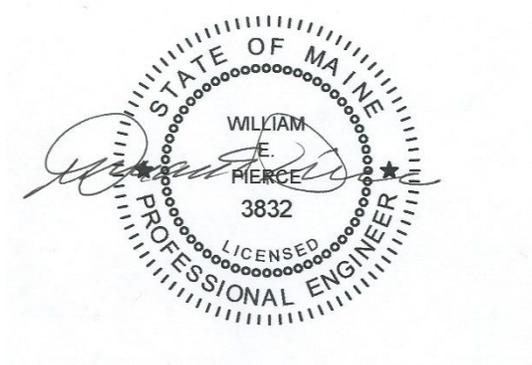


CONTRACT DOCUMENTS

FOR

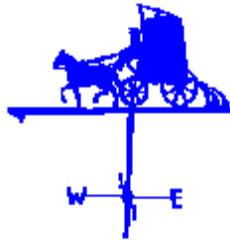
**WATER MAIN REPLACEMENT**  
**CONTRACT 3 OF 3**

**ANDERSON STREET**  
**PHASE 2 OF 2**  
**Portland, Maine**



September 2015

PORTLAND WATER DISTRICT  
225 Douglass Street  
Portland, Maine 04104



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**DIVISION 0 – CONTRACT REQUIREMENTS**

**ANDERSON STREET NEIGHBORHOOD BYWAY PROJECT – PHASE 2 OF 2**

**WATER MAIN IMPROVEMENTS BASE BID FORM**

Item No.	Estimated Quantity	Item with Unit Bid Price Written in Words	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
W-1	LF	8-INCH DUCTILE IRON WATER MAIN @ _____				
	1,800	Per Linear Foot				
W-2	LF	6-INCH DUCTILE IRON WATER MAIN @ _____				
	40	Per Linear Foot				
W-3	EA	HYDRANT ASSEMBLY @ _____				
	3	Per Each				
W-4	EA	8-INCH X 8-INCH SWIVEL TEE & 8-INCH GATE VALVE @ _____				
	2	Per Each				
W-5	EA	8-INCH INSERTION GATE VALVE @ _____				
	1	Per Each				
W-6	EA	8-INCH CUT-IN GATE VALVE @ _____				
	1	Per Each				
W-7	EA	8-INCH MJ GATE VALVE @ _____				
	2	Per Each				
W-8	EA	8-INCH X 6-INCH SWIVEL TEE & 6-INCH GATE VALVE @ _____				
	1	Per Each				
W-9	EA	6-INCH INSERTION GATE VALVE @ _____				
	1	Per Each				
W-10	EA	6-INCH CUT-IN GATE VALVE @ _____				
	3	Per Each				

**ANDERSON STREET NEIGHBORHOOD BYWAY PROJECT – PHASE 2 OF 2**

**WATER MAIN IMPROVEMENTS BASE BID FORM**

Item No.	Estimated Quantity	Item with Unit Bid Price Written in Words	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
W-11	EA	8-INCH FIRE SERVICE - SHORTSIDE @ _____				
	1	Per Each				
W-12	EA	6-INCH FIRE SERVICE - SHORTSIDE @ _____				
	4	Per Each				
W-13	EA	6-INCH FIRE SERVICE - RECONNECT @ _____				
	1	Per Each				
W-14	EA	2-INCH COPPER SERVICE - LONGSIDE @ _____				
	1	Per Each				
W-15	EA	1-1/2-INCH COPPER SERVICE - SHORTSIDE @ _____				
	1	Per Each				
W-16	EA	1-1/2-INCH COPPER SERVICE - RECONNECT @ _____				
	4	Per Each				
W-17	EA	1-INCH COPPER SERVICE - SHORTSIDE @ _____				
	4	Per Each				
W-18	EA	1-INCH COPPER SERVICE - LONGSIDE @ _____				
	1	Per Each				
W-19	EA	1-INCH COPPER SERVICE- RECONNECT @ _____				
	1	Per Each				
W-20	CY	GRAVEL BORROW @ _____				
	200	Per Cubic Yard				
W-21	CY	ROCK EXCAVATION @ _____				
	100	Per Cubic Yard				

**ANDERSON STREET NEIGHBORHOOD BYWAY PROJECT – PHASE 2 OF 2**

**WATER MAIN IMPROVEMENTS BASE BID FORM**

Item No.	Estimated Quantity	Item with Unit Bid Price Written in Words	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
W-22	CY	UNSUITABLE MATERIAL EXCAVATED BELOW GRADE @ _____ _____				
	100	Per Cubic Yard				
W-23	HR	FLAGGER @ _____ _____				
	600	Per Hour				
W-24	HR	FOREMAN @ _____ _____				
	10	Per Hour				
W-25	HR	LABORER @ _____ _____				
	10	Per Hour				
W-26	HR	EXCAVATOR W/OPERATOR @ _____ _____				
	10	Per Hour				
W-27	HR	LOADER W/OPERATOR @ _____ _____				
	10	Per Hour				
W-28	HR	DUMP TRUCK W/DRIVER @ _____ _____				
	10	Per Hour				
TOTAL AMOUNT OF BID WRITTEN IN WORDS AND IN NUMBERS BASED ON ESTIMATE OF QUANTITIES						
_____						
_____						
_____						
<i>(Written In Words)</i>						

**NOTE THAT THERE ARE THREE SEPARATE BID CONTRACTS FOR THIS PROJECT:**

**SRF IMPROVEMENTS**

**CDBG IMPROVEMENTS**

**PWD (WATER) IMPROVEMENTS**

**THREE SEPARATE CONTRACTS WILL BE WRITTEN FOR THIS PROJECT BUT THE BASIS OF AWARD IS FOR THE LOWEST BID FOR ALL THREE CONTRACTS.**

<b>BASIS OF AWARD BID FORM</b> <b>ANDERSON STREET NEIGHBORHOOD BYWAY PROJECT</b> <b>PHASE 2 OF 2</b> <b>PORTLAND, MAINE</b>	
Total of SRF Improvements Bid Written in Numbers	\$
Total of CDBG Improvements Bid Written in Numbers	\$
Total of PWD Improvements Bid Written in Numbers	\$
<b>TOTAL: BASIS OF AWARD</b>	<b>\$</b>

**SECTION 00510 – NOTICE OF AWARD**

Dated \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:	Engineer's Project No.:	
Bidder:		
Bidder's Address: (send Certified Mail, Return Receipt Requested)		

You are notified that your Bid dated \_\_\_\_\_ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for Water Main Replacement, Anderson Street – Phase II, Portland, Maine.

The Contract Price of your Contract is \_\_\_\_\_.

(Insert appropriate data if Unit Prices are used.)

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner two (2) fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the General Conditions (Paragraph 5.01) [and Supplementary Conditions (Paragraph SC-5.01).]
3. Deliver with the executed Contract Documents Certificates of Insurance as specified in Supplementary Conditions Paragraph 5.03.

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

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

PORTLAND WATER DISTRICT

By: \_\_\_\_\_  
Ronald Miller, General Manager

**SECTION 00520 -AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between PORTLAND WATER DISTRICT (“Owner”) and \_\_\_\_\_ (“Contractor”).

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, 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:

*Water Main Replacement – Anderson Street – Phase II, Portland, Maine*

**ARTICLE 2 – THE PROJECT**

---

2.1 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

*Water Main Replacement – Anderson Street – Phase II, Portland, Maine*

**ARTICLE 3 – ENGINEER**

---

3.1 The Project has been designed by Portland Water District, who is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

**ARTICLE 4 – CONTRACT TIMES**

---

4.1 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.

4.2 Days to Achieve Substantial Completion and Final Payment

A. The Work must progress so as not to delay the completion of work under a separate contract between the Contractor and the City of Portland in the same general vicinity.

4.3 Liquidated Damages

A. There are no liquidated damages specified in this contract.

**ARTICLE 5 – CONTRACT PRICE**

---

5.1 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 Paragraphs 5.1.A. below:

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

**ARTICLE 6 – PAYMENT PROCEDURES**

---

6.1 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.

## 6.2 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 30th day of each month during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.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:
- B.
  - 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. 90 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 has 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;
    - b. No payment will be made for materials not incorporated in the work.
  - 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.

## 6.3 Final Payment

- A. Upon receipt of the final Application for Payment accompanied by Engineer's recommendation of payment in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay Contractor as provided in Paragraph 14.07 of the General Conditions the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages.

## **ARTICLE 7 – INTEREST**

---

- 7.1 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum legal rate.

## **ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS**

---

- 8.1 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: (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 as provided in Paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in Paragraph 4.06 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 9 – CONTRACT DOCUMENTS**

---

### 9.1 Contents

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 1 to 6, inclusive).
  - 2. Performance bond (pages 1 to 2, inclusive).
  - 3. Payment bond (pages 1 to 2, inclusive).
  - 4. General Conditions (pages 1 to 51, inclusive).
  - 5. Supplementary Conditions (pages 1 to 9, inclusive).
  - 6. Specifications as listed in the table of contents of the Project Manual.
  - 7. Drawings consisting of 7 sheets with each sheet bearing the following general title: Anderson Street – Phase II, Portland, Water Main Replacement.
  - 8. Addenda (numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive).
  - 9. Exhibits to this Agreement (enumerated as follows):
    - a. Contractor’s Bid (pages 1 to 4, inclusive).
    - b. Documentation submitted by Contractor prior to Notice of Award (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive).
  - 10. 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 9.01.A 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 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

## **ARTICLE 10 – MISCELLANEOUS**

---

### 10.1 Terms

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

### 10.2 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.

### 10.3 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.

### 10.4 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.

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

This Agreement will be effective on \_\_\_\_\_, 2015 (*which is the Effective Date of the Agreement*).

OWNER:

CONTRACTOR

\_\_\_\_\_  
PORTLAND WATER DISTRICT

\_\_\_\_\_

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

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

Title: GENERAL MANAGER

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

[CORPORATE SEAL]

[CORPORATE SEAL]

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

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

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

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

Address for giving notices:

Address for giving notices:

225 Douglass Street

\_\_\_\_\_

Portland, Maine 04014-3553

\_\_\_\_\_

\_\_\_\_\_

Agent for service of process:

\_\_\_\_\_

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

END OF SECTION

**SECTION 00610 - 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):  
PORTLAND WATER DISTRICT  
225 Douglass Street  
Portland, Maine 04104-3553

CONTRACT  
Date:  
Amount:  
Description (Name and Location):

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 SURETY  
Company: \_\_\_\_\_  
Signature: \_\_\_\_\_ (Seal) \_\_\_\_\_ (Seal)  
Name and Title: \_\_\_\_\_ 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 SURETY  
Company: \_\_\_\_\_  
Signature: \_\_\_\_\_ (Seal) \_\_\_\_\_ (Seal)  
Name and Title: \_\_\_\_\_ Surety's Name and Corporate Seal

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

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

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 therefore to Owner; or
  2. Deny liability in whole or in part and notify Owner citing reasons therefore.

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.

FOR INFORMATION ONLY – Name, Address and Telephone  
Surety Agency or Broker  
Owner's Representative (engineer or other party)

**SECTION 00615 - PAYMENT BOND**

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

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

OWNER (Name and Address):  
PORTLAND WATER DISTRICT  
225 Douglass Street  
Portland, Maine 04104-3553

CONTRACT  
Date:  
Amount:  
Description (Name and Location):

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 SURETY  
Company: \_\_\_\_\_  
Signature: \_\_\_\_\_ (Seal) \_\_\_\_\_ (Seal)  
Name and Title: \_\_\_\_\_ 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 SURETY  
Company: \_\_\_\_\_  
Signature: \_\_\_\_\_ (Seal) \_\_\_\_\_ (Seal)  
Name and Title: \_\_\_\_\_ Surety's Name and Corporate Seal

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

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

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 here from 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.

FOR INFORMATION ONLY – Name, Address and Telephone  
Surety Agency or Broker:  
Owner's Representative (engineer or other party):

**SECTION 00620 –CONTRACTOR’S APPLICATION FOR PAYMENT NO. \_\_\_\_\_**

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer)
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

**APPLICATION FOR PAYMENT**

**Change Order Summary**

Approved Change Orders		
Number	Additions	Deductions
<b>TOTALS</b>		
<b>NET CHANGE BY CHANGE ORDERS</b>		

<b>1. ORIGINAL CONTRACT PRICE</b>	\$	
<b>2. Net change by Change Orders</b>	\$	
<b>3. CURRENT CONTRACT PRICE (Line 1 ± 2)</b>	\$	
<b>4. TOTAL COMPLETED TO DATE</b> (Column G on Progress Estimate)	\$	
<b>5. RETAINAGE:</b>		
a. _____ % x \$ _____ Work Completed	\$	
<b>6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5)</b>	\$	
<b>7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)</b>	\$	
<b>8. AMOUNT DUE THIS APPLICATION</b>	\$	

**CONTRACTOR’S CERTIFICATION**

The undersigned Contractor certifies that: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By:	Date:
-----	-------

Payment of:	\$ _____	(Line 8 or other - attach explanation of other amount)
is recommended by:	_____	_____ (Date)
	(Engineer)	
Payment of:	\$ _____	(Line 8 or other - attach explanation of other amount)
is approved by:	_____	_____ (Date)
	(Owner)	
Approved by:	_____	_____ (Date)
	Funding Agency (if applicable)	

# Progress Estimate

# Contractor's Application

For (contract):	Application Number:
Application Period:	Application Date:

A		B	C	D	E	F	G	H
Bid Item No.	Description	Bid Quantity	Unit Price	Contract Amount	Quantity From Previous Applications	Quantity This Period	Total Value Completed to Date	% Complete
Totals								

## SECTION 00625 – CERTIFICATE OF SUBSTANTIAL COMPLETION

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

**This [tentative] [definitive] Certificate of Substantial Completion applies to:**

- All Work under the Contract Documents:
  The following specified portions:

---



---



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\_\_\_\_\_  
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [revised tentative] [definitive] list of items to be completed or corrected, is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:**

- Amended Responsibilities
  Not Amended

Owner's Amended Responsibilities: \_\_\_\_\_

---



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Contractor's Amended Responsibilities: \_\_\_\_\_

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The following documents are attached to and made part of this Certificate: \_\_\_\_\_

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This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

\_\_\_\_\_  
Executed by Engineer \_\_\_\_\_  
Date

\_\_\_\_\_  
Accepted by Contractor \_\_\_\_\_  
Date

\_\_\_\_\_  
Accepted by Owner \_\_\_\_\_  
Date

**SECTION 00700 – STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT**

*Prepared by*

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

*and*

Issued and Published Jointly By



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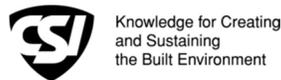
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## GENERAL CONDITIONS

### ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

---

#### 1.1 *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. *Agency* – The Federal or state agency named as such in the Agreement.
  3. *Agreement* – The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  4. *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.
  5. *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.
  6. *Bid* – The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  7. *Bidder* – The individual or entity who submits a Bid directly to Owner.
  8. *Bidding Documents* – The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  9. *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.
  10. *Change Order* – A document recommended by Engineer which is signed by Contractor and Owner and Agency 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.
  11. *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.
  12. *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.
  13. *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.

14. *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).
15. *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.
16. *Contractor* – The individual or entity with whom Owner has entered into the Agreement.
17. *Cost of the Work* – See Paragraph 11.01.A for definition.
18. *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.
19. *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.
20. *Engineer* – The individual or entity named as such in the Agreement.
21. *Field Order* – A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
22. *General Requirements* – Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.
23. *Hazardous Environmental Condition* – The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.
24. *Hazardous Waste* – The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
25. *Laws and Regulations; Laws or Regulations* – Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens* – Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
27. *Milestone* – A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
28. *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.
29. *Notice to Proceed* – A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

30. *Owner* – The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
31. *PCBs* – Polychlorinated biphenyls.
32. *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.
33. *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.
34. *Project* – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
35. *Project Manual* – The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
36. *Radioactive Material* – Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
37. *Related Entity* – An officer, director, partner, employee, agent, consultant, or subcontractor.
38. *Resident Project Representative* – The authorized representative of Engineer who may be assigned to the Site or any part thereof.
39. *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.
40. *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.
41. *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.
42. *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.
43. *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.
44. *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.
45. *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.

