Severability

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

### 8.5 Other Provisions

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

This Agreement will be effective on \_\_\_\_\_, 2016 (which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR:

Town of Warren

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: Council President

Title: \_\_\_\_\_

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: \_\_\_\_\_

Attest: \_\_\_\_\_

Title: Town Clerk

Title: \_\_\_\_\_

Address for giving notices:

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Owner-Contractor Agreement.)

License No.: \_\_\_\_\_  
(Where applicable)

Agent for service or process: \_\_\_\_\_

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)

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## 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): Town of Warren, 514 Main Street, Warren, Rhode Island 02885

### CONTRACT

Date:

Amount:

Description (Name and Location): Campbell Street Sewer Replacement

### BOND

Bond Number:

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:

Signature: \_\_\_\_\_ (Seal)

Name and Title:

SURETY

\_\_\_\_\_  
(Seal)

Surety's Name and Corporate Seal

By:

\_\_\_\_\_  
Signature and Title

(Attach Power of Attorney)

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

Attest:

\_\_\_\_\_  
Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: \_\_\_\_\_ (Seal)

Name and Title:

SURETY

\_\_\_\_\_  
(Seal)

Surety's Name and Corporate Seal

By:

\_\_\_\_\_  
Signature and Title

(Attach Power of Attorney)

Attest:

\_\_\_\_\_  
Signature and Title:

**EJCDC No. C-610 (2002 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. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

2. If Contractor performs the Contract, Surety and 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, Surety's obligation under this Bond shall arise after:

3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and

3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and

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

1. Surety in accordance with the terms of the Contract;
2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.

4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:

4.1. Arrange for Contractor, with consent of 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 Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with 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 Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from 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:

1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or

2. Deny liability in whole or in part and notify Owner citing reasons therefor.

5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of 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 Contractor.

7. Surety shall not be liable to Owner or others for obligations of 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 Owner or its heirs, executors, administrators, or successors.

8. Surety hereby waives notice of any change, including changes of time, to 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 Contractor ceased working or within two years after 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 Surety, Owner, or 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 requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory 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 Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

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

Owner's Representative (engineer or other party)

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## **PAYMENT BOND**

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

---

CONTRACTOR (Name and Address):  
Business):

SURETY (Name and Address of Principal Place of

OWNER (Name and Address):  
Town of Warren, 514 Main Street, Warren, Rhode Island 02885

### **CONTRACT**

Date:  
Amount: \$  
Description : East Warren Interceptor Improvements

### **BOND**

Bond Number:  
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:

SURETY

Signature: \_\_\_\_\_ (Seal)  
Name and Title:

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

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

Attest: \_\_\_\_\_  
Signature and Title

CONTRACTOR AS PRINCIPAL  
Company:

SURETY

Signature: \_\_\_\_\_ (Seal)  
Name and Title:

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

Attest: \_\_\_\_\_  
Signature and Title:

EJCDC No. C-615 (2002 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. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and 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 Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to 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 Contractor:

1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to 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 or equipment 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 Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by

which 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 Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:

6.1. Send an answer to that Claimant, with a copy to 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. 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 Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. 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. 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 Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory 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, 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 Contractor, or with a first-tier subcontractor of 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 Contractor and 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 Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

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

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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

Issued and Published Jointly By



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

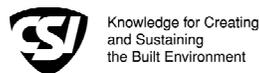
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The Associated General Contractors of America



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American Council of Engineering Companies  
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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 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 Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

**TABLE OF CONTENTS**

Page

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY.....	1
1.01 <i>Defined Terms</i> .....	1
1.02 <i>Terminology</i> .....	3
ARTICLE 2 - PRELIMINARY MATTERS.....	4
2.01 <i>Delivery of Bonds and Evidence of Insurance</i> .....	4
2.02 <i>Copies of Documents</i> .....	4
2.03 <i>Commencement of Contract Times; Notice to Proceed</i> .....	4
2.04 <i>Starting the Work</i> .....	4
2.05 <i>Before Starting Construction</i> .....	4
2.06 <i>Preconstruction Conference</i> .....	4
2.07 <i>Initial Acceptance of Schedules</i> .....	4
ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE.....	5
3.01 <i>Intent</i> .....	5
3.02 <i>Reference Standards</i> .....	5
3.03 <i>Reporting and Resolving Discrepancies</i> .....	5
3.04 <i>Amending and Supplementing Contract Documents</i> .....	6
3.05 <i>Reuse of Documents</i> .....	6
3.06 <i>Electronic Data</i> .....	6
ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS.....	6
4.01 <i>Availability of Lands</i> .....	6
4.02 <i>Subsurface and Physical Conditions</i> .....	6
4.03 <i>Differing Subsurface or Physical Conditions</i> .....	7
4.04 <i>Underground Facilities</i> .....	8
4.05 <i>Reference Points</i> .....	8
4.06 <i>Hazardous Environmental Condition at Site</i> .....	8
ARTICLE 5 - BONDS AND INSURANCE .....	9
5.01 <i>Performance, Payment, and Other Bonds</i> .....	9
5.02 <i>Licensed Sureties and Insurers</i> .....	10
5.03 <i>Certificates of Insurance</i> .....	10
5.04 <i>Contractor’s Liability Insurance</i> .....	10
5.05 <i>Owner’s Liability Insurance</i> .....	11
5.06 <i>Property Insurance</i> .....	11
5.07 <i>Waiver of Rights</i> .....	12
5.08 <i>Receipt and Application of Insurance Proceeds</i> .....	12
5.09 <i>Acceptance of Bonds and Insurance; Option to Replace</i> .....	12
5.10 <i>Partial Utilization, Acknowledgment of Property Insurer</i> .....	13
ARTICLE 6 - CONTRACTOR’S RESPONSIBILITIES.....	13
6.01 <i>Supervision and Superintendence</i> .....	13
6.02 <i>Labor; Working Hours</i> .....	13
6.03 <i>Services, Materials, and Equipment</i> .....	13
6.04 <i>Progress Schedule</i> .....	13
6.05 <i>Substitutes and “Or-Equals”</i> .....	13
6.06 <i>Concerning Subcontractors, Suppliers, and Others</i> .....	15
6.07 <i>Patent Fees and Royalties</i> .....	16
6.08 <i>Permits</i> .....	16
6.09 <i>Laws and Regulations</i> .....	16
6.10 <i>Taxes</i> .....	16
6.11 <i>Use of Site and Other Areas</i> .....	16
6.12 <i>Record Documents</i> .....	17
6.13 <i>Safety and Protection</i> .....	17
6.14 <i>Safety Representative</i> .....	18
6.15 <i>Hazard Communication Programs</i> .....	18
6.16 <i>Emergencies</i> .....	18

6.17	<i>Shop Drawings and Samples</i> .....	18
6.18	<i>Continuing the Work</i> .....	19
6.19	<i>Contractor's General Warranty and Guarantee</i> .....	19
6.20	<i>Indemnification</i> .....	19
6.21	<i>Delegation of Professional Design Services</i> .....	20
ARTICLE 7 - OTHER WORK AT THE SITE.....		20
7.01	<i>Related Work at Site</i> .....	20
7.02	<i>Coordination</i> .....	21
7.03	<i>Legal Relationships</i> .....	21
ARTICLE 8 - OWNER'S RESPONSIBILITIES .....		21
8.01	<i>Communications to Contractor</i> .....	21
8.02	<i>Replacement of Engineer</i> .....	21
8.03	<i>Furnish Data</i> .....	21
8.04	<i>Pay When Due</i> .....	21
8.05	<i>Lands and Easements; Reports and Tests</i> .....	21
8.06	<i>Insurance</i> .....	21
8.07	<i>Change Orders</i> .....	21
8.08	<i>Inspections, Tests, and Approvals</i> .....	21
8.09	<i>Limitations on Owner's Responsibilities</i> .....	21
8.10	<i>Undisclosed Hazardous Environmental Condition</i> .....	22
8.11	<i>Evidence of Financial Arrangements</i> .....	22
ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION .....		22
9.01	<i>Owner's Representative</i> .....	22
9.02	<i>Visits to Site</i> .....	22
9.03	<i>Project Representative</i> .....	22
9.04	<i>Authorized Variations in Work</i> .....	22
9.05	<i>Rejecting Defective Work</i> .....	22
9.06	<i>Shop Drawings, Change Orders and Payments</i> .....	22
9.07	<i>Determinations for Unit Price Work</i> .....	23
9.08	<i>Decisions on Requirements of Contract Documents and Acceptability of Work</i> .....	23
9.09	<i>Limitations on Engineer's Authority and Responsibilities</i> .....	23
ARTICLE 10 - CHANGES IN THE WORK; CLAIMS.....		23
10.01	<i>Authorized Changes in the Work</i> .....	23
10.02	<i>Unauthorized Changes in the Work</i> .....	24
10.03	<i>Execution of Change Orders</i> .....	24
10.04	<i>Notification to Surety</i> .....	24
10.05	<i>Claims</i> .....	24
ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK.....		25
11.01	<i>Cost of the Work</i> .....	25
11.02	<i>Allowances</i> .....	26
11.03	<i>Unit Price Work</i> .....	26
ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES.....		27
12.01	<i>Change of Contract Price</i> .....	27
12.02	<i>Change of Contract Times</i> .....	27
12.03	<i>Delays</i> .....	28
ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK.....		28
13.01	<i>Notice of Defects</i> .....	28
13.02	<i>Access to Work</i> .....	28
13.03	<i>Tests and Inspections</i> .....	28
13.04	<i>Uncovering Work</i> .....	29
13.05	<i>Owner May Stop the Work</i> .....	29
13.06	<i>Correction or Removal of Defective Work</i> .....	29
13.07	<i>Correction Period</i> .....	29
13.08	<i>Acceptance of Defective Work</i> .....	30
13.09	<i>Owner May Correct Defective Work</i> .....	30
ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION .....		30
14.01	<i>Schedule of Values</i> .....	30
14.02	<i>Progress Payments</i> .....	31
14.03	<i>Contractor's Warranty of Title</i> .....	32
14.04	<i>Substantial Completion</i> .....	32
14.05	<i>Partial Utilization</i> .....	33
14.06	<i>Final Inspection</i> .....	33

14.07	<i>Final Payment</i> .....	33
14.08	<i>Final Completion Delayed</i> .....	34
14.09	<i>Waiver of Claims</i> .....	34
ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION .....		34
15.01	<i>Owner May Suspend Work</i> .....	34
15.02	<i>Owner May Terminate for Cause</i> .....	34
15.03	<i>Owner May Terminate For Convenience</i> .....	35
15.04	<i>Contractor May Stop Work or Terminate</i> .....	35
ARTICLE 16 - DISPUTE RESOLUTION .....		35
16.01	<i>Methods and Procedures</i> .....	35
ARTICLE 17 - MISCELLANEOUS .....		36
17.01	<i>Giving Notice</i> .....	36
17.02	<i>Computation of Times</i> .....	36
17.03	<i>Cumulative Remedies</i> .....	36
17.04	<i>Survival of Obligations</i> .....	36
17.05	<i>Controlling Law</i> .....	36
17.06	<i>Headings</i> .....	36

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## GENERAL CONDITIONS

### ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

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#### 1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the

terms of the Contract. A demand for money or services by a third party is not a Claim.

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

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.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. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

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

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

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

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

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

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

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

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of

1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

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. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *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.

42. *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.

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

44. *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.

45. *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.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

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

48. *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.

49. *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.

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

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

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 *Terminology*

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

### B. *Intent of Certain Terms or Adjectives*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used

to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the 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 is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

### C. *Day*

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

### D. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or

c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

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

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### 2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

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

### 2.02 *Copies of Documents*

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

### 2.03 *Commencement of Contract Times; Notice to Proceed*

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

### 2.04 *Starting the Work*

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

### 2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified

in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

### 2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

### 2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor’s full responsibility therefor.

2. Contractor’s Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor’s Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that 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. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from

Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and 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 promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor 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 by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

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

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. 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 adaptation by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

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

1. those reports 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.

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 or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition 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 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final

commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities 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.

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

#### 4.05 *Reference Points*

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

#### 4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* 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 or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

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, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 - BONDS AND INSURANCE

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### 5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes

due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the 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 the 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 promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### 5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### 5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured 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:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

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

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.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

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

#### 5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or 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, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other 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, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as 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. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

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

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

#### 5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the 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 .

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

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

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in

writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

#### 5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

### ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

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#### 6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. 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 and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the

Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

#### 6.03 *Services, Materials, and Equipment*

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

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

#### 6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or

"or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

#### 2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine 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 requirements 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 make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether 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 other work on the Project) to adapt the design to the proposed substitute item; and

c) 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;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

*B. Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute

means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

*C. Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by 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 Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

*F. Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

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

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so

identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as 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, and Engineer, 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, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

#### 6.07 *Patent Fees and Royalties*

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

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

#### 6.08 *Permits*

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

#### 6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's 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 shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *Taxes*

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

#### 6.11 *Use of Site and Other Areas*

##### A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or

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

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

#### 6.12 *Record Documents*

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

#### 6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. 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 , 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).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

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

#### 6.15 *Hazard Communication Programs*

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

#### 6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent

threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

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

##### 1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

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

2. *Samples*: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

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

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

##### C. Submittal Procedures

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

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog

numbers, and similar information with respect thereto;

b. the suitability of 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 Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. 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 certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

#### D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

#### E. *Resubmittal Procedures*

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

#### 6.18 *Continuing the Work*

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

#### 6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

#### 6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their 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 officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

#### 6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop

Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

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

## ARTICLE 7 - OTHER WORK AT THE SITE

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### 7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, 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. 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.

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

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

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8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties 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*

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*

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

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

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

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

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

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

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

9.07 *Determinations for Unit Price Work*

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

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

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

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ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

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10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed

sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 *Notification to Surety*

A. If 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*

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract 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).

C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

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

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11.01 *Cost of the Work*

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

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.

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

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A 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 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

##### B. *Cash Allowances*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

##### C. *Contingency Allowance*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

#### 11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

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

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

## ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

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### 12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

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

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of 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 may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

### 12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost

due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

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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*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent

testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, 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.

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.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, 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.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *Owner May Stop the Work*

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

#### 13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other

dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

#### 13.07 *Correction Period*

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

1. repair such defective land or areas; or
2. correct such defective Work; or
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such

correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

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

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

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14.01 *Schedule of Values*

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

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments

received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

#### *B. Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations 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 9.07, 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:

- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
- b. 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:

- a. to supervise, direct, or control the Work, or
- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
- c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
- d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
- e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

#### *C. Payment Becomes Due*

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

#### *D. Reduction in Payment*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor 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*

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

#### 14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or

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

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor 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.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

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

#### 14.06 *Final Inspection*

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

#### 14.07 *Final Payment*

##### A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

- a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;
- b. consent of the surety, if any, to final payment;
- c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner 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. *Engineer's Review of Application and Acceptance*

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

##### C. Payment Becomes Due

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

#### 14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written

consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

## ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

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#### 15.01 *Owner May Suspend Work*

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

#### 15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety ) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

#### 15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

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

ARTICLE 16 - DISPUTE RESOLUTION

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16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

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17.01 *Giving Notice*

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

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If

the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

## SECTION 00800

### SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2002 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.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

#### ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

##### SC-1.01 *Defined Terms*

A. Amend Paragraph 1.01.A.37 to read as follows:

“37. *Resident Project Representative* – The authorized representative of Engineer or Owner who may be assigned to the Site or any part thereof.”

#### ARTICLE 2 - PRELIMINARY MATTERS

##### SC-2.02 *Copies of Documents*

A. Delete Paragraph 2.02.A in its entirety and insert the following in its place:

“A. Owner shall furnish to Contractor up to 3 printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.”

##### SC-2.05 *Before Starting Construction*

A. Delete Paragraph 2.05.A.3 in its entirety.

#### ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

##### SC-3.03 *Reporting and Resolving Discrepancies*

A. Add the following new paragraph immediately after Paragraph 3.03B.1.b.

“2. In resolving conflicts, errors, and discrepancies, the documents shall be given precedence in the following order: Agreement, Specifications, and Drawings. Within the specifications the order of precedence shall be as follows: Supplementary Conditions, General Conditions, and Technical Provisions. Figure dimensions on Drawings shall govern over scaled dimensions, and detailed Drawings shall govern over general Drawings.”

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

##### *SC-4.02 Subsurface and Physical Conditions*

A. Add the following new paragraph(s) immediately after paragraph 4.02.B.3:

“C. In the preparation of Drawings and Specifications the Engineer or Engineer’s Consultants relied upon the following drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the Site:

1. Campbell Street CCTV Inspection Logs, date June 2016, from Inland Waters Pipeline Services. (Appendix A)
2. “Test Pit Results – Campbell and Haile Drainage, CS-102, Dated June 2016” Prepared by Fuss & O’Neill

#### **ARTICLE 5 - BONDS AND INSURANCE**

##### *SC-5.03 Certificates of Insurance*

A. Add the following new Paragraphs immediately after Paragraph 5.03.B:

“C. Failure of Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor’s obligation to maintain such insurance.

D. By requiring such insurance and insurance limits herein, Owner does not represent that coverage and limits will necessarily be adequate to protect Contractor, and such coverage and limits shall not be deemed as a limitation on Contractor’s liability under the indemnities granted to Owner in the Contract Documents.”

##### *SC-5.04 Contractor’s Liability Insurance*

A. Add the following new Paragraphs immediately after Paragraph 5.04.B.7.a:

“C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Worker’s Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:
  - a. State: Statutory
  - b. Applicable Federal (e.g., Longshoreman’s): Statutory
  - c. Employer’s Liability: \$100,000 Each Accident  
\$500,000 Disease-Policy Limit  
\$100,000 Disease-Each  
Employee
2. Contractor’s General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include Contractors Protective, Products, and Completed Operations and Contractual Liability (c.u., collapse and underground coverage to be included. Blasting and explosion coverage required if there will be blasting under the contract):
  - a. General Aggregate: \$2,000,000
  - b. Products and Completed Operations Aggregate \$2,000,000
  - c. Personal and Advertising Injury \$1,000,000
  - d. Each Occurrence Limit: \$1,000,000
  - e. Fire Damage Limit: \$50,000
  - f. Medical Payments: \$5,000
3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:
  - a. Combined Single Limit for Bodily Injury and Property Damage: \$1,000,000
4. Owner’s Protective Liability coverage required by Paragraph 5.05.A of the General Conditions shall provide coverage for not less than the following amounts:
  - a. Each occurrence: \$1,000,000
  - b. Aggregate: \$2,000,000
5. Builder’s Risk and Installation Floater Coverage: Limit equal to the total insurable value of all materials and equipment to be built and/or installed.
6. Insurance Carrier Requirements: Financial Performance Rating “A” by A.M. Best Company.
7. Additional Insured: Town of Warren.

SC-5.06 *Property Insurance*

A. Delete Paragraph 5.06.A - E in its entirety and insert the following in its place:

“A. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof.

1. The insurance shall:

a. include the interests of Owner, Contractor, Subcontractors, Engineer and any other individuals or entities identified herein, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

b. in addition to the individuals and entities specified, include as additional insureds, the following:

Town of Warren

c. 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 and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism, and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

d. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

e. 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;

f. allow for partial utilization of the Work by Owner;

g. include testing and startup; and

h. 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.

2. Contractor shall be responsible for any deductible or self-insured retention.

3. The policies of insurance required to be purchased and maintained by Contractor in accordance with this Paragraph SC-5.06.A shall comply with the requirements of Paragraph 5.06.C of the General Conditions.”

## ARTICLE 6 - CONTRACTOR’S RESPONSIBILITIES

### SC-6.05 *Substitutes and “Or-Equals”*

- A. Delete last sentence of Paragraph 6.05.A and insert the following in its place:

“Unless the Specification or description contains or is followed by words reading “like”, “equivalent”, or “or equal” are allowed, Contractor shall provide the proprietary item or the item from the list of the named supplier(s). Where the Specification or description contains or is followed by words reading “like”, “equivalent” or “or-equal” items are 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.”

- B. Add the following new paragraph after 6.05.E.

- “1. “Or-Equal” Evaluation. Engineer will record time required by Engineer in evaluating “or-equal” proposed or submitted by Contractor pursuant to paragraph 6.05.A.1. Whether or not Engineer approves an “or-equal” item so proposed or submitted by Contractor, Contractor shall reimburse Owner for charges of Engineer and Engineer’s Consultants for evaluating each such proposed “or-equal.” Submittal of “or-equal” request shall be construed as evidence of Contractor’s agreement to pay such charges, with no added cost to Owner.”

2. Substitution Evaluation. 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 contact 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 charges of Engineer and Engineer’s Consultants for evaluating each such proposed substitute.

3. Charges shall be \$170.00 for each staff-hour spent by Engineer and Engineer’s Consultants for evaluating each “or equal” or substitute.”

### SC-6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Delete Paragraph 6.06.C.2 and replace with the following:

“shall create any obligation on the part of Owner or Engineer. Owner or Engineer may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about amounts paid to Contractor on account of

work performed for Contractor by a particular Subcontractor, Supplier, or other individual or entity.”

SC-6.10 *Taxes*

A. Add the following new paragraph immediately after Paragraph 6.10.A:

“B. The Owner is exempt from State Sales Tax.”

SC-6.12 *Record Documents*

A. Add the following new paragraph immediately after Paragraph 6.12.A:

“B. Progress payments will not be made to Contractor unless Record Document requirements are met.”

**ARTICLE 7 – OTHER WORK AT THE SITE**

SC-7.03 *Legal Relationships*

A. Add the following new paragraph immediately after Paragraph 7.03 and renumber following paragraphs:

“A. Claims Between Contractors: Should Contractor cause damage to the Work or property of any separate contractor at the Site, or should any claim arising out of the Contractor’s performance of the Work at the Site be made by any separate contractor against Contractor, Owner, Engineer, Engineer’s Consultants, or the construction coordinator, Contractor shall promptly attempt to settle with such separate contractor by agreement, or to otherwise resolve the dispute by arbitration or at law.

B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, Engineer’s Consultants, the construction coordinator 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, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against Owner, Contractor, Engineer, Engineer’s Consultants, or the construction coordinator to the extent said claim is based on or arises out of the 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 or 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.

C. 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 Time 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-8.11 *Evidence of Financial Arrangements*

A. Add the following new paragraph immediately after Paragraph 8.11.A:

"B. On request of Contractor prior to execution of any Change Order involving a significant increase in the Contract Price, Owner shall furnish to Contractor reasonable evidence that adequate financial arrangements have been made by Owner to enable Owner to fulfill the increased financial obligations to be undertaken by Owner as a result of such Change Order."

## ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

### SC-9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Add the following new paragraph immediately after Paragraph 9.09.E:

"F. Resident Project Representative shall be authorized to observe all or any part of the Work, and to observe the preparation or manufacture of materials to be used. In case of any dispute arising between Contractor and Resident Project Representative as to materials furnished or the acceptability of the Work, the Resident Project Representative shall have the authority to disapprove or reject Work which Resident Project Representative believes to be defective, or that Resident Project Representative believes will not produce a completed Project that conforms to the Contract Documents. Resident Project Representative shall not be authorized to stop or suspend Work on the Project. Resident Project Representative shall not be authorized to revoke, alter, enlarge, relax or release any requirements of these Specifications, nor to approve or to accept any portion of the Work, nor issue instructions contrary to the Drawings and Specifications. Resident Project Representative shall in no case act as foreman or perform other duties for Contractor, or interfere with the management of the Work by Contractor. Any advice given by Resident Project Representative to Contractor shall in no circumstances be construed as binding Owner, Engineer, or

Engineer's Consultants in any way or releasing Contractor from fulfillment of the terms of the Agreement."

## ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

### SC-11.01 *Cost of the Work*

- A. Add the words "project managers" after the words "general managers," in Paragraph 11.01.B.1.

### SC-11.04 *Rental Rates*

Add the following new paragraphs immediately after Paragraph 11.03.D.3:

#### "11.04 *Equipment Rental Rates for Extra and Cost-Plus Work*

A. For any Contractor-owned machinery, trucks or equipment, or equipment authorized by the Engineer for use the Engineer will allow the Contractor will be allowed a rate that does not exceed the rental rate set forth in the current edition of the "Rental Rate Blue Book", as published by K III Directory Corporation of San Jose, California (referred to herein as the rental Rate Blue Book). All Rate Adjustment Tables and amendments will be applied. If the Contractor submits a lower rate, it will be accepted by the Engineer.

1. Should the proper completion of the Work require equipment of a type not covered by the above-mentioned schedule, the Engineer will allow the Contractor a reasonable rental rate based on that prevailing in the area of the Work and shall be incorporated in the Contract before the Work is begun. However, the Contractor must disclose to the Engineer the specific sources of any rates it proposes in this connection.

2. For machinery, trucks or equipment, which the Contractor must obtain by rental, the Contractor shall inform the Engineer of its need to rent the equipment and of the rental rate for that equipment prior to using it on the Work. If that use and rate are acceptable to the Engineer, the Contractor shall be paid the actual rental for the equipment, provided that rate does not exceed the rental rate set forth in the Rental Rate Blue Book, including all Rate Adjustment Tables and amendments. The Contractor shall provide the Engineer with a copy of the paid receipt for the rental expense incurred.

3. The estimated operating cost per hour will apply only to the actual time the equipment is operating. Operators will be paid as stated hereinbefore for labor except for certain trucks listed in the Rental Rate Blue Book as to which trucks said Rental Rate Blue Book indicates that the cost of the operators is included in the pertinent rates.

4. For equipment which is already on the Project, OWNER will pay the applicable hourly rate for the actual time the equipment is assigned to the Cost-Plus Work. The period of assignment for each piece of equipment shall start when the equipment commences to be used for the Work ordered by the Engineer, and shall continue until the time which the Engineer designates for termination of that work.
5. For equipment which has to be brought to the Project exclusively for use on Cost-Plus Work, Owner will pay all loading and unloading costs and all transportation costs to and from the Project Site; provided, however, the cost of return transportation from the Project Site shall not exceed that of moving the equipment to that Site. If such a piece of equipment is self-propelled, and is driven to the Project Site under its own power, then the Owner will pay only operating costs and labor costs for the transportation to and from the Project Site. The Owner will not pay for loading, unloading, and transportation costs, however, if the equipment is used for other than cost-plus work while on the Project Site, with the exceptions stated herein.
6. The Owner will pay the applicable rental rate for a minimum of 8 hours in each 24 hour day, excluding Saturdays, Sundays, and legal holidays during which the Contractor does no work. The daily usage period shall start at the time the Contractor begins to use the equipment for cost-plus work and when the equipment is released by the Engineer from use for such work.. The Owner will make payment to the Contractor at the applicable hourly rate for the actual time the equipment is being used for cost-plus work in excess of the minimum 8 hours per day. If, however, certain pieces of equipment remain idle during any day or portion of a day within such a rental period, the Owner will pay for those periods at 50 percent of the applicable rate (exclusive of operating costs) set forth in the Rental Rate Blue Book.
7. For rented equipment not owned by the Contractor or a subsidiary, affiliate or parent company (no matter how far up the chain of ownership) of the Contractor, the following maximum rates shall apply:
  - a. The daily rate per hour shall apply when the equipment is specifically assigned to the Work by the Engineer for a period of 7 consecutive calendar days or less.
  - b. The weekly rate per hour shall apply when the assigned time exceeds 7 consecutive calendar days but does not exceed 21 consecutive calendar days.
  - c. The monthly rate per hour shall apply when the assigned time exceeds 21 consecutive calendar days.
8. The applicable daily, weekly, or monthly rate will be determined at the expiration of 21 calendar days or upon release of the equipment, whichever

occurs first. Interruptions of the rental period, when equipment is used on other than assigned cost-plus work, will not constitute a warrant for a rental rate applicable to shorter periods occasioned by such interruptions.

9. For equipment owned by the Contractor or a subsidiary, affiliate, or parent company (no matter how far up the chain of ownership) of the Contractor, the maximum hourly rate to be used shall be the monthly rate as set forth in the current edition of the Rental Rate Blue Book, including all Rate Adjustment Tables and amendments divided by 176 (176 working hours per month).

10. All equipment used must, in the judgment of the Engineer, be in good working condition and suitable for the purpose intended; and the Engineer reserves the right to determine the size and number of units of equipment to be used. The manufacturer's ratings shall be the basis for all classifications. Trucks will be classified by cubic yard capacity to be determined by water level volume of the body as measured from the length, width, and height, without sideboards.

11. No percentage will be added to the amounts charged for equipment rental, whether based on the Rental Rate Blue Book, including all Rate Adjustment Tables and amendments, or on the agreed-upon rental rates for equipment not covered in the aforesaid schedule.”

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

### SC-13.03 *Tests and Inspections*

A. Delete Paragraph 13.03.B and subparagraphs in their entirety and insert the following in its place:

“B. Contractor 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 as otherwise provided in the Contract Documents.”

## ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

### SC-14.02 *Progress Payments*

A. Add the following language to the end of Paragraph 14.02.A.2:

“a. Contractor shall include with Application for Payment proof that all employee, subcontractor, and vendor obligations have been met from the previous Progress Payment. Contractor shall submit subcontractor and vendor release forms; and certified payroll reports which include labor classifications, pay rates, and fringe benefit rates for employees.”

SC-14.07 *Final Payment*

A. Add the following new sentence at the beginning of Paragraph 14.07.A.2:

“All applications for payment, consent of surety and release of liens shall be on the following forms:

AIA Form G702 Application and Certificate for Payment  
AIA Form G706A Contractor’s Affidavit of Release of Liens  
AIA Form G707 Consent of Surety to Final Payment”

END OF SECTION

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## **DIVISION 01 – GENERAL REQUIREMENTS**

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## SECTION 01025

### MEASUREMENT AND PAYMENT

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Scope: This section describes the measurement and payment for the Work to be completed **under** each item in the Bid Form. The descriptions may not reference all of the associated Work. Work specified but not specifically designated as a Bid item is considered incidental to all Bid items. The Contractor shall review all work associated with each work item and shall have no claim for being unfamiliar with the requirements of these specifications.
- B. Each bid item shall include all products, materials, equipment, tools, labor, and incidentals thereto, complete and accepted by the Engineer.
- C. Payment Procedures are described in the Contract, General Conditions and related Documents.

##### 1.03 DESCRIPTION OF PAY ITEMS:

- A. The Contract shall be awarded to the lowest responsible and eligible Bidder **as described in the Bid Form.**
- B. Base Bid Items:
  - 1. Item 1. – Mobilization/Demobilization:
    - a. Payment: Lump sum (LS) price as stated in the Bid. Contractor will be paid 50% upon completion of mobilization, and the remaining 50% upon completion of the demobilization.
    - b. Measurement: Portion of the Work completed and accepted as measured by the Engineer.
    - c. Includes all labor, tools, equipment, and materials necessary to mobilize and demobilize equipment, vehicles, labor and materials to the project site. This item also includes initiating the contract, bonds, insurance, submittals, schedules, and meetings.
  - 2. Item 2. – Remove and Replace 12-Inch Sewer:
    - a. Payment: Unit price per linear foot (LF) as stated in the Bid Form. Payment shall be 80 percent at installation and 20 percent upon receipt of passing test results and acceptance of the Work by the Town.

- b. Measurement: As measured, by the Engineer, actual number of linear feet of pipe installed/tested.
  - c. Includes all labor, tools, equipment, and materials necessary to complete the work associated with removing and replacing the existing 12-inch sewer and installing the new 12-inch sewer including connection to existing sewer services. Demolition and disposal of the existing sewer pipe, fittings, bedding, backfill, connection to existing sewer pipe, tracing tape and dewatering shall be incidental to the Work.
3. Item 3 – Remove and Replace 6-Inch Sewer Service Pipe:
  - a. Payment: Unit price per each (EA) as stated in the Bid Form. Payment shall be 80 percent at installation and 20 percent upon receipt of passing test results and acceptance of the Work by the Town.
  - b. Measurement: As measured, by the Engineer, actual number of linear feet of pipe installed/tested.
  - c. Includes all labor, tools, and equipment necessary to install new sewer service pipe to connect the existing sewer service pipe at the property line to the new sewer main including pipe, fittings, bedding, backfill, cleanout and backwater valve, connection to existing sewer service pipe, and tracing tape shall be incidental to the Work.
4. Item 4. – Precast Concrete Manhole with Frame and Cover (Complete):
  - a. Payment: Unit Price per each (EA) as stated in the Bid.
  - b. Measurement: Unit price per each as measured by the Engineer paid monthly based on progress up to 80%; 20 percent upon receipt of passing test results and acceptance of the Work by the Town.
  - c. Includes all material, equipment, labor and services associated with manhole installation including excavation, bedding, materials included in the contract document for a complete and functioning manhole. Dewatering, demolition and legal disposal of existing manholes shall be incidental to the Work.
5. Item 5. – Temporary 2-Inch Sidewalk Trench Pavement:
  - a. Payment: Unit price per square yard (SY) as stated in the Bid.
  - b. Measurement: As measured in place by the Engineer.
  - c. Includes: All labor, equipment and materials including, emulsion, bituminous tack coat, 12-inches of gravel bedding material base, saw cutting, bituminous pavement, leveling course, temporary paint lining before winter and all incidental

work required for installing Trench Pavement as required followed by 2-inches of Type I-1 binder course by means of two lifts as required by the Contract Documents.