46. *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.
47. *Successful Bidder* – The Bidder submitting a responsive Bid to whom Owner makes an award.
48. *Supplementary Conditions* – That part of the Contract Documents which amends or supplements these General Conditions.
49. *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.
50. *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.
51. *Unit Price Work* – Work to be paid for on the basis of unit prices.
52. *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.
53. *Work Change Directive* – A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and Agency upon recommendation of the 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.

## 1.2 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**

---

### *2.1 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.

## 2.2 *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.

## 2.3 *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.

## 2.4 *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.

## 2.5 *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;
  - 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.

## 2.6 *Preconstruction Conference*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, Agency, 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.

## 2.7 *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 therefore.

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

## **ARTICLE 3 – CONTRACT DOCUMENTS, INTENT, AMENDING, REUSE**

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### *3.1 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.

### *3.2 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.

### *3.3 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).

3.4 *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.

3.5 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
  1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or 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 adaption 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.

### 3.6 *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**

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### 4.1 *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 therefore 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.

### 4.2 *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.

#### 4.3 *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 therefore 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.

#### 4.4 *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 therefore as provided in Paragraph 10.05.

#### 4.5 *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.

#### 4.6 *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 therefore 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 therefore 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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### *5.1 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.

#### 5.2 *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.

#### 5.3 *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.

#### 5.4 *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:
  5. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

6. by any other person for any other reason;
  7. 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
  8. 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 insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, 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.

#### 5.5 *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.

#### 5.6 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (Contractor shall be responsible for any deductible or self-insured retention.). 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 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, 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;
  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. Contractor 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.

#### 5.7 *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 Contractor 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.

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

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Contractor and made payable to Contractor 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. Contractor 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.
- B. Contractor 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 Contractor's exercise of this power. If such objection be made, Contractor 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, Contractor as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Contractor as fiduciary shall give bond for the proper performance of such duties.

#### 5.9 *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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6.1 *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.

6.2 *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.

6.3 *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.

#### 6.4 *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.

#### 6.5 *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 therefore. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The procedure 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:
    - will perform adequately the functions and achieve the results called for by the general design,
    - be similar in substance to that specified, and
    - be suited to the same use as that specified;
  - 2) will state:
    - the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;
    - whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
    - whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
  - 3) will identify:
    - all variations of the proposed substitute item from that specified, and
    - 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.

#### 6.6 *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.

#### 6.7 *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.

## 6.8 *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.

## 6.9 *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

- 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 Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review

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

E. Resubmittal Procedures

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

6.18 *Continuing the Work*

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

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its 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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### 7.1 *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 therefore, 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 therefore 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.

### 7.2 *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.

### 7.3 *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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### *8.1 Communications to Contractor*

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

### *8.2 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.

### *8.3 Furnish Data*

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

### *8.4 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.

### *8.5 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.

### *8.6 Insurance*

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

### *8.7 Change Orders*

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

### *8.8 Inspections, Tests, and Approvals*

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

### *8.9 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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9.1 *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.

9.2 *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.

9.3 *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.

9.4 *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 therefore as provided in Paragraph 10.05.

*9.5 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.

*9.6 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.

*9.7 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.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

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

*9.9 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.

**ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

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*10.1 Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, subject to written approval by Agency 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 therefore as provided in Paragraph 10.05.

*10.2 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.

*10.3 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.

#### 10.4 *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.

#### 10.5 *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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### *11.1 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, expressages, and similar petty cash items in connection with the Work.
  - i. The cost 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.

#### 11.2 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.

#### 11.3 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 Bid price of a particular item of Unit Price Work amounts to more than 5 percent of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
  - 2. there is no corresponding adjustment with respect to any other item of Work; and
  - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

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

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### *12.1 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.

## 12.2 *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.

## 12.3 *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 therefore 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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### *13.1 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.

### *13.2 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.

### *13.3 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.

#### 13.4 *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 therefore 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 therefore as provided in Paragraph 10.05.

#### 13.5 *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.

#### 13.6 *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.

### 13.7 *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.

### 13.8 *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 therefore as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

### 13.9 *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 therefore 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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### 14.1 *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.

### 14.2 *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. the Contractor's performance or furnishing of the Work is inconsistent with funding Agency requirements;
  - d. there are other items entitling Owner to a set-off against the amount recommended; or
  - e. 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.

#### 14.3 *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.

#### 14.4 *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, Agency, Contractor, and Engineer shall make a prefinal 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 therefore.
- 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 therefore. 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.

#### 14.5 *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 therefore. 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.

#### 14.6 *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, Agency, 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.

#### 14.7 *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.

14.8 *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. The remaining balance of any sum included in the final Application for Payment but held by OWNER for Work not fully completed and accepted will become due when the Work is fully completed and accepted.

14.9 *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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### *15.1 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 therefore as provided in Paragraph 10.05.

### *15.2 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.

### 15.3 *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.

### 15.4 *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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### 16.1 *Methods and Procedures*

- A. Owner and Contractor may mutually 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. 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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### *17.1 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.

### *17.2 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.

### *17.3 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.

### *17.4 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.

*17.5 Controlling Law*

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

*17.6 Headings*

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

## SECTION 00810 – SUPPLEMENTARY CONDITIONS

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## SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-710, 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 have the meanings stated 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.

### **SC-1.01.A.4 Application for Payment**

Add the following language to the end of Paragraph 1.01.A.4:  
The Application for Payment form to be used on this project is EJCDC No. C-620. The Agency must approve all Applications for Payment before payment is made.

### **SC-1.01.A.10 Change Order**

Add the following language to the end of Paragraph 1.01.A.10:  
The Change Order form to be used on this project is EJCDC No. C-941. The Agency must approve all Change Orders before they become effective.

### **SC-1.01.A.43 Site**

Add the following language after the first sentence of Paragraph 1.01.A.43:  
The term "Site" may include locations within public streets wherein the OWNER'S utility plant is to be constructed and/or replaced.

### **SC-2.01.B Delivery of Bonds and Evidence of Insurance**

Delete Paragraph 2.01.B in its entirety and insert the following in its place:

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

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

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

A. Owner shall furnish to Contractor One printed or hard copy of the Drawings and Project Manual and one set in electronic format. Additional copies will be furnished upon request at the cost of reproduction.

### **SC-2.05.A.3 Preliminary Schedules**

Delete Paragraph 2.05.A.3 in its entirety and substitute the following:

3. A preliminary Schedule of Values is required for each lump sum item of the Work for which partial payment may be requested. Each required Schedule of Values shall include quantities and prices of items which when added together equal the Lump Sum Price for that item and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

### **SC-4.01 Availability of Lands**

Delete Paragraphs GC-4.01.C in its entirety and insert the following:

C. The CONTRACTOR shall provide at his own expense and without liability to the OWNER any land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials and equipment.

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

Delete Paragraphs 4.02.A and 4.02.B in their entirety and insert the following:

A. No reports of explorations or tests of subsurface conditions at or contiguous to the Site are known to the Owner or Engineer.

#### **SC-4.03.A Differing Subsurface or Physical Conditions**

Delete Paragraphs 4.03.A in its entirety and insert the following:

A Notice: If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed 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.

#### **SC-4.04.B.1 Underground Facilities – Not Shown or Indicated**

Amend the first sentence of Paragraph 4.04.B.1 to read as follows:

If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated 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.

#### **SC-4.04.B.2 Underground Facilities - Not Shown or Indicated**

Amend the second sentence of Paragraph 4.04.B.2 to read as follows:

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 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.

#### **SC-4.05 Reference Points**

Delete the first sentence of paragraph A in its entirety. Modify the second sentence to read as follows:

Contractor shall be responsible for laying out the Work, shall protect and preserve any established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner.

#### **SC-4.06 Hazardous Environmental Condition**

Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:

A. No reports or drawings related to Hazardous Environmental Conditions are known to Owner or Engineer.

B. Not Used.

#### **SC-5.02 Licensed Sureties and Insurers**

Modify the first sentence of paragraph A by deleting the words: "Owner or".

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

SC-5.03.A: Delete paragraph 5.03.A in its entirety and substitute the following:

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 by this contract to purchase and maintain.

SC-5.03.B: Delete paragraph 5.03.B in its entirety and substitute the following:

B. 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.

SC-5.03.C: Add the following new paragraph immediately after Paragraph 5.03.B:

C. 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**

SC-5.04.A: Delete paragraph 5.04.A in its entirety and substitute the following:

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as required by the Supplemental Conditions, 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:

SC-5.04.B.7: Amend the duration of coverage in this paragraph SC-5.04.B.7 to be at least three years.

SC-5.04.C: Add the following new paragraph immediately after Paragraph 5.04.B:

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. Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

- a. State of Maine Statutory
- b. Applicable Federal: Statutory
- c. Employers Liability: \$2,000,000

2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:

- a. General Aggregate: \$2,000,000

- b. Products – Completed Operations Aggregate: 2,000,000
- c. Personal and Advertising Injury: \$2,000,000
- d. Each Occurrence (Bodily Injury and Property Damage): \$1,000,000
- e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.

- f. Excess or Umbrella Liability
    - 1) General Aggregate \$1,000,000
    - 2) Each Occurrence \$1,000,000
3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

- a. Bodily Injury:
  - Each person \$1,000,000
  - Each Accident \$1,000,000
- b. Property Damage:
  - Each Accident \$1,000,000
- c. Combined Single Limit of \$2,000,000

4. The Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:

- a. Bodily Injury:
  - Each Accident \$1,000,000
  - Annual Aggregate \$2,000,000
- b. Property Damage:
  - Each Accident \$1,000,000
  - Annual Aggregate \$2,000,000

5. Additional insureds shall include: The Portland Water District.

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

Delete Paragraph 5.05 in its entirety.

### **SC-5.06 Property Insurance**

Delete Paragraph 5.06 in its entirety.

### **SC-5.07 Waiver of Rights**

Delete paragraphs GC-5.07.B and GC-5.07.C in their entirety. (The terms of the District's insurance policies require that it transfer its rights of recovery against another party to the District's insurer.)

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

Delete paragraph GC-5.09 in its entirety.

### **SC-6.02 Labor; Working Hours**

Insert the following Paragraph in its entirety directly after 6.02.B

C. If the Contractor must Work beyond the regular Work week at anytime, all expenses, including labor costs, of the Engineer and personnel required for inspection or observation shall be deducted monthly from any sums due or which shall become due to the Contractor.

### **SC-6.03 Services Materials and Equipment**

Insert the following Paragraphs in their entirety directly after 6.02.C

D. Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located so as to facilitate prompt inspection.

E. No Chattel Mortgages: Materials, supplies, or equipment to be incorporated into the Work shall not be purchased by the Contractor or the Subcontractor subject to a chattel mortgage or under a conditional sale Contract or other agreement by which an interest is retained by the seller.

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

SC-6.06.B: Delete paragraph 6.06.B in its entirety and substitute the following:

B. Within 5 days of the Bid opening and before the Notice of Award, the apparent Successful Bidder is required to identify all Subcontractors, Suppliers, or other individuals or entities that will supply a work value equal to or greater than 10% of the total contract value, for acceptance by Owner.

1. Owner's acceptance will be indicated by issuance of a Notice of Award to the Contractor. Owner's objections if any, to any listed Subcontractors, Suppliers, or other individuals or

entities will be communicated in writing to the apparent Successful Bidder.

2. Owner's acceptance of any Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. In the event that the Owner rejects a Subcontractor, Supplier, or other individual or entity, either before the Notice of Award, or after execution of the Agreement, the 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.

SC-6.06.H. Add a new paragraph immediately after Paragraph 6.06.G:

H. Owner or Engineer may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor or Supplier.

SC-6.06.I. Add a new paragraph immediately after Paragraph 6.06.H:

I. The Contractor shall not award Work to Subcontractor(s) in excess of fifty (50) percent of the Contract Price without prior written approval of the Owner.

### **SC-6.10 Taxes**

Add a new paragraph immediately after Paragraph 6.10.A:

B. Owner is exempt from payment of sales and compensating use taxes of the State of Maine and of cities and counties thereof on all materials to be incorporated into the Work.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of equipment, supplies and materials to be physically incorporated into the Work such that they become a part of the real estate.

2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials consumed in, but not incorporated into, the Work.

### **SC-6.13 Safety and Protection**

Add a new paragraph immediately after Paragraph 6.13.D:

E. Confined Space and Lock-out/Tag-out programs: The Contractor is advised that the Owner has clearly established on-going Confined Space and Lock-out/Tag-out programs. Where the Contractor's Work requires confined space entry into existing facilities and/or lock-out/tag-out of existing equipment and electrical controls, the Contractor shall strictly abide by the Owner's programs if they are more stringent than the Contractor's own procedures.

### **SC-6.17 Shop Drawings and Samples**

SC 6.17.B Delete paragraph GC-6.17.B in its entirety and insert the following in its place:

B. Portions of the Work requiring a Shop Drawing or sample submission shall not begin until the Shop Drawing or submission has been approved by the Engineer. 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 all pertinent submittals will be at the sole risk, expense and responsibility of Contractor.

SC-6.17.C.4 Add the following paragraph after paragraph SC-6.17.C.3:

4. Each submittal shall be cataloged and identified individually according to the specification section, paragraph, sub paragraph, etc. to which it pertains. Submittals from various specifications shall not be grouped into one submittal pertaining to a larger piece of the Work or the work of a single supplier. For example, submittals for pumps, pipe of various types and fittings that are specified in separate sections of the Contract Documents may not be cataloged and identified as a single submittal pertaining to a pump station or other facility, or as a submittal from a single supplier.

SC-6.17.F: Add the following new paragraphs immediately after Paragraph 6.17.E:

F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples or other items requiring approval and Contractor shall

reimburse Owner for Engineer's charges for such time.

SC-6.17.G: Add the following new paragraphs immediately after new Paragraph 6.17.F:

G. In the event that Contractor requests a substitution for a previously approved item, Contractor shall reimburse Owner for Engineer's charges for such time unless the need for such substitution is beyond the control of Contractor.

SC-6.19.B: Contractor's General Warranty and Guarantee

Delete Paragraphs B, B.1 and B.2 in their entirety and substitute the following:

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

1. abuse, modification, or improper maintenance or operation by persons or entities for whom the Contractor is not responsible; or
2. normal wear and tear under normal usage that occurs after Substantial Completion.

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### **SC-7.01.A.2 Related Work at Site**

Delete GC-7.01.A.2 in its entirety.

### **SC-8 Owner's Responsibilities**

Delete Paragraphs 8.04, 8.05, 8.06, 8.07, 8.08, 8.10 and 8.11 in their entirety and substitute the following:

8.04 Several of the Owner's responsibilities described in various Articles of the General Conditions have been modified by various Supplemental Conditions that will not be specifically enumerated here. Full review of the Supplemental Conditions is necessary to a full understanding of the Owner's Responsibilities under this contract.

### **SC-9 Engineer's Status during Construction**

SC-9.01 Owner's Representative

Delete Paragraph 9.01.A in its entirety and substitute the following:

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.

SC-9.03 Project Representative

Delete Paragraph 9.03.A in its entirety and substitute the following:

A. Owner 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 following paragraph SC-9.03.B, and limitations on the responsibilities thereof will be as provided in General Condition Paragraph 9.09.

B. Duties, Responsibilities and Limitations of Authority of Resident Project Representative.

1. General

a. Resident Project Representative is Owner's agent, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding his actions. Resident Project Representative's dealings in matters pertaining to the on-site work shall in general be only with ENGINEER and Contractor(s), and dealings with subcontractor(s) shall only be through or with the full knowledge of Contractor(s).

b. Resident Project Representative services shall be provided as the progress of construction necessitates.

2. Duties and Responsibilities - Resident Project Representative will:

a. Schedules: Review the progress schedule, schedule of Shop Drawing submissions and schedule of values prepared by Contractor(s) and consult with ENGINEER concerning their acceptability.

b. Conference: Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences, as required, in consultation with ENGINEER and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.

c. Liaison: Serve as ENGINEER's liaison with Contractor(s), working principally through Contractor(s)' superintendent.

d. Shop Drawings and Samples:

1) Receive samples which are furnished at the site by Contractor(s), and notify ENGINEER of their availability for examination.

2) Advise ENGINEER and Contractor(s) or its superintendent immediately of the commencement of any work requiring a Shop Drawing or sample submission, if the submission has not been approved by ENGINEER.

e. Review of Work, Rejection of Defective Work, Inspections and Tests:

1) Conduct on-site observations of the work in progress to assist ENGINEER in determining if the work is proceeding in accordance with the Contract Documents and that completed work will conform to the Contract Documents.

2) Report to ENGINEER whenever he/she believes that any work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspections, tests or approval required to be made or has been damaged prior to final payment; and advise ENGINEER when he believes work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

3) Verify that tests, equipment and system(s) startup(s) and operating and maintenance inspections are conducted as required by the Contract Documents and in presence of the required personnel, and that Contractor(s) maintains adequate records thereof; observe, record and report to ENGINEER appropriate details relative to the test procedures and startup(s).

4) Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the outcome of these inspections and report to ENGINEER.

f. Interpretation of Contract Documents: Transmit to Contractor(s) ENGINEER's clarifications and interpretations of the Contract Documents.

g. Modifications: Consider and evaluate Contractor(s)' suggestions for modifications in Drawings or Specifications and report them with recommendations to ENGINEER.

h. Records:

1) Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples submissions, reproductions of original Contract Documents including all Addenda, change orders, field orders, additional Drawings issued subsequent to the execution of the contract(s), ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.

2) Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list of visiting officials and representatives of manufacturers, fabricators, suppliers and distributors, daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures. Send copies to ENGINEER.

- 3) Record names, addresses and telephone numbers of all Contractors, subcontractors and major suppliers of materials and equipment.
- i. Reports:
  - 1) Furnish ENGINEER periodic reports as required of progress of the work and Contractor(s)' compliance with the approved progress schedule and schedule of Shop Drawing submissions.
  - 2) Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the work.
  - 3) Report immediately to ENGINEER upon the occurrence of any accident.
- j. Payment Requisitions: Review applications for payment with Contractor(s) for compliance with the established procedure for their submission and forward them with recommendations to ENGINEER, noting particularly their relation to the schedule of values, work completed and materials and equipment delivered at the site but not incorporated in the work.
- k. Certificates, Maintenance and Operation Manuals: During the course of the work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by Contractor(s) are applicable to the items actually installed; and deliver this material to ENGINEER for its review and forwarding to OWNER prior to final acceptance of the work.
- l. Completion:
  - 1) Before ENGINEER issues a Certificate of Substantial Completion, submit to Contractor(s) a list of observed items requiring completion or correction.
  - 2) Conduct final inspection in the company of ENGINEER, OWNER and Contractor(s) and prepare a final list of items to be completed or corrected.
  - 3) Verify that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.
3. Limitations of Authority: Resident Project Representative:
  - a. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.
  - b. Shall not exceed limitations on ENGINEER's authority as set forth in the Contract Documents.
  - c. Shall not undertake any of the responsibilities of Contractor(s), subcontractor(s) or Contractor(s)' superintendent, or expedite the work.

- d. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract Documents.
- e. Shall not advise on or issue directions as to safety precautions and programs in connection with the work.
- f. Shall not participate in specialized field or laboratory tests.

### **SC-10.05.B. Notice of Claim**

Add the following two sentences to the end of Paragraph GC-10.05.B:

The parties recognize that the Engineer is an employee of the Owner and as such may also prepare the Owner's notice of Claim envisioned in this paragraph. This fact shall not otherwise affect the process, responsibilities of the Engineer or the remedies available to the parties as set forth elsewhere in GC-10.05.

### **SC-11.02 Allowances**

"Delete GC-11.02 in its entirety. There are no Allowances included in the Work of this Project."

### **SC-11.03 Unit Price Work**

Delete Paragraph GC-11.03.D.1 in its entirety and insert the following in its place:

1. the Bid price of a particular item of Unit Price Work amounts to 10 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and

### **SC-13.03 Tests and Inspections**

SC-13.03.F. Add the following sentence to the end of GC-13.03.F: "For the purpose of this paragraph, the words 'timely notice' shall be construed as to mean not less than 48 hours prior to the event of the work being covered."

SC-13.04.E. Add the following paragraph after GC-13.04.D.:

E. Paragraphs B, C, and D, above shall apply only to the situation where work that has been covered by mutual agreement is subsequently determined to require uncovering for further observation.

## **SC-14 Payment to Contractor and Completion**

SC-14.02.A.1: Modify the beginning of the first sentence of GC-14.02.A.1 to read as follows: "At least 10 days before the date established in the Agreement...." Delete the second sentence of GC-14.02.A.1.

SC-14.02.A.2: Delete Paragraph GC-14.A.2 in its entirety and substitute the following:

2. Beginning with the second Application for Payment, each Application shall include a lien release or other waiver acceptable to the Owner signed by the appropriate officer of each Subcontractor or Supplier that has provided labor, equipment or material to the Project during the period applicable to the previous Application for Payment.

SC-14.02.C.1 Modify the beginning of the first sentence of GC-14.02.C.1 to read as follows: "Twenty days after presentation of the Application for Payment...."

SC-14.07.A.3 Delete paragraph GC-14.07.A.3 in its entirety.

## **SC-15.04 Contractor May Stop Work or Terminate**

Add the following paragraph after GC-15.04.B:  
C. The parties recognize that the Engineer is an employee of the Owner and as such will be reviewing and recommending Applications for Payment by the Owner. Therefore, the Owner shall have no less than 60 days after the receipt of an Application for Payment by the Engineer to pay any amount finally determined to be due before the Contractor may invoke the actions contemplated in GC-15.04.

## **SC-16 Dispute Resolution**

SC-16.01.C Delete GC-16.01.C in its entirety and insert the following in its place:

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. gives to the other party written notice of intent to submit the Claim to a court of competent jurisdiction, or
2. agrees with the other party to submit the Claim to another dispute resolution process.

SC-16.01.D Add the following new paragraph immediately after Paragraph SC-16.01.C.

D. Notwithstanding any applicable statute of limitations, a party giving notice under Paragraph SC-16.01.C.1 shall commence an action on the Claim within one year of giving such notice. Failure to do so shall result in the Claim being time-barred and Engineer's action or denial shall become final and binding.

## **SC-17.01 Giving Notice**

Delete GC-17.01.A.1 in its entirety and insert the following in its place:

1. intended for Owner: delivered in person to the individual named in the Agreement as Engineer; if intended for Contractor: given in person to the individual named in the Agreement as Agent for Service or Process.

Delete GC-17.01.A.2 in its entirety and insert the following in its place:

2. delivered at or sent by registered or certified mail, postage prepaid, to the "Address for Giving Notices" listed in the Agreement.

## **SC-17.07 Fill on Private Land**

Insert GC-17.07 after GC-17.06 as follows:  
17.07 Fill on Private Land

A. The Contractor shall not deposit any matter on private land for the purpose of fill without written permission of the land owner.

## **SC-17.08 Operation of Existing Facilities**

Insert GC-17.08 after GC-17.07 as follows:  
17.08 Operation of Existing Facilities

A. No valve, hydrant or other facility of the Portland Water District may be operated by the CONTRACTOR or his agents. The OWNER will, upon reasonable request of the CONTRACTOR, furnish men and equipment for such activity at no additional cost to the CONTRACTOR.

## **SC-17.09 Noise Control**

Insert GC-17.09 after GC-17.08 as follows:  
17.09 Noise Control

A. The project area is residential in nature. The CONTRACTOR shall provide adequate exhaust silencers on all equipment and shall generally endeavor to minimize noise throughout the term of construction. This shall be in addition to any

applicable ordinance or regulation pertaining to noise.

### **SC-17.10 Vehicle Idling Policy**

Insert GC-17.10 after GC-17.09 as follows:  
17.09 Vehicle Idling Policy

A. Purpose: Air pollution is a major public health concern in Portland Water District's Service Area. Air pollution can cause or aggravate lung illnesses as well as impose significant economic costs and negative impacts on our quality of life. Exhaust from both on- and off-road vehicles is a source of carbon monoxide, particulate matter, toxic air contaminants, and greenhouse gases. The Portland Water District can play an important role in improving air quality by limiting the amount of time the District vehicles are allowed to idle. As an environmental leader in the water and wastewater fields the District has the responsibility to be a leader by the adoption of effective policies to improve air quality. Under this policy, limitations and guidelines on engine idling are established by the District to reduce the idling of District and Contractor vehicles.

B. Definitions:

1. "Driver" means any person who drives, operates, or is in actual physical control of a vehicle.
2. "Emergency" means a sudden, urgent, usually unforeseen, occurrence.
3. "Equipment Operator" means any person who is in actual physical control of a piece of off-road equipment.
4. "Idling" means the engine is running while the vehicle is stationary or the piece of off-road equipment is not performing work.
5. "Traffic Control Device" means any sign, signal, marking or device placed or erected for the purpose of regulating, warning, or guiding traffic.
6. "Off-road Equipment" means all non-road equipment such as bulldozers, loaders, backhoes, compressors, etc.
7. "Vehicle" means any on-road, self-propelled vehicle that is required to be registered and have a license plate by the Department of Motor Vehicles.

C. Scope: This policy applies to all District and Contractor vehicles regardless of gross vehicle weight rating, all heavy-duty vehicles regardless of the fuel being used, all off-road diesel equipment regardless of horsepower rating, and

all off-road equipment regardless of fuel being used, except as provided as specific exceptions stated in the policy.

D. Policy:

1. The driver of a vehicle shall turn off the engine upon stopping at a destination and shall not cause or allow an engine to idle at any location for:
  - a. More than ten consecutive minutes or
  - b. A period or periods totaling more than ten minutes in any one hour period.
2. An equipment operator of an off-road piece of equipment shall not cause or allow an engine to idle at any location for:
  - a. More than ten consecutive minutes or
  - b. A period or periods totaling more than ten minutes in any one hour period
3. This idling policy does not apply to a vehicle or a piece of equipment for the period or periods during which:
  - a. idling is necessary while stopped:
    - 1) and the vehicle is being used for a traffic control device (Using strobe lights, light-bars, etc.) to protect employees while working in the street from traffic.
    - 2) for traffic conditions over which the driver has no control, included but not limited to: stopped in a line of traffic, at a railroad crossing, etc.
    - 3) at the direction of a law enforcement officer
  - b. idling is necessary to determine that the vehicle and / or the off-road equipment is in safe operating condition and equipped as required by all provisions of the law, and that all equipment is in good working order, either as part of the daily vehicle inspection, or as otherwise needed.
  - c. idling is necessary for the testing, servicing, repairing, and diagnostic purposes.
  - d. idling is necessary, for a period of 3 minutes or as recommended by the manufacturer, to cool down a turbo- charged vehicle before turning off the vehicle.
  - e. idling is necessary to accomplish work for which the vehicle / equipment was designed, other than transporting goods, for example: operating a lift, crane, pump, drill, hoist, or other auxiliary equipment other than a heater or air conditioner.
  - f. idling is necessary to operate defrosters, heaters, air conditioners, or other equipment to prevent a safety hazard such as melting ice on the windshield, but not solely for the comfort of the driver or passengers for a period not to exceed twenty minutes.
  - g. idling is necessary solely to recharge a battery or other energy storage unit of a hybrid electric vehicle / equipment.

- h. idling is permitted when vehicles are occupied by personnel and being actively used as a work station, i.e. TV truck, using computers, etc.
- i. idling is permitted to provide a habitable environment during breaks during extreme weather conditions, hot or cold (above 80 degrees F or below 32 degrees F)

END OF SECTION

**SECTION 00941 – CHANGE ORDER NO. \_\_\_\_\_**

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:	Date of Contract:	
Contractor:	Engineer's Project No.:	

**The Contract Documents are modified as follows upon execution of this Change Order:**

Description: \_\_\_\_\_  
 \_\_\_\_\_

Attachments: (List documents supporting change): \_\_\_\_\_  
 \_\_\_\_\_

<b>CHANGE IN CONTRACT PRICE:</b>	<b>CHANGE IN CONTRACT TIMES:</b>
Original Contract Price:  \$ _____	Original Contract Times: <input type="checkbox"/> Working days <input type="checkbox"/> Calendar days Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____:  \$ _____	[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: Substantial completion (days): _____ Ready for final payment (days): _____
Contract Price prior to this Change Order:  \$ _____	Contract Times prior to this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order:  \$ _____	[Increase] [Decrease] of this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
Contract Price incorporating this Change Order:  \$ _____	Contract Times with all approved Change Orders: Substantial completion (days or date): _____ Ready for final payment (days or date): _____

RECOMMENDED: By: _____ Engineer (Authorized Signature) Date: _____	ACCEPTED: By: _____ Owner (Authorized Signature) Date: _____	ACCEPTED: By: _____ Contractor (Authorized Signature) Date: _____
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**DIVISION 1 – GENERAL REQUIREMENTS**

## SECTION 01001 - DESCRIPTION OF WORK

### PART 1: GENERAL

#### 1.1 SCOPE:

- A. The CONTRACTOR shall furnish and install water main and appurtenances in Anderson Street, Portland, Maine as shown on the drawings and specified herein.
- B. The CONTRACTOR shall perform leakage and pressure tests and disinfect the installed water main as specified herein.

#### 1.2 DUTIES OF THE OWNER:

- A. The OWNER will locate the terminal points of the work and will also locate any of its facilities lying in close proximity which would in any way be a hazard to the CONTRACTOR's operations.
- B. The OWNER will operate any valves or hydrants which may be found desirable or necessary to be used for any purpose. The OWNER will perform work in coordination with the CONTRACTOR at the locations specified on the plans.
- C. The OWNER will notify customers of all work involving temporary shutdown of service.

#### 1.3 DUTIES OF THE CONTRACTOR:

- A. The CONTRACTOR will familiarize himself with all obstructions which he can foresee, such as existing pipes, services, conduits, ducts, sewers or any other such obstructions which might interfere with the construction, and he agrees to make arrangements with the owners of such facilities so as to save the OWNER harmless from any damages thereto caused by his operations and to make whatever arrangements might be necessary to move or remove and replace these facilities so as to permit the construction, all at his own expense. The CONTRACTOR agrees that there will be no extras charged for this type of work, except by special agreement with the ENGINEER and upon written order from him.
- B. The CONTRACTOR will make any changes which may be required, such as the removing or restoring of the property of others in the land through which this line will cross in right-of-way or otherwise. The CONTRACTOR will place all pipe, fittings and all attendant facilities to proper line and grade, as called for in the plans and specifications and to the satisfaction of the ENGINEER.
- C. The CONTRACTOR must give the District at least 4 days notice prior to a shutdown in order to properly notify customers.
- D. The CONTRACTOR will furnish all fuel, gasoline, oil, etc. for the operation of his equipment, all tools and equipment, and all labor and supervision necessary for the handling of material, for excavation, installation, backfilling and cleaning the site as required. He will dispose of excess spoil and restore the land surface to the original contour over the entire length of the project. Restoration shall be made to the satisfaction of the ENGINEER.
- E. The CONTRACTOR will perform the pressure and leakage test and disinfection of the main as described herein in the presence of the ENGINEER or OWNER.
- F. The CONTRACTOR shall install the water mains to supply the OWNER with a satisfactory, watertight pipeline, laid to proper line and grade in accordance with these contract documents, to the satisfaction of the OWNER. The CONTRACTOR shall leave the site in a condition, which is suitable to the OWNER, abutting landowners and any municipal or state authorities having jurisdiction over the areas involved.