6. Item 6. – Temporary 3-Inch Road Trench Pavement:
  - a. Payment: Unit price per square yard (SY) as stated in the Bid.
  - b. Measurement: As measured in place by the Engineer.
  - c. Includes: All labor, equipment and materials including, emulsion, bituminous tack coat, 12-inches of gravel bedding material base, saw cutting, bituminous pavement, leveling course, temporary paint lining before winter and all incidental work required for installing Trench Pavement as required followed by 3-inches of Type I-1 binder course by means of two lifts as required by the Contract Documents.
  
7. Item 7. – Sewer Bypass Pumping:
  - a. Payment: Lump Sum (LS), percentage monthly based on Work completed.
  - b. Measurement: Percentage of Work completed.
  - c. Includes: Materials, equipment, and services required to bypass sewer flows around the work area as specified in Section 02535 including flow monitoring, daily installation and removal of plugs, redundant pumps and power, as required, hoses, connections, pressure testing and all other equipment required for a complete, leak-free, and functioning sewer bypass pumping system. Additional expenses related to alternative hours worked to perform Work during low flow, running hoses or piping between manholes, generators and fuel shall be incidental to the Work.
  
8. Item 8. – Sediment and Silt Barrier:
  - a. Payment: Unit price per linear foot (LF) as stated in the Bid Form.
  - b. Measurement: As measured, by the Engineer.
  - c. Includes All labor, material and equipment required for installation, maintenance, removal of environmental protective devices including, but not limited to, hay bales, silt control fencing, coir logs, siltation control structures, and seeding. Dewatering basins shall be considered incidental to the work and shall not be considered for payment.

9. Item 9. – Replace Unsuitable Material:
  - a. Payment: Unit Price per cubic yard (CY) as stated in the Bid.
  - b. Measurement: As measured by the Engineer within the pay limits shown on the Drawings and as specified.
  - c. Includes: Excavation and replacement with gravel borrow of materials determined by the Engineer as unsuitable for pipe support below or above the normal grade of the trench or as backfill material for trenches (see Section 02200, Subsection 3.07). Excludes pipe bedding included in Items 2 and 3.
  
10. Item 10. – Test Pit:
  - a. Payment: Unit price per cubic yard (CY) as stated in the bid.
  - b. Measurement: Per cubic yard as measured in place by Engineer.
  - c. Includes: Materials, equipment, and services required to for pavement removal and disposal, excavation, bedding, backfill and compaction, gravel sub-based, paving, removal and resetting of curbs and loam and seed to determine the location of uncharted utilities, where directed by Engineering or shown on the Drawings.
  
11. Item 11. – Utility Relocation:
  - d. Payment: Linear Foot – Inch Diameter (LF-Inch Dia.) unit price as stated in the bid.
  - e. Measurement: Measurement for the removal and replacement of existing utility within the allowable trench width only unless otherwise indicated on the Contract Drawings, shall be made by multiplying the inside diameter of the replaced utility pipeline by the length of the replaced pipe. The allowable trench width shall be as shown on the drawings.
  - f. Includes: Materials, equipment, and services required to replace utilities which in the Engineer’s judgement could not be avoided by the Contractor. This item includes replacement of the utility in kind in material and dimension for utilities within the allowable trench width only unless otherwise indicated on the Contract Documents, cutting, removing and legal disposal of pavement, pipe, fittings, pipe unloading, stringing, couplings, excavation, bedding, backfill, compaction, shoring/bracing, dewatering, installation of pipe matching pipe slope, removing and resetting curbs, gravel sub-base, paving and loam and seed.
  
12. Item 12. – Dewatering:

- a. Payment: Lump Sum (LS), percentage monthly based on Work completed.
  - b. Measurement: Percentage of Work completed.
  - c. Includes: Materials, equipment, and services required to design, installation, operation, maintenance, and removal of dewatering system, including, but not limited to, pumping and handling groundwater, legal disposal thereof, environmental controls and power as required.
13. Item 13. – Bentonite Clay Trench Dam:
- a. Payment: Unit Price per each (EA) as stated in the Bid.
  - b. Measurement: Unit price items, number of units installed.
  - c. Includes: Materials, equipment, and services required to install bentonite clay dams as required by the Contract Documents.
14. Item 14. – Compaction Testing:
- a. Payment: Shall be reimbursed for actual direct costs incurred for compaction testing as directed by the Engineer plus a ten (10) percent markup.
  - b. Measurement: As measured by the Engineer.
  - c. Includes: Materials, equipment, and services required to perform compaction testing. Excludes grain size testing to be paid by Contractor per Section 02200, Sub-section 1.04.D.

**PART 2 - PRODUCTS (not applicable)**

**PART 3 - EXECUTION**

**3.01 GENERAL:**

- A. Measurement: Notify Engineer when necessary measurements must be taken. Notification must be in advance of obscuring pay item. Do not proceed until measurements have been taken.

**END OF SECTION**

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## SECTION 01555

### TRAFFIC CONTROL

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. Operations necessary to maintain vehicular and pedestrian traffic flow on public and private access ways and roads.
- B. Traffic Controls include, but are not limited to, the following:
  - 1. Barricades, signs, and temporary lighting to inform the general public of hazards during construction of the Work.
  - 2. Temporary bridging of trenches
  - 3. Relocating and maintaining traffic control items.
  - 4. Police Details

##### 1.02 SUBMITTALS

- A. Temporary Traffic Control Plans and Detour Plans: Prior to initial mobilization for each phase of the work, the Contractor shall submit, to the Engineer, Temporary Traffic Control Plans and Detour Plans for approval. The plans shall meet the following requirements in order to obtain approval:
  - 1. General
    - a. Each traffic control setup shall meet minimum standards set forth in Part 6 of the Manual on Uniform Traffic Control Devices, latest edition with revisions.
    - b. Temporary road closures may be implemented when approved by Owner and Engineer. Emergency vehicle access must be maintained at all times. If road closures are to be implemented, access to residences and businesses shall be maintained to the maximum extent possible.
- B. Notice to Police, Fire and Residents: The Contractor shall notify the Warren Police and Fire Departments and all affected residences and businesses, in writing, of road closures and alterations to roadway operations no less than three days prior to enacting such closures and alterations. Correspondence must include:
  - 1. Date(s) closure and/or modification will be in effect
  - 2. Description of closure area, operation change, and/or parking restriction

3. Alternative route(s) to access residences/businesses
4. Alternative parking areas if any property's vehicular access is to be blocked
5. Construction foreman name and field telephone number

### **1.03 MEASUREMENT**

- A. Traffic control will be measured as indicated in Section 01025 – Measurement and Payment.

## **PART 2 – PRODUCTS**

### **2.01 TRAFFIC CONTROL DEVICES**

- A. Traffic Drums: Standard Specifications, Section 923.02.
- B. Traffic Cones: Standard Specifications, Section 923.02.
- C. Construction Barricades: Standard Specifications, Section 926.02.
- D. Temporary Construction Signs: Standard Specifications, Section 922.02

## **PART 3 – EXECUTION**

### **3.01 GENERAL**

- A. Do not barricade streets without prior approval of local authorities. Keep closings to as brief a period as possible.
- B. Coordinate with Owner to provide Traffic Detail Officers as required for proper directing and control of traffic during the Work. The Contractor shall be responsible for scheduling Police Details.

### **3.02 TRAFFIC CONTROL DEVICES**

- A. Furnish, erect, maintain, move and dismantle barricades, warning signs, lights, and traffic control items as necessary, to protect the Work, to provide for public safety, as required by the Engineer, and in accordance with the requirements of Section 937.03 of the Standard Specifications.
- B. Traffic Drums: Place traffic drums in accordance with Standard Specifications, Section 923.03
- C. Traffic Cones: Provide traffic cones in sufficient number to adequately control traffic on roadways during construction and accordance with Standard Specification, Section 923.03. Replace damaged traffic cones.
- D. Construction Barricades: Standard Specifications, Section 926.03.

- E. Temporary Construction Signs: Standard Specifications, Section 922.03.

### **3.03 TRAFFIC CONTROL OFFICERS**

- A. Be aware of local authorities and State policies regarding the services of Police Details for construction projects including requirements for cancelling scheduled Police Details.
- B. Provide services of Police Details where required by Warren Police Department during construction when traffic is sufficiently congested, public safety is endangered, two-way traffic is restricted to one travel lane, and when directed by the Engineer or authorities having jurisdiction.

**END OF SECTION**

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## **DIVISION 02 – SITE WORK**

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## SECTION 02200

### EARTHWORK

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. This Section includes the following:
1. Excavation and preparing subgrades.
  2. Excavating and backfilling for structures.
  3. Excavating and backfilling trenches for subsurface storm drains and utilities.
  4. Disposal of unsuitable material.
  5. Disposal of surplus suitable material, if required.
  6. Grading
  7. Gravel borrow course for bituminous pavement
  8. Dewatering

##### 1.02 DEFINITIONS

- A. ASTM: American Society for Testing and Materials
- B. Backfill: Soil materials used to fill trench and structure excavations.
1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe. Also see bedding course.
  2. Final Backfill: Backfill placed over initial backfill to fill a trench.
  3. Backfill: General backfill placed where initial or final backfill is not specified.
- C. Bedding Course: Layer placed over the subgrade before laying pipe or structure.
- D. Borrow: Satisfactory soil imported from off site for use as fill or backfill.
- E. Excavation: Removal of material encountered above subgrade elevations.
1. Additional Excavation: Excavation below subgrade elevations or indicated dimensions as directed by Engineer.

- 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.
- F. Fill: Soil materials used to raise existing grades.
- G. Gravel Borrow Subbase Course: Layers placed under pavement and concrete.
- H. OSHA: Occupational Safety and Health Administration
- I. SUBSURFACE SOIL BORINGS: The results of subsurface soil investigations are appended to the specifications. The data is shown for general information only. No warranty, either expressed or implied, is made as to the accuracy of the subsurface information presented.
- J. RIDOT: Rhode Island Department of Transportation
- K. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 1 cubic yard.
- L. Structures: Buildings, footings, foundations, retaining walls, slabs, curbs, catch basins, manholes, bioretention basin overflow structures, appurtenances, or other man-made stationary features constructed above or below the ground surface.
- M. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below bedding, gravel borrow course, or topsoil materials.
- N. Utilities include on-site underground pipes, conduits, ducts, and cables.

### **1.03 SUBMITTALS**

- A. Product Data: For the following:
  - 1. Each type of warning tape.
  - 2. Fill/Backfill: Source(s) of material must be identified prior to delivery on-site for approval by Engineer.
- B. Material Test Reports: For each on-site and borrow soil material proposed for gravel borrow, bedding, fill, and backfill provide the following:
  - 1. Classification according to ASTM D 2487.
  - 2. Sieve analysis according to ASTM D 5519, and ASTM D 6913
  - 3. Laboratory compaction curve according to ASTM D 1557.

- C. Compaction testing results shall be provided for testing completed as specified herein.
  - 1. Submit qualifications of Testing Laboratory responsible for compaction testing prior to performance of any tests.
- D. Testing Agency: Provide qualifications of an independent geotechnical engineering testing agency that is certified in the State of Rhode Island and familiar with RIDOT geotechnical and pavement testing procedures.
  - 1. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.
- E. For Record Purposes.
  - 1. Dewatering Plan: Identify location and duration of system, and process for removing particulate matter from pumped or drained water.
  - 2. Excavation Protection System: Proposed system and design data in accordance with OSHA regulations 1926.652.C.
    - a. For each excavation 20 feet or deeper, submit an excavation protection system design certified by a professional engineer registered in the State of Rhode Island.
  - 3. Manufacturer's installation instructions for storm and sewer pipes.

#### **1.04 QUALITY ASSURANCE**

- A. Where "Standard Specifications" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Roads and Bridge Construction, Revision of 2004" and issued supplements.
- B. Perform excavation operations in accordance with OSHA Regulations 1926.651 and 1926.652.
- C. Testing Agency: Engage a qualified independent geotechnical engineering testing agency to perform field quality-control compaction testing.
  - 1. The testing agency must be approved by the Engineer.
- D. Contractor shall pay for all aggregate gradation testing. Contractor will pay for all tests performed exclusively for convenience or any retesting due to non-compliance.

#### **1.05 PROJECT CONDITIONS**

- A. Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between subsurface soil test

pits. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data is made available for convenience of Contractor. Additional test borings and other exploratory operations may be made by Contractor at no cost to Owner.

- B. Demolish and completely remove from site existing underground utilities and storm drains indicated to be removed. Coordinate with utility companies to shut off services if lines are active.
  - 1. Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.
- C. Abandon on-site existing underground utilities indicated to be abandoned. Coordinate with utility companies to shut off services if lines are active.
- D. Extent of trench excavation and excavated areas will be within the Limits of Disturbance shown on the drawings. Contractor shall not conduct work on private property unless authorized by the Owner.
- E. Place backfill and equipment a minimum of 2 feet from edge of excavation. Cast excavated material so as not to interfere with ordinary use of the traveled way.
- F. Remove and immediately dispose of unsuitable excavated material after inspection and approval by the Engineer.

## **PART 2 – PRODUCTS**

### **2.01 SOIL MATERIALS**

- A. General: Provide clean, borrow soil materials when sufficient satisfactory native soil materials are not available from excavations.
  - 1. All imported soil materials must be examined by representatives of the Engineer prior to use.
- B. Satisfactory Soils: Free of debris, waste, frozen materials, vegetation, clay and other deleterious matter; adequately graded for satisfactory compaction.
  - 1. On-Site Material: Native soil additionally free of organic matter, roots, and stones larger than 3 inches in any dimension, subject to approval by the Engineer.
  - 2. Borrow: Free of rock or gravel larger than 3 inches in any dimension; and meeting Standard Specification Section M.01.01.

- C. Common Borrow: Subsection M.01.01 of the Standard Specifications
- D. Gravel Borrow: Naturally or artificially graded mixture of natural or crushed gravel, broken or crushed stone, and natural or crushed sand; Standard Specification, Subsection M.01.09; Table I, Column II.
  - 1. Surplus reclaimed asphalt material may be used in gravel borrow mixture.
- E. Bedding (Structure, Pipe, Conduit, and Utilities):
  - 1. Subsection M.01.09, Table 1, Column I of the Standard Specifications.
- F. Backfill: Shall meet the requirement of Satisfactory Soils.
- G. Initial Backfill: Gravel Borrow: Subsection M.01.04 of the Standard Specifications.
- H. Final Backfill: Shall meet the requirement of Satisfactory Soils.
- I. Impervious Material: 1500 lb. concrete, or clayey soil that when dry passes at least 15 percent of its total weight through a No. 100 sieve.
- J. Suitable Backfill Materials (for sewer work): Suitable backfill material shall be a well graded granular material, of which at least 25 percent by weight shall be retained on the No. 40 sieve and at least 80 percent by weight shall be retained on the No. 200 sieve. It shall be free from peat, organic matter and debris, and shall not contain any stones or clay lumps in excess of 6-inches in their greatest dimensions. On-site soils containing higher silt content may be used at the discretion of the Engineer. Any materials of whatever description which are too uniformly graded or saturated to be readily compactable shall not be utilized for earth borrow.
- K. Unsuitable Materials (for sewer work): Material containing clay, vegetation, organic matter, debris, pavement, stones or boulders over 6 inches in greatest dimension, and frozen material. Unsuitable material shall be material which, in the opinion of the Engineer, will not provide a suitable foundation or structural support for the pipe or material unsuitable for use in backfill.
- L. Common Fill (for sewer work): Shall meet the requirements of Suitable Backfill Materials as described in this Section, and be free of trash, ice, snow, tree stumps and roots. Excavated material from on-site sources that meet these specifications may be used for Common Fill.
- M. Select Common Fill: Shall be as specified for common fill except that the material shall contain no stones larger than 3-inches in the largest dimension.
- N. Loam and Topsoil: Shall be fertile, friable, natural topsoil, typical of the locality. It shall be reasonably well-drained, and capable of supporting plant growth. Loam shall contain not less than 5 percent, nor more than 20 percent organic matter as

determined by loss-on-ignition of oven-dried samples. It shall be free from admixture of subsoil, foreign matter, stumps, roots, weeds, toxic substances, stiff clay, stones or other objects larger than 1-inch in any dimension, and any material or substances that may be harmful to plant growth.