- G. The CONTRACTOR is required to have a valid excavator's license in the City of Portland and must obtain all necessary street opening permits and comply with all rules and regulations associated with the permits. [Reference: [www.publicworks.portlandmaine.gov/media/rulesreg.pdf](http://www.publicworks.portlandmaine.gov/media/rulesreg.pdf)]

END OF SECTION

## SECTION 01035 - CONTROL OF WORK

### PART 1: GENERAL

#### 1.1 PLANT

- A. The Contractor shall furnish plant and equipment which will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Proposal. If at any time such plant appears to the Owner to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character or increase the plant equipment, and the Contractor shall conform to such order. Failure of the Owner to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.

#### 1.2 PIPE LOCATIONS

- A. Pipelines shall be located substantially as indicated on the Drawings, but the Owner reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

#### 1.3 CARE AND PROTECTION OF PROPERTY

- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the Owner.

#### 1.4 PROTECTION AND RELOCATION OF EXISTING STRUCTURES, TREES AND UTILITIES

- A. The Contractor shall assume full responsibility for the protection of all trees, buildings, structures, and utilities, public or private, including poles, signs, services to buildings, buried utilities, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense.
- B. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the Prices in the Proposal.

#### 1.5 CLEANUP

- A. During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.

END OF SECTION

## SECTION 01151 - MEASUREMENT AND PAYMENT

### PART 1: GENERAL

#### 1.1 METHOD OF MEASUREMENT AND BASIS OF PAYMENT:

- A. All measurements for payments will be based on completed work performed in strict accordance with the drawings and specifications, and on the contract bidding and payment item schedules. All work completed under the contract will be measured by the PORTLAND WATER DISTRICT ("DISTRICT") according to the methods outlined below. In cases where the payment clause in the specifications relating to any unit or lump sum price stated in the contract requires that the said unit or lump sum price cover and be considered compensation for certain work or material essential to the item, this same item will not be measured or paid for under any other pay item which may appear elsewhere in the specifications.

#### 1.2 INCIDENTAL WORK

- A. Incidental work items for which separate payment is not made include (but are not limited to) the following items:
1. Dewatering
  2. Clean-up
  3. Loaming and seeding
  4. Restoration of property
  5. Crossing other utilities
  6. Fittings – crosses, tees, bends, sleeves, etc. shown on the drawings
  7. Bonds, insurance, shop drawings, warranties and other submittals required by the contract documents
  8. Repair and replacement of utilities damaged by construction activities and corresponding proper disposal of removed materials
  9. Temporary construction and other facilities not to be permanently incorporated into the work necessary for construction sequencing and maintenance of operations
  10. Permits not otherwise paid for or provided by the Owner
  11. Facilities for storage of materials to be incorporated into the Work
  12. Test pits to determine existing utility locations, soil conditions, and as required to complete the project

### PART 2: PAYMENT ITEMS:

#### 2.1 ITEM NOS. 1 and 2 – Ductile Iron Water Main

- A. Method of Measurement: Linear feet as measured along the centerline of the pipe for the actual number of linear feet of pipe installed.
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavating, shoring and bracing, dewatering, traffic control, pipe, laying and jointing, removal and disposal of existing piping and appurtenances, bedding, backfilling, aggregate subbase gravel, testing and associated work as specified and shown on the Drawings.
- C. Schedule of Payment: Installation – 85%; Testing – 15%

#### 2.2 ITEM NO. 3 – Hydrant Assembly

- A. Method of Measurement: Actual number installed
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, shoring and bracing, dewatering, 20-inch X 6-inch tapping sleeve & valve, valve box, 6-inch

ductile iron pipe, hydrant, traffic control, thrust blocks, backfill, aggregate subbase gravel, testing and associated work as specified and shown on Drawings.

- C. Schedule of Payment: Installation – 85%; Testing – 15%

#### 2.3 ITEM NOS. 4, 5, 6, 7, 8, 9 and 10 – Gate Valves

- A. Method of Measurement: Actual number installed
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, shoring and bracing, dewatering, valve, swivel tees and sleeves (where required), valve box, traffic control, backfill, aggregate subbase gravel, testing and associated work as specified and shown on Drawings.
- C. Schedule of Payment: Installation – 85%, Testing – 15%

#### 2.4 ITEM NOS. 11, 12 and 13 – Fire Services

- A. Method of Measurement: Actual number installed
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, shoring and bracing, dewatering, tee, gate valve and valve box, ductile iron pipe, fittings, thrust blocks, bedding, laying and jointing, backfill, compaction, testing, removal and disposing of existing pipe and appurtenances that are being replaced, aggregate subbase gravel and associated work as specified and shown on Drawings.
- C. Schedule of Payment: Installation – 85%; Testing – 15%

#### 2.5 ITEM NOS. 14, 15, 16, 17, 18 and 19 – Copper Services

- A. Method of Measurement: Actual number installed
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, shoring and bracing, dewatering, copper pipe, corporation, fittings, connection to existing service, service box, rod, curb stop, backfilling, testing, aggregate subbase gravel and associated work as specified and shown on Drawings.
- C. Schedule of Payment: Installation – 85%; Testing – 15%

#### 2.6 ITEM NO. 20 – Gravel Borrow

- A. Method of Measurement: Cubic yards as measured in place for the actual number of yards of gravel borrow installed.
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, installation and compaction of gravel borrow as directed by the ENGINEER to replace unsuitable excavated material.
- C. Schedule of Payment: Installation – 100%

#### 2.7 ITEM NO. 21 – Rock Excavation

- A. Method of Measurement: Cubic yard as measured in place prior to removal for the actual number of cubic yards excavated within the pay limits shown on the Drawings and directed by the ENGINEER. Boulders less than two cubic yards in volume will not be measured for payment.

B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, shoring and bracing, dewatering, excavation, select backfill replacement, erosion control, cleanup and associated work as specified and shown on the Drawings.

C. Schedule of Payment: Excavation – 100%

2.8 ITEM NO. 22 – Unsuitable Material Excavated Below Pipe Grade

A. Method of Measurement: Cubic yard as measured in place prior to removal for the actual number of cubic yards excavated within the limits shown on the Drawings and directed by the ENGINEER.

B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for removing unsuitable material excavated below trench grade and replacing with granular bedding material as directed by the ENGINEER.

C. Schedule of Payment: Excavation - 100%

2.9 ITEM NOS. 23 – Flagger

A. Method of Measurement: The accepted quantity of flagger will be the number of hours the designated station is occupied. The number of hours authorized for payment will be measured to the nearest ¼ hour.

B. Basis of Payment: The accepted quantities of flagger hours will be paid for at the contract unit price for each station occupied, with no additional payment for overtime or transportation. The contract unit price shall be full compensation for hiring, transporting, equipping, supervising, and the payment of flaggers, and all overhead and incidentals necessary to complete the work.

C. Schedule of Payment: Completion of work – 100%

2.10 ITEM NOS. 24 and 25 – Foreman & Laborer

A. Method of Measurement: Total man-hours.

B. Basis of Payment: Unit price per man-hour as stated in the Bid. Payment shall include wages, benefits and overhead and profit for personnel for the purpose of performing extra work at the request of P.W.D.

C. Schedule of Payment: Completion of work – 100%

2.10 ITEM NOS. 26, 27 and 28 – Excavator, Loader and Dump Truck

A. Method of Measurement: Total hours.

B. Basis of Payment: Unit price per hour as stated in the Bid. Payment shall include equipment and operator/driver, wages, benefits, fuel and overhead and profit for the purpose of performing extra work at the request of P.W.D.

C. Schedule of Payment: Completion of work – 100%

END OF SECTION

## SECTION 01310 - SUBMITTALS

### PART 1 - GENERAL

#### 1.1 SUBMITTALS FOR OWNER'S APPROVAL

- A. For all products to be incorporated into the Work submit to the OWNER for approval sufficient information in the form of shop drawings, product data and/or samples such that the OWNER can determine that the product is in compliance with the Technical Specifications and Drawings.
- B. Submit two (2) copies of each submittal. One (1) copy will be returned to the CONTRACTOR. Each copy shall include a cover sheet which clearly identifies the product and corresponding specification section. Each cover sheet shall bear the CONTRACTOR's stamp and signature certifying that the submittal is in full compliance with the Contract Documents or that any deviations from the Contract Documents are clearly identified on a separate sheet(s) labeled "Deviations From Contract Documents" and attached to the cover sheet.
- C. OWNER's Review: The OWNER shall review the submittals and indicate their status as:
  - 1. APPROVED SUBJECT TO REQUIREMENTS OF THE CONTRACT DOCUMENTS
  - 2. APPROVED AS NOTED, SUBJECT TO REQUIREMENTS OF THE CONTRACT DOCUMENTS
  - 3. REVISE AS NOTED, RESUBMITAL REQUIRED.
  - 4. NOT APPROVED

OWNER's review is only for general conformance with the design concept and general conformance with the information given in the Contract Documents. Corrections or comments made during the review do not relieve the CONTRACTOR from compliance with the requirements of the Contract Documents.

- D. Re-submittals: Make re-submittals under procedures specified for submittals; identify changes made since previous submittal.
- E. CONTRACTOR shall be responsible for the delays and or additional expenses that result from the CONTRACTOR's failure to submit a complete submittal and/or to identify portions of the submittal that does not conform to the specifications.

END OF SECTION

## SECTION 01710 - CLEANUP

### PART 1: GENERAL

#### 1.1 SCOPE:

- A. The work covered by this section is to provide all cleanup over the entire project.

### PART 2: PRODUCTS

#### 2.1 METHOD:

- A. The Contractor may choose any method he wishes for cleanup and shall assume all responsibility for the adequacy of the method and equipment employed.

### PART 3: EXECUTION

#### 3.1 CLEANING UP:

- A. During the progress of the work, the construction areas shall be kept clean and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damages repaired so that the public and property owners will be inconvenienced as little as possible.
- B. Contractor shall fill in all depressions and water pockets on public and private property caused by his operations; clean all drains, ditches and culverts which have been obstructed by his work; and, shall leave the site in a neat condition wherever his operations have disturbed existing conditions.
- C. Contractor shall make restitution for any damage to trees, shrubbery or other structures or facilities owned by adjacent property owners.
- D. Cleanup shall follow directly behind the progress of the project.
- E. All excess material, rubbish or other type of mess shall be cleaned up and the site shall be left to the satisfaction of the right-of-way grantor, or any abutters, as well as to the satisfaction of any municipal or state authority which may be involved if in public right-of-way.
- F. Any damage to or displacement of street or highway surfaces due to blasting or otherwise shall be either replaced satisfactorily by the Contractor or shall be paid for by him to the authority responsible for the street or highway

END OF SECTION

**DIVISION 2 – SITE WORK**

## **SECTION 02105 - CLEARING, GRUBBING AND RESTORATION**

### **PART 1: GENERAL**

#### **1.1 SCOPE:**

- A. The CONTRACTOR shall do all clearing, grubbing, topsoil stripping, and restoration necessary for the construction of this project.

#### **1.2 RELATED WORK SPECIFIED ELSEWHERE:**

- A. Cleanup - Section 01710
- B. Loam and Seeding - Section 02821

### **PART 2: PRODUCTS**

#### **2.1 MATERIALS:**

- A. Materials shall be at CONTRACTOR's option, except that stripped topsoil shall be stockpiled and replaced in approximately its original location and to its original depth.

### **PART 3: EXECUTION**

#### **3.1 CLEARING AND GRUBBING:**

- A. Before any excavation shall begin, the CONTRACTOR shall remove all underbrush, trees, stumps, or other obstructions within the work area, but shall not work on any private property without permission. The Contractor and Engineer shall agree upon the extent of clearing within the work area prior to the start of work. The Contractor shall not deviate from the agreed upon limits without the permission of the Engineer.
- B. All limbs, stumps, etc., shall be disposed of off site by the CONTRACTOR and at his expense unless otherwise specified.
- C. After the trees have been cut and stumps removed from wooded areas and in all field areas, existing topsoil and humus material shall be excavated and stockpiled by the CONTRACTOR. After pipelines have been completed, the topsoil and humus material shall be placed back over the disturbed areas and seeded in accordance with Section 02821.
- D. If the CONTRACTOR fails to salvage and reuse existing topsoil and humus material, he shall furnish sufficient loam from off the project site to restore the disturbed areas to match the existing topsoil depth, at his own expense.
- E. No excavations for pipe laying shall begin until the existing topsoil and humus material has been stockpiled.

#### **3.2 CARE AND RESTORATION OF EXISTING PROPERTY:**

- A. Excavating machinery shall be of suitable type and be operated with care to prevent injury to trees not to be cut, and particularly to overhanging branches or limbs.
- B. Branches, limbs and roots shall not be cut except by permission of the ENGINEER. All cutting shall be smooth and neatly done without splitting or crushing. In case of cutting or unavoidable injury to branches,

limbs, or trunks of trees, the cut or injured portion shall be neatly trimmed and covered with an application of grafting wax or tree-healing paint as directed.

- C. Cultivated hedges, shrubs, and plants which might be injured by the CONTRACTOR's operations shall be protected by suitable means or shall be dug up and temporarily replanted and maintained. After the construction operations have been substantially completed, they shall be replanted in their original position and cared for until growth is re-established. If cultivated hedges, shrubs and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of kind and quality at least equal to the kind and quality existing at the start of the work.
- D. All surfaces which have been damaged by the CONTRACTOR's operations shall be restored to a condition at least equal to that in which they were found immediately before work was started.
- E. The CONTRACTOR shall be fully responsible for all damages to public and private property and will be expected to carefully protect from injury all walls, fences, buildings, and underground facilities. If removal and replacement is required, it shall be done so that the replacement is equivalent to that which existed prior to construction and shall be paid for by the CONTRACTOR.

END OF SECTION

## SECTION 02211 - ROCK EXCAVATION

### PART 1: GENERAL

#### 1.1 SCOPE:

- A. This section includes the trench excavation and disposal of all rock and boulders encountered to the lines and grades indicated on the drawings or as specified.
- B. The CONTRACTOR shall dispose of the excavated material and shall furnish select backfill material in place of the excavated rock.
- C. A preblast survey shall be conducted by a company specializing in preblast surveys with a minimum of five years documented experience.
- D. Adhere to all city ordinances regarding blasting.

#### 1.2 ROCK AND BOULDER DEFINITION

- A. Rock excavation will be interpreted as meaning ledge rock and boulders measuring more than two cubic yards or any other material which in the opinion of the ENGINEER requires drilling and blasting, or drilling and wedging, to remove. No hardpan, no soft or disintegrated rock which can be removed with a pick; no loose, shaken or previously blasted rock or broken stones smaller than two cubic yards, or frozen earth will be measured or allowed as rock excavation.

#### 1.3 RELATED WORK SPECIFIED ELSEWHERE:

- A. Excavation and Backfilling for Water Mains - Section 02217.
- B. Bedding and Backfill Material - Section 02219

### PART 2: PRODUCTS

#### 2.1 EQUIPMENT

- A. Equipment shall be at CONTRACTOR's option.

### PART 3: EXECUTION

#### 3.1 BLASTING:

- A. Obtain approval of the District Inspector before blasting.
- B. Perform blasting in accordance with the following:
  - 1. "Manual of Accident Prevention in Construction" issued by Associated General Contractors of America, Inc.
  - 2. "Construction Safety Rules and Regulations" as adopted by the State Board of Construction Safety, Augusta, Maine
  - 3. Section 107.12 of the "Standard Specification", Maine Department of Transportation.

- C. Submit an accurate record, on an approved form, containing the following information on each blast to the ENGINEER on a daily basis:
1. Location of blast.
  2. Depth and number of drill holes.
  3. Type and quantity of explosive used.
  4. Time of blast.
  5. Seismographic record of each blast taken at nearest structure.
- D. Preblast survey shall be done by SUBCONTRACTOR hired by CONTRACTOR. Provide preblast survey prior to any blasting or blasting related operations. Survey to be performed by an independent business entity with a minimum of 5 years experience in similar type surveys.
1. Preblast survey to include but not be limited to:
    - a. Still photos taken at 50 foot maximum stationing. (4" x 6" color prints).
    - b. Video tape of entire construction area.
    - c. Video tape of each structure within construction area to show preblast conditions. Highlight existing defects in structures and pavements. Provide some means of establishing scale of existing defects, i.e.: include tape measure or folding ruler at defect during video taping.
    - d. Video taping must be done with commercial grade equipment to allow equipment still viewing without distortion of the viewed area.
    - e. Still photos and video tape shall be retained by the preblast surveyor and shall be available for viewing by the OWNER and ENGINEER within 24 hours upon request.
    - f. Blasting shall be conducted with all possible care so as to avoid injury to persons and property. Rock shall be well covered with effective appliances and sufficient warning shall be given to all persons in vicinity of work before blasting. Care shall be taken to avoid damage to water pipes, sewers, drains, or other utilities and structures. Caps or other exploders shall not be kept in same place in which dynamite or other explosives are stored or where tools and supplies are stored.
    - g. CONTRACTOR shall observe all Federal and State laws and local ordinances relating to storage, transportation and handling of explosives and blasting, and shall obtain and pay for all permits.
    - h. No blasting shall be done after 3:00 P.M. on weekdays, or at any time on Saturdays, Sundays, or holidays in any area where there are existing utilities.
    - i. If any damage or injury is directly or indirectly caused to water pipes or other utilities by the CONTRACTOR's blasting operations, the CONTRACTOR shall do whatever is required by the Utility Company to repair the damage and shall assume all cost for the repair work, whether it be done by the CONTRACTOR or the Utility Company itself.
    - j. Should the CONTRACTOR's blasting work prove unsatisfactory to the ENGINEER or OWNER, the OWNER shall have the authority to terminate blasting until the CONTRACTOR shall satisfy the ENGINEER that future damages will be minimized. The CONTRACTOR shall provide and pay for the services of a blasting expert if required by the ENGINEER, and the expert shall submit a written report on the recommended blasting procedures which the CONTRACTOR shall follow. The blasting expert shall be subject to the approval of the ENGINEER. Ordered termination of blasting shall not be cause for a delay of work claim.

### 3.2 EXCESSIVE ROCK EXCAVATION:

- A. All rock that is excavated beyond the pay limits shall be backfilled with suitable backfill material at no added cost to the OWNER.

3.3 SHATTERED ROCK:

- A. If the rock below normal depth is shattered due to drilling or blasting operations of the CONTRACTOR, and the ENGINEER considers such shattered rock to be unfit for foundations, the shattered rock shall be removed and the excavation shall be backfilled with suitable material. All such removal and backfilling shall be done by and at the expense of the CONTRACTOR.

3.4 PREPARATION OF ROCK SURFACES:

- A. All rock to be satisfactorily uncovered by the CONTRACTOR and made ready for measurement by the ENGINEER before any blasting is done.

3.5 DISPOSAL OF EXCAVATED ROCK:

- A. Excavated rock may be used in backfilling trenches subject to the following limitations.
  - 1. No pieces of rock larger than 8 inches in the greatest dimension shall be placed in the backfill.
  - 2. The quantity of rock used as backfill in any location shall not be so great as to result in the formation of voids.
  - 3. Rock backfill shall not be placed in the gravel base area or within 24" of the surface of the finish grade.
- B. Surplus excavated rock shall be disposed of in areas approved by OWNER.
- C. Acceptable borrow, similar to existing material, shall be provided by the CONTRACTOR as necessary to supply any deficiencies in trench backfill.

END OF SECTION

## **SECTION 02217 - EXCAVATION AND BACKFILLING FOR WATER MAINS**

### PART 1: GENERAL

#### 1.1 SCOPE:

- A. This section includes all excavation for water mains, hydrants and appurtenances, including drainage, sheeting and bracing, backfilling, disposal of surplus material, and miscellaneous grading. All work shall be done as indicated on the drawings and as herein specified.
- B. Excavation for water mains shall be the width and depth as indicated on the standard details. Excavation for hydrants and appurtenances shall provide suitable room for their construction.
- C. The CONTRACTOR shall furnish and place all sheeting, bracing and supports, and necessary dewatering, and shall carry out the excavation in such a manner as to eliminate all possibilities of undermining or disturbing existing pipelines, utilities, roadways, shoulders and/or structures.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Bedding and Backfill Material - Section 02219

### PART 2: PRODUCTS

#### 2.1 EQUIPMENT:

- A. Equipment shall be at CONTRACTOR'S option.

### PART 3: EXECUTION

#### 3.1 EXCAVATION:

- A. When any pavement, regardless of type, must be cut, it shall be done in a neat and symmetrical manner by use of a saw, chisel, or other suitable method. In no case shall pavement be torn up with a backhoe bucket except between and inside of cuts previously made as above. Should any further pavement be broken, outside of the cuts, as by blasting, such damaged pavement shall be cut out in a neat and orderly fashion.
- B. The CONTRACTOR shall perform all excavation of every description and of whatever substances encountered to the depths shown on the drawings or directed by the ENGINEER.
- C. No extras will be allowed for quicksand excavation, muck excavation, or any other type unless specifically provided for in the bidding schedule.
- D. Surplus excavated material may be used at other parts of the construction project as required for fill, etc. Excess material shall be disposed of by the CONTRACTOR.
- E. The sidewalls of all trench excavation shall be kept as nearly vertical as possible in all roadways, lawns, near homes, etc. by sheeting, bracing, or other means. The width of the trench at a point six (6) inches above the top of the water pipe shall not be greater than the width detailed. If the type of excavated material will not allow the width detailed, then the trench shall be properly sheeted and braced. The cost of sheeting, bracing, or other means is included in the cost of the pipelines and no extras will be allowed.

- F. The excavation shall be made to secure a flat bottom trench (undisturbed earth bottom) for the full length of the pipe so as to give a uniform support to the pipe and shall be in accordance with ANSI A21.50 (AWWA C150), Type 2 Laying Condition.
- G. The bottom of the trench shall be accurately graded to provide support to the full length of the pipe barrel. Excavate at each bell to prevent bell from bearing on trench bottom.

### 3.2 EXCAVATION BELOW TRENCH GRADE:

- A. By mistake of CONTRACTOR: Where the bottom of the trench shall, by mistake of the Contractor, have been taken out to a greater depth than required, it shall be refilled to the proper grade with bedding material, and all to be placed and compacted as specified. The CONTRACTOR shall receive no additional compensation.
- B. By instruction from ENGINEER: If, in the opinion of the ENGINEER, existing material below trench grade is unsuitable for properly laying the pipe, the CONTRACTOR will excavate and remove the unsuitable material and replace the same with bedding material as authorized by the ENGINEER and properly compacted to his satisfaction. The CONTRACTOR will be paid under the item titled "Unsuitable Material Excavated Below Trench Grade."

### 3.3 EXCAVATION NEAR EXISTING UTILITIES, ETC.

- A. It will be necessary to excavate near existing pipes, drains and other utilities in certain locations. Some of these have been indicated on the drawings, but no attempt has been made to show all of the services and the completeness and accuracy of the information given is not guaranteed. The CONTRACTOR shall call "Dig-Safe" at least three business days in advance of any excavation to allow utilities to locate underground facilities.
- B. As the excavation approaches pipes, conduits, or other underground structures and utilities, digging by machinery shall be discontinued and the excavation shall be done by means of hand tools.
- C. If the utility is of the opinion that at any point sufficient or proper support has not been provided, they may order additional supports placed at the expense of the CONTRACTOR. Compliance with such order shall not relieve the CONTRACTOR from his responsibility for the sufficiency of such supports. It shall be the responsibility of the CONTRACTOR to prevent damage to or displacement of utilities and to consult with and request the concurrence of the utility company's representative in this matter at all locations. The cost of protecting such utilities shall be considered incidental to the cost of laying the pipe.

### 3.4 TRENCH SURCHARGES:

- A. The excavated material shall be placed adjacent to the excavation in a manner to cause no excessive surcharge on the trench bank nor to obstruct free access to hydrants and valves. Should traffic or other conditions make it impractical or unsafe to stack material adjacent to trench, it shall be hauled and stored at a location provided by the CONTRACTOR and at the expense of the CONTRACTOR. When required, it shall be re-handled and used in backfilling the trench by the CONTRACTOR and at his expense.

### 3.5 SHEETING AND BRACING:

- A. The CONTRACTOR shall be responsible for the design, construction, maintenance and safety of all sheeting and bracing required to support the sides of the excavation and to prevent the movement of earth which could in any way damage or endanger adjacent structures, utilities, roadways, increase the width of the excavation to more than that specified, or delay the work.
- B. All sheeting, bracing and shoring is to be included in prices bid for several items of work in bidding schedule and will not be paid for as separate items.

- C. No shoring shall be left in place unless so directed by the ENGINEER.

3.6 DRAINAGE AND DEWATERING OF EXCAVATIONS:

- A. The CONTRACTOR shall conduct his operations so as to prevent at all times the accumulation of water, ice and snow in excavations or in the vicinity of excavated areas so as to prevent water from interfering with the progress or quality of the work. Under no conditions shall water be allowed to rise in unbackfilled trenches after pipe has been placed.
- B. Accumulated water, ice and snow shall be promptly removed and disposed of by dewatering. Disposal shall be carried out in a manner which will not create a hazard to public health; nor cause injury to public or private property, work completed or in progress, or public streets; nor cause any interference in the use of streets and roads by the public. Pipes under construction shall not be used for drainage of excavations.
- C. During construction, when an unstable condition in the pipe sub-grade has been created due to the CONTRACTOR'S excavation, the sub-grade shall be stabilized by dewatering or other means accepted by the ENGINEER.

3.7 BACKFILLING - GENERAL:

- A. In general and unless other material is indicated on the drawings or is specified, material used for backfilling trenches and excavations around structures shall be suitable material which was removed in the course of making the construction excavations or as specified.
- B. Frozen materials shall not be placed in the backfill, nor shall material be placed upon frozen material. Previous frozen material shall be removed or shall be otherwise treated as required before new backfill is placed.
- C. Backfilling shall be done as soon as practical after the pipe has been laid and jointed.

3.8 SUITABLE BACKFILL MATERIAL

- A. Suitable backfill material shall be the following or a combination of the following:
  - 1. Excavated material that will compact to the compaction requirements.
  - 2. Material that does not contain rocks larger than 8" in any dimension.
  - 3. Dry clay backfill free from lumps.
  - 4. Wet clay that alone would pump but when mixed with sand and/or gravel will be stable and will compact.

3.9 BACKFILLING PIPE TRENCHES:

- A. As soon as practicable after the pipes have been laid and jointed, backfilling shall begin and shall proceed until it is completed or has sufficient backfill to allow pipe testing.
  - 1. The first layer of suitable backfill material shall be brought half-way up the pipe and compacted to 80% maximum density and then the normal backfilling shall begin and shall be compacted as specified.
  - 2. All backfill shall be thoroughly compacted by hand tamping as placed, by use of mechanical or vibratory compactors, or by other acceptable methods.
  - 3. Remainder of the trench shall be backfilled as follows:

- a. In paved areas, road shoulders and seeded areas, the entire depth of trenches above the center line of the pipe shall be backfilled in eight (8) inch layers with suitable backfill material and each layer thoroughly and carefully compacted as specified. Bring backfill up to bottom of gravel base and/or loam.
  - b. In other areas, the trench above the center- line of the pipe shall have suitable backfill material placed and compacted in eighteen (18) inch maximum layers as specified.
- B. The nature of the excavated materials will govern both their acceptability for backfill and the method best suited for their placement and compaction in the backfill.
- 1. Both the materials and the methods shall be subject to the acceptance of the ENGINEER.
  - 2. No stones or rock larger than 8" in the greatest dimension shall be placed in the backfill.
- C. Backfilling in public right-of-way, along the streets or highways in or along shoulder, berm or backslope shall be done in accordance with the specifications and requirements of the state or municipality, whichever is responsible for the street or highway involved. Responsibility for the fulfillment of permit conditions or any other applicable requirements of the street or highway authority shall be the obligation of the CONTRACTOR. Surface restoration shall be carried out to the satisfaction of the street or highway authority or as shown on the plans.
- D. Backfilling shall follow pipe laying as closely as reasonable, so that a minimum of trench shall be open at any time. The regulations of the highway authorities shall be observed as regards the amount of trench to be open at any one time. Over night, and especially over weekends and holidays, the amount of open trench shall be kept at an absolute minimum. Any caved-in trench, especially after heavy rain and flooding, shall be cleaned out and the bottom consolidated before any additional pipe shall be laid.

3.10 TOP OF BACKFILL:

- A. In paved and shoulder areas, backfill shall be carried up to pavement or shoulder sub-grade ready to receive the gravel base. In other areas, backfill shall be brought up to adjacent finished grade minus the depth of any required topsoil and so as to provide a finished surface slightly mounded over the trench. Any trenches improperly backfilled, or where settlement occurs, shall be reopened to the depth required for proper compaction, and shall then be refilled and compacted with the surface restored to required grade and degree of compaction, mounded over, and smoothed off, at no additional expense.
- B. In unpaved areas, the gravel topping shall be left in a smooth and even condition, with no large stone on or in the surface. In cases where a paved surface has been broken, a temporary bituminous patch and/or a permanent paving restoration shall be made as required by the appropriate local or state road authority.

3.11 COMPACTION:

- A. Compaction densities specified herein shall be the percentage of the maximum density obtainable at optimum moisture content as determined and controlled in accordance with AASHTO Standard T-180, Method A or D depending on the material size. Field density tests shall be made in accordance with AASHTO Standard T-147.

Each layer of backfill shall be moistened or dried as required and shall be compacted to the following densities, unless otherwise specified in the project specifications.

- |   |     |
|---|-----|
| 1. Bedding material   | 80% |
| 2. Suitable backfill material under paved or shoulder areas | 90% |
| 3. Gravel base:   |     |
| a. Under paved areas  | 95% |
| b. In shoulder areas  | 90% |

- |   |     |
|---|-----|
| c. As replacement for unsuitable material excavated below grade | 90% |
| 4. Loam areas   | 90% |
| 5. All other areas  | 85% |

B. Methods and equipment proposed for compaction shall be subject to prior acceptance by the ENGINEER. Compaction generally shall be done with vibrating equipment. Displacement of, or injury to, the pipe and structure shall be avoided. Movement of in-place pipe or structures shall be at the CONTRACTOR'S risk. Any pipe or structure damaged thereby shall be replaced or repaired as directed by the ENGINEER and at the expense of the CONTRACTOR.

C. Testing:

1. Field density tests may be ordered by the ENGINEER for each foot of depth of backfill at an average interval of 200 feet along the trench.
2. The CONTRACTOR shall furnish all necessary samples for laboratory tests and shall provide assistance and cooperation during field tests. The CONTRACTOR shall plan his operations to allow adequate time for laboratory tests and to permit taking of field density tests during compaction.
3. Any costs of retesting required as a result of failure to meet compaction requirements shall be borne by the CONTRACTOR.