- O. Refill Material: Crushed stone for refilling excavation below grade or rock excavation unless otherwise directed by the Engineer.
- P. Bank Run Gravel (for sewer work): Hard, durable stone with coarse-to-fine sand. Sieve analysis by weight:

<u>Sieve size</u>	<u>% Passing by Weight</u>
3"	100
3/8"	0-70
No. 10	0-50
No. 200	0-5

- Q. Sand: Sieve analysis by weight:

<u>Sieve size</u>	<u>% Passing by Weight</u>
3/8"	100
No. 4	95-100
No. 16	50-85
No. 100	2-10

- R. 3/4-inch Crushed Stone (for sewer work): Durable, clean angular rock fragments obtained by breaking and crushing rock material. Sieve analysis by weight:

<u>Sieve size</u>	<u>% Passing by Weight</u>
1"	100
3/4"	95-100
1/2"	35- 70
3/8"	0- 25

- S. Aggregate Base (for sewer work): Hard durable gravel containing only particles passing the 2-inch sieve. Sieve analysis by weight:

<u>Sieve size</u>	<u>% Passing by Weight</u>
1/2"	45-70
1/4"	30-55
No. 40	0-20
No. 200	0- 5

- T. Bentonite (for sewer work):

- 1. Bentonite for flow barriers shall be naturally occurring sodium bentonite in chip form. Moisture content shall be 17% maximum as shipped.

Permeability of bentonite in hydrated condition shall be at least one-one hundredth (1/100) of that of the native material forming the walls of the trench or  $1 \times 10^{-7}$  cm/sec, whichever is less.

2. Flow barriers shall be constructed as shown on the Drawings.

## 2.02 ACCESSORIES

- A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene filth warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 5 mils thick, continuously inscribed with a description of utility, with solid aluminum foil core encased in a protective jacket for corrosion protection.
  1. Detectable Underground Utility Marking Tape by Pro-Line Safety Products Company;
  2. Detectable Utility Tape by Everett J. Prescott, Inc.;
  3. Approved equal.
  4. Identifying Colors for Utilities:
    - a. Red: Electric.
    - b. Yellow: Gas, oil, steam, and dangerous materials.
    - c. Orange: Telephone and other communications.
    - d. Blue: Water systems.
    - e. Green: Sanitary sewer and storm drain systems.
- B. Lumber: Sound, straight grained spruce or fir, free from shakes, loose knots, and other defects liable to impair its strength or durability. Used shoring may be reused if in good condition.
- C. Excavation Protection Systems: In accordance with OSHA Regulations 1926.651 and 1926.652.

## PART 3 – EXECUTION

### 3.01 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Protect subgrades and foundation soils against freezing temperatures or frost.

- C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- D. Test Pits
  - 1. Excavate test pits where directed by the Engineer to determine location of existing utilities and structures.
  - 2. Backfill test pits immediately after locating and identifying utility or structure.
  - 3. Excavate and backfill pits with hand tools when existing conditions prevent the use of machinery at no additional cost.
  - 4. Patch test pits within paved roadways with bituminous concrete in accordance with Section "Bituminous Concrete Pavement".

### **3.02 EXCAVATION, GENERAL**

- A. General Excavation shall be conducted in six-inch lifts, using a straight-edge blade. Excavated material must be stockpiled at least two feet away from the edge of the excavation, such that ordinary, or when closed to traffic, emergency use of the traveled way is not interfered with, and adjacent to the excavation area.
- B. Excavation associated with trenching for sewer installation shall be conducted in linear sections no greater than 300 feet. Standard excavating equipment may be used for trenching. Excavated material must be stockpiled at least two feet away from the edge of the excavation, such that ordinary, or when closed to traffic, emergency use of the traveled way is not interfered with, and adjacent to the excavation area.
- C. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including soil materials, and obstructions.
  - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials, replace with satisfactory soil materials.
- D. Remove and dispose of pavement in accordance with Division 2 Section "Site Clearing."
- E. Excess materials and unsatisfactory soil materials shall become the property of the Contractor and disposed off-site, unless otherwise directed by the Owner.
- F. The following classifications of excavation shall be made which will be paid for on a unit-cost basis:

1. Rock and Boulder Excavation
2. Unsuitable Material Excavation

Do not perform rock excavation or excavations of unsuitable materials until material to be excavated has been cross-sectioned by Engineer.

### **3.03 EXCAVATION FOR PAVEMENTS**

- A. Excavate surfaces under pavements to indicated cross sections, elevations, and grades. Excavate for benching fills with the existing ground as detailed.

### **3.04 EXCAVATION FOR STRUCTURES, STORM DRAIN, AND UTILITY TRENCHES**

- A. Excavate trenches to indicated gradients, widths, lines, depths, and elevations. Prepare finished bottom of excavation accurately with hand tools.
  1. Trench shoring and bracing located below the narrow limit of trench must be left-in place.
- B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit.
  1. Minimum Clearance: As indicated.
- C. Trench Bottoms: Excavate trenches deeper than bottom of-pipe elevation to allow for bedding course. Produce and evenly graded flat trench bottom.

### **3.05 APPROVAL OF SUBGRADE**

- A. Notify Engineer when excavations have reached required subgrade.
- B. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted suitable backfill material as directed.
  1. Additional excavation and replacement material will be paid for according to the unit cost provided in the bid form.
- C. Proof roll fill subgrades with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades. Do not compact subgrades for subsurface infiltration systems, collection swales or bioretention systems.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer.

### 3.06 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation beneath bottom limits of excavation with gravel fill, sand, bedding material, or concrete as directed by Engineer at no additional cost.

### 3.07 UNSUITABLE MATERIAL EXCAVATION:

- A. If unsuitable materials are encountered, the unsuitable material shall be removed and disposed and shall not be used as backfill on any portion of the project, unless otherwise approved by the Engineer. Suitable stockpile material, approved by the Engineer, shall be used to replace the unsuitable material to backfill. If suitable stockpile material is not sufficient to backfill to these dimensions, approved material shall be brought in to complete the trench backfill to the elevation shown for compacted suitable backfill.

### 3.08 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Prevent windblown dust. Provide erosion control measures to prevent sediments from draining away from stockpiles.
  - 1. Stockpile soil materials 2 feet minimum away from edge of excavations. Do not store within drip line of remaining trees.
  - 2. When excavating in or near a road or walk, place excavated material so as not to interfere with ordinary use of traveled way.

### 3.09 STRUCTURE AND STORM DRAIN TRENCH BACKFILL

- A. Place and compact bedding course on subgrade and where indicated. Shape bedding course to provide continuous support for structures, bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- B. Place and compact initial backfill material, to indicated height.
  - 1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.
  - 2. Pipes 4 inches and larger:
    - a. After joint of pipe is checked by Engineer, fill bedding material to spring line of pipe and tamp backfill. Do not use wooden sticks, shovel handles and similar make-shift devices as tamping tools.
  - 3. Pipes 2 inches and smaller:

- a. Place and compact bedding material. After joint of pipe is checked by Engineer, fill bedding material to 12 inches above top of pipe.
- C. Place and compact final backfill of satisfactory soil material to final subgrade. Completely embed rocks in soil. Do not place large rocks closer than 24 inches to top of pipe.
- D. Remove stones heavier than 100 pounds from material that is otherwise suitable for backfilling. Do not nest stones in backfill.
- E. Coordinate backfilling with any required testing of buried utilities.
- F. Fill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.
- G. Install detectable warning tape directly above storm drains and utilities along centerline of pipe 18 inches above pipe crown.
  1. Install detectable warning tape over non-ferrous piping.

### **3.10 SEWER TRENCH BACKFILL**

- A. Place 3/4-Inch Crushed Stone bedding to the extent and dimensions shown on the "Drawings" so that the pipes and structures have complete and uniform bearing.
- B. If applicable, 3/4-Inch Crushed Stone pipe bedding shall be graded, compacted and shaped so that the full length of pipe barrel has complete and uniform bearing. Bell holes and depressions for joints shall be dug after the 3/4-Inch Crushed Stone bedding has been graded and compacted, and shall be the proper clearance for jointing the pipes.
- C. Following inspection and approval of pipe installation by the Engineer, additional approved bedding shall be carefully hand placed and properly compacted, to the limits shown on the Drawings. Hand or mechanical tamping on the sides of the pipe is required.
- D. Flow barriers (bentonite) shall be installed in the locations shown on the drawings but not less than every 300 feet along the pipeline or as required by the Engineer. Bentonite shall be hydrated per the manufacturer's specifications.
- E. The balance of backfill in trenches shall be compactable common fill in accordance with Part 2 of this section, and the Drawings. Suitable backfill material as approved and in accordance with the Drawings, not frozen and without stones larger than 6-inches in their greatest dimension. It shall be spread in layers not exceeding 6-inches in loose thickness, and each layer shall be compacted by at least 4 passes of an approved vibratory compactor. For compaction types and standards see Section 3.14 - Compaction of Fills and Backfills. All trench backfilling shall be carefully placed to avoid disturbance of new work and of existing structures. The moisture content of backfill shall be such that proper compaction will be obtained.

- F. Pipe Bedding: Dimensions and material requirements are shown on the Drawings.
- G. Trenches in cross-country runs (if applicable): Restore surface to that existing prior to construction or as shown on the Drawings or required by the Engineer. Mound trench 6-inches above existing grade or as required by the Engineer.

### **3.11 MOISTURE CONTROL**

- A. If necessary, uniformly moisten or aerate subgrade and each subsequent backfill layer before compaction to within 2 percent of optimum moisture content.
  - 1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
  - 2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

### **3.12 COMPACTION OF FILLS AND BACKFILLS**

- A. Place backfill and fill materials in layers not more than 12 inches in areas indicated to be paved on the Drawings and not more than 6 inches within trenches.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil to not less than the following percentages of maximum dry unit weight according to AASHTO T190, Method D:
  - 1. For bedding material, compact each layer at 90 percent.
  - 2. For final backfill material, compact each layer at 95 percent.
  - 3. Under structures and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 95 percent.
  - 4. Under roads, compact each layer of backfill or fill material at 95 percent.
  - 5. Under lawn or unpaved areas, compact each layer of backfill or fill material at 90 percent.
  - 6. Under porous pavement, in accordance with Section "Porous Pavement"
  - 7. Backfill for utility trenches shall be compacted in a manner that will not damage these structures and will be consistent with manufacturer's instructions.
- D. For compacting backfill, use equipment specifically designed for compaction purposes, and which provides satisfactory results as approved by the Engineer.

### **3.13 GRADING**

- A. General: Excavate and uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  - 1. Provide a smooth transition between adjacent existing grades and new grades.
  - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
  - 1. Lawn or Unpaved Areas: Plus or minus 1 inch, however, not consistently in one direction.
  - 2. Walks: Plus or minus 1 inch.
  - 3. Pavements: Plus or minus 1/2 inch.

### **3.14 GRAVEL BORROW COURSE FOR BITUMINOUS CONCRETE PAVEMENT**

- A. Under pavements place gravel borrow course on prepared subgrade or final backfill and as follows:
  - 1. Compact gravel borrow course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557, Method D.
    - a. Place material to indicated thickness within 3/4 inch, plus or minus.
  - 2. Shape gravel borrow to required crown elevations and cross-slope grades.
  - 3. When thickness of compacted gravel borrow course is 8 inches or less, place materials in a single layer.
  - 4. When thickness of compacted gravel borrow course exceeds 8 inches, place materials in equal layers, with no layer more than 8 inches thick or less than 4 inches thick when compacted.
  - 5. Apply additional material after initial spreading and compacting of gravel borrow course, if Engineer determines additional material is necessary. Shape, wet and compact gravel borrow course. Correct, or remove and replace areas of segregated coarse or fine material with well-graded material, as directed by the Engineer. Continue compacting and wetting until voids are filled.

### 3.15 DEWATERING

- A. Perform all work in the dry. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area. Do not allow water to accumulate in excavations. Dewater in a manner which does not cause loss of ground or disturbance to the bearing soil or soil supporting adjacent structures.
- B. Contractor shall employ an independent Rhode Island Registered Professional Engineer to evaluate the subsurface soil and groundwater conditions and the Contractor's proposed method of excavation and dewatering. If required, the Contractor shall install dewatering systems including well points or deep wells to control water and provide stable subsurface conditions. The dewatering operations shall be performed in a manner that will not disturb the subgrade. The Contractor shall submit a notarized letter to the Engineer certifying that the Contractor's means and methods for controlling water has been evaluated and will not cause loss of ground or disturbance to the bearing soil. The letter shall bear the stamp of the Rhode Island Register Professional Engineer who has reviewed the Contractor's methods for controlling water.
- C. Convey water removed from excavations and rainwater to collecting or run-off areas. Do not discharge directly into wetlands or watercourses. Do not use trench excavations as temporary drainage ditches. If pumping operations result in turbidity problems, stop pumping until means of controlling turbidity are determined and implemented. In cases where excavation requires dewatering during construction, a temporary containment basin will be constructed as shown on the Drawings. Water will drain in controlled fashion from the containment basin, trapping sediment within the containment. Any remaining sediment trapped inside the containment basin will be legally disposed of.

### 3.16 FIELD QUALITY CONTROL

- A. Engage the Testing Agency to inspect and test subgrades and each fill, backfill layer or gravel borrow course layer. Proceed with subsequent earthwork operations only after test results for previously completed work comply with requirements.
- B. Testing Agency will test compaction of soils in place according to ASTM D 1556, and ASTM D 6938, as applicable and with locations as directed by the Engineer. Tests will be performed at the following locations and frequencies:
  - 1. Paved Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 square feet or less of paved area, but in no case fewer than three tests.
  - 2. Sewer Trench Backfill: At least one for every 600 linear feet for every three feet of compacted fill per every three linear feet of compacted fill. Testing must be performed at various depths as approved by the Engineer in the

field. In no case shall less than three tests at varying depths for performed for every 600 linear feet of sewer installed.

3. Storm Trench Backfill: At least one test for each 150 linear feet or less of trench length, but no fewer than two tests. Testing must be performed at each compacted-initial and -final backfill layer.
- C. When Testing Agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained at no additional cost to the Owner.

### **3.17 PROTECTION**

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
  1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
  1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.
- D. Paved surfaces: Do not operate equipment on paved surfaces which will damage these surfaces. Dragging of steel plates over paved surfaces is not permitted.
- E. Maintain excavations with approved barricades, lights, and signs to protect life and property until excavation is filled and graded to a condition acceptable to the Engineer.
- F. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

### **3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS**

- A. Right of First Refusal
  1. Excavated materials including, but not limited to, excess soil and rock shall be offered to the Owner.

- a. If the Owner does not wish to maintain ownership of the item, materials shall become Contractor's property and shall be removed from the site at no additional cost.
  - b. If Owner wishes to maintain ownership, location where material to be stockpiled to be determined by Owner, but not to exceed a 10-mile roundtrip.
2. Obtain direction from the Owner a minimum of 2 business days before commencing operations.
- B. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off-site.

**END OF SECTION**

## SECTION 02210

### TEMPORARY EROSION CONTROL

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION OF WORK:

- A. Provide and maintain devices to control erosion, siltation, sedimentation and dust that occur during construction operations. Undertake every reasonable precaution and do whatever is necessary to avoid erosion of soil and to prevent silting of drainage ditches, storm sewers, rivers, streams, and lakes.
- B. In the event that silt or debris breaches erosion control, immediately remove and clean silt or debris from drainage ditches and storm sewers and revise erosion control measures as required by the Engineer. Should silt or debris breach erosion controls and reach rivers, streams, or lakes, immediately notify local, state or federal Agents as required and abide by all remediation methods required at no additional cost to the Owner.
- C. Provide measures to control dust caused whether on or off the project site.
- D. Deficiencies in erosion control measures indicated by failures or erosion will be immediately corrected by providing additional measures or different techniques to correct the situation and prevent subsequent erosion in accordance with governing Agent at no additional cost to the Owner.
- E. Exposure of soils on embankments, excavations, and graded areas shall be kept as short as possible. Initiate mulching, seeding and other temporary erosion control practices as specified.
- F. Install erosion control measures in any ditch, swale or channel before water is allowed to flow in the waterway.
- G. Related Work Specified Elsewhere: Division 2 Sitework, all sections.