3.12 FILL AND GRADING:

- A. Excavated material not required for backfilling around pipes or structures may be used for fill in areas which require material for re-grading.
- B. The re-grading shall be carried out as directed by the ENGINEER, so that all surface water will drain towards brooks or drainage pipes.
- C. All material shall be of such nature that after it has been placed and properly compacted, it will make a dense and stable fill.

3.13 PROTECTION OF EXISTING STRUCTURES:

- A. All existing pipes, wires, poles, fences, property line markers and other items, which must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from injury by the CONTRACTOR, at no additional cost to the OWNER. Should such items be injured, they shall be restored by the CONTRACTOR, without compensation therefore, to at least as good condition as that in which they were found immediately before the work was begun.

3.14 ACCOMMODATION OF TRAFFIC:

- A. The CONTRACTOR shall construct and maintain, without extra compensation, such adequate and proper bridges over excavations as may be necessary or as directed for the safe accommodation of pedestrians and vehicles. The CONTRACTOR shall furnish and erect, without cost to the OWNER, substantial barricades at crossing of trenches, or along the trench, to protect the traveling public.
- B. The CONTRACTOR shall not obstruct fire hydrants.

END OF SECTION

## SECTION 02219 - BEDDING AND BACKFILL MATERIAL

### PART 1: GENERAL

#### 1.1 SCOPE:

- A. The CONTRACTOR shall furnish, place and compact various types of bedding material and trench sand as called for in the specifications or as directed.
- B. The types and quality of bedding and backfill material are specified in this section, but its use for pipe bedding, backfill, replacement of unsuitable material excavated below trench grade, and other uses are as specified elsewhere.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Excavation and Backfilling for Water Mains - Section 02217

### PART 2: PRODUCTS

#### 2.1 MATERIALS:

##### A. Bedding Material:

- 1. Screened or crushed gravel bedding material shall be hard durable particles free from organic matter, lumps of clay and other deleterious substances. The gradation shall meet the requirements of the following table and MDOT specifications Section 703.06 Type B aggregate

<u>Sieve Size Designation</u>	<u>% By Weight</u>
1/2 inch	35 - 75
1/4 inch	25 - 60
No. 40	0 - 25
No. 200	0 - 5.0

- 2. Select backfill as specified below may be used for bedding material.
- 3. Bedding material shall not contain particles of rock which have any dimensions greater than 4".

##### B. Select Backfill:

- 1. Suitable native material with all particles of rock which have any dimensions greater than 4" removed.
- 2. Sand backfill shall be hard, durable particles of granular material with 100% passing the 1/2" sieve and between 0-15% passing the #200 mesh. All percentages are by weight. Sand shall be graded so as to secure the required compaction.

##### C. Backfill:

- 1. Suitable native material that does not contain stone or rock particles with any dimensions greater than 8".
- 2. Bank Run gravel borrow consisting of uniformly graded granular material having no rocks with a maximum dimension greater than 8" and that portion passing a 3-inch square mesh sieve shall

contain no more than 70% passing 1/4 inch mesh sieve and not more than 10% passing a No. 200 mesh sieve.

PART 3: EXECUTION

3.1 METHODS:

- A. The materials will be used in accordance with the requirements of the various sections of the specifications, drawings and standard details.

END OF SECTION

## SECTION 02270 - SEDIMENTATION AND EROSION CONTROL

### PART 1: GENERAL

#### 1.1 SCOPE

- A. Furnish all labor, materials, equipment and incidentals necessary to perform all installation, maintenance, removal and area cleanup related to sediment and erosion control work as shown on the Drawings and as specified herein. The work shall include, but not necessarily be limited to installation of silt fences, sediment traps, sediment removal and disposal, device maintenance, removal of temporary devices, temporary mulching, erosion control blanket, and final cleanup

#### 1.2 RELATED WORK

- A. Loam and seeding is included in Section 02821.

#### 1.3 SUBMITTALS

- A. Within 10 days after award of Contract, submit to the ENGINEER for approval technical product literature for all commercial products to be used for sedimentation and erosion control.

#### 1.4 REFERENCE MANUAL

- A. Except as otherwise specified herein, the material and construction shall be in accordance with the Department of Transportation "Standard Specifications for Highways and Bridges of the State of Maine" and the "Maine Erosion and Sedimentation Control Handbook for Construction, Best Management Practices" (BMP Handbook).

#### 1.5 TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES

- A. Minimizing the exposed soil areas on the construction site is one of the most important and reliable methods of erosion control. The CONTRACTOR must phase the work so that areas of bare soil will be minimized. Exposed areas must be treated as described below and in the BMP Handbook.

Temporary erosion and sedimentation control measures will include silt fences, hay bale barriers, temporary seeding, temporary mulching and topsoil stockpiling. These measures are described in more detail below.

- B. Silt fence will be placed down slope of all construction areas which drain toward a stream, wetland or improved area.
- C. Hay bale barriers will be used as necessary until final restoration is complete. They may also be used as check dams in drainage areas. Hay bales will be staked end to end in an excavated trench four inches deep across the area of runoff.
- D. Temporary mulching will be placed on all disturbed areas within two days or prior to any storm event. Mulch anchoring will be used on areas where the slope is greater than 5% or when placed after September 15. Straw mulch shall be applied at a rate of 90 lbs. per 1000 sq. ft. All mulched areas will be inspected before and after storms. If less than 90% of the surface is covered by mulch, additional mulch shall be applied immediately. Mulching shall be installed and maintained as recommended in the BMP Handbook.
- E. Topsoil shall be stockpiled on site with silt fence installed down slope of the piles. These stockpiles shall be mulched in accordance with the temporary mulching requirements.

## 1.6 PERFORMANCE REQUIREMENTS

- A. The CONTRACTOR shall be responsible for the timely installation and maintenance of all sedimentation control devices necessary to prevent the movement of sediment from the construction site to off site areas or into streams and wetland areas via surface runoff or underground drainage systems. Measures in addition to those shown on the drawings necessary to prevent the movement of sediment off site, control erosion or stabilize disturbed areas shall be installed, maintained, removed and cleaned up at no additional cost to the OWNER.
- B. Sedimentation and erosion control measures shall conform to the requirements of the BMP Handbook.
- C. Where CONTRACTOR's effort to control erosion has been demonstrated to be ineffective or potentially ineffective in the opinion of the ENGINEER, the ENGINEER may order that the erosion control plan be amended and that additional erosion control measures be constructed at no additional cost to the OWNER.

## 1.7 SEQUENCE OF CONSTRUCTION

- A. All hay bale check dams and silt fencing shall be in place below or adjacent to construction areas before actual construction begins. These devices shall remain in place until a healthy grass cover is obtained and the site is stabilized. These temporary structures shall be inspected weekly throughout the construction phase. They shall be repaired or replaced when necessary. These devices shall be removed when the area they serve is completely stabilized.
- B. Permanent re-vegetation or seeding of all disturbed areas shall occur immediately upon completion of work or, if temporary stabilization measures were used, within 7 days from the time the area was last actively worked. Temporary stabilization measures are required within two days from the time the area was last actively worked or prior to storm events.

## PART 2: PRODUCTS

### 2.1 MATERIALS

- A. Silt Fence
  - 1. Steel or wood posts shall be a minimum of 5 feet in length.
  - 2. Silt fence fabric shall be a woven, polypropylene, ultraviolet resistant material such as Mirafi 100X as manufactured by Mirafi, Inc., Charlotte, N.C. or equal.
- A. Mulch material for all slopes equal to or greater than 20% shall be an erosion control blanket (ECB). The ECB shall consist of 70% long fiber hay or straw and 30% coconut fiber. The fibrous material shall be held in place by top and bottom netting sewn together. The fibrous material shall be reasonably free from noxious weeds or other undesirable material. The ECB shall be Type SC150 as manufactured by North American Green, or approved equal.
- B. For slopes less than 20% and level areas, mulch material shall consist of long fiber hay or straw reasonably free from noxious weeds or other undesirable material. No material shall be used which is so wet, decayed, or compacted as to inhibit even and uniform spreading. No chopped hay, grass clippings or other short fiber material shall be used unless directed. The hay or straw shall be treated with a mulch tackifier.
- C. Latex acrylic copolymer such as Soil Sealant with coalescing agent as manufactured by Soil Stabilization Co., Merced, California, or approved equivalent, shall be used as hay or straw mulch tackifier. Asphalt tackifiers are not allowed.

## PART 3: EXECUTION

### 3.1 INSTALLATION

#### A. Silt Fence Installation

1. Position silt fences as shown on the Drawings and as necessary to prevent off site movement of sediment produced by construction activities as directed by the ENGINEER.
2. Dig trench approximately 4 inches wide and 4 inches deep along proposed fence lines.
3. Drive stakes 8 feet on center (maximum) at back edge of trenches. Drive stakes 2 feet (minimum) into ground.
4. Attach filter fabric on stakes to bottom of trench with about 4 inches of fabric laid across bottom of trench. Stretch fabric fairly taut along fence length and secure.
5. Backfill trench with excavated material and tamp.
6. Install pre-fabricated silt fence according to manufacturer's instructions.

### 3.2 MAINTENANCE AND INSPECTIONS

#### A. Inspections

1. CONTRACTOR shall make a visual inspection of all sediment control devices daily and immediately before and after every rainstorm.
2. If such inspection reveals that additional measures are needed to prevent movement of sediment to off site areas or into streams or wetland areas, CONTRACTOR shall promptly install additional devices as needed. Sediment controls in need of maintenance shall be repaired promptly.

#### B. Device Maintenance

1. Silt Fences
  - a. Remove accumulated sediment once it builds up to one-half of the height of the fabric.
  - b. Replace damaged fabric or patch with a two foot minimum overlap.
  - c. Make other repairs as necessary to ensure that the fence is filtering all runoff directed to the fence.

### 3.3 EROSION CONTROL BLANKET

- A. Install erosion control blankets in accordance with manufacturer's instructions. Properly prepare, fertilize and seed the area to be covered with permanent vegetation before the blanket is applied. Apply the blankets in the direction of water flow and staple together in accordance with manufacturer's instructions. Side overlaps shall be 2-inch minimum. The staples shall be made of wire .091-inch in diameter or greater, "U" shaped with legs 10 inches in length and a 1- inch crown. The staples shall be driven vertically into the ground at a rate of one staple per square yard according to manufacturer's staple pattern guide.

- B. Bury upper and lower ends of the matting to a depth of 4 inches in a trench. Where the matting must be cut or more than one roll is required, turn down upper end of downstream roll into a slit trench to a depth of 4 inches. Overlap lower end of upstream roll 4 inches past edge of downstream roll and staple.
- C. To ensure full contact with soil surface, roll matting with a roller weighing 100 pounds per foot of width perpendicular to flow direction after seeding, placing matting, and stapling. Thoroughly inspect after completion. Correct any areas where matting does not present a smooth surface in full contact with the soil below.

#### 3.4 REMOVAL AND FINAL CLEANUP

- A. Once the site has been fully stabilized against erosion, remove sediment control devices and all accumulated silt. Dispose of silt and waste materials in proper manner. Re-grade all areas disturbed during this process and stabilize.

END OF SECTION

## **SECTION 02537 - DUCTILE IRON WATER PIPE & FITTINGS**

### PART 1: GENERAL

#### 1.1 SCOPE:

- A. This section includes the furnishing and installing of ductile iron water pipe and ductile iron or cast iron fittings as specified.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Excavation and Backfill for Water Mains - Section 02217
- B. Bedding and Backfill Material - Section 02219

#### 1.3 SUBMITTALS:

- A. Submit shop drawings for all material in accordance with the provisions of Section 01310.

### PART 2: PRODUCTS

#### 2.1 MATERIALS:

- A. See SEC02999 – Water Main Material Specifications

### PART 3: EXECUTION

#### 3.1 PIPE LAYING CONDITIONS:

- A. The interior of each pipe shall be inspected while being joined to see that the alignment is preserved and to assure that no dirt or debris has entered the pipe after laying and partial backfilling.
- B. Pipe fittings and accessories shall be carefully lowered into the trench, piece by piece, by means of derrick, crane, slings and other suitable tools and equipment, in a manner such as to prevent damage to the material or to its protective coating and linings. No chain or slings shall be passed through the inside bore of any pipe or valve or fitting. Under no circumstances shall piping materials be dropped or dumped into the trench.

#### 3.2 LAYING DUCTILE IRON PIPE:

- A. As soon as the excavation is completed and the existing trench bottom has been brought to the proper grade, the pipe shall be laid.
- B. All pipe, before being lowered into the trench, shall be inspected inside and out. Both ends shall be cleaned and any visible dirt or debris removed from inside the pipe. Care shall be taken to lay the pipe to true lines and grades as shown on the drawings.
- C. Coupling holes shall be excavated so that the barrel of the pipe shall bear upon the trench bottom.
- D. Blocking under the pipe will not be permitted.
- E. Each section shall rest upon the pipe bed for the full length of its barrel.

- F. The circular rubber gasket shall be inserted in the gasket seat provided. A thin film of gasket lubricant shall be applied to the inside surface of the gasket. Gasket lubricant shall be a solution of vegetable soap or other solution supplied by the pipe manufacturer.
- G. The spigot end of the pipe shall be cleaned and entered into the rubber gasket in the bell, using care to keep the joint from contacting the ground. The joint shall then be completed by forcing the plain end to the seat of the bell. Pipe which is not furnished with a depth mark shall be marked before assembly to assure that the spigot end is inserted to the full depth of the joint.
- H. Pipe shall be aligned with the preceding unit and laid so as to form a close joint with the adjoining pipe and bring the inverts continuously to the required line and grade.
- I. No length of pipe shall be laid until the previous length has had sufficient material tamped about it to firmly secure it in place so as to prevent any movement or disturbance.
- J. Under no circumstances shall pipe be laid in water, and no pipe shall be laid when trench conditions or weather are unsuitable for such work, except by permission of the ENGINEER.
- K. The pipe shall be laid with the bell ends facing the direction of the laying, unless otherwise permitted by the ENGINEER.
- L. Joints, when made, shall be done in the manner prescribed by the manufacturer of the pipe. In the case of rubber gasket joints, these joints shall be made up in accordance with the American National Standards for the jointing of cast iron pressure pipe and fittings. (ANSI/AWWA C111/A21.11).
- M. Thrust blocks shall be used behind tees, bends, or other fittings where shown. Size shall be appropriate for soil conditions and thrust forces acting on the specific fitting.

### 3.3 TRENCH BOTTOM:

- A. Should the trench bottom contain unsuitable material, as indicated in Section 02217, Article 3.2-b, the CONTRACTOR shall over-excavate and replace with bedding material as required and authorized by the ENGINEER. The quantity of unsuitable material will be measured from the bottom outside of the pipe.
- B. Should ledge be encountered, it shall be removed to a depth of 6" below the bottom of the pipe, and replaced with bedding material.

### 3.4 CUTTING PIPE:

- A. All ductile iron pipe shall be cut using abrasive wheel cutter, rotary wheel hand cutter (with carbide cutter) or a guillotine pipe saw. All cuts shall be square and even with no ragged rough ends.
- B. Field cut pipe lengths shall be beveled and filed to avoid damage to the gasket and facilitate making the joint.
- C. When the cut end of pipe is to be used as a joint, the outside of the cut end shall be tapered back about 1/8-inch at an angle of about 30 degrees with the center line of the pipe. This shall be done with a coarse file or a portable grinder.

### 3.5 TEMPORARY PLUGS:

- A. When pipelaying is not actually in progress, the openings of pipes shall be closed by temporary watertight plugs or other accepted means.