##### 1.02 QUALITY ASSURANCE:

- A. State of Rhode Island Department of Transportation Standard Specifications for Roads and Bridge Construction” Latest Edition and Supplement.
- B. “Rhode Island Soil Erosion and Sediment Control Handbook” by the Rhode Island Department of Environmental Management and USDA Soil Conservation Service.
- C. Meet with the Engineer to discuss erosion control requirements prior to the start of construction.

### 1.03 SCHEDULE OF IMPLEMENTATION:

- A. General: It is important that pollution prevention measures, erosion and sedimentation control be employed before, during, and after soils are exposed. Prior to soil disturbance or soil storage, the Contractor shall first implement measures, to the extent possible; to ensure that such measures are in-place before the activity occurs. Additional measures shall be employed as the Work progresses. Implementation and maintenance shall occur as necessary until the site is permanently stabilized.
- B. Soil Stabilization: All disturbed areas shall be stabilized with temporary and permanent erosion control practices as soon as practicable, but no more than 14 days after construction activity on a particular portion of the site has temporarily or permanently ceased. Two exceptions to this requirement apply to the project: (1) where construction activities will resume on the particular portion of the site within 21 days; and (2) where snow cover precludes initiation of stabilization measures.
- C. Inspections: Inspections of disturbed soil areas, material storage areas exposed to precipitation and erosion control measures shall be performed by the Contractor and the Engineer a minimum of once every 14 days and also within 24 hours after any storm event greater than 0.5-inches of rainfall. Deficiencies in the erosion control measures identified by the inspections shall be immediately corrected by the Contractor.

### 1.04 SUBMITTALS:

- A. Contractor shall submit an environmental protection phased plan showing the setup, access routes, construction methods, wetland protection, stream crossing measures, stream restoration, emergency contact information and proposed schedule for approval by the Engineer and Environmental Permitting agencies prior to any work commencing within the cross country wetlands.

## PART 2 – PRODUCTS

**2.01 MATERIALS:** Use the following materials to implement and construct erosion control measures. Other materials require approval of the Engineer.

- A. Siltation Fence/Silt Fence: The filter fabric shall be a material suitable for erosion control. Wood posts shall be oak, 2-inch by 2-inch in section, and at least 4.5 feet in length. Support netting shall be heavy-duty plastic mesh and shall be towed into the existing soil as shown on the Drawings. Mirafi Environfence, Amoco 1380 Silt Stop, or approved equal.
- B. Coir Log: Logs shall be 12-inch with a weight of 5 lbs/ft and a density of 7 lbs/cu.ft. Lay length shall be 10 feet. Outer net shall be 90 lb bristle coir twine net with 2-inch by 2-inch opening.
- C. Mulch: Type and use as specified.

1. Long fibered hay, grass mowings, or straw, in dry condition and which are relatively free of weeds and foreign matter detrimental to plant life.
  2. Mulch binder: An asphalt emulsion mulch binder of type acceptable to the Engineer.
  2. Mulch netting: Plastic or nylon mesh netting with approximate openings of ¼-inch to 1-inch; or other netting approved by the Engineer.
- D. Temporary Erosion Control Matting: Type and use as specified.
1. Rolled matting blanket consisting of curled wood excelsior, coconut fiber, straw or paper bound with a weave of twisted craft paper, cotton cord or plastic mesh.
  2. Provide staples for fastening matting to the ground. Staples shall be fabricated in a "U" shape from 11 gage or heavier stiff steel wire, 6 to 12-inches in length and 1 to 2-inches across.
- E. Portable Road and Swamp Matting:
1. Wood or HDPE matting capable of reducing construction machinery earth pressures below 3.5psi.
- F. Temporary Seed:
1. Seed variety and applied rate are selected based upon the date of application, and is determined by the following table. Equivalent seed mixture based on its suitability for use in controlling erosion of the various soil types and slopes may be used as approved by the Engineer.

<b>Dates</b>	<b>Seed</b>	<b>Applied Rate</b>
4/1 to 7/1	Oats	1.8 lb/1,000 ft <sup>2</sup>
8/15 to 9/15		
4/1 to 7/1	Annual Ryegrass	0.9 lb/1,000 ft <sup>2</sup>
5/15 to 8/15	Sundangrass	0.9 lb/1,000 ft <sup>2</sup>
9/15 to 10/15	Winter Ryegrass	2.6 lb/1,000 ft <sup>2</sup>

- G. Sod:
1. Grown from certified seed of adapted varieties to produce high quality sod free of any serious thatch, weeds, insects, diseases and other pest problems.
  2. At least one year old and not older than three years. Cut with a ½-inch to 1-inch layer of soil.
- F. Drains: Flexible drains consisting of collapsible neoprene pipe, minimum 8-inch diameter.

- H. Stone Check Dam: Aggregate for stone check dams shall consist of hard, durable rock, sieve analysis by weight:

Sieve Size	% Passing by Weight
6"	90 - 100
1.5"	0 - 40
No. 4	0 - 5

- I. Hay Bales:

1. Baled hay or straw shall be baled within twelve months of use. Bindings shall be sufficiently strong to act as handles when placing bales in position by hand. The minimum dimension of any bale shall be 18-inches. Wood stakes shall be oak, 1-inch by 1-inch in section, and at least 3.0 feet in length.
2. Consist of rectangular shaped bales of hay or straw weighting at least 40 pounds per bale.
3. Free from noxious weed seeds and rough or woody materials.

- J. Catchbasin Silt Sacks: All catchbasins along project shall be protected by an installed SiltSack. The Silt Sack shall be ACF Environmental, Inc. or approved equal and meet the following specifications:

Siltsack seams shall have certified average wide width strength per ASTM D-4884 standards as follows:

SILTSACK Style	Test Method	Test Method
Regular Flow	ASTM D-4884	165.0 lbs./in

**SILTSACK Regular Flow**

Property	Test Method	Units	Test Results
Grab Tensile	ASTM D-4632	lbs.	315x300
Grab Elongation	ASTM D-4632	%	15x15
Puncture	ASTM D-4833	lbs.	125
Mullen Burst	ASTM D-3786	P.S.I.	650
Trapezoid Tear	ASTM D-4533	lbs.	120x150
UV Resistance	ASTM D-4355	%	90
Apparent Opening	ASTM D-4751	US Sieve	40
Flow Rate	ASTM D-4491	Gal/Min/Ft2	40
Permittivity	ASTM D-4491	sec -1	0.55

All properties are Minimum Average Roll Values (MARV)

## PART 3 – EXECUTION

### 3.01 STABILIZATION PRACTICES:

#### A. Siltation Fence:

1. Construct as shown on Drawings. Install parallel to contours where possible, prior to site clearing and grading activities.
2. Bury lower edge of fabric at least 6-inches below ground surface to prevent underflow.
3. Curve ends of fence uphill to prevent flow around ends.
4. Inspect frequently; repair or replace any damaged sections.
5. Remove fence only when adequate grass catch has been established.

#### B. Coir Log:

1. Install coir log as shown on Contract Plans.
2. Secure the coir log to prevent movement by flowing water and construction equipment.

#### C. Mulch:

1. From April 15 to September 15, undertake immediately after each area has been properly prepared.
2. When seed for erosion control is sown prior to placing the mulch, place mulch on the seeded areas within 48 hours after seeding.
3. Apply mulch at 1.5 to 2.0 tons per acre {2 bales per 1,000 square feet}.
4. Blowing chopped mulch will be permitted.
5. Hay mulch should cover the ground enough to shade it, but the mulch should not be so thick that a person standing cannot see ground through the mulch.
6. Remove matted mulch or bunches.

#### D. Winter Mulch:

1. From September 16 to October 31, apply on all areas which will not be disturbed again within 7 days.

2. From November 1 through March 31, at the end of each working day, on all areas of exposed soil, apply mulch at 3.0 to 4.0 tons per acre {4 bales per 1,000 square feet} and anchor with netting.
  3. Erosion control blanket, reference Section 02480, may be used as a substitute for winter mulch.
- E. Temporary Erosion Control Matting:
1. Surface Preparation:
    - a. Conform to grades and cross sections for slopes and ditches shown on the Drawings.
    - b. Finish to a smooth and even condition with all debris, roots, stones, and lumps raked out and removed.
    - c. Loosen soil surface to permit bedding of the matting.
    - d. Unless otherwise directed, apply seed prior to placement.
  2. Installation:
    - a. General: The erosion controls indicated on the Drawings shall be installed in the areas of work and approved by the Engineer before the commencement of any clearing, grubbing or earthwork. Control of erosion and sedimentation on the site is the Contractor's responsibility. Erosion and sedimentation control measures beyond those shown on the Drawings will be installed and maintained by the Contractor as necessary to stabilize the site. Temporary erosion controls shall be coordinated with permanent erosion controls to the extent practical. Storm drain outfalls shall be stabilized as shown on the Drawings before the discharge points become operational. Inlet protection shall be installed immediately upon construction of the culverts.
    - b. Hay Bales:

Installation. Baled hay erosion checks shall be constructed at the locations, and in accordance with the details indicated on the Drawings, or as directed by the Engineer. The following stipulations also apply:

      - 1) Bales shall be placed in a single row, lengthwise on the contour in the direction of water flow, with ends of adjacent bales tightly abutting one another.
      - 2) Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together.

- 3) The gaps between bales shall be chinked (filled by wedging) with straw to prevent water from escaping between bales. Loose straw shall be scattered over the area immediately uphill from the bale erosion check to increase efficiency.
- 4) Where strips are laid parallel or meet as in a tee, overlap at least 4-inches.
- 5) Overlap ends at least 6-inches in a shingle fashion.
- 6) The up-slope end of each strip of the matting shall be turned down and buried to a depth of not less than 6-inches with the soil firmly tamped against it.
- 7) The Engineer may require that any other edge exposed to more than normal flow of water be buried in a similar manner.
- 8) Build check slots at right angles to the direction of the flow of water. Space so that one check slot or one end occurs within each 50 feet of slope length. Construct by placing a tight fold of the matting at least 6 inches vertically into the ground, and tamp the same as up-slope ends.
- 9) On slopes flatter than 4:1, space staples not more than 3 feet and one row, alternately spaced, down the center.
- 10) On grades 4:1 or steeper, place staples in the same three rows, but spaced 2 feet apart.
- 11) On all overlapping or butting edges, double the number of staples, with the spacing halved; all ends of the matting and all required check slots shall likewise have staples spaced every foot.

c. Silt Fence:

Silt fence shall be constructed at the locations, and in accordance with the details indicated on the Drawings, or as directed by the Engineer. The following stipulations also apply:

- 1) A 6-inch x 6-inch minimum trench shall be dug where the fence is to be installed.
- 2) The fence shall be positioned in the trench with the fence posts set at 8-feet on center (maximum).
- 3) The sedimentation control fabric and the industrial netting shall be stapled to each post. When joints are necessary, filter

fabric shall be spliced together only at support posts. Splices shall consist of a 6-inch overlap, and shall be securely sealed.

- 4) The trench shall be backfilled and the soil compacted over the filter fabric.
- 5) The installed height of the fence shall be 2.5 feet (minimum). However, height shall not exceed 36-inches since higher barriers impound volumes of water sufficient to cause failure of the fence structure.
- 6) Bury edges of matting around the edges of catch basins and other structures.
- 7) When ordered, additional seed shall be spread over matting, particularly at those locations disturbed by building the slots. Matting shall then be pressed onto the ground with a light lawn roller or by other satisfactory means.

**F. Temporary Seeding:**

1. Seed with appropriate seeds and application rates from the table in paragraph 2.01D of this section. Seed shall be sown at the rate indicated, on the pure live seed basis.
2. Mulch areas where temporary seeding has been applied. Do not mulch seeded areas where matting will be immediately installed.
3. If temporary seeding does not achieve adequate growth by November 1, an additional layer of mulch shall be applied at that time.

**G. Topsoil Storage:**

1. Topsoil which is stockpiled on the site for use in loam applications shall be placed out of natural drainages, in piles which have sideslopes of 50% to 70%.
2. Install siltation fence around the base of the pile to prevent eroding soil from washing into drainages.
3. Any topsoil piles which are to remain for a period of 21 days or more shall be covered with temporary seed and mulch immediately following stockpiling.

**H. Stone Check Dam:**

1. Place in locations indicated on Drawings or as ordered to provide for temporary control of erosion and sedimentation.

2. Install as shown on the Drawings.
- I. H. Sodding:
  1. Lay sod strips on the prepared soil, perpendicular to the slope or direction of water flow, starting at the lowest elevation. Butt the edges and ends of the sod strips together and tamp or roll. Stagger joints.
  2. Staple sod strips at ends and at 3 foot intervals along the center of the strip.
  3. Irrigate sodded area immediately after installation.
- J. Dust Control: Utilize the application of sprinkled water and calcium chloride to reduce the emission of air-borne soil particulates from the Project site.
- K. Road Sweeping: Contractor shall provide pavement sweeping to remove sediment and soil debris accumulation on pavement resulting from construction activity.
- L. Temporary Slope Drain: Provide and maintain temporary slope drains
- M. Portable Road and Swamp Matting: Contractor is required to utilize wood or HDPE portable swamp mats when working within the delineated wetland cross country reaches measures as directed by the Engineer and per the enclosed environmental permitting conditions.

### **3.02 MAINTENANCE:**

- A. Inspect erosion control practices immediately after each rainfall and at least daily during prolonged rainfall or snowmelt for damage. Make appropriate repairs or replacement at no additional cost to the Owner, until project acceptance.
- B. Remove silt from siltation fence when it has reached one-half the fence height, or prior to expected heavy runoff or siltation.
- C. Repair matting if any staples become loosened or raised, or if any matting becomes loose, torn, or undermined, make satisfactory repairs immediately.
- D. Maintain areas mulched or matted, at no additional cost to the Owner, until project acceptance.
- E. Maintain sediment basins by removing silt that reaches a depth of over one foot, at no additional cost to the Owner, until project acceptance.

### **3.03 REMOVAL OF TEMPORARY EROSION CONTROL:**

- A. Remove temporary materials and devices when permanent soil stabilization has been achieved. Re-use materials in good condition if approved by the Engineer.

- B. Level and grade to the extent required to present a sightly appearance and to prevent any obstruction of the flow of water or any other interference with the operation of or access to the permanent works.
- C. Remove unsuitable materials from site and dispose of in a lawful manner.
- D. Repair areas damaged by silt fences and haybales to preconstruction conditions to the satisfaction of the Engineer.

**END OF SECTION**

## SECTION 02531

### TEMPORARY TRENCH PAVEMENT

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION OF WORK

- A. General: Provide hot mix asphalt. This Work includes, but is not limited to, temporary trench pavement and subbase, as well as tack coat application.
- B. All street fixtures, and such other appurtenant work damaged or displaced as a result of the Contractor's operations shall be repaired and restored by the Contractor in a manner satisfactory to the Owner and to the proper state or municipal officials as the case may be at no additional expense to the Owner. In case of settlement or other defects in replaced pavements, the Contractor shall cut out, replace, restore, or repair the damaged pavements in a manner satisfactory to the Owner at no additional expense to the Owner.

##### 1.02 RELATED SECTIONS: Includes, but not limited to, the following:

- A. Earthwork: Section 02200.

##### 1.03 QUALITY ASSURANCE

- A. Standards: State of Rhode Island Department of Transportation (RI-DOT), Standard Specifications for Road and Bridge Construction, latest edition.
- B. The hot mix asphalt manufacturer shall be registered with and approved by the Rhode Island Department of Transportation (RI-DOT).
- C. American Association of State Highways and Transportation Officials (AASHTO)
  - 1. AASHTO M140: Standard Specification for Emulsified Asphalt
  - 2. AASHTO M144: Standard Specification for Calcium Chloride
  - 3. AASHTO M226: Standard Specification for Viscosity Graded Asphalt Cement
  - 4. AASHTO T245: Standard Method of Test for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
- D. American Society for Testing and Materials (ASTM)
  - 1. ASTM D1188: Bulk Specific Gravity and Density of Compacted Asphaltic Mixtures using Paraffin-Coated Specimens

2. ASTM D1559: Resistance to Plastic Flow of Bituminous Mixtures using Marshall Apparatus
  3. ASTM D2171: Standard Test Method for Viscosity of Asphalts by Vacuum Capillary Viscometer (RAP Asphalt Mixes)
  4. ASTM D2397: Cationic Emulsified Asphalt
  5. ASTM D2726: Bulk Specific Gravity and Density of Non-Absorptive Compacted Asphaltic Mixtures
  6. ASTM D3381: Viscosity-Graded Asphalt Cement for use in Pavement Construction
- E. Asphalt Institute (AI)
1. MS-2: Mix Design Methods for Asphalt Concrete and Other Hot Mix Types
  2. MS-3: Asphalt Plant Manual
  3. MS-19: Basic Asphalt Emulsion Manual
  4. MS-22: Principles of Construction of Hot-Mix Asphalt Pavement, Addendum

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

#### **1.04 SUBMITTALS**

- A. Material Certificates: Certificates signed by material producer and Contractor stating that each material complies with specified requirements.
- B. Design mix: Provide for each grade of pavement to be used 20 days prior to start of paving.
- C. Certified weigh slips: Provide for each truck load of hot bituminous material delivered to site.

#### **1.05 JOB CONDITIONS**

- A. Weather and seasonal limitations: As described in the State of Rhode Island Department of Transportation (RI-DOT), Standard Specifications for Road and Bridge Construction, latest edition.
- B. Tack coat, additional limitations:
  1. Apply bituminous prime and tack coats only when the ambient temperature in the shade is at least 50°F for 12 hours immediately prior to application.

2. Do not apply when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration, during inclement weather or the threat of inclement weather or when, in the Engineer’s judgment, weather conditions prohibit the proper application of materials.

**PART 2 – PRODUCTS**

**2.01 AGGREGATES FOR AGGREGATE (GRAVEL) BASE**

- A. General: Section 02200, Earthwork.

**2.02 BITUMINOUS CONCRETE PAVEMENT**

- A. Bituminous concrete pavements shall consist of Class I Bituminous Concrete, Type I 1.
- B. Bituminous concrete mixtures shall be within the composition limits of modified base courses, modified binder courses, top courses and surface treatment, in accordance with RI-DOT Section M.03, with constituents that conform to Table A, below.

**TABLE A**  
**PERCENT BY WEIGHT PASSING**  
**SIEVE DESIGNATION**

<b>Standard Sieves</b>	<b>Modified Base Course</b>	<b>Modified Binder Course</b>	<b>Type I-1 Medium</b>	<b>Type I-2 Dense</b>
2 in.	100			
1 in.	86-100	100		
3/4 in.	70-100	90-100		
5/8 in.			100	
1/2 in.	55-85		80-100	100
3/8 in.	46-74	40-65	70-90	75-100
No. 4	32-60		50-70	62-80
No. 8	22-52	25-40	35-50	54-72
No. 16				
No. 30	10-34		18-29	35-55
No. 50	6-26	8-17	13-23	22-38
No. 100*			8-16	10-22

Standard Sieves	Modified Base Course	Modified Binder Course	Type I-1 Medium	Type I-2 Dense
No. 200	3-8	2-6	3-8	5-12
Bitumen % by wgt.	4-6.5	4-6	6.5-8	7-9

\* Percentages shown for aggregate sizes are stated as proportional percentages of total aggregate for the mix.

Unless authorized by the Engineer, no Job Mix Formula will be approved which specifies:

Less than 4% passing No. 200 for Top Course.

Less than 6% bitumen for Top Course.

- C. The tack coat shall be a hot poured rubberized emulsified asphalt sealant meeting the requirements of Federal Specifications SS S 1401 or SS S 164.

### PART 3 – EXECUTION

#### 3.01 GENERAL

- A. Paving courses required for the project shall be as shown on the drawings and as specified herein. Pavement thicknesses specified are measured in compacted inches. If a pavement course thickness exceeds 2 compacted inches, the course shall be installed in multiple lifts with each lift not exceeding 2 compacted inches in thickness. Prior to paving the surface shall be swept of loose material.
- B. Saw cut existing pavement as indicated.
- C. Paving that is to be placed in streets after November 15 or before April 15 shall need to be approved at least 72-hours in advance by the Owner. Contractor shall maintain initial pavement on trench surfaces during the winter months and is required to repair any settled portions of the trench as needed.

#### 3.02 AGGREGATE BASE

- A. Gravel aggregate base shall be placed under pavement as shown on the Drawings and specified in Section 02200, evenly spread and thoroughly compacted.
- B. The aggregate shall be spread in layers not more than 6 inches thick, compacted measure. All layers shall be compacted to not less than 95 percent of the maximum dry density of the material as determined by ASTM D1557 Method C at optimum moisture content.

### **3.03 PAVEMENT PLACEMENT**

- A. Where specified and directed by the Engineer and after placement of the gravel subbase, the Contractor shall place bituminous pavement above the trench, between the edges of the existing pavement. It shall consist of Class I Bituminous Concrete Pavement, Type I 1, in accordance with RI-DOT Standards, with thickness as indicated on the drawings.
- B. Pavement shall consist of a binder course placed in multiple lifts, as shown on the Drawings and as specified herein.
- C. Immediately prior to installing the pavement, the trimmed edges shall be made stable and unyielding, free of loose or broken pieces and all edges shall be thoroughly broomed clean. Contact surfaces of trench sides, curbs, manholes, catch basins, or other appurtenant structures in the pavement shall be painted thoroughly with a uniform coating of hot poured rubberized asphalt sealant meeting the requirements of Federal Specification SS S 1401 or SS S 164, just before any mixture is placed against them.
- D. After the paving mixtures have been properly spread, initial and intermediate compaction shall be obtained by the use of steel wheel rollers having a weight of not less than 240 pounds per inch width of tread.
- E. Pavement shall be repaired by the Contractor as necessary to maintain the surface of the pavement until replaced by permanent pavement.
- F. When directed by the Engineer, the Contractor shall furnish and install additional paving to provide satisfactory transition for driveways and walkways impacted by construction activities.

### **3.04 ADDITIONAL PAVING**

- A. If the Engineer determines that the existing bituminous concrete pavement on local streets is thicker than the permanent pavement specified herein, the Contractor may be required to install additional Type I 1 bituminous concrete to obtain the depth of the existing pavement.
- B. Additional paving required to restore the proper line and cross section of binder course installed by the Contractor which has become rough and uneven shall be furnished and installed at the expense of the Contractor.

### **3.05 DRIVEWAY PAVING**

- A. Driveways shall be temporarily restored in accordance with this section and as shown on the Drawings.

**3.06 MISCELLANEOUS PAVING**

- A. Miscellaneous paving to restore sidewalks, and walkways disturbed by the Work shall be performed in accordance with the requirements of this section.

**END OF SECTION**

## SECTION 02532

### GRAVITY SEWER PIPE

#### PART 1 – PART 1 - GENERAL

##### 1.01 DESCRIPTION OF WORK

- A. Provide all labor, materials, tools, equipment and incidentals required to install and test polyvinyl chloride (PVC) sewer pipe and fittings of the sizes, types, and class indicated on the Drawings or specified herein.
- B. Fittings required due to field conditions but not shown on the Drawings shall be considered as incidental to the pipe items in the Bid.
- C. Due to the constraints of existing utilities on Campbell Street, it is not possible to meet the horizontal and vertical separation requirements in the RI Department of Environmental Management Sewer/Water Line Separation Policy. Therefore, the design approach is to meet the Policy under additional protection, item #2 – “The design and construction of the sewer pipeline must meet the requirements applicable to water lines (any AWWA-approved material for potable water conveyance), and pressure tested in accordance with AWWA specifications.”

##### 1.02 SUBMITTALS

- A. Immediately, upon receipt of the Notice to Proceed, submit catalog cuts, shop drawings and a list of material to be furnished by the pipe manufacturer intended to be utilized on this project. Also, include information on the local representative for each manufacturer if product is sold through a distributor.
- B. Catalog cuts shall include manufacturer’s standard information for all dimensions, laying lengths, jointing details, pressure ratings, recommended installation procedures, storage requirements, coatings, finishes and markings, and information on gaskets, O-rings, solvents and/or fasteners required or recommended for jointing all sizes of valves and appurtenances intended to be supplied.
- C. Prior to each shipment of pipe, submit certified test reports indicating that the pipe for this Contract was manufactured and tested in accordance with the ASTM, ANSI and AWWA standards specified herein.
- D. Manufacturer's product data and installation guidelines.
- E. Construction Records: Record depth and location of the following:
  - 1. Building service capped ends, cleanouts, bends, connection points to sewer main.
  - 2. Bends, thrust blocks in force mains.

3. Repairs to existing pipes.
  4. Pipe stub capped ends
  5. Chimneys and other pipe appurtenances
  6. Manholes and catch basins.
  7. Record neatly in a permanently bound notebook and submit at Substantial Completion. Provide access to records for Engineer at all times. Submit copies to Engineer on a weekly basis.
- F. Certified copies of test on pipe units.

### **1.03 RELATED SECTIONS**

- A. Section 02200 – Earthwork
- B. Section 02534 – Sewer Manholes

### **1.04 QUALITY ASSURANCE**

- A. All sewer pipes shall be from a single manufacturer. The supplier shall be responsible for the provisions of all test requirements in the applicable Standards referenced in this Section.
- B. Inspections of the pipe may be made by the Engineer or other representatives of the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements, even though sample pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall be removed from the job at once. Payment will not be made for rejected pipe.
- C. Manufacturer shall check each length of pipe produced for the items listed below. The results of all measurements shall be recorded on production sheets, which become part of the manufacturer's permanent records.
  1. Pipe in process shall be checked visually, inside and out for cosmetic defects (grooves, pits, hollows, etc.)
  2. Measure pipe length.
  3. Pipe marking examined and checked for accuracy.
  4. Pipe ends checked to ensure they are cut square and clean.
- D. Contractor shall be responsible to ensure compatibility between pipe and materials, fittings and appurtenances.

- E. Manufacturer shall provide a warranty against manufacturing defects of material and workmanship for a period as described in the Contract Documents.

### **1.05 SYSTEM DESCRIPTION**

- A. Equipment and materials specified herein are intended to be of standard types for use in transporting sewage.
  - 1. Piping systems shall be designed for the conditions expected on site.

### **1.06 DELIVERY, STORAGE AND HANDLING**

- A. All items shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Any pipe damaged in shipment shall be replaced as directed by the Engineer at no cost to Owner.
- B. Take care in loading, transporting and unloading items to prevent injury. All items shall be examined before installation for defects. Defective pipes shall be marked and removed from the site. Handling and installation of pipe and fittings shall be in accordance with the manufacturer's instructions, referenced standards and as specified herein.
- C. Pipe shall be adequately supported during shipment in accordance with manufacturer's recommendations to prevent deformation. Store pipe in stacks no higher than that recommended by the manufacturer.
- D. Store pipe such that ambient outdoor temperature is maintained and pipe is sheltered from direct sunlight. Provide temporary shading as required.
- E. Defective pipe discovered after installation shall be immediately removed and replaced with an exact replacement by the Contractor in a manner acceptable to the Engineer. Defective materials shall be replaced at the Contractor's expense.
- F. Thoroughly clean pipe before installation and keep clean until testing.

## **PART 2 – PRODUCTS**

### **2.01 PVC PIPE AND FITTINGS FOR SERVICE CONNECTIONS**

- A. General: Provide PVC pipe and fittings where shown on the Drawings. Fittings shall be of the same type and class of materials as pipe. Provide commercially manufactured wyes or tees for service connections. Fitting must have single piece gasket.
- B. PVC Pipe: ASTM D2241, strength requirement SDR 26 with push-on joints ASTM D3139, gaskets ASTM F477.

- C. Couplings: for connection of PVC sewer main pipe to existing sewer main pipe shall consist of a rigid body coupling to prevent deflection at the joint. Coupling shall be 411, 413 by Smith Blair, Style 501 by ROMAC, or Style 38 by Dresser Industries or approved equal.
- D. Couplings for connection of PVC sewer service pipe to existing sewer service piping shall be in accordance with ASTM C1173 and consist of neoprene sleeve with stainless steel bands equal to those manufactured by Fernco 1002 RC Series.
- E. Fittings: Fittings shall be ASTM D2241 compatible with a minimum SDR of 21 or pressure rating 160 psi. Fittings shall be manufactured with ASTM D1784 cell class 12454 materials with push-on joints ASTM D3139, gaskets ASTM F477.
- F. Restrained Joints: Acceptable joint-restraint systems shall include mechanical joint pipe with retainer glands, restrained push-on joint pipe, and push-on joint pipe with restrained joint gaskets. The joint restraint system shall be rated for a minimum working pressure of 160 PSI, and shall be installed directed by the manufacturer.
  - 1. Restrained joints shall be used as follows:
    - a. 6-inch service pipe: minimum 10 feet downstream of backwater valve, min 5 feet upstream of wye.
    - b. 12-inch sewer pipe: minimum 20 feet upstream and downstream of any existing or new manhole.

## **2.02 PIPE IDENTIFICATION**

- A. The following shall be continuously indent printed on the pipe or spaced at intervals not to exceed five (5) feet:
  - 1. Name and/or trademark of the pipe manufacturer.
  - 2. Nominal pipe size.
  - 3. Dimension ratio.
  - 4. Manufacturing standard reference.
  - 5. A production code from which the date and place of manufacture can be determined.
  - 6. Color identification, either stripped by co-extruding longitudinal identifiable color markings or shall be solid in color – GREEN for Sanitary Sewer.
- B. Tracing Wire/Marking Tape: DETECTABLE TRACER TAPE this section.

## **2.03 INSULATION**

- A. ASTM C578 Type 1X. Extruded closed-cell rigid formed polystyrene. Minimum R-9. Size is 2-inch thick minimum.

## **2.04 DETECTABLE TRACER TAPE**

- A. The green marking tape shall be a minimum of three (3") inches wide. The upper face of the tape shall be of a highly visible color easily detectable when exposed by digging. The upper face shall carry the warning of the buried sewer below. The tape shall have a metallic core locatable at a depth of 18-inches by metal or pipe locators. It shall be used over all non-metallic sewer pipe, including service connections.

## **2.05 BACKWATER VALVES**

- A. Backwater valves shall be PVC, 6" normally closed flapper check valve with EPDM flapper seal. Backwater Valve shall be pressure rated to 40 psi minimum.
- B. Flapper check valve shall be accessible from ground level via a PVC service access extension. Service access shall allow for inspection or replacement from ground level.
- C. PVC service access shall extend to near finish grade and be capped, as shown on the Drawings.
- D. Valves shall be as manufactured by Spears, or approved equal.

## **PART 3 – PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. Installation of Gravity Pipes and Fittings
  1. Inspect pipe and accessories for defects before installation and reject all defective, unsound, or damaged materials.
  2. Install in accordance with manufacturer's recommendations. Use a laser beam for line and grade unless otherwise permitted by Engineer.
  3. Secure each length of pipe with bedding before placing next length. Plug open ends whenever Work is suspended. Bed pipe as shown on Drawings.
  4. Provide 30-inch minimum cover over the top of pipe before trench is wheel-loaded.
- B. Lay pipe to line and grade shown on Drawings. If grade is not shown, determine elevations of start and finish points for each run of pipe. Lay pipe to a uniform grade between these points. Line and grade may be adjusted by the Engineer as required by field conditions.

- C. Lay pipe in the dry. Dewater trench pursuant to Division 01 General Requirements and 02200 Earthwork. Do not use installed pipe to remove water from Work area.
- D. Flush all pipes and remove debris using method approved by Engineer. Gravity flushing is not acceptable.
- E. Join pipes in accordance with manufacturer's recommendations.
- F. Load, transport and unload pipe in a manner that prevents injury to pipe. Pipe and fittings shall not be dropped. Pipe and fittings shall be inspected for defects by the Engineer prior to installation. Defective pieces, as determined by the Engineer, shall be marked as defective and removed from the site. Defective pipe discovered after installation shall be removed and replaced with sound pipe by methods recommended by the manufacturer and approved by the Engineer. Defective pipe will not be considered for payment. Contractor shall remove and replace defective pipe with sound pipe at his/her expense.
- G. Under no circumstances shall pipe or accessories be dropped into the trench.
- H. Care shall be taken in transporting the pipe to ensure that it will not be cut, kinked or otherwise damaged.
- I. Ropes, fabric or rubber protected slings and straps shall be used when handling pipes. Chains, cables or hooks inserted into the pipe ends shall not be used.
- J. Store pipe on level ground on wooden sleepers spaced at widths that will not allow deformation of the pipe. Do not stack pipe above a height specified by the manufacturer or a height that will cause excessive deformation of the bottom layers under anticipated temperature conditions.
- K. Open end of the pipe shall be plugged by fabricated plugs or other means approved by the Engineer when pipe laying is not in progress.
- L. Pipe and fittings shall be thoroughly cleaned before installations, shall be kept clean until they are used in the work and when laid, shall conform to the line and grades required.
- M. Pipe shall be bedded and backfilled in accordance with the Drawings.
- N. Provide insulation and marking tape as shown on the Drawings.
- O. When moveable trench bracing is used to support the sides of the trench, take care in placing and moving the trench bracing to prevent movement of the pipe or disturbance of the bedding and backfill material. Fill voids created by the movement of trench bracing with compacted bank gravel or other material approved by the Engineer.