### 3.6 RETAINER GLANDS:

- A. Install retainer glands on all mechanical joints of fittings, valves and hydrants.

3.7 POLYETHYLENE ENCASEMENT:

- A. Tube type polyethylene encasement shall be installed on all ductile iron pipe and fittings in accordance with AWWA Standard C105 - latest revision, Method A. Circumferential wraps of tape or plastic tie straps shall be placed at 2-ft. intervals along the barrel of the pipe.
- B. The polyethylene encasement shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely airtight or watertight enclosure. All lumps of clay, mud, cinders, and so forth, on the pipe surface shall be removed prior to installation of the polyethylene encasement. During installation, care shall be exercised to prevent soil or embankment material from becoming trapped between the pipe and the polyethylene.
- C. The polyethylene film shall be fitted to the contour of the pipe to effect a snug, but not tight, encasement with minimum space between the polyethylene and the pipe. Sufficient slack shall be provided in contouring to prevent stretching the polyethylene where it bridges irregular surfaces, such as bell-spigot interfaces, bolted joints, or fittings, and to prevent damage to the polyethylene due to backfilling operations. Overlaps and ends shall be secured with adhesive tape, string, plastic tie straps, or any other material capable of holding the polyethylene encasement in place until backfilling operations are complete.

END OF SECTION

## SECTION 02594 - PRESSURE AND LEAKAGE TESTS OF DI WATER MAINS

### PART 1: GENERAL

#### 1.1 SCOPE:

- A. Furnish all labor, materials, equipment, gages and related items necessary to complete all pressure and leakage tests of all ductile iron (DI) water mains.

### PART 2: PRODUCTS

#### 2.1 MATERIALS:

- A. Materials shall be at CONTRACTOR's option.

### PART 3: EXECUTION

#### 3.1 PRESSURE AND LEAKAGE TESTS:

- A. After the pipe has been laid and backfilled, it shall be pressure tested and tested for leakage in the presence of the ENGINEER and/or the OWNER.
- B. All tests shall be conducted at a time and in a manner to minimize as much as possible any interference with the operation of the existing water system. The OWNER will supply all water necessary for testing and placing the lines in service. The CONTRACTOR shall supply all labor, materials and equipment necessary to make any necessary connections to the water system and to carry out the tests.
- C. The CONTRACTOR shall excavate and provide a corporation tap for pressure and leak testing as directed by the ENGINEER. The CONTRACTOR is responsible for all work associated with the excavation, including proper trench protection, barricades, traffic control and proper backfilling and compaction upon successful completion of the test.
- D. The pipe shall be slowly filled with water and all air expelled from the pipe. If permanent air vents are not located at all high points, CONTRACTOR shall install corporation stops at such high points to bleed off air as the line is filled with water.
- E. A pressure test pump will be connected to the new main at the testing point. The pressure will be slowly increased to 150 psi and allowed to stabilize (+/-2.5 psi) for a minimum of 15 minutes.
- F. A reservoir of potable water shall be connected to the test pump and the initial level of water recorded.
- G. The pump pressure shall be maintained at 150 psi for one hour with all make up water withdrawn from the reservoir.
- H. After one hour, the water level in the reservoir will be measured and the volume of water drawn from the reservoir calculated and compared with the following allowable leakage:

$$\text{Allowable Leakage (gph)} = \frac{\text{Pipe Length (feet)} \times \text{Nominal Diameter (inches)}}{10,876^*}$$

\*Correct only for 150 psi test pressure

- I. If any test discloses leakage greater than that specified above, the CONTRACTOR shall, at his own expense, locate and make repairs as necessary until the leakage is within the specified allowance.
- J. Final acceptance of the lines will not occur until satisfactory tests have been passed.

END OF SECTION

## SECTION 02595 - DISINFECTION OF WATER MAINS

### PART 1: GENERAL

#### 1.1 SCOPE

- A. Furnish all labor, materials, equipment, and incidentals necessary to disinfect the distribution system.
- B. Do not disinfect water mains until all testing required by Section 02593 and/or Section 02594 has been satisfactorily completed.

### PART 2: PRODUCTS

#### 2.1 MATERIALS:

- A. The CONTRACTOR shall chlorinate the new main in accordance with the continuous feed method specified in Section 5.2 of AWWA Standard C651-latest revision, using 5% to 15% sodium hypochlorite solution.
- B. The CONTRACTOR may use calcium hypochlorite granules or tablets placed in the new mains during installation in accordance with Section 5.1 of AWWA Standard C651-latest revision, as a supplement to the continuous feed method.

### PART 3: EXECUTION

#### 3.1 DISINFECTION:

- A. Upon satisfactory completion of the pressure and leak test, all new water mains shall be disinfected before they are placed into service in accordance with Section 5.2 of AWWA Standard C651-latest revision and the procedures specified herein.

#### 3.2 FLUSHING:

- A. Section of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. If no hydrant is installed at the end of the main, then a suitably sized tap should be provided.
- B. All taps required by the CONTRACTOR for chlorination or flushing purposes, or for temporary release of air, shall be provided by him as part of the construction of the water main.
- C. Flushing shall proceed for 4 hours at a flow velocity of 2.5 feet per second.

#### 3.3 REQUIREMENTS OF CHLORINE:

- A. Before being placed into service, the main shall be chlorinated so that a chlorine residual of not less than 10 parts per million remains in the water after standing 24 hours in the pipe. Chlorine residual at start of test shall be at least 50 parts per million.

#### 3.4 POINT OF APPLICATION:

- A. The preferred point of application of the chlorinating agent is at the beginning of the pipeline or any valved section of it and through a corporation stop inserted in the pipe. The water injector for delivering the chlorine solution water into the pipe should be supplied from a tap made on the pressure side of the gate valve controlling the flow into the pipeline extension. Alternate points of application may be used when accepted or directed by the ENGINEER.

3.5 RATE OF APPLICATION:

- A. Water from the distribution system, or other source of supply as accepted by the ENGINEER, shall be controlled to flow very slowly into the newly laid pipeline during application of the chlorine. The rate of chlorine mixture flow shall be in such proportion to the rate of water entering the newly laid pipe that the dosage applied to the water will be sufficient to achieve at least 50 parts per million unless otherwise directed by the ENGINEER.

3.6 PREVENTING REVERSE FLOW:

- A. Valves shall be operated by the OWNER so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. Check valves may be used, if desired.

3.7 RETENTION PERIOD:

- A. Treated water shall be retained in the pipe at least 24 hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least 10 parts per million.

3.8 CHLORINATING VALVES AND HYDRANTS:

- A. In the process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipeline is filled with the chlorinating agent and under normal operating pressure.

3.9 FINAL FLUSHING AND TESTING:

- A. Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its length shows, upon tests, that the residual chlorine is not in excess of that to be carried in the system.
- B. After flushing, water samples collected from the treated piping system as directed by the ENGINEER, shall show satisfactory bacteriological results. Bacteriological analyses shall be performed by the OWNER.
- C. Chlorine residual of water being flushed from the newly laid pipe following chlorination must be neutralized by treating with one of the chemicals listed in the table below.

AMOUNTS OF CHEMICALS REQUIRED TO NEUTRALIZE VARIOUS RESIDUAL CHLORINE CONCENTRATIONS IN 100,000 GALLONS OF WATER\*

Residual Chlorine Concentration (mg/L)	Sulphur Dioxide	Sodium Bisulfate	Sodium Sulfite	Sodium Thiosulfate
1	0.8	1.2	1.4	1.2
2	1.7	2.5	2.9	2.4
10	8.3	12.5	14.6	12.0
50	41.7	62.6	73.0	60.0

\*Except for residual chlorine concentration, all amounts are in pounds.

3.10 REPETITION OF FLUSHING AND RESULTS:

- A. Should the initial disinfection process result in an unsatisfactory bacterial test, the original chlorination procedure shall be repeated by the CONTRACTOR until satisfactory results are obtained.

END OF SECTION

## SECTION 02999 – WATER MAIN MATERIALS SPECIFICATIONS

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**NOTE:**

All installations shall follow manufacturer's recommended procedures unless otherwise noted or directed by PWD personnel.

All materials, products and coating that contact drinking water shall be certified to meet NSF/ANSI Standard 61 – latest revision, Drinking Water System Components – Health Effects.

## BOLTS AND NUTS

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### GENERAL SPECIFICATIONS

General Description of Properties Required:

Stainless Steel: Type 304 – contains the addition of Molybdenum to the nickel-chromium steels.

High Strength/Low Alloy Steel: Trade name for cold formed T-head bolts containing alloying elements such as copper, nickel, and chrome (Cor-Ten).

## CAST IRON OR DUCTILE IRON SPLIT REPAIR SLEEVE

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### GENERAL SPECIFICATIONS

Split repair sleeve shall be mechanical joint.

The side rubber gaskets shall be rectangular to cross-section and shall fit into grooved channels in the casting. These gaskets shall extend the entire length of the sleeve.

Split repair sleeve shall be AB-CD pattern to permit use of plain rubber and duck-tipped gaskets for various O.D. piping sizes.

Mechanical joint with accessories furnished; glands, gaskets and Cor-Ten T-bolts and nuts or equal.

All side bolts shall be Stainless Steel (Type 304) or silicone bronze.

Interior and exterior to be bituminous coated with a minimum of 4 mils D.F.T.

The sleeve shall be provided with a 2" F.I.P.T. test port with brass plug.

### APPROVED MANUFACTURERS

All Manufacturers

## CORPORATION STOPS

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### GENERAL SPECIFICATIONS

Conforming to AWWA C-800.

$\frac{3}{4}$ " to 2" curb stops shall be ball valve design with brass ball that is teflon coated or brass ball with teflon seats.

The ball shall be supported by seats which are water tight in either direction.

The valve shall have a full port opening.

The body of the corporation stop shall be of heavy duty design.

The valve working pressure shall be 300 p.s.i.

### APPROVED MANUFACTURERS

A.Y. McDonald  
Cambridge Brass  
Ford Meter Box Co.  
Mueller Co.

## CURB STOPS

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### GENERAL SPECIFICATIONS

Conforming to AWWA C-800

$\frac{3}{4}$ " to 2" curb stops shall be ball valve design with brass ball that is teflon coated or brass ball with teflon seats.

The ball shall be supported by seats which are water tight in either direction.

The valve shall have a full-port opening.

The valve shall open with  $\frac{1}{4}$  turn (90°) with a check or stop.

The valve shall not have a drain.

The valve stem shall have 2 "O" rings and a bronze ring lock which holds the stem solidly in the valve body.

The valve body shall be of heavy duty design.

The valve working pressure shall be 300 p.s.i.

### APPROVED MANUFACTURERS

A.Y. McDonald  
Cambridge Brass  
Ford Meter Box Co.  
Mueller Co.

## CUT-IN SLEEVE

---

### GENERAL SPECIFICATIONS

The sleeve shall be mechanical joint to plain-end type.

The sleeve shall fit over either AB or CD pattern pipe.

#### Coatings:

Interior – Seal-coated – AWWA C104-74, min. 4 mils D.F.T.

Exterior – Bituminous coated, min. 4 mils D.F.T.

Mechanical joint accessories shall be furnished:

Glands: Duck-tipped for AB pipe, Plain Gaskets for CD pipe

Cor-Ten tee bolts and nuts

Cut-in sleeves shall have at least one stop-screw in sizes up through 10" and at least 2 stop-screws in 12" size.

The stop-screw "O" ring shall be recessed into the body of the sleeve between stop-screw and body.

### APPROVED MANUFACTURERS

Mueller Co.

## DUCTILE IRON FITTINGS

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INCLUDING BENDS, REDUCERS, OFF-SETS, TEES AND SLEEVES

### GENERAL SPECIFICATIONS

Material shall be ASTM A536 latest, grade 70-50-05, in accordance with AWWA C110 (latest revision) for fittings larger than 24" and C153 (latest revision) for fittings 3" thru 24".

Fittings shall be cement lined AWWA C104 (latest revision) or fusion bonded epoxy coated with a 5 mil nominal thickness per AWWA C550 and C116.

Interior seal coated AWWA C104 with minimum of 4 mils dry film thickness.

Exterior bituminous coated, 4 mils minimum dry film thickness or fusion bonded epoxy coated with a 5 mil nominal thickness per AWWA C550 and C116.

Sleeves shall not be cement lined, but shall be bituminous coated inside to 4 mils dry film thickness. All sleeves shall be long body type.

Mechanical joint with accessories furnished: D.I. glands, gaskets, Cor-Ten T-bolts and nuts.

Pressure Ratings:

- a) Class 350 pressure rating in accordance with AWWA C153 - 3"-24" sizes.
- b) Class 250 pressure rating in accordance with AWWA C110 - 30"-48" sizes.

The "compact design" fittings must provide adequate space for the MJ joint and accessories to be installed without special tools (i.e. Lowell wrench can be used).

### APPROVED MANUFACTURERS

All Manufacturers

## DUCTILE IRON PIPE

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### GENERAL SPECIFICATIONS

Ductile iron pipe shall meet requirements of AWWA Standard C-151 (latest revision) and be cement lined and seal coated to meet AWWA Standard C-104 (latest revision).

Joints shall meet requirements of AWWA C-111 (latest revision).

Interior seal coated, bituminous paint oil cut, emulsion not acceptable, thickness minimum of 2 mils dry film thickness.

Exterior bituminous coated with minimum of 2 mils dry film thickness.

Class 52 wall thickness, 4-inch diameter through 12-inch diameter inclusive.

Ductile Iron Pipe with diameters 16-inches and larger shall be approved by PWD.

State nominal laying length and mark shorter lengths near bell.

Mechanical joint pipe to be furnished with gland, gaskets and Cor-Ten bolts and nuts.

### APPROVED MANUFACTURERS

American Cast Iron Pipe  
Griffin Pipe  
U.S. Pipe  
Clow Pipe  
McWain Pipe  
Atlantic States Pipe

# FIRE HYDRANT

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## GENERAL SPECIFICATIONS

The hydrant shall open right.

The operating nut shall:

be D.I. or bronze

be pentagon in shape with dimensions: Top 1-13/16" tapering to 1-7/8" on bottom.

Nozzles shall be:

2 each – 2-1/2" National Standard Thread

1 each – 4-1/2" National Standard Thread

Port covers shall be supplied without chains and shall have the same size pentagon operator as specified in 3.0(b) above.

Traffic model hydrant with breakaway feature

Barrel length(s) shall be:

6 ft. cover, 6-1/2 ft. bury; or

b) 5-1/2 ft. cover, 6 ft. bury, or

c) 5 ft. cover, 5'-6" bury

Hydrant shoe or base shall have the following:

6" MJ inlet;

5-1/4" valve opening with non-draining bronze seat that is permanently plugged;

valve seat and sub-seat arrangement shall be bronze to bronze;

Horizontal and vertical blocking planes manufactured into hydrant base

Bolts:

all buried mechanical joint bolts and nuts (T-head, etc.) shall be Cor-Ten or equal;

all buried flange joint bolts shall be stainless steel (Type 304) or silicone bronze.

Protective Coatings shall consist of the following:

all paintings and coatings shall be a minimum of 3 mils total dry film thickness, unless noted

the internal area of the hydrant base, which is normally exposed to water and which includes the internal body of hydrant shoes, including lower valve plate, shall be epoxy coated

all internal and external cast iron or ductile iron components shall be coated with an approved bituminous coating, 3 mils minimum

Coatings for upper barrel - exterior:

Surface preparation blast clean SSPC-SP-6

Primer Sherwin Williams Red Oxide E61RC21, 1.5 mils, dry

Finish coat Sherwin Williams – Regal Yellow, F78Y30, 1.5 mils, dry or sufficient paint to hide the second coat

Total dry film thickness - 3 mils minimum.