### 3.02 BACKWATER VALVES

- A. Provide a backwater valve on each building service connection as shown on the drawings.

### 3.03 NOT USED

### 3.04 TESTING

- A. Pressure testing: Perform testing in the presence of the Engineer. Supply all labor, equipment, materials, gages, pumps, meters and incidentals required to complete the tests.
  - 1. Testing Standard: Perform pressure testing in accordance with the latest revision of ANSI/AWWA C605 Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings and as follows with the more stringent requirement governing:
    - a. Hydrostatic Pressure Test. Utilize equipment specifically designed and manufactured for the purpose of hydrostatic testing of sewer pipelines. All testing equipment shall be provided with all required safety equipment.
    - b. Pipe shall be tested to 14 pounds per square inch (psi) which is equivalent to 1.5 times the maximum working pressure.
    - c. The leakage test shall be made on each manhole-to-manhole section of pipeline.
    - d. Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be tested. Pneumatic plugs shall resist internal test pressure without requiring external bracing or blocking. Additional blocking or bracing for an additional factor of safety is acceptable.
    - e. The duration of the hydrostatic test shall be 2 hours.
- B. Gravity Sewer – Deflection Test for PVC Pipe (Mandrel Test): Within 30-days of completion of the PVC pipe installation, test 100 percent of pipe with a Go/No-Go mandrel. Mandrel dimensions shall be based on a base pipe ID from ASTM 2241 DR26/SDR21 as appropriate and calculation provided in UNI-TR-1:
  - 1. Mandrel O.D. =  $((100-5)/100) * \text{base pipe ID}$
- C. Locate and repair leaks using methods recommended by the manufacturer and approved by the Engineer. Contractor shall repair all leaks at his/her expense.

**3.05 CONCRETE ANTI-FLOATATION ANCHOR INSTALLATION**

- A. Construct concrete pipe anchors as shown on the Drawings, in the locations indicated on the Drawings, or as directed by the Engineer.

**END OF SECTION**

## SECTION 02533

### RELOCATION/REPLACEMENT OF EXISTING UTILITIES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION OF WORK

- A. Provide water and storm drain systems as specified and as shown on the Drawings. This section includes, but is not limited to, the following:
  - 1. repairs to and/or replacement of existing pipe including:
    - a. Storm drains
    - b. Water mains
- B. The sewers shall be constructed to the lines and grades and at the locations shown on the drawings or match existing.

##### 1.02 RELATED WORK: Includes, but not limited to, the following:

- A. Section 02200: Earthwork
- B. Section 02534: Sewer Manholes
- C. Section 02532: Sewer Pipe

##### 1.03 QUALITY ASSURANCE

- A. Remove damaged pipe from job site.
- B. References: The latest version of the following standards, and others that may be referenced in this section, form a part of this specification as referenced
  - 1. ASTM Standard Specifications
    - a. ASTM C14: Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe
    - b. ASTM C76: Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
    - c. ASTM C443: Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
    - d. ASTM C578: Rigid, Cellular Polystyrene Thermal Insulation
    - e. ASTM C1173: Flexible Transition Couplings for Underground Piping Systems

- f. ASTM D2241: Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
  - g. ASTM D2321: Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
  - h. ASTM D3034: Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
  - i. ASTM D3139: Joints for Plastic Pressure Pipe Using Flexible Elastomeric Seals
  - j. ASTM D3212: Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
  - k. ASTM F1336: Poly (Vinyl Chloride) (PVC) Gasketed Sewer Fittings
  - l. ASTM F1417: Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air
  - m. ASTM F679: Poly Vinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
2. AWWA
- a. AWWA C900: Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 in. for Water Distribution
  - b. AWWA C905: Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 in. for Water Transmission and Distribution
3. UNI-BELL PVC Pipe Association
- a. UNI-B-6: Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe
  - b. UNI-TR-1: Deflection: The Pipe/Soil Mechanism
  - c. UNI-BELL: The Handbook of PVC Pipe, Design and Installation

#### **1.04 SUBMITTALS**

- A. Manufacturer's product data and installation instructions.
- B. Certificate of Compliance: Each shipment of pipe, pipe fittings and appurtenances shall be accompanied with the manufacturer's notarized certificate certifying conformance with all requirements of the specifications.
- C. Certified copies of tests on pipe units.
- D. Drawings and catalog cuts for all testing equipment, including Go/No-Go mandrel and air leakage testing equipment.

- E. Construction Records: Record depth and location of the following:
1. Building service capped ends, cleanouts, bends, connection points to sewer main.
  2. Bends, thrust blocks in force mains.
  3. Repairs to existing pipes.
  4. Pipe stub capped ends
  5. Chimneys and other pipe appurtenances
  6. Manholes and catch basins.
  7. Record neatly in a permanently bound notebook and submit at Substantial Completion. Provide access to records for Engineer at all times. Submit copies to Engineer on a weekly basis.

## **PART 2 – PRODUCTS**

### **2.01 PIPE AND FITTINGS**

- A. General: Provide fittings of same type and class of materials as pipe, unless otherwise stated. Provide commercially manufactured wyes or tee/gyes for service connections. Fitting must have single piece gasket. Gaskets are to be nitrile in contaminated soils areas.
- B. PVC Pipe:
1. Sewer: ASTM D3034; pipe between 4-feet and 16-feet deep shall be SDR 35; push-on joints ASTM D3212; gaskets ASTM F477, elastomeric seals.
- C. Storm Drains and Culverts: For replacement of storm drains and culverts, replace with in-kind material, unless otherwise shown on the Drawings or as directed by Engineer.
1. Ductile iron pipe shall be Class 52, 60-42-10 grade and shall be designed for Type 2 laying condition, as defined in the latest revision of AWWA Standard C150. The pipe shall have push-on joints conforming to ANSI Specification A21.51 of latest revision except at fittings and for above-grade piping systems, which shall be mechanical joints.
  2. CPE Pipe: High density polyethylene pipe with corrugated exterior and smooth interior. Pipe couplers and fittings meeting ASSHTO M252, ASTM F405 or AASHTO M294, ASTM F667, as appropriate for pipe diameter.

3. Reinforced Concrete Pipe: ASTM C76, Class III, modified tongue and groove compression gasket joints ASTM C443, size and class required to replace pipe damaged during construction.
- D. Water Mains: For replacement of water mains, replace only with cement-lined ductile iron pipe.
1. Ductile iron pipe shall be Class 52, 60-42-10 grade and shall be designed for Type 2 laying condition, as defined in the latest revision of AWWA Standard C150. The pipe shall have push-on joints conforming to ANSI Specification A21.51 of latest revision except at fittings and for above-grade piping systems, which shall be mechanical joints.
  2. Ductile iron pipe shall be centrifugally cast, bituminous coated, cement lined, seal-coated and manufactured in accordance with the latest revision of AWWA Standards C150 and C151. Note that the cement lining called for above shall be twice the thickness specified in the latest revision of AWWA Standard C104 and the interior shall be asphalt seal-coated twice.
  3. Pipe fittings shall be ductile iron, cement lined, mechanical joint in conformance with AWWA C110 – Standards for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch for Water. The exterior of pipe fittings shall be bituminous coated.
  4. Gasket material for all jointing requirements shall be neoprene unless otherwise required by Engineer due to field conditions or joint restraint requirements and shall conform to the requirements of AWWA C111 – Standards for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
  5. Flexible pipe couplings for use on plain ended pipe for pipe repairs, specified herein or where required for relief of pipe line strain shall be mechanical compression joint type with a pressure rating equal to that of the ductile iron pipe. Flexible pipe couplings shall be included under the related pipe unit prices.

## **2.02 MISCELLANEOUS**

- A. Flexible Couplings: ASTM C1173. Use and location shall be approved by Engineer.
- B. Insulation: ASTM C578 Type 1X. Extruded closed-cell rigid formed polystyrene. Minimum R-9. Size is 2-inch thick minimum.
- C. Detectable Tracer Tape: The tape shall be a minimum of three (3”) inches wide. The upper face of the tape shall be of a highly visible color easily detectable when exposed by digging. The upper face shall carry the warning of the buried sewer

below. The tape shall have a metallic core locatable at a depth of 18-inches by metal or pipe locators. It shall be used over all non-metallic pipes.

### **PART 3 – EXECUTION**

#### **3.01 INSTALLATION OF GRAVITY PIPE AND FITTINGS**

- A. Methods:
1. All pipe and accessories shall be carefully inspected by the Contractor for defects before installation, and all defected, unsound, or damaged materials shall be rejected.
  2. Install in accordance with manufacturer's recommendations. Use a laser beam for line and grade unless otherwise permitted by the Engineer.
  3. Secure each length of pipe with bedding before placing next length. Plug open ends when Work is suspended. Bed pipe as shown on Drawings.
  4. A 30-inch minimum cover over the top of PVC pipe should be provided before the trench is wheel-loaded.
- B. Grade and Line: Lay pipe to line and grade shown on the Drawings. If grade is not shown, determine elevations of start and finish points for each run of pipe. Lay pipe to a uniform grade between these points. Line and grade may be adjusted by the Engineer as required by field conditions.
- C. Conditions: Lay pipe in the dry. Do not use installed pipe to remove water from work area.
- D. Flush all pipe and remove debris. Flushing method approved by Engineer. Gravity flushing is not acceptable.
- E. Connections to manholes and catch basins: Provide short length of pipe so that joints are located within 3 feet of inside surface of manholes and catch basins for other than PE or PVC pipe.
- F. Vertical Separation from Water and Storm Sewer: Whenever sewers must cross water or storm drain lines, the line shall be laid at such an elevation that the top of the sewer is at least 18-inches below the bottom of the water or drain line. When the elevation of the sewer cannot be buried to meet the above requirements, protection shall be provided as indicated on the drawings and as follows:
1. Adequate structural support for the sewers to prevent excessive deflection of joints.
  2. That one full length of water pipe be centered at the point of crossing so that the joints will be equal distance and as far as possible from the sewer.

- G. Parallel Separation from Sanitary and Storm Sewer: Sewer lines, sewer services and sewer manholes shall be laid at least 10 feet horizontally, edge to edge, from water and drain lines. When conditions do not permit a horizontal separation of 10 feet, a sewer line may be laid closer to a water or drain line as indicated on the drawings and provided that:
  - 1. The bottom of the water or drain line is at least 18 inches above the top of the sewer wherever possible.
  - 2. Where this 18-inch vertical separation cannot be obtained, the sewer shall be constructed of upgraded materials as specified herein.
- H. Sewer Chimneys (if applicable): Install as noted on Drawings.
- I. Detectable Tracer Tape: Install directly over the pipe to be identified approximately 18-inches below the proposed ground surface.
- J. Pipe Connections to New Manholes as described in Section 02534.
- K. Pipe Connections to Existing Manholes shall be made by coring the existing manhole and installing a boot type flexible connector consisting of a rubber gasket or boot, metal expansion ring and double metal take-up clamps. Rubber boots and gasket material shall meet or exceed ASTM C-923

### **3.02 UTILITIES TO BE ABANDONED**

- A. Closing Abandoned Utilities: Unless otherwise indicated, close open ends of abandoned underground utilities which are not indicated to be removed. Provide sufficiently strong closures acceptable to Engineer to withstand hydrostatic or earth pressure which may result after ends of abandoned utilities have been closed. This does not apply to the abandoned sewer interceptor, which shall be filled with flowable fill as indicated on the drawings.

### **3.03 INSULATION**

- A. Install as noted on Drawings.
- B. Provide 4-inch minimum, compacted sand layers directly above and below insulation.

### **3.04 CLEANING**

- A. Clean and flush all sewer and drain piping after Work is completed and before final acceptance.

**END OF SECTION**

## SECTION 02534

### SEWER MANHOLES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION OF WORK

- A. Provide manholes, and all associated precast concrete items. This section includes:
  - 1. Precast Concrete
  - 2. Anti-floatation slabs when precast monolithically with manholes
  - 3. Masonry inverts
  - 4. Frames and covers, grates and other manhole appurtenances.
  - 5. Grade Rings

##### 1.02 RELATED WORK: Includes, but not limited to, the following:

- A. Section 02200 - EARTHWORK
- B. Section 02532 – SEWER PIPE
- C. Section 02533 – RELOCATION/REPLACEMENT OF EXISTING UTILITIES

##### 1.03 QUALITY ASSURANCE

- A. General

All manhole sections will be inspected upon delivery; manhole sections which do not conform to specification requirements will be rejected and shall be removed immediately from the site by the Contractor. Furnish all labor and facilities necessary to assist the Owner in inspecting the material.
- B. Provide complete manhole precast concrete structures capable of supporting AASHTO H20 loading.
- C. References: The latest version of the following standards, and others that may be referenced in this section, form a part of this specification as referenced
  - 1. AASHTO
    - AASHTO M81           Cutback Asphalt (Rapid Curing Type)
    - AASHTO 82           Cutback Asphalt (Medium Curing Type)
    - AASHTO M140       Emulsified Asphalt
  - 2. ASTM

ASTM	A48: Gray Iron Casting
ASTM C32	Sewer and Manhole Brick
ASTM C139	Concrete Masonry Units for Construction of Catch Basins and Manholes
ASTM C144	Aggregate for Masonry Mortar
ASTM	C150 Portland Cement
ASTM C207	Hydrated Lime for Masonry Purposes
ASTM	C443 Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM C478	Precast Reinforced Concrete Manhole Sections
ASTM A615	Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM C913	Precast Concrete Water and Wastewater Structures
ASTM	C923 Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes
ASTM D977	Emulsified Asphalt
ASTM	C990 Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
ASTM C1244	Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill
ASTM D4101	Polypropylene Injection and Extrusion Materials

#### **1.04 SUBMITTALS**

- A. Shop Drawings: Submit for each precast manhole, and all other precast concrete items. Show components to be used, elevations of top of precast sections, base, intermediate levels and pipe inverts, location of pipe penetrations, and cutouts for each manhole. Verify finish grade elevation for each manhole location in the field.
- B. Product data: Submit manufacturers' product data and installation instructions for frames, covers, grates, precast items, grade rings, manhole sleeves, joint sealants, dampproofing, and all appurtenances.
- C. Anti-floatation Slab Design Certificate: Submit a certificate of design signed by a Professional Engineer registered in the State of Rhode Island, certifying that the structure including the slab has been designed to withstand all forces including soil, traffic and hydrostatic in accordance with all applicable laws, regulations, rules and codes.

### **PART 2 – PRODUCTS**

#### **2.01 STANDARD MANHOLES**

- A. General: All structures shall be capable of supporting AASHTO H20 loading and conform to the following additional requirements:

1. The wall sections shall be not less than five inches thick.
  2. No more than two lift holes may be cast or drilled in any section.
  3. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the inside of the riser section.
  4. Acceptance of the sections will be on the basis of material tests and inspection of the completed product.
  5. Openings for pipe and materials to be embedded in the walls of the structures shall be cast in the structures at the required locations during their manufacture.
- B. Base Sections: Precast monolithic construction.
- C. Barrel Sections (Manhole Risers): Precast.
- D. Top Sections: Precast eccentric cone. Use flat cover where shown on Drawings.
- E. Anti-floatation Slab Design Certificate: Contractor shall provide the precast structures requiring anti-floatation slabs as one monolithic precast unit.
- F. Adjustment/Grade Rings: Precast construction. Brick & Mortar shall not be used to adjust grade of frames and covers. Adjustment rings shall be bolted to top sections as shown on the Drawings.
- G. Pipe to Manhole Connections:
1. Pipe diameter 6" or larger: Flexible manhole sleeves meeting ASTM C923. Size to fit diameter and type of pipe without use of gaskets.
- H. Joints between precast sections: Watertight, shiplap-type seal with an all weather performed joint sealant made of butyl rubber material in flexible rope form. It shall meet or exceed all requirements of AASHTO M-198 and ASTM C-990 section 6.2.1, Butyl rubber sealants.

## **2.02 SHALLOW MANHOLES**

- A. General: Provide flat top manholes to the dimension shown on the Drawings. Shall comply with the applicable requirements of par. 2.01 STANDARD MANHOLES, and the Drawings. Shall be designed for supporting AASHTO H20 loading.