Coatings for bonnet, operating nut, port cap:

1. Surface preparation: Blast clean, SSPC-SP-6

2. Exterior primer

3. Exterior aluminum

4. Total dry film thickness: 3 mils minimum.

Flow Indicator Collars: PWD personnel shall install flow indicator collars on all new hydrants.

## FIELD TEST OF INSTALLED HYDRANT

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Hydrant flow shall completely stop with no more than 200 ft. lb. of torque applied to the operating nut.

Failure to shut completely at no more than 200 ft. lb. of torque will be cause for rejection of that hydrant.

### APPROVED HYDRANTS

Clow Eddy – with lower stem machined from bar stock

American Darling Models: B62B-1, B62B-5

## PIPE JOINT RESTRAINER

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### GENERAL SPECIFICATIONS

Pipe Restraints:

Use in conjunction with mechanical joint fittings.

The joint restraint ring and its wedging components shall be made of ductile iron conforming to ASTM A536-80.

Dimensions of the restrainer must allow use with standard M.J. bell conforming to AWWA C111 and AWWA C153.

Restrainer must restrain up to 350 psi of working pressure in 3" to 16" sizes and 250 psi of working pressure in 18" to 48" sizes with a 2:1 safety factor.

Torque limiting twist off nuts shall be used to ensure proper actuation of the restraining wedges (used on a, b, and c below).

### APPROVED MANUFACTURERS

Sigma Super Lug  
Ford Uni-Flange Series 1400  
Ebba Mega Lug  
Romac Grip Ring  
Star Grip Series 300  
Romac Romagrip  
MJ FIELD LOK Gasket

## POLYETHYLENE ENCASEMENT

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### GENERAL SPECIFICATIONS

Tube type polyethylene encasement shall be installed on all ductile iron pipe and fittings in accordance with AWWA Standard C105 - latest revision, Method A.

Polyethylene encasement shall be either linear low-density polyethylene (LLDPE) film with a minimum thickness of 8-mil or high-density, cross-laminated polyethylene (HDCLPE) film with a minimum thickness of 4-mil.

Circumferential wraps of tape or plastic tie straps shall be placed at 2-ft. intervals along the barrel of the pipe.

The polyethylene encasement shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely airtight or watertight enclosure. All lumps of clay, mud, cinders, and so forth, on the pipe surface shall be removed prior to installation of the polyethylene encasement. During installation, care shall be exercised to prevent soil or embankment material from becoming trapped between the pipe and the polyethylene.

The polyethylene film shall be fitted to the contour of the pipe to effect a snug, but not tight, encasement with minimum space between the polyethylene and the pipe. Sufficient slack shall be provided in contouring to prevent stretching the polyethylene where it bridges irregular surfaces, such as bell-spigot interfaces, bolted joints, or fittings, and to prevent damage to the polyethylene due to backfilling operations. Overlaps and ends shall be secured with adhesive tape, string, plastic tie straps, or any other material capable of holding the polyethylene encasement in place until backfilling operations are complete.

Three layers of polyethylene adhesive tape shall be wrapped around any polywrapped pipe where a tapping machine will be placed. All copper services connected to a pipe wrapped in polyethylene encasement shall be wrapped within three feet of the pipe.

# PVC WATER PIPE

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## GENERAL SPECIFICATIONS

For all water main installations that are less than 4" I.D. (4" and larger use ductile iron), the District will require use of 2" I.D. PVC plastic water pipe meeting the following: Under special site conditions the District does require the use of C-900 PVC in sizes larger than 4".

### Pipe Specifications (2"):

#### Diameter:

The I.D. shall be a minimum of 2"

The O.D. shall be a maximum of 2.38"

The minimum wall thickness shall be 0.113"

#### Pressure Rating

The minimum working pressure rating shall be 200 PSI (SDR-21).

The pipe shall conform to standard ASTM 2241.

#### Pipe Length

The pipe shall be provided in 20' lengths.

\* Shorter lengths may be allowed and/or field cut following manufacturer's recommended procedures.

#### Gaskets

The gasket or O-Ring material shall be rubber meeting ASTM F 477 and of the "permanent use" type.

#### Fittings:

Standard AWWA C900 fittings are not available in the 2" I.D. and therefore "steel pipe" class fittings, or Certa-Lok Yelomine couplings and fittings meeting ASTM D 3139 shall be used.

The normal nomenclature for "steel fittings" is Schedule 40 or Schedule 80, with the respective pressure ratings of 280 PSI and 400 PSI. Both of these fitting classes are acceptable for use.

#### Service Connections:

All service connections shall be made with tapping saddles\* per Portland Water District specifications or by use of tees meeting the above noted fitting specifications.

#### Installation:

Follow manufacturer's instructions.

An eight gauge bare copper wire shall be fastened to the buried PVC pipe to facilitate electronic pipe locating. The wire shall be fastened at two locations per length and not at any joint.

The District requires 200 PSI (SDR-14) PVC pipe for other sizes such as 4", 6", 8", and 12". Pipe shall conform to AWWA C-900.

## APPROVED MANUFACTURER / TYPE

J-M Manufacturing - Blue Brute

Certainteed - Yelomine

Victaulic - Aquamine  
IPEX – Blue Brute

# RESILIENT SEATED GATE VALVE

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## GENERAL SPECIFICATIONS

Valve shall meet the latest revision of the AWWA C-509 Standard.

Valve shall have a smooth unobstructed water way which shall be a minimum diameter of the valve.

Valve ends to be specified and shall be furnished with Cor-ten (or equal) bolts and nuts.

Valve shall be rated for zero leak rate at 200 psi differential working pressure and have a 400 psi hydrostatic test for structural integrity.

Sealing - Valve shall have a minimum of 2 "O" rings situated such that the "O" rings above the thrust collar can be replaced with the valve under pressure and in the open position.

Stem - Valve stem shall:

- a) open right with a stem nut made of grade D,E manganese bronze;
- b) be non-rising;
- c) be designed with a thrust collar integrally cast to the stem;
- d) be designed with two (2) thrust washers, placed one above and one below the stem thrust collar;
- e) be constructed of grade D,E manganese bronze;
- f) be such that the thrust washers are made of a synthetic polymer with physical properties required.

Valve Body - The body, including the stuffing box and the bonnet, shall be constructed of cast iron or ductile iron, meeting the latest revision of AWWA C-153.

Valve Wedge:

shall be constructed of ductile iron (less guiding mechanism);  
shall be fully encapsulated and permanently bonded with a resilient elastomer;  
shall be constructed such to allow the flushing of any interior exposed surface during operations.

Coatings:

- a) the internal and external valve body, including the stuffing box, bonnet, and interior of the wedge shall be fusion bonded epoxy coated with 8 mils D.F.T.
- b) interior shall meet latest version of AWWA C-550.
- c) shall be holiday free, interior and exterior, per testing method described in AWWA C-550, Sec. 5.1.

Operating Nut:

- a) shall be two (2) inch square ductile iron:  
with a countersunk hold down nut (made of 316 stainless steel or silicone bronze). This applies to stems that are tapered; or  
with a stainless steel pin inserted thru the stem. This applies to stems of full diameter.

Bolts – The seal plate and bonnet bolts shall be stainless steel (Type 316 or Type 304).

Valves 12" nominal diameter and smaller shall be directly operated by the nut on the valve stem and mounted vertically. Number of turns to open or close shall closely match the formula:  $(3 \times D) + 2$ . For example, a 12" valve should open or close with approximately  $(3 \times 12) + 2 = 38$  turns of the operating nut.

Valves larger than 12" nominal diameter shall be designed to be installed horizontally and shall have bevel gear operators driven by the operating nut. Valves 14" – 24" nominal diameter shall have 4:1 bevel gear operators. Valves with 30" – 36" nominal diameters shall have 6:1 bevel gear operators and valves with 42"

– 48” nominal diameters shall have 8:1 bevel gear operators. Number of turns to open or close shall closely match the formula:  $((3 \times D) + 2)$  times the bevel gear ratio. For example, a 24” valve should open or close with approximately  $((3 \times 24) + 2) \times 4 = 296$  turns of the operating nut.

#### GENERAL PROVISIONS

Vendor shall identify any and all exceptions to the specifications.

Vendor shall provide standard brochures for item quoted.

Vendor may be required to supply a valve for inspection and determination of coating process.

#### APPROVED RESILIENT SEATED GATE VALVES

U.S.P.  
AFC Series 2500  
Mueller A-2360/61  
Clow Series F6100

## RESTRAINED JOINT GASKETS

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### GENERAL SPECIFICATIONS

All accepted restrained joint gaskets in the Portland Water District distribution system shall be rated in accordance with the performance requirements of ANSI/AWWA C111/A21.11.

#### Required Applications

Any hydrant branch or service with a distance greater than 18' shall have an approved restrained joint gasket in the bell ends.

Where a casing is required, all joints within the casing shall have an approved restrained joint gasket unless restrained joint pipe is used.

At any time as required by a PWD Engineer.

Any live service tap where there is a joint between the connection and the end of the service.

### APPROVED MANUFACTURERS

American Fast-Grip Gasket – American Pipe  
Field Lok 350 Gasket – US Pipe

## SERVICE BOX AND ROD

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### GENERAL SPECIFICATIONS

#### Reference Standard Details

Service Box - Approved Manufacturers: Laroche, Clow Canada, Bibby

Shall be 1.0" Schedule 40 steel pipe with top having 1.0" N.P.T. pipe threads for screw-on cover or coupling.

Shall be Erie style with 6' slide-type riser.

Any extension of a service box requires a threaded merchant coupling with no set screw.

Service Box Cover – Approved Manufacturers: Bibby, Laroche, Clow Canada, QWP

Shall be Quincy type (heavy duty) cover that screws on Service Box (1.1 above).

Shall be tapped with a 1" rope thread with a solid brass plug with pentagon operating head.

Service Box Foot Piece – Approved Manufacturer: Laroche

The standard foot piece shall be heavy duty (Ford style or equal) cast iron design.

The large, heavy-duty foot piece shall have an arch that will fit over 2" ball-valve curb stops.

Service Rod – Approved Manufacturer: North American Manufacture

Shall have a self aligning design.

36" length for all services.

24" length for air valves.

Shall be round and constructed of stainless steel (304) with an epoxy coating (minimum 4 mil D.F.T.).

Shall have a yoke design that is an integral part of the rod.

The curb-stop attachment pin shall be a brass cotter pin.

The rod "wrench-flat" shall have a minimum thickness of 1/4" tapered to 1/16" and width of 5/8" or 1/2".

#### Diameter

- a) 1/2", 3/4" and 1" services use 1/2" diameter.
- b) 1 1/2" and 2" services use 5/8" diameter.

## SERVICE SADDLES

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### GENERAL SPECIFICATIONS FOR DUCTILE IRON PIPE

The service saddle shall have the "larger sized" body, the same as associated with the "service repair" saddle, which shall have a minimum diameter of 6 in. and multiple "O" ring type sealing.

The saddle body shall be constructed of epoxy coated ductile iron.

The sealing gasket(s) shall be either Buna-N rubber or SBR rubber (ASTM D2000).

Service saddles shall be installed with all 1 1/2" and 2" corporation stops (cc only).

#### Approved Manufacturers

Size	Tap	Saddle
2" – 2-1/4"	3/4", 1" cc	Smith-Blair 315, Ford FC 202
4" - 12" D.I.	3/4"- 1 1/2" cc	Smith Blair 331
4" - 12" D.I.	2" cc	Smith-Blair 313
16"	3/4"-2" cc	Smith-Blair 313
20" – 36"	3/4"-2"cc	Smith-Blair 366

### GENERAL SPECIFICATIONS FOR PVC PIPE

1.0 Stainless steel straps will be used on saddles on C-900 PVC Pipe

#### Approved Manufacturers

Size	Tap	Saddle
2" – 2-1/4"	3/4", 1" cc	Smith-Blair 315, Ford FC 202
4"-12"		Smith-Blair 265

### GENERAL SPECIFICATIONS FOR HDPE PIPE

1.0 Spring washers are required for service saddles on HDPE Pipe.

#### Approved Manufacturer

Size	Tap	Saddle
4"-12"		Smith-Blair 265

## STAINLESS STEEL REPAIR CLAMPS

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### GENERAL SPECIFICATIONS

The sleeve shall be of full circle design, either one piece or two piece, for pipe sizes 2" thru 12".

Body: Shall be 18-8 stainless steel shell.

Gasket:

Shall be full length and diameter of the body size;

This gasket shall form a multiple O-ring, or grid, sealing barrier for the entire length and circumference;

Shall be virgin SBR rubber (ASTM D2000 AA 415).

Lugs, sidebar, and lifting bar shall be heavy gauge 18-8 stainless steel with TIG/MIG welding and chemical passivation of all welds.

Bolts and Nuts shall be Teflon coated 18-8 heavy gauge stainless steel.

Armor: The armor, or bridging plate between the side bars shall be heavy gauge 18-8 stainless steel bonded to the gasket to bridge the lug area.

### APPROVED MANUFACTURERS

All Manufacturers

# TAPPING SLEEVES

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## GENERAL SPECIFICATIONS

For sizes 12" and smaller tapping sleeve shall be ductile iron or approved fabricated steel:

Tapping sleeve shall be mechanical joint with recessed outlet flange for tapping valve.

Tapping sleeve shall conform to AWWA C-207, Class D, with rated maximum working pressure of 200 psi.

The side rubber gaskets shall be rectangular in cross-section and fit into grooved channels in the casting. These gaskets shall extend the entire length of the sleeve and shall not require cutting or trimming to match MJ end gaskets.

Tapping sleeve shall be AB-CD pattern to permit use of plain rubber and duck-tipped gaskets for various O.D. piping sizes.

Mechanical joint with accessories furnished; glands, gaskets, and Cor-Ten T-bolts and nuts or equal.

All flange outlet bolts shall be stainless steel (Type 304).

Interior and exterior to be bituminous coated with a minimum of 4 mils dry film thickness or fusion bonded epoxy coated.

The sleeve shall be provided with a 3/4" F.I.P.T. test port and brass lug.

2.0 For sizes 16" and larger tapping sleeve shall be fabricated steel:

2.1 Body and Flange - A-36

2.2 Coating - Fusion-bonded epoxy coating with minimum D.F.T. of 5 mils, inside and out.

2.3 Bolts, Nuts - Stainless Steel (Type 304).

2.4 Gaskets - SBR.

2.5 Flange - AWWA Class D plate flange with ANSI 150# drilling, proper recessing for tapping valves.

2.6 Sleeves shall be provided with 3/4" F.I.P.T. test port and plug.

## APPROVED MANUFACTURERS (4"-12")

AFC  
Mueller Co.  
U.S. Pipe  
Tyler / Union  
Powerseal Model 3490 and 3490MJ (Fabricated Steel)

## APPROVED MANUFACTURERS (16" and larger)

Romac FTS 420

Ford FTSC  
Smith Blair 622  
JCM 412  
Powerseal Model 3490 and 3490 MJ (up to 24")  
JCM 415 or approved equal (for RCCP pipe only)

## VALVE BOXES

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### GENERAL SPECIFICATIONS

#### Reference Standard Details

The valve box bottom section shall be slide-type with bell-type base with bottom lip.  
Manufacturer: North American Manufacture

The valve box top section shall be slide-type, 36 inches long (minimum). No top flange and no "bead" or bottom flange.  
Manufacturer: North American Manufacture

The valve box cover shall be a 2" drop-type cover to fit the 7-1/4" opening of the top section.  
Manufacturer: Bibby St-Croix (no substitute)

The valve box intermediate (mid) section shall be slide-type with a minimum 3" belled bottom. Base section No. 645 may be used as an alternate.  
Manufacturer: North American Manufacture

Material shall be cast iron or ductile iron free from defects.

Interior and exterior of all components shall be bituminous coated with a minimum of 4 mils dry film thickness.