## **2.03 MASONRY MATERIALS (FOR INVERTS)**

- A. Sewer Brick: Brick shall be sound, hard, uniformly burned brick regular in shape and size. Brick shall conform to ASTM C32. Grade SS shall be used for inverts and shelves, and Grade MS shall be used for applications other than inverts and shelves.

- B. Concrete Masonry Units: Conform to ASTM C139.
- C. Mortar shall be composed of one part Type II Portland cement (ASTM C150), two parts sand (ASTM C144), well graded with no grain larger than will pass a Number 8 sieve and 20 percent hydrated lime conforming to ASTM C207 Type S.

## **2.04 FRAMES AND COVERS**

- A. Cast Iron: ASTM A48-83, Class 35.
- B. Watertight Frames and Covers: Shall be of the dimensions shown on the Drawings and labeled with "SEWER" in 3" high raised letters on cover:
  - 1. Sewer Manhole Watertight Frame and Cover, with bolted gasketed cover provided with stainless steel anchor bolts: R-1916F as manufactured by Neenah Foundry, 2114APT 2111ZPT assembly by East Jordan Iron Works, or approved equal.
  - 2. The manhole frame and cover shall be anchored through the anchor base flange and grade rings to the manhole cone or flat top section with four 7/8" dia. Stainless steel bolts.

## **PART 3 – EXECUTION**

### **3.01 INSTALLATION OF MANHOLES AND OTHER PRECAST STRUCTURES**

- A. Placement: Structures shall be built to the lines, grades, dimensions, and designs shown on the Contract Drawings and as directed, with the necessary frames, covers, fittings, cleanouts, and appurtenances, etc., and in accordance with these Specifications.
- B. Sewer Manhole Bases shall be built as shown on the Drawings. Invert channels shall be formed smoothly to the greatest possible radius, and changes in grade shall be made smoothly and evenly. The floor at the channel shall match the invert of the largest pipe.
- C. Joints: Follow manufacturer's instructions for sealing joints between precast sections with material as specified. Point joints inside and out with butyl caulk.
- D. Dampproofing: The exterior surfaces of all precast manhole bases, walls, and cones shall be given a minimum of two shop coats of bituminous dampproofing using cutback asphalt, AASHTO M81 or M82, Asphalt emulsion AASHTO M140 or approved equal, at 5 gallons per 100 square feet minimum per coat. Touch up in the field prior to backfilling as required by Engineer.
- E. Frame and Covers:

1. Set to final grade as shown on the Drawings; 1/4" below pavement grade in paved areas or 24" above grade in cross country areas. Provide adequate temporary covers to prevent accidental entry until final placement of frame and cover is made.
  2. Use two rings of 1-inch diameter butyl rubber sealant between frame and grade ring or cone section. Provide downward force to frame so as to compress the joint, provide a watertight seal, and prevent future settlement. Point compressed joint with butyl rubber caulk sealant. Manhole frame shall be anchored through the anchor base flange to the manhole cone section.
- F. Set manhole frames and covers to final grade only after pavement base course has been applied or after final grading of gravel roads.
- G. Inverts: As indicated on Drawings.
- H. Material: All material removed from excavation for manholes that remains after the backfilling the finished structure, shall be used wherever possible within the location. If it is not needed or not suitable, it shall be removed and legally disposed of without additional compensation.

### **3.02 LEAKAGE TESTING**

- A. General: Tests shall be observed by Engineer. Manholes must be complete for final test acceptance except for shelf and invert brickwork. Plug all pipes and other openings in the structure walls prior to test. The Contractor shall test all precast concrete manholes as soon as they are installed to demonstrate that the work conforms to these specifications. Contractor shall not backfill manholes until successful testing is observed by the Engineer.
- B. Vacuum Tests for Manholes:
1. After manhole has been constructed, the Contractor shall conduct a Manhole Acceptance Test using the vacuum test procedure in ASTM C1244 except as modified herein.
    - a. Plug all lift holes with an approved non shrink grout.
    - b. Plug all pipes entering the manhole, taking care to securely brace the plug from being drawn into the manhole.
  2. The test head shall be placed at the inside of the top of the cone section and the seal inflated in accordance with the manufacturer's recommendations.
  3. Draw a vacuum of 10 inches of mercury and shut off the vacuum pump. With the valves closed, the time shall be measured for the vacuum to drop to 9 inches. The manhole, regardless of diameter, shall pass if the time is greater than:

2 min. 0 sec. for 0' to 10' deep manholes  
2 min. 30 sec. for 10' to 15' deep manholes  
3 min. 0 sec. for 15' to 25' deep manholes

4. If the vacuum drops in excess of the prescribed rate, the Contractor shall locate the leak, make proper repairs, and retest the manhole.

### **3.03 REPAIRS**

- A. Perform repairs using methods and materials approved by Engineer. Remove and replace or reconstruct if necessary. Remove and replace defective sections if required.

### **3.04 CLEANING**

- A. Clean and flush all precast structures after work is completed and before final acceptance.

### **3.05 INSPECTION**

- A. Make manhole accessible for inspection by Engineer immediately following backfilling.

**END OF SECTION**

## SECTION 02535

### MAINTAINING EXISTING SANITARY FLOWS

#### PART 1 – PART 1 GENERAL

##### 1.01 GENERAL

- A. Provide all materials, labor, equipment, power and maintenance to divert existing flow from the existing interceptors, side street connections, and private residences, around the work area as needed to complete the project.
- B. The design, installation and operation of any temporary bypass system shall be the Contractor's responsibility. If required, the Contractor shall employ the services of a vendor firm who shall demonstrate to the Engineer that it has the required expertise in the design and operation of temporary bypass pumping systems by providing at least five references of projects similar in size and complexity to this project, which have been performed by the firm within the past three years.
- C. The by-pass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
- D. The Contractor shall take all precautions necessary to prevent interruption in the wastewater flow. Any damage to any part of the public sewer system or public or private property due to an interruption in wastewater flow shall be the responsibility of the Contractor. Necessary repairs shall be made as required by the Owner, at no additional cost to the Owner.

##### 1.02 SUBMITTALS

- A. Submit references with contact information for vendor firm.
- B. Shop Drawings: Provide submittals for all equipment and materials to be used including, but not limited to:
  - 1. Pumps
  - 2. Pipe or hose
  - 3. Joints/couplings
  - 4. Plugs and/or bladders
  - 5. Level Measurement devices
  - 6. Auto-dialer device

- C. The Contractor shall submit to the Engineer a sewage bypass plan. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials and all other incidental items necessary and/or required to insure proper handling of the sewage flows and compliance with the contract documents. The plan must be stamped by a Professional Engineer in the State of Rhode Island. No construction shall begin until all provisions and requirements have been reviewed and approved by the Engineer.
- D. The plan shall include but not be limited to the following:
1. Staging areas for pumps;
  2. Flow diversion method and types of materials;
  3. Number, size, material, location and method of installation of suction piping;
  4. Number, size, material, method of installation and location of discharge piping;
  5. Bypass pump sizes, capacity, number of each size to be on site and the related power requirements;
  6. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted);
  7. Standby power generator size, location;
  8. Downstream discharge plan;
  9. Method of protecting suction and discharge areas from erosion and damage;
  10. Thrust and restraint block sizes and locations;
  11. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill;
  12. Method of noise control for each pump and/or generator, with external dB valve.
  13. Any temporary pipe supports and anchoring required;
  14. Design plans and computation for access to bypass pumping locations indicated on the drawings;
  15. Calculations for selection of bypass pumping pipe size;
  16. Schedule for installation of and maintenance of bypass pumping lines;

17. Plan indicating proposed location of bypass pumping lines, and the method for handling flows from individual homes.
18. Emergency response plan describing the intended means of handling the following situations; including both response and clean-up measures:
  - a. Break or failure of bypass line
  - b. Failure of bypass pump
  - c. Back up into structures
  - d. Failure of by-pass pumping system to accommodate flow.
19. Level measuring equipment product information.
20. Auto-dialer product information and proposed call list.

## **PART 2 – PRODUCTS**

### **2.01 EQUIPMENT**

- A. All pumps used shall be centrifugal, end suction, fully automatic self-priming units that do not require the use of foot-valves, diaphragm pumps, isolation valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be constructed to allow dry running for long periods to accommodate the cyclical nature of bypass flows. The pumps shall not be hydraulic submersible type.
- B. All pumps shall be Godwin Dri- prime Automatic Self-priming Pumps (CD, DPC, or HL Series) as manufactured by Godwin Pumps of America, Inc., or equivalent pumps manufactured by Baker Corp., Rain for Rent, or approved equal.
- C. The Contractor shall provide the necessary stop/start controls for each pump.
- D. The Contractor shall provide a pumping system with 100% redundancy (two pumps shall be provided at the site for every one pump required).
- E. Back-up pumps shall be on-line at all times, and automatically placed into service when primary pump failure is indicated through a preset high water level or other proposed means.
- F. Discharge Piping - in order to prevent the accidental spillage of flows, all temporary discharge systems shall be constructed of rigid pipe with positive, restrained joints. Under no circumstances will aluminum "Irrigation" type piping or glued PVC pipe be allowed. Discharge hoses will only be allowed in short sections and with the specific permission of the Engineer.

- G. Allowable piping materials shall be steel, ductile iron, or fused, high-density polyethylene pipe, rated for minimum 1-1/2 times the operating pressure of the bypass system.
- H. The Contractor shall provide level measurement instruments for the purpose of monitoring water levels in whichever structure is used as a wet well. The level measurement instruments shall communicate with an auto-dialer and indicate when a pre-set high water level is reached. When alerted to a high water level, the auto dialer shall call out to a predetermined list of responders with a high water alarm notice. In lieu of the auto dialer and level measurement system, the Contractor may choose to permanently man the pumps 24-hours per day while in operation.

## **2.02 SYSTEM DESCRIPTION**

### **A. DESIGN REQUIREMENTS:**

- 1. The bypass pumping system shall have sufficient capacity to handle the peak hourly flow of the existing interceptor being bypassed. The peak hourly flow of the 12" sewer has been estimated to be 1.25 MGD. The Contractor shall provide all piping, plugs, pumps of adequate size, and all other materials and equipment necessary to ensure that the total flow can be safely diverted around the area of work, and that there is no interruption of flow to the wastewater treatment facility. The bypass pumping system will be required to operate 24 hours per day.
- 2. The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One standby pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure.
- 3. Noise prevention measures shall be used for all equipment to ensure minimum noise impacts on surrounding areas. Noise prevention measures may include, but shall not be limited to, insulation, electric pumping units, and hospital grade mufflers or silencers.

### **B. PERFORMANCE REQUIREMENTS:**

- 1. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
- 2. The temporary pumping system shall not exceed the following noise requirement: 69 dbA at a distance of 30 feet. All diesel driven primary and standby pumps or generators shall be sound attenuated.

## **PART 3 – EXECUTION**

### **3.01 FIELD QUALITY CONTROL AND MAINTENANCE**

- A. The Contractor shall perform pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The Engineer shall be given 24 hours' notice prior to testing.
- B. Pressure Test: Use hydrostatic test as follows:
  - 1. Fill section of pipe with water and expel all air.
  - 2. Pressurize to 1 1/2 times normal operating pressure, but not less than 60 psi.
  - 3. Measure pressure drop over a one hour period. Engineer shall determine whether amount of pressure drop is acceptable.
- C. Spare parts for pumps and piping shall be kept on site as required.

### **3.02 NOTIFICATION**

- A. Contractor shall notify Engineer and Owner 48 hours in advance of the start of bypass operations.

### **3.03 TEMPORARY POWER**

- A. The Contractor shall be entirely responsible for providing fuel and / or power to run all pumps associated with the bypass at no additional cost to the Owner.

### **3.04 PRECAUTIONS**

- A. During all bypass pumping operation, the Contractor shall protect the work area and all local utilities and public/private property from damage by any equipment. The Contractor shall be responsible for all damage to public and private property caused by human or mechanical failure.

### **3.05 INSTALLATION AND REMOVAL**

- A. Bypass pumps and bypass piping shall be located as indicated on the submitted and approved bypass pumping plan and where directed by the Engineer. When the bypass pipeline crosses local streets and private driveways, the Contractor must place the bypass pipelines in trenches and cover with temporary pavement, or, if it is deemed acceptable by the Engineer, provide gravel ramps over piping. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Engineer, the Contractor shall remove all the piping, restore all property to pre-construction condition and restore all pavement. The Contractor is responsible for obtaining any approvals from the Owner for placement of the temporary pipeline within public ways.

- B. The Contractor shall make every reasonable effort to keep noise to a minimum. The Owner and Engineer shall determine if noise prevention measures being used are adequate. If at any time prior to or during the performance of the Work the Owner and/or Engineer determine that the noise prevention measures being used are not adequate, the Contractor shall, at no additional cost to the Owner, suspend all Work until acceptable measures are incorporated.
  
- C. Level sensing equipment and auto-dialer shall be tested prior to being placed into service to demonstrate that pumps automatically switch to the redundant pump and dial out an alarm in the event of a high level.

**END OF SECTION**

**DIVISION 03 – CONCRETE**

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## SECTION 03310

### UNREINFORCED CONCRETE FOR UTILITY WORK

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION OF WORK

- A. Provide all concrete Work related to utility work, as shown on the Drawings and described in the Contract Documents.

##### 1.02 QUALITY ASSURANCE

- A. Concrete Field Testing, if performed, shall be at the Owner's expense.

##### 1.03 SUBMITTALS

- A. Material Certificates: Provide weigh slips for each load of concrete delivered to the site.
- B. Mix Design: Submit the concrete mix design to the Engineer for review.

#### PART 2 – PRODUCTS

##### 2.01 CONCRETE MATERIALS

- A. Concrete shall have a minimum 28-day compressive strength of 3000 psi, and a maximum water to cementitious materials ratio of 0.50.
- B. Cement shall meet ASTM C150, “Standard Specification for Portland Cement”. Aggregates shall conform to ASTM C33, “Standard Specification for Concrete Aggregates”. Coarse aggregate shall conform to the grading given in Table 2 of ASTM C33 for size no. 67(3/4” nominal maximum aggregate size).
- C. If used, fly ash shall conform to ASTM C618, “Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete”, Class F with maximum loss of ignition of 3.0 percent and comprise 15 to 25 percent of the weight of cementitious material.
- D. If used, slag shall conform to ASTM C989, “Standard Specification for Ground Granulated Blast-Furnace Slag for use in Concrete and Mortars”, with an activity class of grade 100 or 120, and comprise 25 to 50 percent of the weight of cementitious material.
- E. Additionally, if both fly ash and slag are used, the minimum amount of Portland cement shall be 337 pounds per cubic yard of concrete, and the combined fly ash and slag shall not exceed the amount of Portland cement.

- F. Concrete shall be air-entrained 6.0%±1.5% with a chloride-free agent conforming to ASTM C260, "Standard Specification for Air-Entraining Admixtures in Concrete".
- G. When used, mid-range water reducing agent shall conform to ASTM C494, "Standard Specification for Chemical Admixtures for Concrete", Type A; water reducing-retarding agents shall conform to ASTM C494, Type D; set accelerator shall conform to ASTM C494, Type C or E; and superplasticizer shall conform to ASTM C494, Type F or G.
- H. At the point of delivery, concrete slump shall be 4 inches ±1", determined in accordance with ASTM C143, "Standard Test Method for Slump of Hydraulic-Cement Concrete". When superplasticizer is used, slump shall be 8 inches maximum, with a tolerance of 2-1/2".

### **PART 3 – EXECUTION**

#### **3.01 CONCRETE PLACEMENT**

- A. Work shall conform to ACI 301, "specifications for structural concrete". Tolerances shall conform to ACI 117, "standard specifications for tolerances for concrete construction and materials". Work in cold weather shall meet ACI 306.1, "Standard Specifications for Cold Weather Concreting". Curing shall be in accordance with ACI 308.1, "Standard Specification for Curing Concrete", and shall be maintained for a minimum of 7 days.
- B. Hot weather requirements: The temperature of the concrete when placed shall not exceed 90 degrees F. Newly placed concrete shall be protected from direct sunlight.
- C. Concrete shall be placed within 90 minutes of the time that water is added to cement or cement is added to the aggregate, except when the temperature is 90 degrees F and above this time shall be reduced to 60 minutes.
- D. Concrete shall be placed in a continuous operation; retempering by the adding water more than the amount called for in the mix design shall be strictly prohibited. Concrete shall be properly consolidated by mechanical internal vibration.

**END OF SECTION**